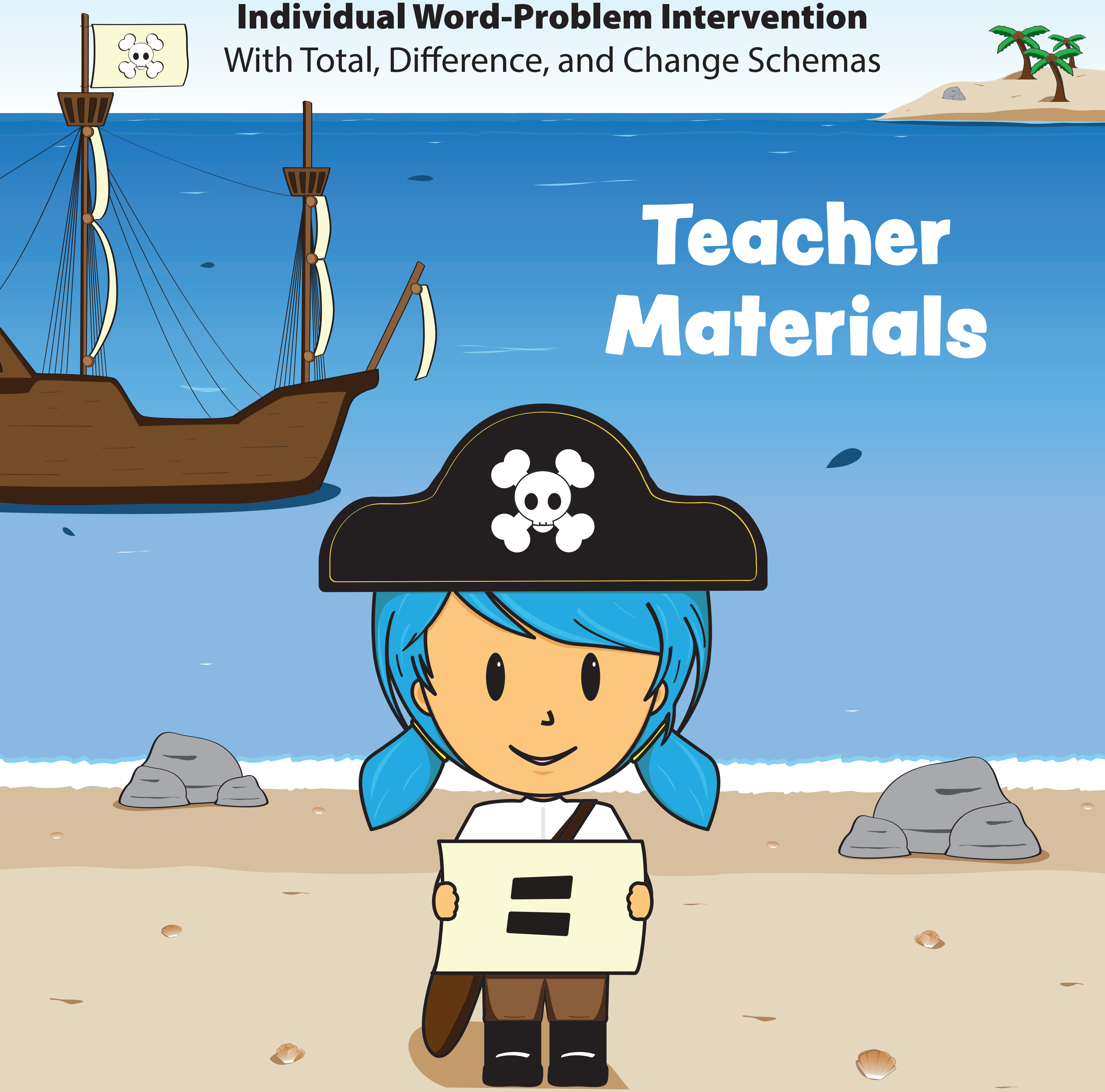
Pirate Math Equation Quest

Individual Word-Problem Intervention
With Total, Difference, and Change Schemas

Teacher Materials



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The University of Texas at Austin

The Meadows Center
FOR PREVENTING EDUCATIONAL RISK

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TEACHER MATERIALS

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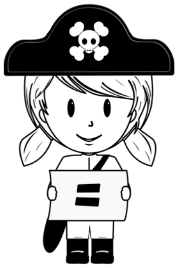


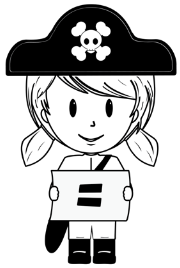
Introduction

Welcome to *Pirate Math Equation Quest*!

We designed this version of *Pirate Math Equation Quest* as an individual intervention for use with students at the third-grade instructional level. This version of the program was developed to offer support to Tier-2 and Tier-3 students who require supplemental mathematics remediation in the area of word-problem solving. The focus of the *Pirate Math Equation Quest* individual intervention is single-digit and double-digit additive word problems that include three schemas: Total, Difference, and Change.

This manual includes the Teacher Lesson Guides, Teacher Activity Guides, and accompanying Supplemental Materials (i.e., posters, maps, cards, graphs, and mats) necessary to implement *Pirate Math Equation Quest* with individual students. A separate Student Manual includes the student materials, organized by lesson, needed to implement *Pirate Math Equation Quest*.

Scientific evaluations of *Pirate Math Equation Quest* indicated that at-risk third-grade students (with and without mathematics disabilities) who performed in the lowest 13th percentile of their classes demonstrated improved word-problem performance with *Pirate Math Equation Quest* compared to students who did not participate in *Pirate Math Equation Quest* (Powell, Berry, & Barnes, 2019).



In This Manual

This Teacher Manual includes the following:

Introduction

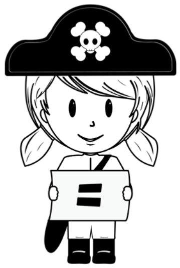
- Basic information about implementing *Pirate Math Equation Quest*
- Schedule for implementation
- Explanation of Teacher Materials
- Explanation of Student Materials
- Explanation of Supplemental Materials
- Explanation of Other Materials

Lesson Guides 1-51

- Teacher Lesson Guides (*Note: There are no Lesson Guides for Lessons 26-33 and Lessons 44-51. Teachers can refer to the Activity Guides as these lessons are review.*)

Activity Guides

- Guides to core lesson components (teachers are referred to Activity Guides in the Lesson Guides)



Implementation

The *Pirate Math Equation Quest* individual intervention is implemented **three times** per week for **16 school weeks**. Each lesson lasts **30-35 minutes**.

During each lesson, the teacher explicitly teaches a lesson to the student. Each lesson includes five components: (1) Math Fact Flashcards, (2) Equation Quest, (3) Buccaneer Problems, (4) Shipshape Sorting, and (5) Jolly Roger Review. First, the student completes two trials of Math Fact Flashcards by answering as many addition and subtraction flashcards as he/she can in 1 minute. After 2 trials, the student graphs the higher score. Second, the student receives instruction on solving equations and the meaning of the equal sign in Equation Quest. Third, the student receives schema instruction to solve three word problems during Buccaneer Problems. Fourth, the student participates in Shipshape Sorting and practices identifying word-problem schemas learned during the Buccaneer Problems during a 1-minute timing. Fifth, the student works individually to solve addition and subtraction problems and a word problem using the schema steps.

Daily Activities

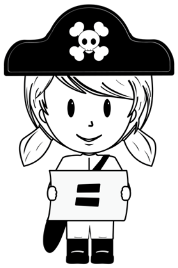
(1) Math Fact Flashcards (2-3 minutes)
- Student completes two trials of Math Fact Flashcards, each for 1 minute
- Teacher and student count cards after each timing
- Teacher monitors and provides feedback as needed, using the Counting Up strategy to assist
- After 2 trials, student graphs the higher score

(2) Equation Quest (5 minutes)
- Student receives instruction on solving equations and the meaning of the equal sign

(3) Buccaneer Problems (15-18 minutes)
- Student receives schema instruction to solve three word problems (Total, Difference, Change)
- Teacher monitors and provides feedback as needed

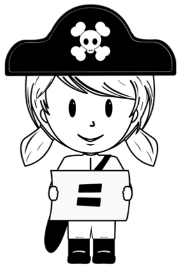
(4) Shipshape Sorting (2-3 minutes)
- Student practices identifying word-problem schemas during a 1-minute timing
- Teacher monitors and provides feedback as needed

(5) Jolly Roger Review (5 minutes)
- Student independently completes addition and subtraction problems during a 1-minute timing (top of Jolly Roger Review worksheet)
- Student independently solves a word problem using the schema steps during a 2-minute timing (botttom of Jolly Roger Review worksheet)
- Teacher provides feedback at the end of the 3 minutes
- Student colors number of earned coins/stamps during lesson on a Treasure Map



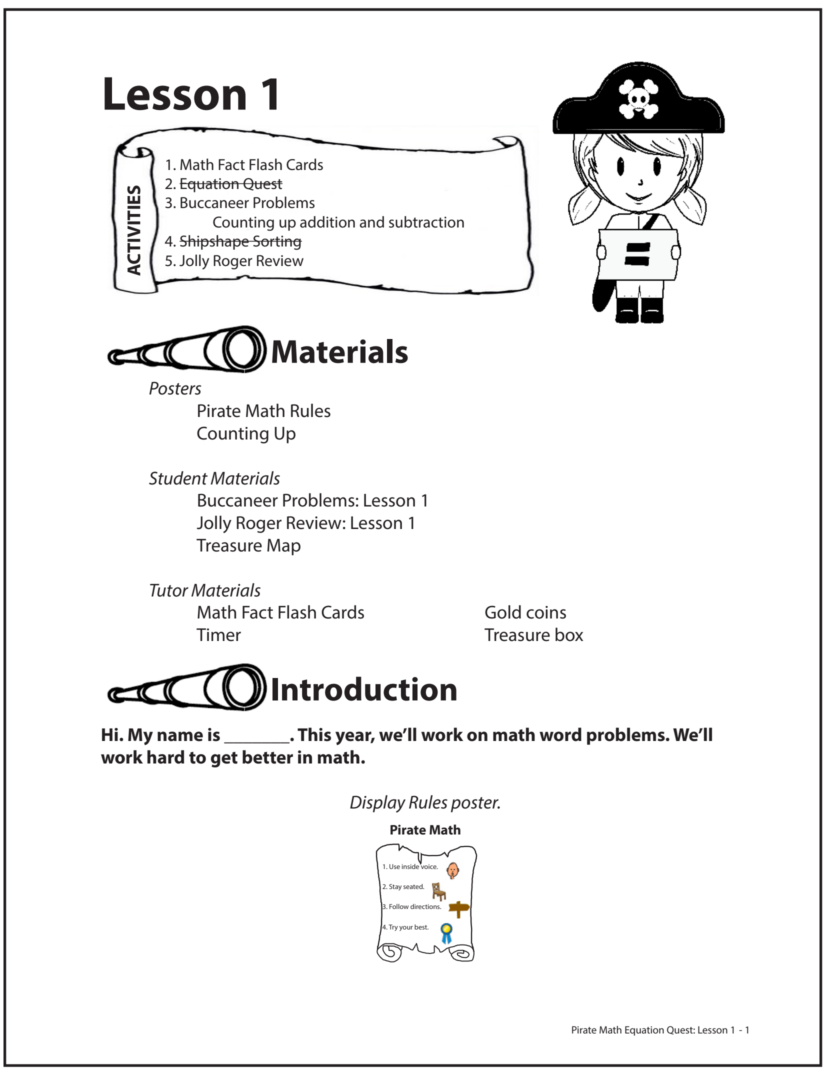
Schedule

LESSON	TEACHER LESSON
1	Counting Up Addition and Subtraction
2	Double-digit addition
3	Double-digit subtraction
4	Numbering charts and graphs
5	Introduce Total problems (T as X)
6	Total problems (T as X), irrelevant information
7	Total problems (P1 and P2 as X)
8	Computation: Addition without regrouping
9	Computation: Addition with regrouping
10	Computation: Subtraction with regrouping
11	Total problems (P1 and P2 as X)
12	Total problems (P1, P2, and T as X)
13	Total problems (P1, P2, and T as X)
14	Total problems with three parts
15	Total problems with two and three parts
16	Computation: Regrouping
17	Introduce Difference problems (D as X)
18	Difference problems (D as X), Compare sentences
19	Total and Difference problems
20	Total and Difference problems
21	Difference problems (D and L as X)
22	Total and Difference problems
23	Total and Difference problems (G as X)
24	Total and Difference problems
25	Total and Difference problems
26-33	Review
34	Introduce Change problems (E as X)
35	Change problems (E as X), *more* practice
36	Change problems (C as X), *more* practice
37	Change problems (C and E as X)
38	Change problems (ST as X)
39	Difference and Change problems
40	Total and Change problems with two changes
41	Change problems with one and two changes
42	Change problems with one and two changes
43	Total, Difference, and Change problems
44-51	Review



Teacher Materials

During each lesson, teachers will use the Lesson Guides and Activity Guides to provide instruction to students. Each Lesson Guide is labeled as the lesson number. For example, the Lesson Guide for Lesson 1 is labeled Lesson 1. The Lesson Guides provide a step-by-step guide for teachers to follow throughout the lesson. In the Lesson Guides, teacher dialogue **is bolded** and student responses are unbolded. Teachers should review the Lesson Guides before each lesson. To implement *Pirate Math Equation Quest* with fidelity (as conducted in the research used to validate *Pirate Math Equation Quest*), it is essential teachers teach each and every principle covered in all lessons. Some teachers study the Lesson Guides and prepare an outline; then, they use the outline to deliver the instruction in their own words. Other teachers, however, after studying the lesson, still rely heavily on the wording of the Lesson Guide to deliver the lesson. In either case, it is necessary to <u>study</u> the lesson before delivery. In all cases, teachers should deviate from the Lesson Guide to elaborate concepts if students do not seem to understand.



Lesson 1

ACTIVITIES

1. Math Fact Flash Cards
2. ~~Equation Quest~~
3. Buccaneer Problems
   Counting up addition and subtraction
4. ~~Shipshape Sorting~~
5. Jolly Roger Review

Materials

Posters
Pirate Math Rules
Counting Up

Student Materials
Buccaneer Problems: Lesson 1
Jolly Roger Review: Lesson 1
Treasure Map

Tutor Materials
Math Fact Flash Cards
Timer
Gold coins
Treasure box

Introduction

Hi. My name is _______. This year, we'll work on math word problems. We'll work hard to get better in math.

Display Rules poster.

Pirate Math

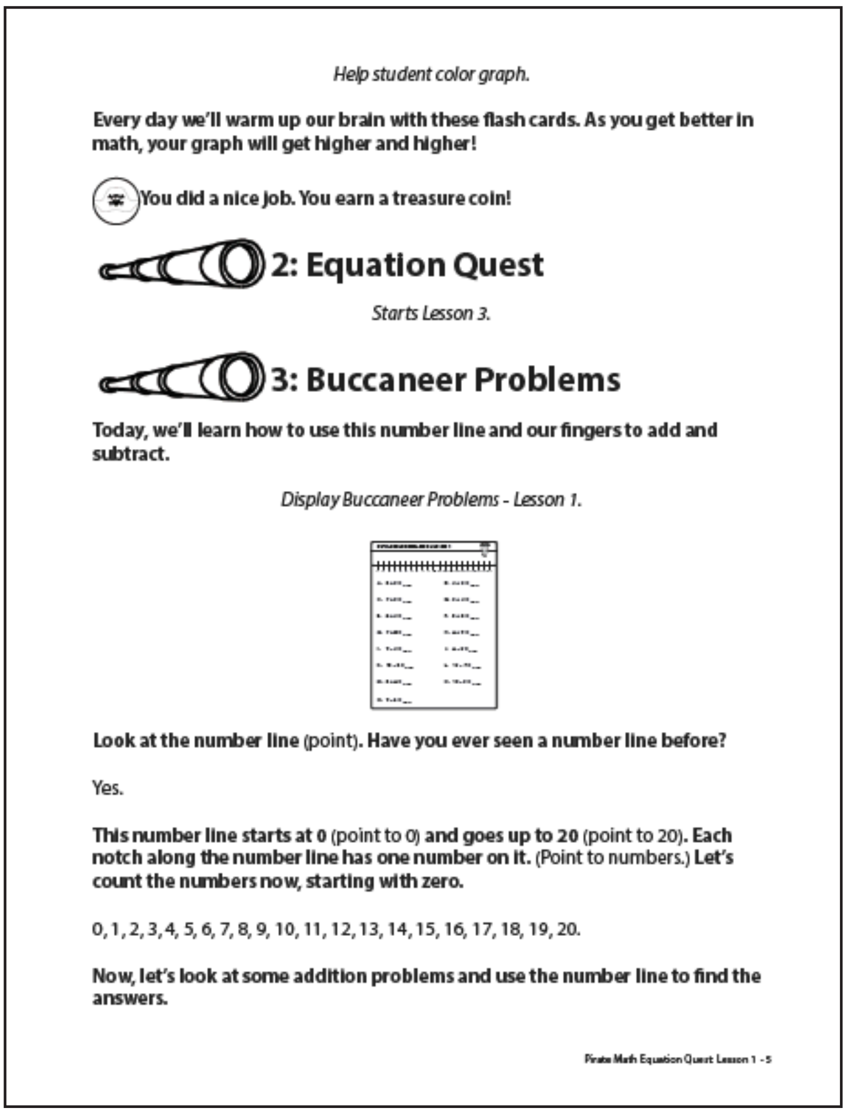
1. Use inside voice.
2. Stay seated.
3. Follow directions.
4. Try your best.

Pirate Math Equation Quest: Lesson 1 - 1

At the top of each Lesson Guide, the activities for the lesson are listed. Activities crossed out in the list indicate lesson components not taught in the current lesson. In Lesson 1, for example, Equation Quest is crossed out because the activity is introduced during Lesson 3. Shipshape Sorting is crossed out because the activity is introduced during Lesson 7.

Below the list of activities for each lesson is a list of posters, student materials, and tutor (teacher) materials needed for each lesson. Prior to lesson implementation, teachers should review this list to ensure strong preparation in advance of each lesson.

When teachers need to introduce a poster or worksheet, dialogue is written *in italics* with an accompanying picture. In Lesson 1, shown below, the Lesson Guide reads *Display Buccaneer Problems - Lesson 1* with a picture of the Buccaneer Problems worksheet for Lesson 1 to prompt teachers to introduce Buccaneer Problems. Similar instructions are *written in italics* throughout the Lesson Guides.



Help student color graph.

Every day we'll warm up our brain with these flash cards. As you get better in math, your graph will get higher and higher!

You did a nice job. You earn a treasure coin!

2: Equation Quest

Starts Lesson 3.

3: Buccaneer Problems

Today, we'll learn how to use this number line and our fingers to add and subtract.

Display Buccaneer Problems - Lesson 1.

Look at the number line (point). **Have you ever seen a number line before?**

Yes.

This number line starts at 0 (point to 0) **and goes up to 20** (point to 20). **Each notch along the number line has one number on it.** (Point to numbers.) **Let's count the numbers now, starting with zero.**

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20.

Now, let's look at some addition problems and use the number line to find the answers.

Pirate Math Equation Quest Lesson 1 - 5

It is important to note that there are no Lesson Guides for Lessons 26-33 and Lessons 44-51 because these lessons are review lessons. Teachers can refer to the Activity Guides during these lessons as needed. All of the developed Lesson Guides are included in this manual.

When teachers become familiar and comfortable with the lesson content and sequencing, they may choose to print and refer to the Activity Guides during lessons. The Activity Guides highlight the core lesson components. Some teachers may choose to use the Activity Guides exclusively as they progress with lesson implementation. Other teachers may print the Activity Guides and use them in combination with the Lesson Guides. Below is the first page of the Equation Quest Activity Guide.

Equation Quest
ACTIVITY GUIDE

It's time to solve some equations!

When we are solving an addition/subtraction problem, we can follow a few steps to help us solve any equation.

Can you remind me what the equal sign means?

The same as.

Exactly! The equal sign means the same as. Whenever we see the equal sign, what do we need to do?

Make the sides the same.

That's right. The equal sign acts as a balance, so what is on one side of the equal sign (point) **must be the same as what is on the other side of the equal sign** (point)**.**

We need to balance the sides and find the missing information.

Now let's read the number sentence.

(Reads number sentence, saying "the same as" in place of "equals.")

The first step to solving an equation is to draw a line down from the equal sign.

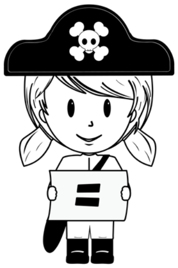
(Draws line coming down from the equal sign.)

This line (point) **helps us remember to balance the two sides of the equation.**

The second step is to isolate the X. Say that with me.

Isolate the X.

There are Activity Guides for the following core lesson components: RUN, Total, Difference, Change, Math Fact Flashcards, Equation Quest, Shipshape Sorting, and Jolly Roger Review. All of the developed Activity Guides are included in this manual.

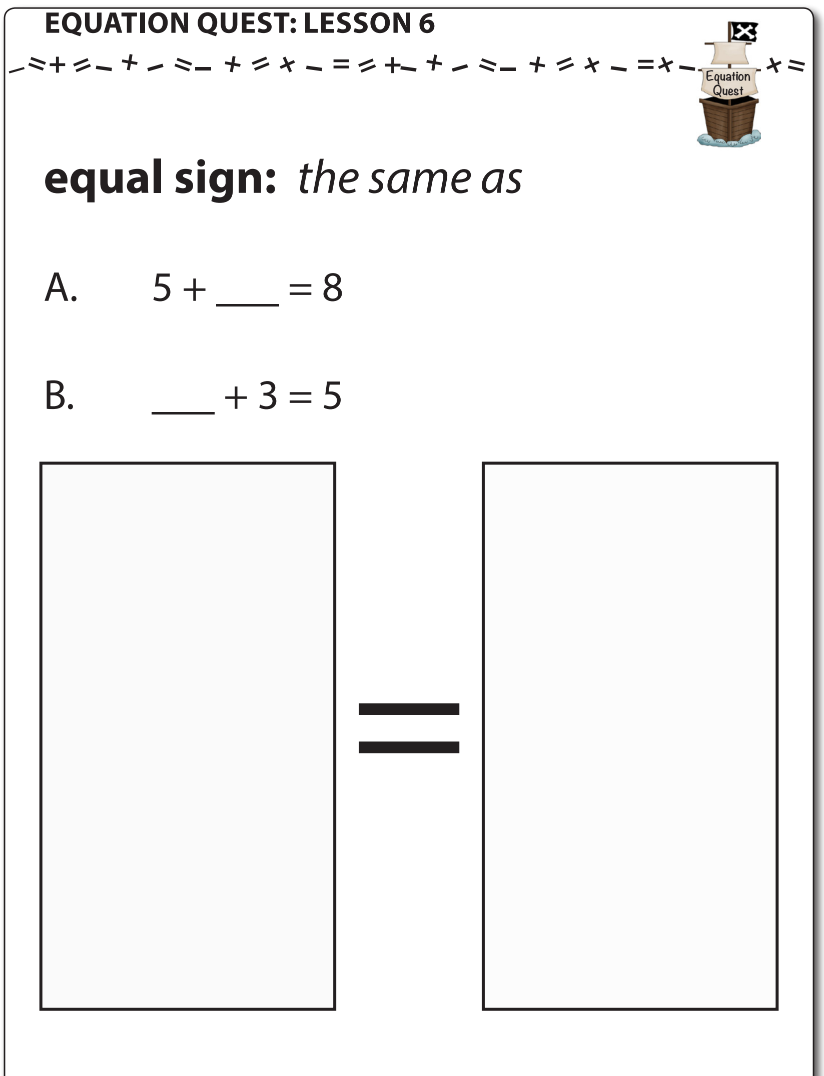


Student Materials

The Student Materials needed for each lesson are organized in a packet by lesson. For example, the Student Lesson Packet for Lesson 6 is labeled Lesson 6 Student Lesson Packet.

Student Lesson Packets include the following 4 pages:
(1) Equation Quest (beginning in Lesson 3; page 1)
(2) Buccaneer Problems (pages 2-3)
(3) Jolly Roger Review (page 4)

Pictured below is the Equation Quest worksheet, page 1, in the Lesson 6 Student Lesson Packet.



EQUATION QUEST: LESSON 6

Equation Quest

equal sign: *the same as*

A. 5 + ___ = 8

B. ___ + 3 = 5

=

All Student Lesson Packets include 4 pages, so the packets can be printed for students in a set prior to the lesson. Teachers should print the Student Lesson Packets double-sided with a staple in the top left-hand corner. *Note that page 1 of the Student Lesson Packets for Lessons 1 and 2 is blank because Equation Quest is introduced during Lesson 3*. The Student Lesson Packets for all 51 lessons are included in this manual.

After Equation Quest, students complete three Buccaneer Problems. Buccaneer Problems serve as a guided practice opportunity for students to solve word problems. Teachers provide support and feedback as needed.

Page 2, the front side of the Buccaneer Problems worksheet in the Lesson 6 Student Lesson Packet, is displayed below.

BUCCANEER PROBLEMS: LESSON 6

A. Mrs. Taylor bought 4 apples and 9 bananas. How many apples and bananas did Mrs. Taylor buy?

B. Alex found 3 shells and 8 rocks on the beach. He found 7 leaves in the woods. How many shells and rocks did Alex find on the beach?

Page 3, the back side of the Buccaneer Problems worksheet in the Lesson 6 Student Lesson Packet, is displayed below. Buccaneer Problems include three word-problems: Problems A, B, and C.

C. For a building project, the carpenter needs 32 nails and 56 screws. The carpenter has 2 hammers. How many nails and screws does the carpenter have altogether?

The final worksheet in the Student Lesson Packet is the Jolly Roger Review. The Jolly Roger Review is an independent practice activity that provides students the opportunity to demonstrate their understanding of learned concepts. Below is the Jolly Roger Review worksheet, page 4, in the Lesson 6 Student Lesson Packet.

JOLLY ROGER REVIEW: LESSON 6

A. $11 - 9 =$ ___

B. $3 + 2 =$ ___

C. $9 + 0 =$ ___

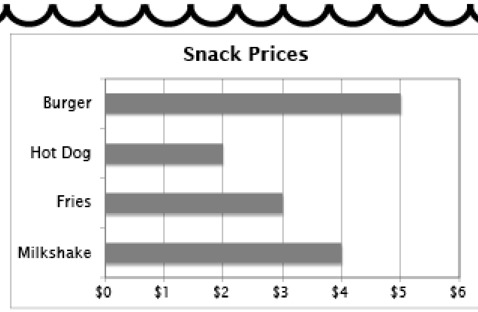
D. $12 - 4 =$ ___

E. $4 + 6 =$ ___

F.
$$\begin{array}{r} 32 \\ -\ 19 \\ \hline \end{array}$$

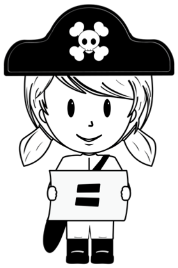
G.
$$\begin{array}{r} 59 \\ +\ 23 \\ \hline \end{array}$$

JOLLY ROGER REVIEW: LESSON 6



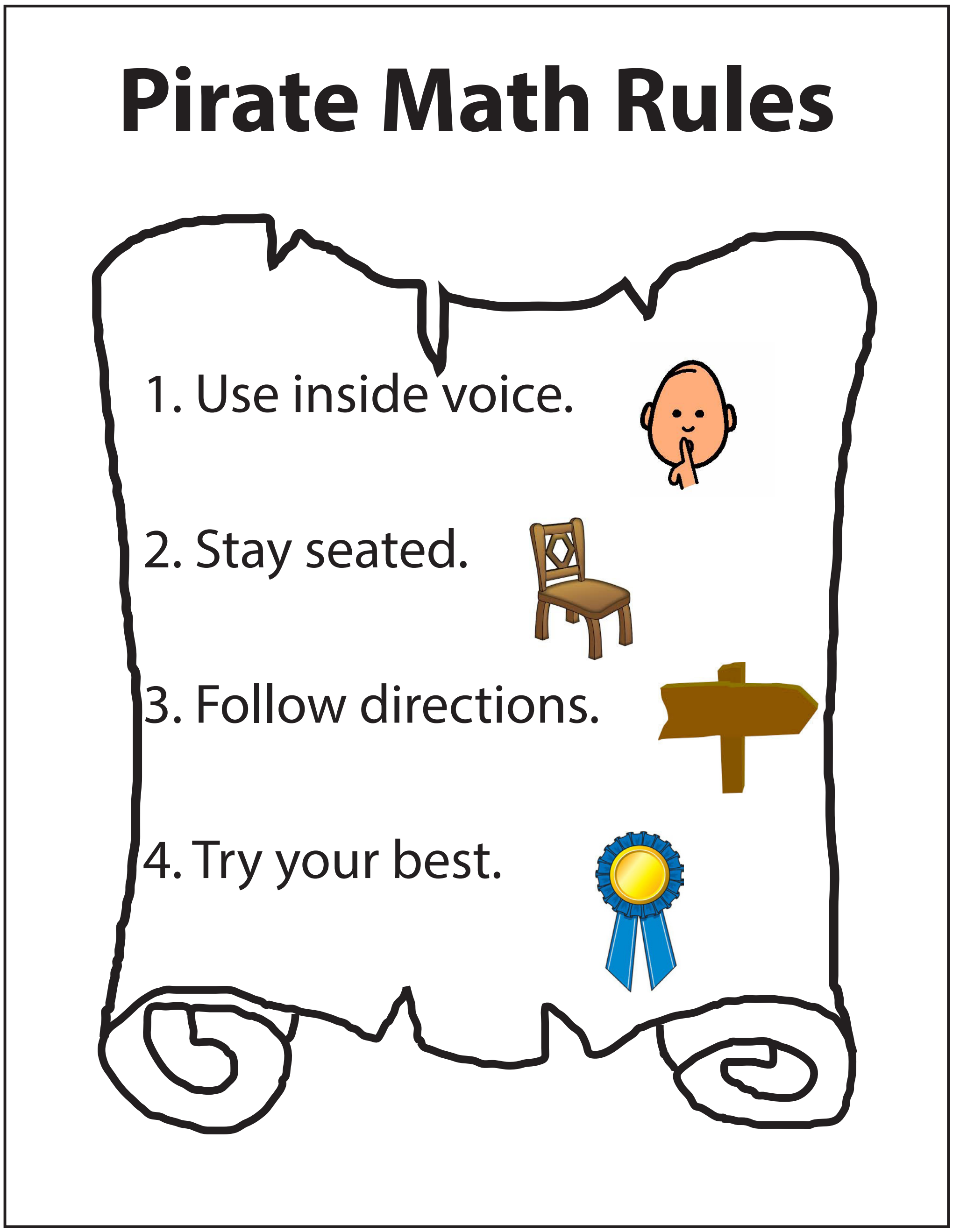
How much do a milkshake and hot dog cost altogether?

Teachers score the top of the Jolly Roger Review worksheet as the number of addition and subtraction problems answered correctly. Teachers score the bottom of the Jolly Roger Review worksheet out of 2 points. Students earn one point for the correct number answer; students earn one point for the correct label answer. As needed, teachers provide feedback and a brief review to students.



Supplemental Materials

Pirate Math Equation Quest includes five posters for teachers to display throughout the lessons. Templates for the posters are included in this manual. In the beginning lessons, teachers should display the Pirate Math Rules and Counting Up Addition and Subtraction posters pictured on this page and the following page.



COUNTING UP
Addition

1. Put the greater number in your fist and say it.
2. Count up the number that's less on your fingers.
3. The sum is the last number you say.

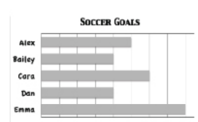
COUNTING UP
Subtraction

1. Put the minus number in your fist and say it.
2. Count up your fingers to the number you start with.
3. The difference is the number of fingers you have up.

As teachers introduce the three schemas, Total, Difference, and Change, they need to display the RUN poster, pictured below, and the corresponding schema posters for students to reference. The RUN poster provides an attack strategy for students to use as they solve word problems.

RUN

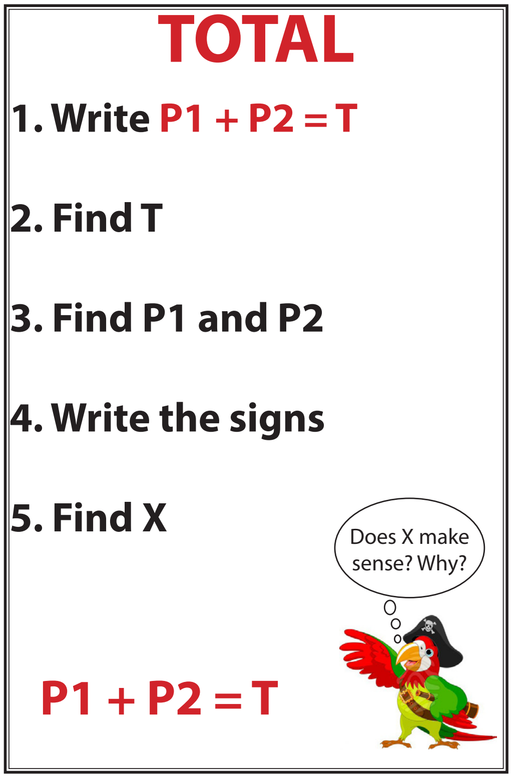
If needed, number the graph

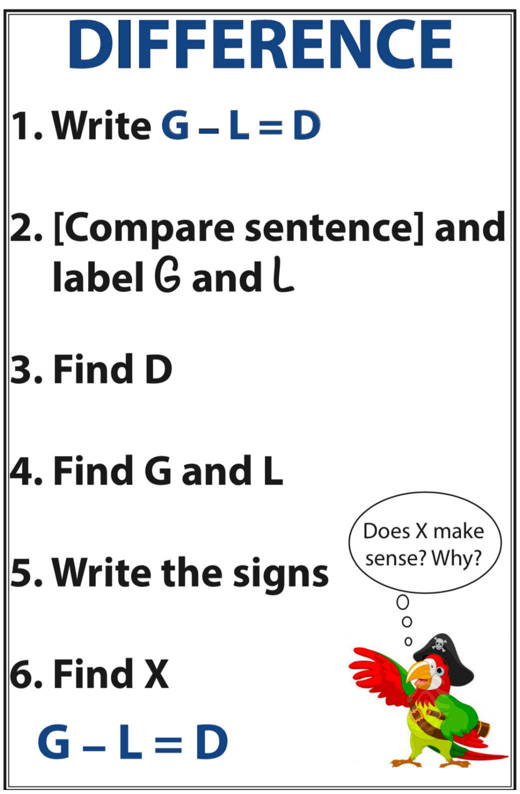


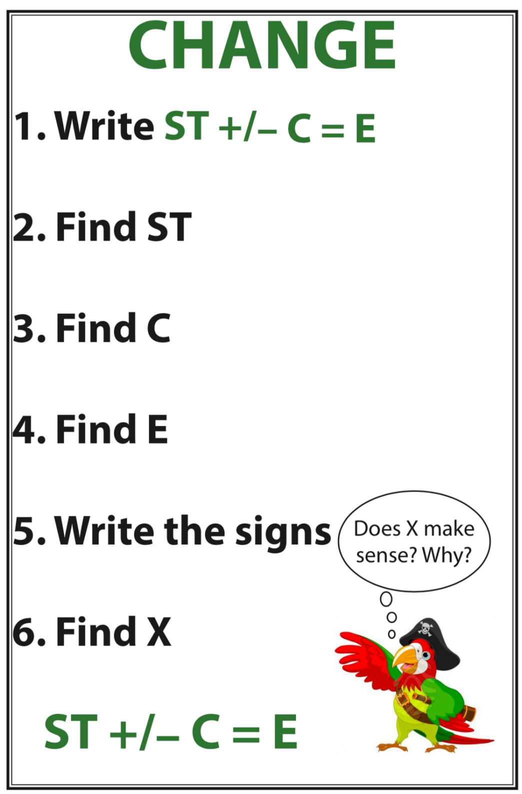
1. ***Read*** **the problem**
2. ***Underline*** **the label and** **~~cross out irrelevant info~~**
3. ***Name*** **the problem type**

Total
Difference
Change

The schema posters, pictured below, provide specific steps for setting up and solving a word problem after identifying the correct schema. Total problems are introduced during Lesson 5, Difference problems are introduced during Lesson 17, and Change problems are introduced during Lesson 34.







After teachers have introduced the Total, Difference, and Change problems, they should display the What Do You Ask Yourself? poster, featured below. The What Do You Ask Yourself? poster, introduced during Lesson 38, provides a prompt for students to ask questions and gesture to determine the correct schema. We encourage teachers to use gestures to help students recall the three schemas. The Total gesture is introduced in Lesson 5. The Difference gesture is introduced in Lesson 17. The Change gesture is introduced in Lesson 34. Teachers can refer to the Lesson Guides to learn the specific schema gestures to model for students. Students often struggle to identify the correct problem type after all three schemas have been introduced. This poster helps students to distinguish between the Total, Difference, and Change schemas.

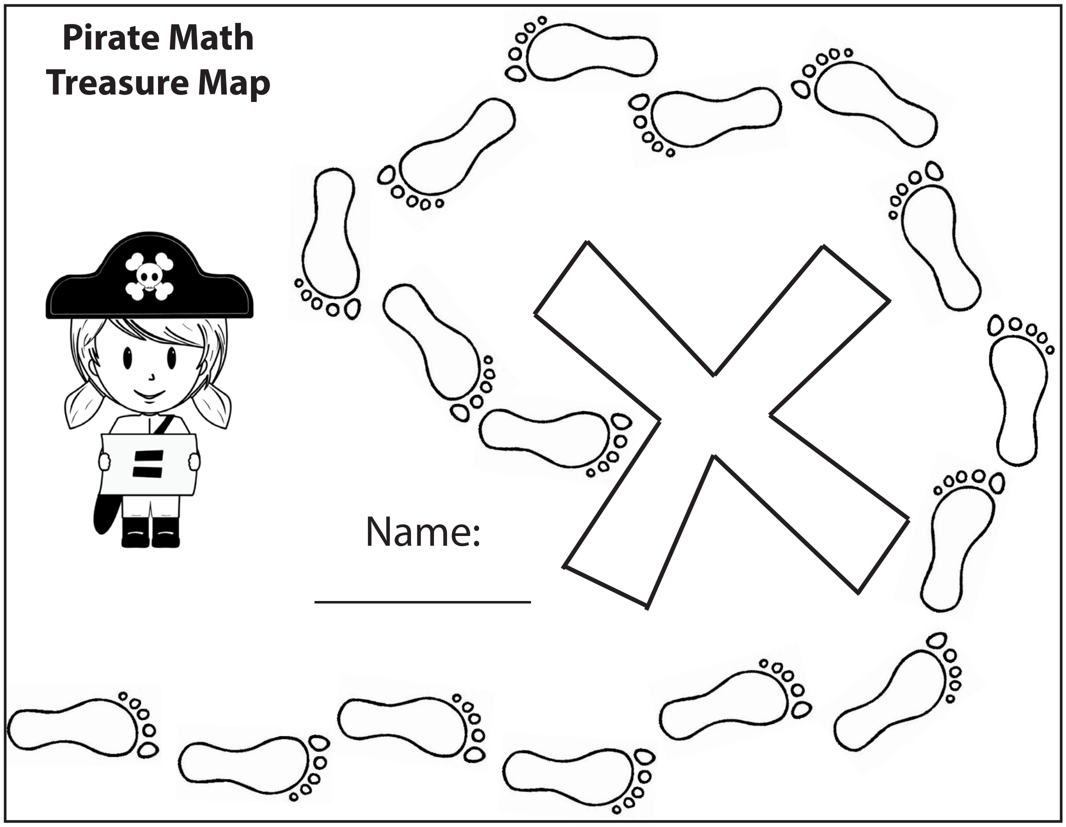
What Do You Ask Yourself?

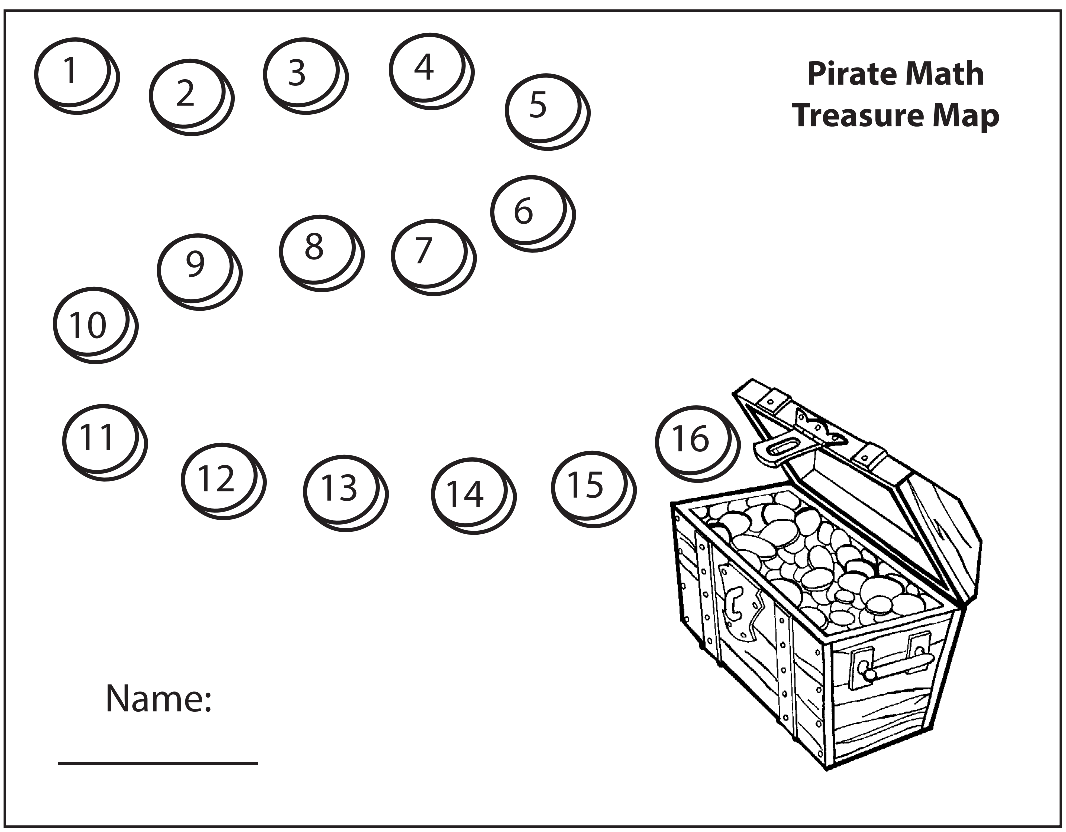
Total	Are parts put together into a total?
Difference	Are two amounts compared for a difference?
Change	Is there a start amount that increases or decreases to a new amount?

During every lesson, teachers also display the Treasure Map. Throughout each lesson, students can earn coins for their Treasure Map for following the Pirate Math rules. When students reach the end of their Treasure Map, they earn a novelty prize from a treasure box.

If teachers do not have coins, they can use stamps, stickers, or colored pencils to color the designated number of spaces on the Treasure Map. Similarly, teachers can use any prize bag or box if they do not have a treasure box.

On the following pages are four different variations of the Treasure Map. Teachers can choose one map or alternate maps depending on student preference. All four Treasure Map templates are included in this manual.


Pirate Math
Treasure Map
Name:


1
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Pirate Math
Treasure Map
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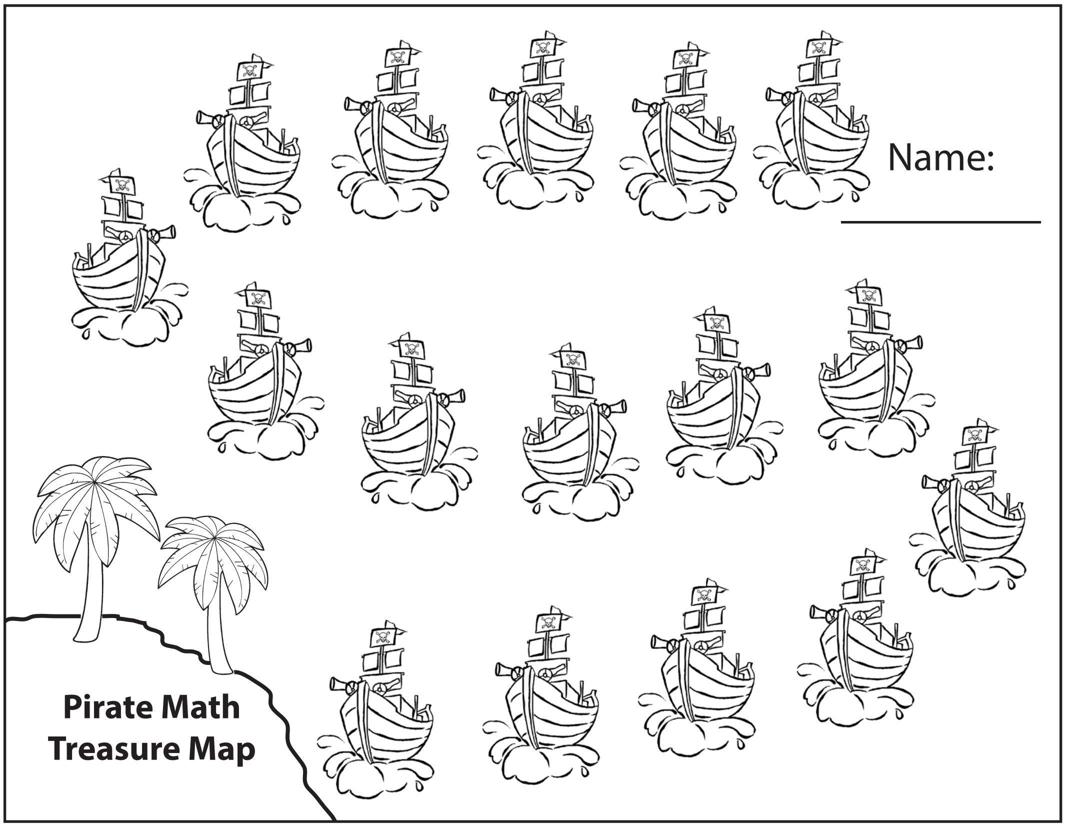
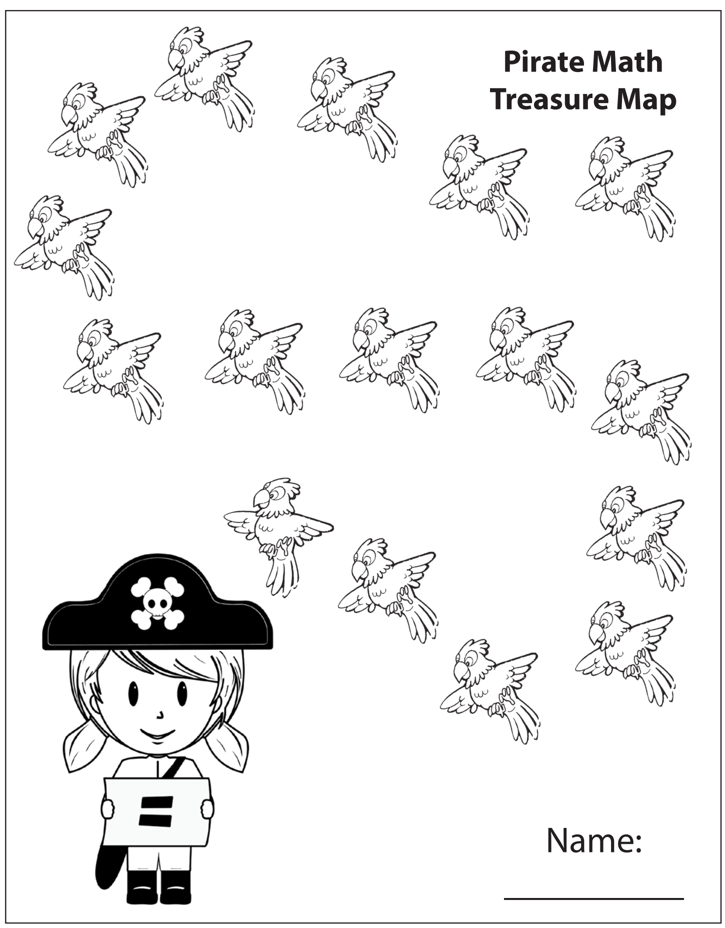
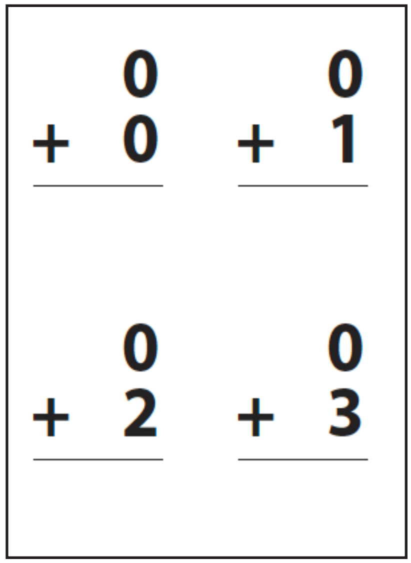

Name:
Pirate Math
Treasure Map

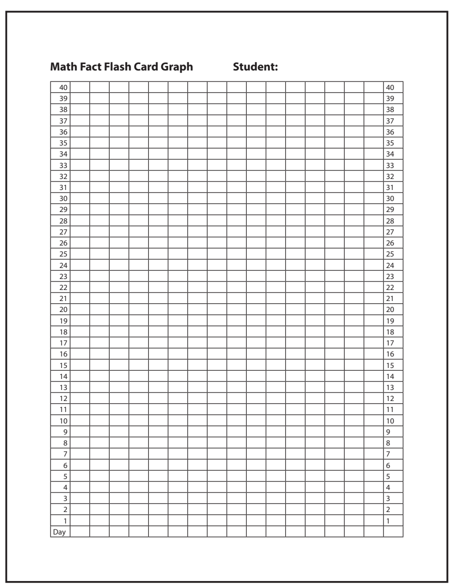

Pirate Math
Treasure Map
Name:

For the Math Fact Flashcards Activity, teachers need to cut and print the Math Fact Flashcards and print the Math Fact Flashcards graph. Templates for the Math Fact Flashcards and the Math Fact Flashcards graph are included in this manual.

The Math Fact Flashcards include an addition or subtraction problem on the front side of the card and the correct answer on the back side of the card. It is recommended that teachers print these cards double-sided on cardstock. There are four problems per page; teachers should cut each page into fourths using a paper cutter.



Teachers also need to print the Math Fact Flashcard Graph, pictured above, in advance of the lesson. At the end of the Math Fact Flashcards activity, students graph their higher score from the two trials on the graph below. Teachers should plan to copy extra graphs for easy access after students complete the first graph.



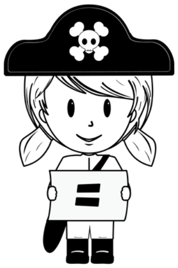
During Shipshape Sorting, which begins in Lesson 7, students participate in schema sorting practice using sorting cards and the sorting mat, displayed below. Templates for the Shipshape Sorting Mat and accompanying cards are included in this manual.

Shipshape Sorting

T	**D**
C	**?**

The Shipshape Sorting cards include a word problem on the front side of the card and the correct schema (i.e., T for Total, D for Difference, and C for Change) on the back side of the card. It is recommended that teachers print the Shipshape Sorting cards double-sided on cardstock. There are four word problems per page; teachers should cut each page into fourths using a paper cutter.

Jerry saw 3 sharks at the aquarium. He saw 2 turtles. How many sharks and turtles did Jerry see?	Dante's mom planted 8 trees and rose bushes in the yard. She planted 4 rose bushes. How many trees did she plant?
Ann and Elise sold 7 boxes of Girl Scout cookies. Elise sold 3 boxes. How many boxes of cookies did Ann sell?	Mrs. Towns spent $4 at the grocery store and $5 at the pet store. How much money did she spend in all?



Other Materials

Other Materials

The following materials are used throughout the program but are not included in this manual.

- Timer
- Cubes
- Gold coins
- Treasure box

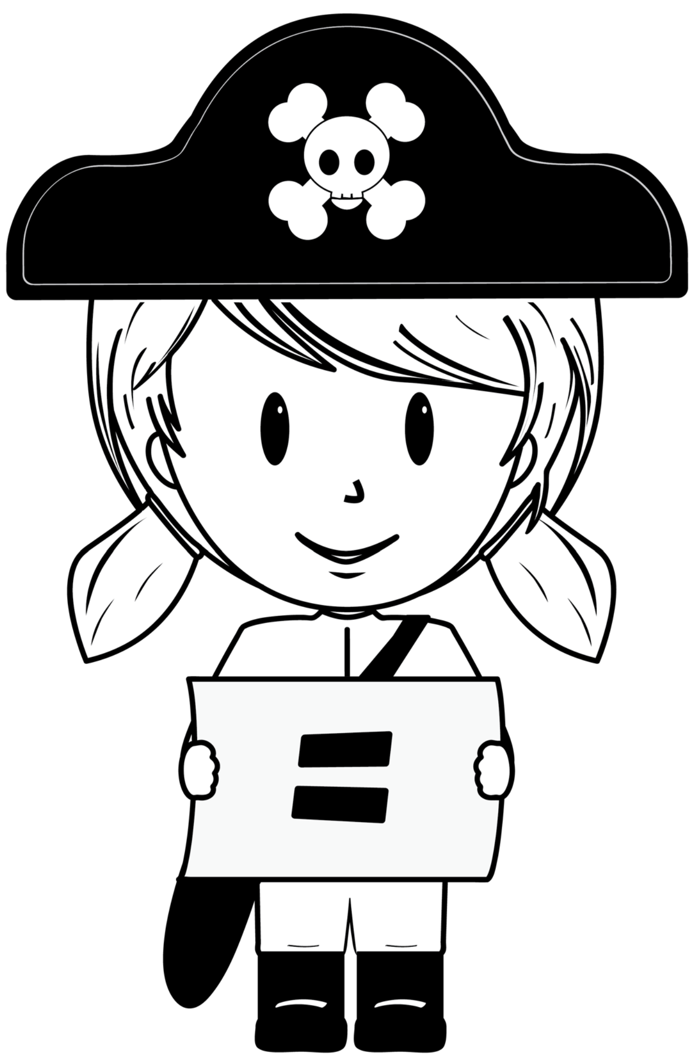
The timer is used during the timed activities: Math Fact Flashcards, Shipshape Sorting, and Jolly Roger Review.

Different colored unit cubes are used during Equation Quest to help students develop their pre-algebraic reasoning skills. The timer and cubes can be purchased from a teacher supply store or a mathematics manipulatives company.

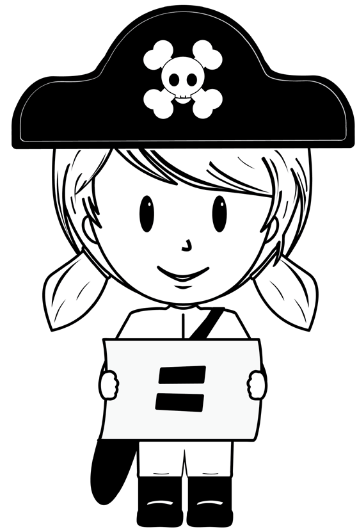
The gold coins and treasure box are used throughout each lesson to reward students for following the Pirate Math rules. As previously mentioned, stamps, stickers, or colored pencils can substitute for gold coins. Teachers can use any prize bag or box if they do not have a treasure box.

For all lessons, teachers and students also need pencils.

Lesson Guides
1 - 51



Lesson 1



ACTIVITIES

1. Math Fact Flash Cards
2. ~~Equation Quest~~
3. Buccaneer Problems
   Counting up addition and subtraction
4. ~~Shipshape Sorting~~
5. Jolly Roger Review

Materials

Posters

Pirate Math Rules
Counting Up

Student Materials

Buccaneer Problems: Lesson 1
Jolly Roger Review: Lesson 1
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Gold coins
Treasure box

Introduction

Hi. My name is ________. This year, we'll work on math word problems. We'll work hard to get better in math.

Display Rules poster.

Pirate Math

Before we get started, let's talk about some rules. This poster (point to Rules poster) **shows us the rules for how to behave when we work together. Look at our first rule** (point)**. It says, "Use inside voice." Look at the picture that goes with this rule** (point to first picture)**. Why is this** (point) **a good picture to remind us about using inside voices?**

(Student responds.)

You're right. We'll work in the (library/hallway)**, so we have to be quiet and use our inside voices. Always use your inside voice. That's our first rule.**

Here's the next rule (point to second rule)**. It says, "Stay seated." Look at the picture that goes with this rule** (point to second picture)**. Why is this a good picture to remind us to stay in our seats?**

(Student responds.)

Good job! The chair reminds us that when we work together, we must stay seated. Let's look at the next rule (point)**. This rule says, "Follow directions." Why is this a good picture to remind us to follow directions** (point to third picture)**?**

(Student responds.)

Yes. The picture reminds us to listen and follow directions. This is a very important rule.

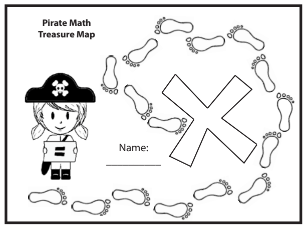
We have one more rule (point to fourth rule)**. This last rule says, "Try your best." Look at this picture** (point to fourth picture)**. Why is this a good picture** (point) **to remind you to try your best?**

(Student responds.)

If you follow these rules, we'll have fun and learn a lot about math!

When we work on math problems together, we'll play Pirate Math Equation Quest. Just like a pirate, you'll have a Treasure Map.

Display Treasure Map.



This Treasure Map has footsteps to color. When you've colored in all the footsteps and land on the "X," you'll get a prize from the treasure box!

Display treasure box.

Throughout the lesson, you will earn treasure coins by following the Pirate Math Equation Quest Rules. Each time we work together, we'll count the number of coins you earned and color that number of footsteps on the Treasure Map.

What happens when you have enough stickers to land on the big "X" on the map?

You get to pick a prize from the treasure box.

Exactly! You get to pick a prize from the treasure box. Then, you get a new Treasure Map.

I like the way you're following our Pirate Math rules right now. You're using your inside voice, staying seated, and following my directions. You earn a treasure coin for your Treasure Map! (Give student coin.)

1: Math Fact Flash Cards

The first activity we'll do every day is Math Fact Flash Cards. Look at these cards.

Display Math Fact Flash Cards.

Each card has one math problem on it. The problem is addition or subtraction. I'll show you one card at a time. Look at the problem, and tell me the answer as quickly as you can.

If you get the answer correct, I'll put the card in a pile on the table.

You'll have 1 minute to answer as many flash cards as you can. I'll hold up a flash card. You'll give me the answer.

Let's practice. (Hold up flash card.) **What's the answer?**

(Student responds.)

Good! At the end of 1 minute, we'll count the number of cards in the pile. Are you ready? Let's try.

Show Math Fact Flash Cards for 1 minute.

Good! Let's count the cards in the pile.

Count cards with student.

You answered __ Math Fact Flash Cards correctly!

Let's try to beat that score. We'll use the same flash cards. I'll show you one card at a time. Look at the problem, and tell me the answer as quickly as you can. Remember, try to beat __. You have 1 minute. Go!

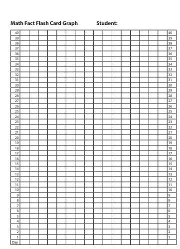
Show Math Fact Flash Cards for 1 minute.

Let's count the cards in the pile.

Count cards with student.

You answered __ Math Fact Flash Cards correctly. You beat/did not beat your score.

Now, we'll graph your higher score for today on this graph.



Help student color graph.

Every day we'll warm up our brain with these flash cards. As you get better in math, your graph will get higher and higher!

You did a nice job. You earn a treasure coin!

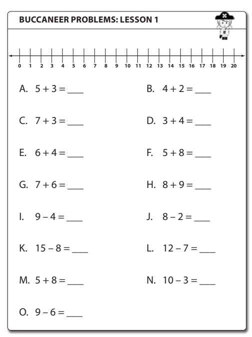
2: Equation Quest

Starts Lesson 3.

3: Buccaneer Problems

Today, we'll learn how to use this number line and our fingers to add and subtract.

Display Buccaneer Problems - Lesson 1.


BUCCANEER PROBLEMS: LESSON 1

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

A. 5 + 3 = ____ B. 4 + 2 = ____

C. 7 + 3 = ____ D. 3 + 4 = ____

E. 6 + 4 = ____ F. 5 + 8 = ____

G. 7 + 6 = ____ H. 8 + 9 = ____

I. 9 – 4 = ____ J. 8 – 2 = ____

K. 15 – 8 = ____ L. 12 – 7 = ____

M. 5 + 8 = ____ N. 10 – 3 = ____

O. 9 – 6 = ____

Look at the number line (point)**. Have you ever seen a number line before?**

Yes.

This number line starts at 0 (point to 0) **and goes up to 20** (point to 20)**. Each notch along the number line has one number on it.** (Point to numbers.) **Let's count the numbers now, starting with zero.**

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20.

Now, let's look at some addition problems and use the number line to find the answers.

Point to A.

What sign tells us to add?

A plus sign.

That's right. A plus sign tells us to add. (Point to plus sign.) **When we add, we combine two or more numbers together. The problems we'll work on today have two numbers you add together. One of the numbers is the greater number. One of the numbers is the number that's less.**

Look at this first problem (point)**. This problem says 5 plus 3 equals blank. We can use our number line to solve a math problem like this. I put my finger on the greater number. Which number is greater, 5 or 3?**

5.

That's right, 5 is the greater number. So, I put my finger on 5.

Place finger on 5 on the number line.

This problem says 5 <u>plus</u> 3, so you add 3. To add 3, jump up 3 more numbers on the number line. I start on 5, and use my finger to jump up 3 numbers. 6 (hold up 1 finger; use finger on other hand to move up on number line from 5 to 6)**, 7 (**hold up 2 fingers; use finger to move up to 7)**, 8** (hold up 3 fingers; use finger to move up to 8)**. So, 5 plus 3 equals what?**

8.

Yes! The answer is the last number you say. In an addition problem, we call the answer the sum. Put 5 in your fist (hold up fist)**; then count up 3 more: 6, 7, 8.** (Point to number line for each successive number and hold up an additional finger with each jump.) **8, the last number you say, is the sum. 8 is more than 5.**

Write 8.

When you add, you move this way, up the number line (use your finger to move in a positive direction on the number line) **toward the greater numbers. In an addition problem, your answer, also called the sum, is more than each of the numbers you add together.**

Now, be careful! When you're jumping up the number line, don't count the number the clothespin is already on. Jump up to the <u>next higher</u> number. Let's practice counting up the number line.

Look at this problem. (Point to B.) **4 plus 2 equals blank. I put my finger on which number?**

4.

Right. I place my finger on the greater number, 4.

Place finger on 4 on the number line.

How many do we count up?

2.

Let's practice counting up from 4. Count up 2 more numbers. I'll jump up to the next higher number and say, "5." (Jump finger to 5.) **Then, I'll jump up to the next number and say, "6."** (Point to 6.)

You jump up two numbers and the last number you say is 6. So, 4 plus 2 equals 6.

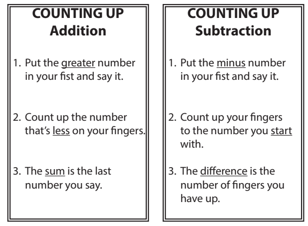
Write 6.

6 is more than 4. 6 is also more than 2. When you add, you move up the number line (use your finger to demonstrate on the number line) **toward the greater numbers. In an addition problem, your answer, called the sum, is more than each of the numbers you add together.**

We don't need a number line to count up for adding. You can use your fingers instead. We call this "counting up." Sometimes when you add two numbers together, you know the answer right away in your brain, and that's great! But sometimes, we don't know the answer right away. Counting up is a neat trick to help you figure out the answer quickly.

Look at this poster.

Display Counting Up Addition poster.



This poster shows the three steps to counting up for adding. Let's use these steps to solve 4 plus 2 equals blank.(Point to B.)

The first step says, "Put the greater number in your fist and say it." (Point to Step 1.) **Which number is the greater number?**

4.

That's right! Start with the greater number, 4. Put that number in your fist and say "4."

Tap closed fist on leg and say "4."

Look at Step 2. (Point to Step 2.) **Step 2 says, "Count up the number that's less on your fingers." Now, count up 2 more, and use your fingers to keep track of how many you're adding. Watch me.**

I put the greater number in my fist, 4 (tap closed fist on leg)**, 5** (hold up 1 finger)**, 6** (hold up 2 fingers)**. I knew I had to add 2 more to 4** (point to "+ 2")**. I used my fingers to make sure I counted up exactly 2 more** (show students the 2 fingers still held up)**.**

Now look at Step 3. (Point to Step 3.) **Step 3 says, "Your answer, or the sum, is the last number you say." Watch: I put the greater number in my fist, 4** (tap closed fist on leg)**, 5** (hold up 1 finger)**, 6** (hold up 2 fingers)**. What was the last number I said out loud?**

6.

So, what's the sum of 4 plus 2?

6.

That's right! 4 plus 2 equals 6. Write 6 in the blank.

(Student writes 6.)

Just like the number line, be careful! When you count up with your fingers, don't put a finger up for the number you start with. That number goes in your fist. You have to add more fingers!

Watch me. I'll practice this problem. (Point to C.) **7 plus 3 equals blank. I put the greater number, 7, in my fist.** (Tap closed fist on leg and say, "7.") **Then I count up 3 more. Watch: 8** (hold up 1 finger)**, 9** (hold up 2 fingers)**, 10** (hold up 3 fingers)**. 10 is the last number I say. That's the sum. Write 10 in the blank.**

(Student writes 10.)

I use my fingers to keep track of how many I add. So, 7 plus 3 equals 10. 10 is more than 7 and more than 3. Your sum is always more than each of the numbers you add together.

Before we solve the next problem, I'll tell you something cool about addition problems. In addition problems, you always start with the greater number. It doesn't matter whether the greater number is here (point to 7 of 7 + 3) **or here** (point to 3 of 7 + 3)**. You always start with the greater number. What number do you always start with?**

The greater number.

That's right! For addition problems, you always start with the greater number.

Now, let's practice counting up together. Look at this problem. (Point to D.) **This problem says 3 plus 4 equals blank. In this problem, the greater number, 4, doesn't come first. You still solve the problem the same way, though.**

What number do you put in your fist?

4.

Yes, put the 4 in your fist.

(Student taps closed fist on leg and says 4.)

How many do you count up?

3.

So, count up 3 more.

5 (student holds up 1 finger), 6 (student holds up 2 fingers), 7 (student holds up 3 fingers).

So, what's 3 plus 4?

7.

Yes, 7 was the last number you said. 7 is the sum. 3 plus 4 equals 7. Write your sum in the blank.

(Student writes 7.)

Let's try this problem. (Point to E.) **6 plus 4 equals blank. Show me how to count up 6 plus 4.**

(Student counts up.)

Very good. (Count up 6 plus 4.) **6 plus 4 equals 10. Write your sum in the blank.**

(Student writes 10.)

Let's try another problem. (Point to F.) **This problem says 5 plus 8 equals blank. This is an addition problem, so the sum is more than each of the numbers you add together. Try counting up 5 plus 8.**

(Student counts up.)

Great. (Count up 5 plus 8.) **5 plus 8 equals 13. Write your sum in the blank.**

(Student writes 13.)

(Point to G.) **This problem says 7 plus 6 equals blank. Show me how to count up 7 plus 6.**

(Student counts up.)

Awesome. (Count up 7 plus 6.) **7 plus 6 equals 13. Write 13 in the blank.**

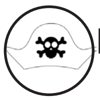
(Student writes 13.)

Let's try one more problem. (Point to H.) **Show me how to count up 8 plus 9.**

(Student counts up.)

Yes! (Count up 8 plus 9.) **8 plus 9 equals 17. Great job! Write 17 in the blank.**

(Student writes 17.)



Nice work with addition! You earn a treasure coin!

Now, let's think about subtraction.

Point to I.

Look at this sign. (Point to minus sign.) **This is a minus sign. A minus sign tells us to subtract. When we subtract, we start with a number. Then we subtract. What sign tells us to subtract?**

A minus sign.

Here's a subtraction problem. (Point to I.) **Each subtraction problem we work on today has two numbers. One number is the number you start with.**

The number you start with is the first number in the subtraction problem. In 9 minus 4, the number you start with is 9.

We call the other number in the subtraction problem the minus number. The minus number is the number after the minus sign. What number is after the minus sign (point)**?**

4.

Yes. 4 is after the minus sign. So, it's the minus number.

Look at this problem. (Point to J.) **8 minus 2. What's the number you start with?**

8.

What's the minus number? What number is after the minus sign (point)**?**

2.

Nice work! Look at this problem. (Point to K.) **15 minus 8. What's the number you start with?**

15.

What's the minus number?

8.

Yes. 15 is the number you start with. 8 is the minus number. 8 is the number after the minus sign.

Look at this problem again. (Point to I.) **9 minus 4 equals blank.**

Display number line.

We can use our number line to solve a subtraction problem like this. I put my finger on the number you start with. In this problem, the number you start with is 9. I put my finger on 9.

Place finger on 9 on the number line.

Once your finger is on the number you start with, don't move it. This problem says 9 <u>minus</u> 4. The minus number comes right after the minus sign. So, 4 is the minus number. I subtract the minus number. So I subtract 4. On the number line, I could subtract 4 by going back four spaces on the number line. But let's try something different.

When we subtract, we find the difference between two numbers. Let me show you what I mean.

This problem says 9 <u>minus</u> 4. We find the difference between 9 and 4. I already have my finger on 9. I'll put my other finger on the minus number. In this problem, the minus number is 4. It's the number right after the minus sign. I

put my other finger on 4.

Place finger on 4 on the number line.

To figure out the difference between 9 and 4, I start on the minus number, 4, and count up to 9. The number of jumps is the difference between 9 and 4. The number of jumps is my answer. So, I say 4 (point to 4) **and then start counting. Use your fingers to keep track. I say 4, then I count: 5** (move finger to 5 and hold up 1 finger)**, 6** (move finger to 6 and hold up 2 fingers)**, 7** (move finger to 7 and hold up 3 fingers)**, 8** (move finger to 8 and hold up 4 fingers)**, 9** (move finger to 9 and hold up 5 fingers)**. How many fingers am I holding up?**

5.

That's right. When you subtract, the answer is the number of fingers you're holding up. 9 minus 4 equals 5.

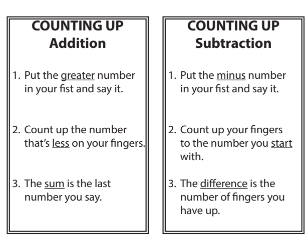
Write 5.

You may want to start on 9 and count backward. But counting backward is hard. It's easy to make a mistake. If you count up a subtraction problem to find the difference between the minus number and the start number, like I just showed you, it's easier and you won't make mistakes.

We don't need a number line to count up for subtraction. You can use your fingers instead. You already know how to count up addition problems. Let's learn how to count up subtraction problems.

Look at this poster.

Display Counting Up Subtraction poster.



This poster shows us three steps for Counting Up subtraction problems. Let's use these steps to solve this problem: 9 minus 4 equals blank. (Point to I.)

The first step says, "Put the minus number in your fist and say it." (Point to Step 1.) **Which number is the minus number? It's the number *right after* the minus sign.**

4.

Yes! Start with the minus number, 4. Put that number in your fist and say, "4."

Tap closed fist on leg and say "4."

Look at Step 2. (Point to Step 2.) **Step 2 says, "Count up your fingers to the number you start with." So, count up to the number you start with, 9. Watch me. I put the minus number in my fist, 4** (tap closed fist on leg)**: 5** (hold up 1 finger)**, 6** (hold up 2 fingers)**, 7** (hold up 3 fingers)**, 8** (hold up 4 fingers)**, 9** (hold up 5 fingers)**.**

Now look at Step 3. (Point to Step 3.) **Step 3 says, "Your answer, also called the difference, is the number of fingers you have up." How many fingers am I holding up?**

5.

So, what's the difference between 9 and 4?

5.

That's right! 9 minus 4 equals 5.

Point to 5.

That's the same answer we got when we used the number line. But counting up with our fingers is much easier. Sometimes we don't have a number line, but we always have our fingers.

Look at this next problem. (Point to J.) **When you count up with your fingers, don't put a finger up for the minus number. That number goes in your fist.**

Watch me. 8 minus 2 equals blank. I put the minus number, 2, in my fist (Tap closed fist on leg and say, "2.")**. Then I count up to the number I start with, 8. Watch.** (Tap closed fist on leg and say) **2: 3,** (hold up 1 finger)**, 4** (hold up 2 fingers)**, 5** (hold up 3 fingers)**, 6** (hold up 4 fingers)**, 7** (hold up 5 fingers)**, 8** (hold up 6 fingers)**. How many fingers do I have up?**

6.

So, 8 minus 2 equals 6. The difference between 8 and 2 is 6.

Write 6.

6 is *less* than 8. The difference is always less than the number you start with.

Before we solve the next problem, let's talk about something very important. Do you have your listening ears on?

Yes.

Subtraction problems are not like addition problems. In addition, the order of the numbers doesn't matter. 2 plus 3 is the same as 3 plus 2.

But in a subtraction problem, like 8 minus 2 (point)**, you CANNOT switch the order of the numbers. You can't subtract 2 minus 8. That doesn't make sense. In a subtraction problem, you NEVER switch the order of the numbers.**

You always put the minus number in your fist, and count up to the number you start with. Your answer, also called the difference, is the number of fingers you have up.

Let's practice counting up together. Look at this problem. (Point to K.) **This problem says 15 minus 8 equals blank. First, do you add or subtract?**

Subtract.

That's right. This is a minus sign, so you subtract. What number do you put in your fist?

8.

Yes. 8 is the minus number because it comes right after the minus sign. Put the 8 in your fist.

(Student taps closed fist on leg and says 8.)

What number do you count up to?

15.

Count up to 15.

9, 10, 11, 12, 13, 14, 15.

How many fingers are you holding up?

7.

So, what's 15 minus 8?

7.

Yes, 7 is the number of fingers you have up. 7 is the difference. 15 minus 8 equals 7.

Write 7.

Let's try this problem. (Point to L.) **12 minus 7. Do you add or subtract?**

Subtract.

What's the minus number?

7.

7 is the minus number because it's after the minus sign. Put the minus number in your fist, and count up to the number you start with, 12.

8, 9, 10, 11, 12.

How many fingers are you holding up?

5.

So, what's 12 minus 7?

5.

Yes. 12 minus 7 equals 5.

Write 5.

Let's try this problem. (Point to M.) **5 plus 8. Do you add or subtract?**

Add.

Smart thinking! This is a plus sign. So, you add! How do you count up an addition problem?

Put the greater number in your fist, count up the number that's less on your fingers, and the sum is the last number you say.

Counting up addition problems are different from counting up subtraction problems. (Point to posters.) **To count up an addition problem, put the greater number in your fist, count up the number that's less on your fingers, and the sum is the last number you say.**

To count up a subtraction problem, you put the minus number in your fist, count up to the number you start with, and the difference is the number of fingers you have up.

Show me how to count up 5 plus 8.

(Student counts up.)

Yes. You put the greater number, 8, in your fist and count up 5 more: 9, 10, 11, 12, 13. What's the last number you said?

13.

5 plus 8 is 13. Write 13 in the blank.

(Student writes 13.)

Look at this problem. (Point to N.) **10 minus 3. Do you add or subtract?**

Subtract.

This is a minus sign (point)**, so you subtract.**

Remind me, what's a minus number?

It's the number after the minus sign.

That's right. The minus number is the number right *after* the minus sign. What number do you count up to?

The number you start with.

Let's count up 10 minus 3. What's the minus number, 10 or 3?

3.

Put the 3 in your fist and count up to the number you start with, 10.

4, 5, 6, 7, 8, 9, 10.

What's 10 minus 3?

7.

Write 7 in the blank.

(Student writes 7.)

Let's try this last problem. (Point to O.) **This problem says 9 minus 6 equals blank. Do you add or subtract?**

Subtract.

What tells you to subtract?

The minus sign.

The minus sign tells you to subtract. Use Counting Up for subtraction.

(Student counts up.)

What's your answer? Write it in the blank.

3.

(Student writes 3.)

Great. (Count up 9 minus 6.) **9 minus 6 equals 3.**

Excellent work! You earn a treasure coin!

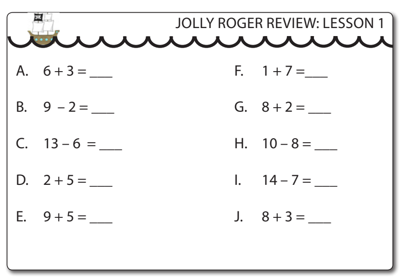
4: Shipshape Sorting

Starts Lesson 7.

5: Jolly Roger Review

The last activity we do every day is practice problems. We call these problems our Jolly Roger Review.

Display Jolly Roger Review - Lesson 1.



JOLLY ROGER REVIEW: LESSON 1

A. 6 + 3 = ___	F. 1 + 7 = ___
B. 9 − 2 = ___	G. 8 + 2 = ___
C. 13 − 6 = ___	H. 10 − 8 = ___
D. 2 + 5 = ___	I. 14 − 7 = ___
E. 9 + 5 = ___	J. 8 + 3 = ___

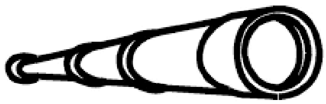
On one side are addition and subtraction problems. On the other side is a word problem. You'll learn how to solve these word problems soon.

You have 1 minute to work on the addition and subtraction problems. Go ahead and get started. Don't forget to use your Counting Up!

Set timer for 1 minute.

Now, you have 2 minutes to work on the word problem. Go ahead.

Great job! You earn another treasure coin!



Treasure Map

Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

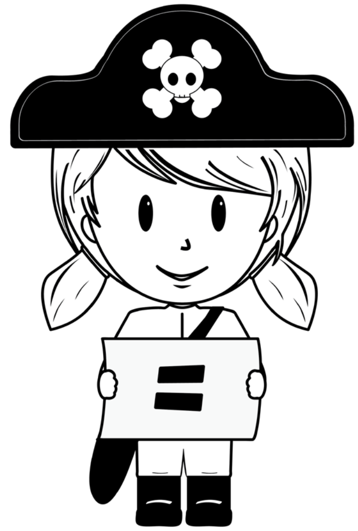
Go ahead and color __ footsteps on your Treasure Map! (Student colors.)

Remember, once you fill in the footsteps to the 'X' in the middle of the map, you'll choose a prize out of the treasure box!

Lesson 2

ACTIVITIES

1. Math Fact Flash Cards
2. ~~Equation Quest~~
3. Buccaneer Problems
   Double-digit addition
4. ~~Shipshape Sorting~~
5. Jolly Roger Review



Materials

Posters

Pirate Math Rules
Counting Up

Student Materials

Buccaneer Problems: Lesson 2
Jolly Roger Review: Lesson 2
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Gold coins
Treasure box

Introduction

Pirate Math

Display Rules poster.

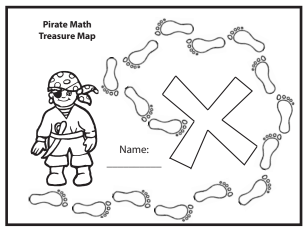
Before we start our math today, let's go over our rules. Look at the pictures on our poster (point to Rules poster)**. Tell me our rules.**

Student responds.

You're right! We have to use our inside voice, stay seated, follow directions, and try our best (point to each corresponding rule)**. Great job!**

Remember, when we work on math problems together, we play Pirate Math Equation Quest. Just like a pirate, you have a Treasure Map.

Display Treasure Map.



This Treasure Map has places for footsteps. When you've colored enough footsteps to land on the "X," you get a prize from the treasure chest!

I like the way you're following our Pirate Math Equation Quest rules right now. You're using your inside voice, staying seated, and following my directions. You earn a treasure coin for your Treasure Map! (Give student coin.)

1: Math Fact Flash Cards

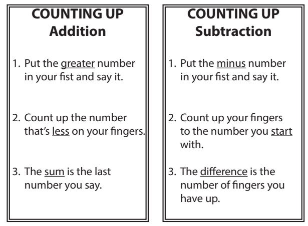
Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Starts Lesson 3.

3: Buccaneer Problems

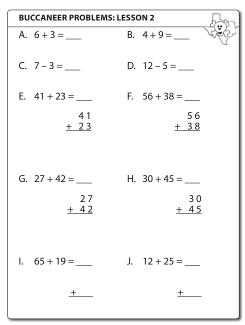
Let's count up like we did last time. Remember, if you work hard and listen to directions, you'll earn more treasure coins to mark on your treasure map. Let's use the Counting Up posters while we add and subtract.



Show Counting Up posters to student.

Now, sometimes you know the answer to an addition or subtraction problem right away in your head, and that's great! But if you don't know the answer right away, count up on your fingers.

Point to A.



Try 6 plus 3 using your fingers. Step 1 says, "Put the greater number in your fist and say it." What's the greater number?

6.

Good. Put 6 in your fist. Step 2 says, "Count up the number that's less on your fingers." Do that now. Count up 3 more, and use your fingers to keep track of how many you're adding.

(Counts.)

Step 3 says, "The sum is the last number you say." So, what's the sum of 6 plus 3?

9.

That's right! 6 plus 3 equals 9. Go ahead and write 9.

(Writes.)

Point to B.

Now, try this problem on your own. This problem says 4 plus 9 equals blank. What number do you start with?

The greater number.

Does it matter that the greater number isn't the first number in the problem?

No.

Good. In addition, you always start with the greater number. Go ahead and solve this problem by counting up. Use the poster if you need help.

(Counts up.)

Great! You put the greater number, 9, in your fist, and counted up 4 more. The sum is 13. Go ahead and write 13.

(Writes.)

Point to C.

Let's do a subtraction problem. Let's use the Counting Up subtraction steps for counting up to subtract. This problem says 7 minus 3 equals blank.

Step 1 says, "Put the minus number in your fist and say it." Do you remember what the minus number is?

Number after the minus sign.

That's right. The minus number is the number that comes right after the minus sign. The minus number is the number you subtract. What's the minus number for this problem?

3.

Good. Now put 3 in your fist.

(Student.)

Step 2 says, "Count up on your fingers to the number you start with." So, count up on your fingers until you get to the number you start with, 7. You put 3 in your fist, so count up: 4 (hold up 1 finger)**, 5** (hold up 2 fingers)**, 6** (hold up 3 fingers)**, 7** (hold up 4 fingers)**.**

Step 3 says, "The difference is the number of fingers you have up." How many fingers do you have up?

4.

So, what's the difference between 7 and 3?

4.

Yes, 7 minus 3 equals 4. Write 4.

(Writes.)

We solved this subtraction problem by finding the difference between the 2 numbers, 3 and 7.

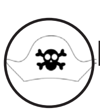
Point to D.

Now, try this problem on your own. This problem says 12 minus 5 equals blank. The minus number goes in your fist. Go ahead and solve this problem with counting up. Use the poster if you need help.

(Counts up.)

Great! You put the minus number, 5, in your fist and counted up to 12. The difference is 7. Write 7.

(Writes.)

 **Nice work with counting up! You earn a treasure coin!**

Now, let's do something different. So far, we've talked about adding and subtracting numbers that are small enough to add and subtract on our fingers. Today, we'll talk about adding greater numbers that are hard to count on our fingers.

Look at this problem.

Point to E.

This problem says 41 plus 23 equals blank. We can write this number sentence two ways. We could write it like this (point to 41 + 23 = ____)**, but it's hard to keep the ones and tens places straight in our heads this way. An easier way to see the ones and tens places is to write the problem like this** (point to vertical presentation of the problem)**.**

Now we can see which column is for the ones place (point) **and which column is for the tens place** (point)**. This is very important in math, because when we add, we have to add the ones first. Then, we add the tens.**

In fact, let's draw a line down the middle to separate the ones and tens. This will make it easier to do the math.

Draw vertical line separating ones and tens.

Now it's time to add. When adding or subtracting greater numbers, always start in the ones column. Where do I start?

Ones.

Yes, I always start with the ones column. We need to add 1 plus 3 (point)**. Let's do that by counting up on our fingers. Put the greater number in our fist** (hold fist and say, "3,")**, and count up: 4** (hold up 1 finger)**. The sum is the last number you say, so the sum is 4. Write a 4 in the ones place for the sum, and let's move to the tens column.**

(Writes.)

Okay, now we add the tens: 4 tens plus 2 tens (point)**. Can we reverse the numbers?**

Yes.

Why?

You can reverse the numbers in addition.

What's the answer to 4 plus 2? Count up on your fingers if you don't know the answer right away.

(Counts up.)

Great! 4 tens plus 2 tens equals 6 tens, so write a 6 in the tens place for the sum.

(Writes.)

So, what's the sum of 41 plus 23?

64.

Great! Let's read the problem together. 41 plus 23 equals 64.

Look at the next problem.

Point to F.

56 plus 38 equals blank. There's a plus sign (point), **so do we add or subtract?**

Add.

Good. We will add 56 and 38. Because this number sentence is written *across* like this (run finger horizontally under the problem)**, it'll be hard for me to keep the ones and tens places straight. I rewrite the problem like this, up and down, before I start** (point)**.**

Look how the numbers in the ones place are lined up (point)**, and how the numbers in the tens place are lined up** (point)**. It's important to keep these numbers lined up so that I always add the ones with the ones** (point) **and the tens with the tens** (point)**. What could we draw down the middle to keep the columns separate?**

A line.

Go ahead and draw a line down the middle.

(Draws.)

Now, let's add. Where do I start?

Ones.

Yes, I always start with the ones column. We need to add 6 plus 8 (point)**. Let's do that by counting up on our fingers. Put the greater number in our fist** (show fist and say, "8,")**, and count up: 9** (hold up 1 finger)**, 10** (hold up 2 fingers)**, 11** (hold up 3 fingers)**, 12** (hold up 4 fingers)**,13** (hold up 5 fingers)**, 14** (hold up 6 fingers)**. The sum is the last number you say, so the sum is what?**

14.

Can you write 14 in the ones place for your answer?

No.

That's right. We can't write a number with two digits in the ones place. We have to regroup. To regroup, we trade in 10 ones for 1 ten, and we place the 1 ten in the tens column. So, instead of 14 ones, we have 1 ten (write "1" above the 5) **and 4 ones** (write 4 in ones place).

I still write 14, but the 1 ten of 14 is written in the tens column (point), **and the 4 ones of 14 are written in the ones column** (point).

When we add the tens, we'll add this 1 (point)**, too. Let's move to the tens column.**

Now we add the tens: 5 tens plus 3 tens, plus 1 more ten (point)**. What's the answer to 5 plus 3, plus 1? Count up on your fingers if you don't know the answer right away.**

9.

Great! In the tens column, 5 tens plus 3 tens equals 8 tens, plus 1 more equals 9 tens, so write 9 in the tens place for the answer.

(Writes.)

So, what’s the sum of 56 plus 38?

94.

Look at the rest of the problems on this page and the next page.

Point to G through P.

Now it’s your turn. We’ll work each problem one at a time.

First, let’s look at the sign to decide whether to add or subtract.

Then, we’ll write the problem to make it easier to solve. We draw a line to separate the columns.

Then, we’ll add the ones column and add the tens column.

Let’s get started!

(Student works.)

Provide feedback as necessary.

Nice work with addition! You earn a treasure coin!

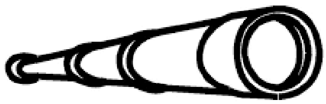
Next time we’ll work on problems like this, but with subtraction.

4: Shipshape Sorting

Starts Lesson 7.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.



Treasure Map

Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

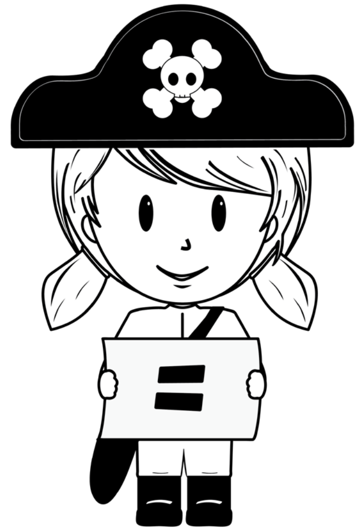
Go ahead and color __ footsteps on your Treasure Map! (Student colors.)

Remember, once you fill in the footsteps to the 'X' in the middle of the map, you'll choose a prize out of the treasure box!

Lesson 3

ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Double-digit subtraction
4. ~~Shipshape Sorting~~
5. Jolly Roger Review



Materials

Posters

Counting Up

Student Materials

Equation Quest: Lesson 3
Buccaneer Problems: Lesson 3
Jolly Roger Review: Lesson 3
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Every day, before we start solving word problems, we'll do some practice about the symbols used in math. Today, let's talk about the equal sign.

Point to equal sign.

This is the equal sign. The equal sign means *the same as.* When there's an equal sign, people say equals or *the same as*. When there's an equal sign (point)**, what do people say?**

Equals or the same as.

The equal sign means equals, but the equal sign also means *the same as*. The same as means the same thing as equals. When you see the equal sign, I want you to say *the same as*. What would I like for you to say when you see this sign (point)**?**

The same as.

That's right. Say *the same as* (point to "the same as")**.**

Let's look at some number sentences. We'll read each sentence. When you see the equal sign, remember to say *the same as*.

Point to A.

This number sentence says, 4 plus 6 is *the same as* (point to =) **10. Let's say that together.**

4 plus 6 is the same as 10.

Let's read it again.

4 plus 6 is the same as 10.

Point to B.

Read this number sentence.

5 plus 8 is the same as 13.

Yes. 5 plus 8 is *the same as* (point to =) **13.**

Point to C.

Now, this number sentence looks a little different. We'll read it from left (point) **to right** (point)**. 5 is *the same as*** (point to =) **2 plus 3. Let's say that together.**

5 is the same as 2 plus 3.

What do you say when you see the equal sign?

The same as.

Point to D.

Let's read this number sentence.

21 plus 54 is the same as 75.

Great. 21 plus 54 is *the same as* 75.

Point to E.

Try this number sentence. Remember, the equal sign means *the same as*.

75 is the same as 21 plus 54.

It doesn't matter where the equal sign is in a number sentence. Whenever you see the equal sign, you say *the same as*. What do you say?

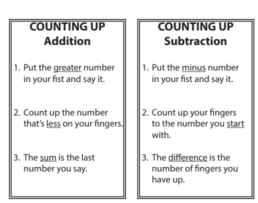
The same as.

Great! We'll practice this more next time!

3: Buccaneer Problems

Let's count up like we did last time. Remember, if you work hard and listen to directions, you'll earn more treasure coins to mark on your treasure map. Let's use the Counting Up posters while we add and subtract.

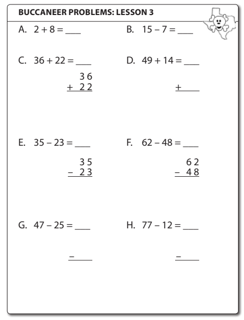
Show Counting Up posters to student.



Now, sometimes you know the answer to an addition or subtraction problem right away in your head, and that's great! But if you don't know the answer

right away, count up on your fingers.

Point to A.



BUCCANEER PROBLEMS: LESSON 3

A. 2 + 8 = ___ B. 15 − 7 = ___

C. 36 + 22 = ___ D. 49 + 14 = ___

$$\begin{array}{r} 36 \\ +\ 22 \\ \hline \end{array} \qquad \begin{array}{r} \\ +\ \_\_ \end{array}$$

E. 35 − 23 = ___ F. 62 − 48 = ___

$$\begin{array}{r} 35 \\ -\ 23 \\ \hline \end{array} \qquad \begin{array}{r} 62 \\ -\ 48 \\ \hline \end{array}$$

G. 47 − 25 = ___ H. 77 − 12 = ___

$$\begin{array}{r} -\ \_\_ \end{array} \qquad \begin{array}{r} -\ \_\_ \end{array}$$

Look at this problem. 2 plus 8. Do you add or subtract?

Add.

What sign tells you to add?

The plus sign.

If we need to add, which counting up steps do we follow?

(Points.)

Yes, we look at the Counting Up addition steps.

Let's count up. Step 1 says, "Put the greater number in your fist and say it." What's the greater number?

8.

Put 8 in your fist.

(Taps fist.)

Step 2 says, "Count up the number that's less on your fingers." Do that now. Count up 2 more, and use your fingers to keep track of how many you're adding.

(Counts up.)

Step 3 says, "The sum is the last number you say." So, what's the sum of 2 plus 8?

10.

That's right! 2 plus 8 is the same as 10. Go ahead and write 10.

(Writes.)

So, 2 plus 8 is the same as what?

10.

Point to B.

This problem says 15 minus 7 is the same as blank. Do you add or subtract?

Subtract.

What signs tells you to subtract?

Minus sign.

What steps do we follow?

(Points.)

When subtracting, we follow the Counting Up subtraction steps.

Step 1 says, "Put the minus number in your fist and say it." Do you remember what the minus number is?

It's the number after the minus sign.

That's right. The minus number is the number that comes right after the minus sign. What's the minus number for this problem?

7.

Good. Now put 7 in your fist.

(Taps fist.)

Step 2 says, "Count up on your fingers to the number you start with." So, count up on your fingers until you get to the number you start with, 15. Start with 7, and count: 8 (hold up 1 finger)**, 9** (hold up 2 fingers)**, 10** (hold up 3 fingers)**, 11** (hold up 4 fingers)**, 12** (hold up 5 fingers)**, 13** (hold up 6 fingers)**, 14** (hold up 7 fingers)**, 15** (hold up 8 fingers)**.**

Step 3 says, "The difference is the number of fingers you have up." How many fingers do you have up?

8.

So, what's the difference between 15 and 7?

8.

Yes, 15 minus 7 is the same as 8. Write 8.

(Writes.)

We solved this subtraction problem by finding the difference between the 2 numbers, 7 and 15 (point to Problem B)**.**

Look at this problem.

Point to C.

This problem says 36 plus 22 is the same as blank. This problem has a plus sign, so do we add or subtract?

Add.

That's right. The plus sign tells us to add. We can write this number sentence two ways. We can write it like this (point to 36 + 22 = ____)**, but it's hard to keep the ones and tens places straight in our heads this way. An easier way to see the ones and tens places is to write the problem up and down, like this** (point to vertical presentation of the problem)**.**

Before adding, let's draw a line down the middle to separate the column. Go

ahead and draw a line.

(Draws.)

Now we can see which column is for the ones place (point) **and which column is for the tens place** (point)**. This is very important in math, because when we add, we have to add the ones first. What do we add first?**

The ones.

Then, we add the tens. What do we then add?

The tens.

Let's do that now. Where do I start?

Ones.

Yes, I always start with the ones column. We need to add 6 plus 2 (point)**. Put the greater number in your fist** (show fist and say, "6,")**, and count up: 7** (hold up 1 finger)**, 8** (hold up 2 fingers)**. The sum is the last number you say, so the sum is what?**

8.

Write 8 in the ones place for the answer.

(Writes.)

Now, let's add the tens column. 3 tens plus 2 tens (point)**. What's the sum of 3 plus 2? Count up on your fingers if you don't know the answer right away.**

(Counts up.)

Great! 3 tens plus 2 tens is the same as 5 tens, so write 5 in the tens place for the sum.

(Writes.)

So, what's the sum of 36 plus 22?

58.

That's right. 36 plus 22 is the same as 58.

Let's do another addition problem.

Point to D.

49 plus 14 is the same as blank. Are you going to add or subtract?

Add.

How do you know you add?

The plus sign.

That's right. The plus sign tells you to add.

Before we get started, rewrite the number sentence and line up the columns. Remember, the ones (point) **need to line up and the tens** (point) **need to line up.**

(Writes.)

And go ahead and draw a line down the middle to separate the ones column and tens column.

(Draws.)

Very nice. Now, go ahead and solve this problem. Use the Counting Up poster if you need to.

(Solves.)

You added the ones in the ones column, and exchanged 13 ones for 1 ten and 3 ones. You wrote 13, but you placed the 1 ten here (point) **and the 3 ones here** (point). **Then, in the tens column, you added 4 plus 1 plus 1. You wrote your sum, 6 tens, in the tens place, and found that 49 plus 14 is the same as 63. What's 49 plus 14?**

63.

Nice work with those problems! You earn a treasure coin!

Now, let's do something different. So far, we've talked about adding and subtracting numbers that are small enough to count on our fingers. We've also talked about adding greater numbers that are hard to count on our fingers, like this problem (point to Problem D)**.**

Now we'll talk about subtracting greater numbers that are hard to count on our fingers.

Look at the next problem.

Point to E.

35 minus 23 is the same as blank. Are you going to add or subtract?

Subtract.

How do you know you subtract?

The minus sign.

That's right. The minus sign tells you to subtract.

This problem looks different because it has greater numbers, but it's still a subtraction problem. The minus number is here, right after the minus sign (point to 23)**. Here is the number you start with** (point to 35)**.**

Because this number sentence is written *across* like this (run finger horizontally under the problem)**, it's hard for me to keep the ones and tens places straight. So I rewrite the problem like this, up and down, before I start** (point).

We still want to draw a line to separate the ones column and tens column. Go ahead and do that now.

(Draws.)

Now it's time to subtract. Where do I start?

Ones column.

Yes, always start with the ones column. We need to subtract 5 minus 3 (point)**. Let's do that by counting up on our fingers. We start by putting the minus number in our fist. Here is the minus sign** (point)**.** (Point to minus sign.) **The minus sign is in the row next to the minus numbers. When we subtract the ones** (point to ones column)**, the minus sign goes with this number** (point to 3)**.**

Which number is the minus number?

3.

Yes, the minus number, 3, is the number that comes after the minus sign. Put the minus number in your fist (show fist and say, "3,")**, and count up: 4** (hold up 1 finger)**, 5** (hold up 2 fingers)**. The difference is the number of fingers you have up, so the difference is what?**

2.

Write 2 in the ones place for our difference.

(Writes.)

Let's move to the tens column. Now, we subtract the tens: 3 tens minus 2 tens (point)**. What's the difference between 3 minus 2? Count up on your fingers if you don't know the answer right away.**

1.

We put the minus number in our heads and count up to the number we started with. The minus number, 2, is the number that comes after the minus sign (point)**. So, 3 tens minus 2 tens is the same as 1 ten. Write 1 in the tens place for the difference.**

(Writes.) **So, what's the difference between 35 minus 23?**

12.

That's right. 35 minus 23 is the same as 12.

Look at this problem.

Point to F.

62 minus 48 is the same as blank. Are we going to add or subtract?

Subtract.

We need to subtract. The minus sign (point) **tells us to subtract.**

What should we do first?

Draw a line to separate the columns.

Yes, that's a good idea. Draw a line to separate the columns.

(Draws.)

So, where do we start?

Ones column.

Good answer. So, the ones column says, 2 minus 8 (point to ones column)**. Which number is the minus number?**

8.

That's right! The minus number is the number that comes after the minus sign (point)**. To count up, we start with the minus number, 8, and count up to the number you start with, 2. Picture a number line in your head. Can we start at 8** (pause) **and count *up* to 2** (pause)**?**

No.

Another way to think about this is, if you have *2* (point to 2)**, can you subtract *8*** (point)**?**

No.

You're right. You can't subtract 8 from 2. Can we reverse the numbers?

No.

We can't reverse the numbers in subtraction. So, we can't subtract 8 from 2, and we can't reverse the numbers and just subtract 2 from 8.

So, how do we solve this problem?

Regroup.

Yes, we need to regroup, or exchange the number we start with, 2 (point)**. To do this, we subtract 1 ten from these 6 tens** (point to 6 with pencil, and then cross it out)**. Now we're left with 5 tens** (write 5 above the crossed out 6)**.**

We exchange that 1 ten for 10 ones, and give them to the 2 ones we already have. This 2 becomes 12 (write 1 next to the 2 ones so that it looks like 12)**.**

Now, if we have 12 (point to 12)**, can we subtract our minus number, 8, from 12?**

Yes.

Great! Do that now. Use counting up if you don't know the answer right away in your head.

4.

12 minus 8 is the same as 4. Write 4 for your difference in the ones place.

(Writes.)

Now move to the tens column. 5 tens minus 4 tens (point)**. What's the difference between 5 minus 4? Count up on your fingers if you don't know the answer right away.**

1.

5 tens minus 4 tens is the same as 1 ten, so write 1 in the tens place for your difference.

(Writes.)

So, what's the difference between 62 minus 48?

14.

Now, what question should you ask to check your answer?

(Student.)

Is 14 less than 62?

14.

Yes, so you know the difference makes sense. Excellent!

You earn a treasure coin!

Look at the rest of the problems on this page and the next page.

Point to G through P.

Now it's your turn. We'll work each problem one at a time.

First, let's look at the sign to decide whether to add or subtract.

Then, we'll write the problem to make it easier to solve. We draw a line to separate the columns.

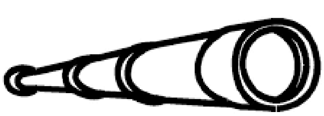
Then, we'll add or subtract the ones column and add or subtract the tens column.

Let's get started!

(Student works.)

Provide feedback as necessary.

You earn a treasure coin!



4: Shipshape Sorting

Starts Lesson 7.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

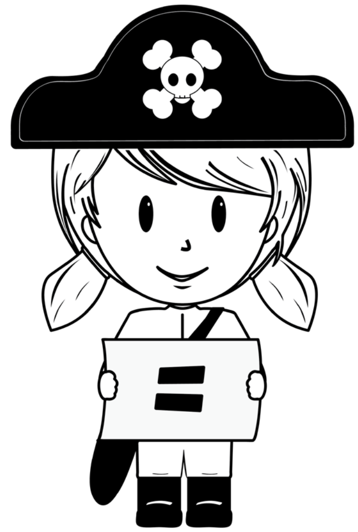
Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 4



ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Numbering charts and graphs
4. ~~Shipshape Sorting~~
5. Jolly Roger Review

Materials

Posters

Counting Up

Student Materials

Equation Quest: Lesson 4
Buccaneer Problems: Lesson 4
Jolly Roger Review: Lesson 4
Cubes
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Every day, before we start solving word problems, we'll do an Equation Quest with the equal sign.

What does the equal sign mean?

The same as.

Look at A.

That's right. The equal sign means *the same as* (point)**.**
Look at A.

Point to A.

Let's read this number sentence. When you see the equal sign, remember to say *the same as*. This number sentence says, 6 plus 8 is *the same as* (point to =) **14. Let's say that together.**

6 plus 8 is the same as 14.

Let's read it again.

6 plus 8 is the same as 14.

Point to B.

Read this number sentence. Remember, it doesn't matter where the equal sign is. You always say *the same as*.

11 is the same as 5 plus 6.

Yes. 11 is the same as (point to =) **5 plus 6. Let's read that again.**

11 is the same as 5 plus 6.

Point to C.

Now, this number sentence has a minus sign, but we still say the same as when you see the equal sign. So, this is 13 minus 4 is *the same as* 9. Let's say that together.

13 minus 4 is the same as 9.

What do you say when you see the equal sign?

The same as.

Point to D.

Let's read this number sentence.

72 minus 10 is the same as 62.

Great. 72 minus 10 is *the same as* 62.

Point to E.

Try this number sentence. Remember, the equal sign means *the same as*.

12 is the same as 23 minus 11.

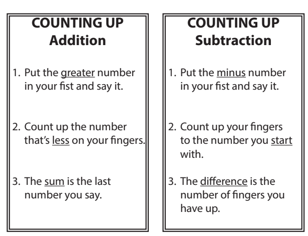
It doesn't matter where the equal sign is in a number sentence. Whenever you see the equal sign, you say *the same as*. What do you say?

The same as.

Great! We'll practice this more next time!

3: Buccaneer Problems

Let's review addition and subtraction. Remember, if you work hard and listen to directions, you'll earn more treasure coins to mark on your treasure map. Let's use the Counting Up posters while we add and subtract.



Show Counting Up posters to student.

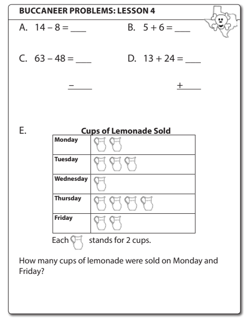
Now, sometimes you know the answer to an addition or subtraction problem right away in your head, and that's great!

But if you don't know the answer right away, count up on your fingers.

Point to A.

Look at this problem. 14 minus 8. Do you add or subtract?

Subtract.


BUCCANEER PROBLEMS: LESSON 4

A. 14 – 8 = ___ B. 5 + 6 = ___

C. 63 – 48 = ___ D. 13 + 24 = ___

E.

Cups of Lemonade Sold

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

Each stands for 2 cups.

How many cups of lemonade were sold on Monday and Friday?

What sign tells you to subtract?

The minus sign.

If we need to subtract, which Counting Up steps do we follow?

(Points.)

Let’s say the steps together.

Put the minus number in your fist and say it.
Count up your fingers to the number you start with.
The difference is the number of fingers you have up.

Let’s say the steps again.

Put the minus number in your fist and say it.
Count up your fingers to the number you start with.
The difference is the number of fingers you have up.

Let’s count up. “Put the minus number in your fist and say it.” What’s the minus number?

8.

That’s right. The minus number is 8. 8 is after the minus sign (point).

(Taps fist.)

“Count up your fingers to the number you start with.”

(Counts up.)

“The difference is the number of fingers you have up.” What’s the difference?

6.

Write 6.

(Writes.)

So, 14 minus 8 is the same as?

6.

Yes. 14 minus 8 is the same as 6.

Point to B.

Look at this problem. 5 plus 6. Do you add or subtract?

Add.

What sign tells you to add?

The plus sign.

If we need to add which Counting Up steps do we follow?

(Points.)

Let’s say the steps together.

Put the greater number in your fist and say it.
Count up the number that’s less on your fingers.
The sum is the last number you say.

Let’s say the steps again.

Put the greater number in your fist and say it.
Count up the number that’s less on your fingers.

The sum is the last number you say.

So, "Put the greater number in your fist and say it." What's the greater number?

6.

(Taps fist.)

Step 2 says, "Count up the number that's less on your fingers." Do that now.

(Counts up.)

Step 3 says, "The sum is the last number you say." So, what's the sum of 5 plus 6?

11.

That's right! 5 plus 6 is the same as 11. Go ahead and write 11.

(Writes.)

So, 5 plus 6 is the same as what?

11.

Look at this problem.

Point to C.

This problem says 63 minus 48 is the same as blank. This problem has a minus sign (point)**, so do we add or subtract?**

Subtract.

That's right. The minus sign tells us to subtract. We can write this number sentence two ways. We can write it like this (point to 63 – 48 = ____)**, but it's hard to keep the ones and tens places straight in our heads this way. An easier way to see the ones and tens places is to write the problem up and down. Rewrite the problem here.**

(Rewrites.)

Before subtracting, let's draw a line down the middle to separate the column. Go ahead and draw a line.

(Draws.)

So, where do we start?

Ones column.

Good answer. So, the ones column says, 3 minus 8 (point to ones column)**. Which number is the minus number?**

8.

That's right! The minus number is the number that comes after the minus sign (point)**. To count up, we start with the minus number, 8, and count up to the number you start with, 3. Picture a number line in your head. Can we start at 8** (pause) **and count *up* to 3** (pause)**?**

No.

You're right. You can't subtract 8 from 3. Can we reverse the numbers?

No.

We can't reverse the numbers in subtraction. So, we can't subtract 8 from 3, and we can't reverse the numbers and just subtract 3 from 8.

So, how do we solve this problem?

Regroup.

Yes, we need to regroup, or exchange the number we start with, 3 (point)**. To do this, we subtract 1 ten from these 6 tens** (point to 6 with pencil, and then cross it out)**. Now we're left with 5 tens** (write 5 above the crossed out 6)**.**

We exchange that 1 ten for 10 ones, and give them to the 3 ones we already have. This 3 becomes 13 (write 1 next to the 3 ones so that it looks like 13)**.**

Now, if we have 13 (point to 13)**, can we subtract our minus number, 8, from 13?**

Yes.

Great! Do that now. Use counting up if you don't know the answer right away in your head.

5.

13 minus 8 is the same as 5. Write 5 for your difference in the ones place.

(Writes.)

Now move to the tens column. 5 tens minus 4 tens (point)**. What's the difference between 5 minus 4? Count up on your fingers if you don't know the answer right away.**

1.

5 tens minus 4 tens is the same as 1 ten, so write 1 in the tens place for your difference.

(Writes.)

So, what's the difference between 63 minus 48? (Student.)

15.

Excellent! Look at this problem.

Point to D.

13 plus 24. This problem has a plus sign (point)**, so do we add or subtract?**

Add.

That's right. The plus sign tells us to add. We can write this number sentence two ways. We can write it like this (point)**, but what's a better way to write it?**

Up and down.

Go ahead and write the problem up and down.

(Writes.)

Before adding, let's also draw a line down the middle to separate the column. Go ahead and draw a line.

(Draws.)

So, where do we start?

Ones column.

Yes, I always start with the ones column. We need to add 3 plus 4 (point)**. What's 3 plus 4? If you don't know the sum, count up.**

7.

Write 7 in the ones place for the sum.

(Writes.)

Now, let's add the tens column. 1 ten plus 2 tens (point)**. What's the sum of 1 plus 2? If you don't know the sum, count up.**

3.

Great! 1 ten plus 2 tens is the same as 3 tens, so write 3 in the tens place for the sum.

(Writes.)

So, what's the sum of 13 plus 24?

37.

That's right. 13 plus 24 is the same as 37.

Nice work with those problems! You earn a treasure coin!

Now, let's do something different. Next time, we'll start to work on solving

word problems. Sometimes you find the numbers you need to solve word problems right there, in the word problem. Sometimes, though, the word problem comes with a table, chart, or a graph.

Before solving a word problem, we'll always number the table, chart, or graph. This will make solving the word problem easier.

Look at this.

Point to E.

Here's a word problem (point) **with a table** (point). **This table says, "Cups of Lemonade Sold."** (Point.) **The days of the week are on this side of the graph** (point). **"Monday, Tuesday, Wednesday, Thursday, Friday."**

So this table tells us how many cups of lemonade were sold for each day of the week.

To figure out how to read and number this graph, we look for any special directions about the graph. Down here at the bottom, we see directions (point)**. They say, "Each picture of lemonade stands for 2 cups."**

Because each picture of lemonade stands for 2 cups, we can count by twos to see how many cups were sold each day.

Let's start with Monday (point)**. Monday has 1** (point)**, 2** (point) **pictures of lemonade. So, let's count by twos: 2, 4. How many cups of lemonade were sold on Monday?**

4.

So, let's write 4 next to "Monday".

(Writes.)

Look at Tuesday (point). **Remember, the special directions down here tell you that each picture stands for two cups. So we count by twos. How many cups of lemonade were sold on Tuesday? Let's count by twos. 2, 4, 6.**

6.

6 cups of lemonade were sold on Tuesday. So, what should you write next to "Tuesday"?

6.

Write 6.

(Writes.)

Let's number Wednesday (point). **How many cups of lemonade were sold on Wednesday? Remember to count by twos.**

2.

Write 2.

(Writes.)

How many cups of lemonade were sold on Thursday (point)**? Go ahead and number it.**

(Writes.)

How many cups of lemonade were sold on Friday (point)**? Go ahead and number it.**

(Writes.)

Now that we've numbered the table, let's read this word problem and answer the question. "How many cups of lemonade were sold on Monday and Friday?" What do we need to do to solve this problem?

Add the cups from Monday and Friday.

That's right. We've already numbered the table, so this should be easy. How many cups were sold on Monday?

4.

How many cups were sold on Friday?

4.

So, we need to add together 4 plus 4. What's 4 plus 4?

8.

Very good. 4 plus 4 is the same as 8. So, I'll write 8 below the word problem.

Write 8.

There's one other thing you need to know about answering word problems. Whenever you write your answer for a word problem, you always write a number. That's easy to remember. But that's not enough. You also must write a label. A label is a word that tells us what the number is talking about. We already have part of our answer, the number 8. Now we have to write our label. What is the number 8 talking about? Bears? Canoes? Cups?

Cups.

Excellent. 8 tells about the number of cups. So, let's write our label, "cups," next to the number 8.

Write cups.

So, help me remember. What should we do anytime we see a table or graph with a word problem?

Number it.

That's right. You number the table or graph before reading and answering the word problem. That makes doing the word problem easier if you have the table or graph labeled before you start working.

Point to F.

Let's do another problem together. This graph shows different kinds of animals at the zoo. The animals are listed at the bottom of the graph (point). **How many different kinds of animals are shown on this graph?**

4.

Yes. There are lions (point), **monkeys** (point), **giraffes** (point), **and zebras** (point) **at the zoo.**

Now, look over here on the left side of the graph (point)**. The bottom number is 0 and the top number is 8. We use these numbers to see how many lions, monkeys, giraffes, and zebras are at the zoo.**

Watch me. Let's start with the lions. I put my finger at the top of the lions' box. (Place finger at top of lions' box.) **To know how many lions are at the zoo, I slide my finger over to the numbers on the left side.** (Slide finger over to number 3.) **My finger is on the number 3. So, there are 3 lions at the zoo. Let's write the number 3 next to the word lions.**

(Writes.)

What's the next animal on this graph?

Monkeys.

That's right. Let's see how many monkeys are at the zoo. I put my finger on the monkeys' box. (Place finger at top of monkeys box.) **To know how many monkeys are at the zoo, I slide my finger from the top of the monkeys' box to the number on the left side.** (Slide finger over to number 7.) **How many monkeys are at the zoo?**

7.

Very good. There are 7 monkeys at the zoo. Where should we write 7?

Next to monkeys.

Write 7 next to monkeys.

(Writes.)

How many giraffes are at the zoo?

2.

Very good. There are 2 giraffes at the zoo. Where should I write the number 2?

Next to giraffes.

(Writes.)

Are we finished numbering the graph?

No.

That's right. We still have to number the zebras. How many zebras are at the zoo?

4.

Yes. To decide the number of zebras, move your finger to the top of the zebras' box then slide my finger over to the left side.

Write 4 next to zebras.

(Writes.)

Great work! You did a nice job numbering that graph! Now that we've numbered the graph, let's read this word problem (point) **and answer the question.**

"How many lions and giraffes are at the zoo?"

What do we need to do to solve this problem?

Add the lions and giraffes together.

Yes. We have to add the number of lions to the number of giraffes. Does the story tell us how many lions and giraffes there are?

No.

Where should we look for that information?

In the graph.

How many lions are at the zoo?

3.

How many giraffes are at the zoo?

2.

So, we have 3 lions and 2 giraffes. To find the total number of lions and giraffes, we can add 3 plus 2. What's 3 plus 2?

5.

That's right. 3 lions plus 2 giraffes is the same as 5. So, to answer the question, write 5 below the word problem.

(Writes.)

There's one more thing we need to do. When you write your answer for a word problem, you always write a number. That's easy to remember. But that's not enough. Whenever your answer to a word problem is a number, you must also write a label. What's a label?

It's a word that tells about the number.

A label is a word that tells us what the number is talking about. We already have part of our answer, the number 5. Now we have to write our label. What is the number 5 talking about?

Animals *or* lions and giraffes.

Excellent. 5 tells about the number of lions and giraffes. So, let's write our label, "lions and giraffes," next to the number 5.

(Writes.)

That was good work! So, whenever you see a graph, what should you do even before you read the word problem?

Number it.

Good. Always number a graph before you work on the word problem. Let's practice another graph problem together.

Point to G.

There's a graph at the top (point)**. There's a question at the bottom** (point)**. Every time you see a graph, what should you do?**

Number the graph.

That's right. You should number the graph before you read and answer the word problem. What's this graph showing us?

Number of soccer goals scored.

Just like we numbered the graph with the lines going up and down, we number this graph with the lines going side to side.

So, how many soccer goals did Alex score? I slide my finger to the end of Alex's line. (Slide finger to right.) **Then, I slide my finger down to the numbers to see how many soccer goals Alex scored.** (Slide finger down to 8.) **My finger is on the number 8, so Alex scored 8 goals.**

Write 8 next to Alex's name.

(Writes.)

How many goals did Bailey score?

4.

That's right. Bailey scored 4 goals. So, write 4 next to Bailey's name.

(Writes.)

How many goals did Cara score?

6.

Very good! Write 6 next to Cara's name.

(Writes.)

Label the number of goals for Dan and Emma.

(Writes.)

Now that we've numbered the graph, we can read and answer the word problem. The word problem says, "Which kids scored the same number of goals?" How do we decide who scored the same number of goals?

Find the two numbers that are the same.

Very good. To decide who scored the same number of goals, find the two numbers that are the same. What two numbers are the same?

4.

So, who scored the same number of goals?

Bailey and Dan.

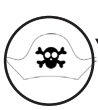
Good. Bailey and Dan scored the same number of goals. So, we'll write "Bailey and Dan" under the word problem.

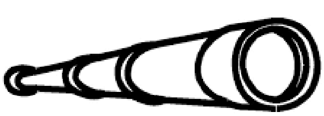
(Writes.)

So, every time you see a table or graph, what should you do first?

Number it.

That's right. Numbering a table or graph makes solving the word problem much easier.

 **You earn a treasure coin!**



4: Shipshape Sorting

Starts Lesson 7.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

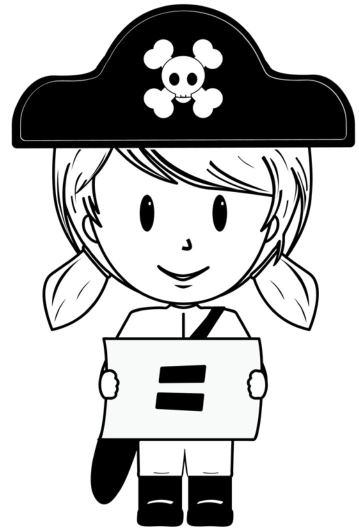
Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 5



ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Total with T missing
4. ~~Shipshape Sorting~~
5. Jolly Roger Review

Materials

Posters

Counting Up
RUN/Total

Student Materials

Equation Quest: Lesson 5
Buccaneer Problems: Lesson 5
Jolly Roger Review: Lesson 5
Cubes
Crayons
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

Look at A.

Point to A.

1 plus 6 is *the same as* blank.

To solve this problem with cubes, we can place 1 cube (place 1 cubes of one color) **and 6 cubes** (place 6 cubes of another color) **on this side of the equal sign.**

Place 1 cube and 6 cubes in left box.

Now, the equal sign acts as a balance. We need to make these sides the same. How many cubes do we have on this side (point)**? Add the 1 cube and 6 cubes.**

7.

So, if we have 7 cubes on this side of the equal sign (point)**, how many cubes do we need on that side** (point)**?**

7.

That's right. To make the sides the same, we need 7 cubes. Place 7 cubes.

(Places cubes.)

Okay, let's check that this side (point) **is the same as that side** (point)**. On this side of the equal sign** (point to left)**, there are 1, 2, 3, 4, 5, 6, 7 cubes** (touch each cube)**.**

On that side of the equal sign (point to right)**, there are 1, 2, 3, 4, 5, 6, 7 cubes** (touch each cube)**. Is this side** (point to left) **the same as that side** (point to right)**?**

Yes.

Yes! The two sides are the same. 1 plus 6 is the same as 7. Go ahead and write 7.

(Writes 7.)

What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as*.

Let's try another one.

Point to B.

This problem says blank is *the same as* 5 plus 5. Let's read that together.

Blank is the same as 5 plus 5.

This problem looks a little different, but we can solve it. All we need to do is make the sides the same.

To solve this problem with cubes, place 5 cubes on that side (point) **of the mat.**

(Places cubes.)

Now, add 5 cubes to that side of the equal sign (point)**.**

(Places cubes.)

The equal sign acts as a balance. We need to make these sides the same. How many cubes can we add to this side (point) **to make the sides the same? Let's add 1 cube at a time. Let's use different colored cubes to make it easy to see how many cubes we added.**

(Adds cubes.)

Are the sides the same?

Yes.

You have 10 cubes on this side of the equal sign (point)**, and 10 cubes on that side of the equal sign** (point)**.**

So, what is *the same as* 5 plus 5?

10.

That's right. You placed 10 cubes on this side (point)**. So, 10 is *the same as* 5 plus 5. Go ahead and write 10.**

(Writes.)

Let's read the number sentence together.

10 is the same as 5 plus 5.

What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as*.

Good work for today!

3: Buccaneer Problems

Yesterday we started working on word problems. What do we always do first when we see a table or graph?

Number it before we read the word problem.

Yes. We always have to check if the word problem has a table or a graph. Whenever we see a table or graph, we number it before we read the word problem.

And, when we solve word problems, what two things do we have in our answer?

A number and a label.

Very good. You must have a number *and* a label. Why do we need a label?

A label is a word that tells us what the problem is mostly about.

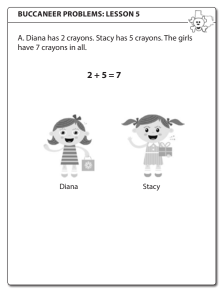
Excellent. A label is a word that tells us what the problem is mostly about. A label also tells us about our missing information.

Today, we'll work on math word problems where the important information is in a story. We need to read the story carefully to find the important information.

Today, we'll talk about Total problems.

Total means the entire amount, or the whole amount. In a Total problem, two or more parts are put together into a total. Listen to this Total story.

Point to A.


BUCCANEER PROBLEMS: LESSON 5

A. Diana has 2 crayons. Stacy has 5 crayons. The girls have 7 crayons in all.

2 + 5 = 7

Diana Stacy

"Diana has 2 crayons. Stacy has 5 crayons. The girls have 7 crayons in all."

Circle 2, 5, and 7 in the story as you say the following:

This is a Total story because we have two parts, Diana's crayons and Stacy's crayons. The parts are put together into a total number of crayons.

Here's the number sentence that goes with this story: 2 plus 5 is the same as 7. This number sentence stands for what's happening in this Total story.

Diana's 2 crayons (point to 2 in number sentence) **and Stacy's 5 crayons** (point to 5 in number sentence) **are put together into a total of 7** (point to 7 in number sentence) **crayons.**

Display crayons.

Let me show you how this works. We'll use these crayons. Look at this picture (point)**. This is a picture of Diana. Her name is written here** (point)**. Now here is a picture of Stacy** (point)**. Her name is written here** (point)**.**

How many crayons does Diana have?

2.

That's right. Let's count 2 crayons. 1, 2. Put two crayons underneath Diana's picture.

(Places crayons.)

How many crayons should Stacy have?

5.

That's right. Let's count 5 crayons. 1, 2, 3, 4, 5. Put 5 crayons underneath Stacy's picture.

(Places crayons.)

In Total problems, we put parts together into a total.

Hold out two hands; clasp hands together. Continue using hand motions throughout.

In this problem, Diana's crayons are part 1 (raise one hand)**. Stacy's crayons are part 2** (raise other hand)**.**

I put two parts together into a <u>total</u> (clasp hands)**. Let's see how many the total is. I put part 1, Diana's crayons, together with part 2, Stacy's crayons. That makes a total of 7 crayons in all.**

Count the 7 crayons.

2 plus 5 is the same as 7. 7 is the total number of crayons.

The number sentence 2 plus 5 is the same as 7 matches the story.

Point to 2 + 5 = 7.

All Total problems have the same kind of number sentence: Part 1 plus Part 2 is the same as the Total. We remember this as P1 plus P2 is the same as T.

Write P1 + P2 = T underneath 2 + 5 = 7.

We call P1 plus P2 is the same as T our Total equation. Equation is a fancy word.

Say it with me.

Equation.

Write the word equation next to P1 + P2 = T.

Equation has most of the word *equal* in it.

Underline "equa" in equation.

An equation has the equal sign in it, like P1 plus P2 is the same as T has the equal sign (point to equal sign)**. We call P1 plus P2 is the same as T our Total equation because it stands for what happens in a Total problem. Let's say the Total equation together.**

P1 plus P2 is the same as T.

What does P1 stand for?

Part 1.

What does P2 stand for?

Part 2.

And what does T stand for?

Total.

What's our Total equation?

P1 plus P2 is the same as T.

That's right. Part 1 plus Part 2 is the same as the Total.

Now, let's think about word problems.

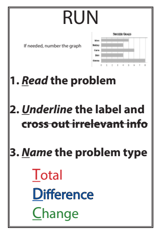
We call our program Pirate Math Equation Quest because we have to be math pirates. When pirates bury their treasure, they mark the treasure with an X. We'll use X to mark word-problem treasures. The treasure is the word-problem answer!

Some word problems will be easy. But other word problems will be much harder. For *every* word problem, you use Pirate Math Equation Quest to help you find the answer, even if you think the problem is easy.

You need to practice your Pirate Math Equation Quest skills and show me how you get your answer.

Let me show you what I mean. Pirates work through a word problem like this.

Display RUN poster.



Point to B.

Whenever we see a word problem, we use the RUN poster to help us solve it. We RUN through the problem.

The letters in the word RUN, R-U-N, help you remember the steps for solving the problem. What do you do when you see a word problem?

RUN through the problem.

Great, you RUN through the problem.

Make running motion with arms. Continue using hand motions throughout.

Now, look at this poster. Let's read the title together: "RUN." Now let's look at what each letter stands for.

Point to R.

R stands for "Read the problem." When you see a word problem, you read the problem. If you have trouble reading a problem, I'll help you. What does R stand for?

Read the problem.

That's great! Listen as I read the problem. "Diana has 2 crayons. Stacy has 5 crayons. How many crayons do the girls have altogether?"

The next letter is U.

Point to U.

U stands for "Underline the label and cross out irrelevant information." After you read the problem, underline the label. The label is what the problem is about. We underline the label to know which numbers are important and to help label the answer later. What does U stand for?

Underline the label and cross out irrelevant information.

The label is a word or words that tells us what the problem is mostly about. What's this problem about? Is it about monkeys?

No.

Is this problem about cookies?

No.

Is this problem about crayons?

Yes.

This problem is about crayons because the question asks, "How many crayons do the girls have altogether?" The question asks about the crayons for Diana and Stacy, so I underline the word "crayons."

Underline crayons in the question sentence.

I underlined the word "crayons" in the question (point)**. We only need to underline the word "crayons" one time. Even though we see the word "crayons" here** (point to Diana's sentence) **and here** (point to Stacy's sentence)**, you still only underline "crayons" one time.**

Should we underline the word "crayons" every time we see it in the word problem?

No.

That's right. We only underline the label one time. It doesn't really matter where you underline the word "crayons," but it's usually best to underline the label in the question sentence.

Like we talked about last time, the question sentence is the sentence with a question mark at the end (point)**. A sentence always starts with a capital letter. A sentence ends with a period or a question mark.**

What does a sentence start with?

A capital letter.

What does a sentence end with?

A period or question mark.

Good. In word problems, the question sentence helps us figure out the label.

After we underline the label, we have to check for irrelevant information. Sometimes we have extra numbers in a problem that are not about the label. We do not need these numbers to answer the question, so we call this irrelevant information. If there is irrelevant information, we should cross it out.

We see the words "irrelevant information" here (point) **on the RUN poster after underline the label. So, after we underline the label, we need to ask ourselves, "Is there any irrelevant information? Are all of the numbers about the label we underlined?"**

Yes.

Now look at the N.

Point to N.

The N in RUN stands for "Name the problem type." After you read the problem,

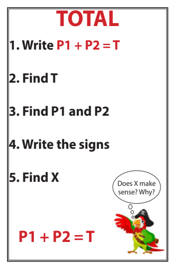
underline the label, and check for irrelevant information, you name the problem type. In Pirate Math Equation Quest, we'll learn about three problem types. Right now, we only know about Total problems. A Total problem puts parts together into a total. Does this problem put parts together into a total?

Yes.

Right. This problem puts parts together into a total. This is a Total problem. To remind me it's a Total problem, I write T next to the problem. T stands for Total problem.

Write T.

Display Total poster.



After you RUN through the problem, you're ready to solve it! We decided this is a Total problem, so we use this Total poster to solve it. This is the Total poster. We'll use it to help organize your work.

There are five steps. Like a pirate following a treasure map, we'll follow each step to get to the treasure – the word-problem answer!

To solve a Total problem, we have five steps. Step 1. "Write P1 plus P2 is the same as T." We saw this before. This is our Total equation.

In a Total problem, parts are put together into a total. We add part 1 plus part 2 and that is the same as the total. Once we know the problem is a Total problem, we write our Total equation: P1 plus P2 is the same as T. (Point.) **This helps us organize our Total work. Go ahead and write P1 plus P2 is the same as T.**

(Writes.)

Remind me again, what does P1 (point) **stand for?**

Part 1.

What does P2 (point) **stand for?**

Part 2.

What does T (point) **stand for?**

Total.

And what do we call P1 plus P2 is the same as T?

Total equation.

Very good. Look at Step 2: "Find T." What does T stand for?

The total.

That's right. We know T stands for the total because total starts with a T. In a Total problem, we have two parts, and we have a total. The question helps us figure out whether we're finding the total or one of the parts.

Look at the word problem again. The first sentence (point) **says, "Diana has 2 crayons." Diana has one part** (point to P1; then hold up that hand for Diana's part; keep that hand up)**.**

The next sentence (point) **says, "Stacy has 5 crayons." Stacy has one part.** (Point to P2 with the other hand; then hold up that hand for Stacy's part.) **The question asks, "How many crayons do the girls have altogether?"** (Bring together both hands and clasp together.)

We know the two parts, so the question is asking us to find the total. The missing part is the Total, or T (point)**.**

In number sentences, we mark missing information with an X. How do we mark missing information?

With an X.

Right. T is the missing information, so we put X in the number sentence under T. This helps keep my work organized.

(Writes.)

Step 3: "Find P1 and P2." What do P1 and P2 stand for?

Part 1 and part 2.

Let's work on part 1, or P1. The problem (point) **says, "Diana has 2 crayons." We already underlined the word "crayons" to help us remember this problem is about crayons. Is 2 talking about crayons?**

Yes.

2 is talking about crayons. So 2 is an important number for solving the problem. Let's say Diana's crayons are part 1. What number stands for part 1?

2.

2 is part 1, or P1. I check off the 2 in the problem, like this, so I remember I've already used it. Then, I write 2 in the number sentence underneath P1, like this.

Check off 2 and write 2 underneath the P1.

Now let's work on part 2, or P2. The next sentence (point) **says, "Stacy has 5 crayons." Remember, this problem is about crayons. Is 5 talking about crayons?**

Yes.

5 is talking about crayons, so it's an important number for solving the problem. We already have P1 in our number sentence (point)**. Stacy's number is part 2. What number is part 2?**

5.

5 is part 2, or P2. I check off 5, like this, to remember that I've used that number. Then I write 5 under P2 in the number sentence.

Check off 5 and write 5 underneath the P2.

Now we have P1, P2, and T filled in (point to 2, 5 and X)**. We use these numbers to find the word problem answer!**

But before we find the answer, look at Step 4. "Write the signs."

For Total problems, our Total equation is P1 <u>plus</u> P2 is the same as T. That's why we wrote the Total equation as Step 1, right here (point)**.**

Now we know what's missing in the problem, the Total. We wrote X here to stand for T (point)**. We found P1 and P2 in the story. We wrote those numbers, 2 and 5, underneath P1 and P2, right here** (point)**. But we still don't have any math signs. What math signs do we need to complete our number sentence?**

Plus and the same as sign.

Right. We always use a plus sign in a Total problem because we add two parts together for a total. Write the plus and the same as signs in the number sentence like this.

(Writes.)

2 stands for part 1. 5 stands for part 2. X stands for Total. Now it's time to solve this problem.

To solve this problem, we need to balance the two sides. If you add 2 plus 5, what can you place on that side to make the two sides the same?

7.

Yes. 2 plus 5 is *the same as* 7. Go ahead and write 7.

(Writes.)

Good. So, what number does X stand for in 2 plus 5 is the same as X?

7.

Right! You said 2 plus 5 is the same as 7; so X is the same as 7. Let's put 7 in the problem where X is to check our work.

Write 2 + 5 = 7 underneath 2 + 5 = X.

Does 7 make this side *the same as* that side?

Yes.

Right. 2 plus 5 is *the same as* 7. That makes sense. So X is the same as 7. So X is the same as 7. Write X is the same as 7.

(Writes.)

Whenever we write an answer to a word problem, we need a number and a label. We know that 7 is the number answer, but we still need a label. Think about what the problem is about. Go back to the word we underlined. What did we underline?

Crayons.

We underlined crayons, right here (point)**. Crayons is what the problem is about. It tells us about our missing information. We use the word crayons for our label. So, we write crayons after the number 7.**

Write crayons next to 7. Monitor that the student does this as well.

What is our number answer?

7.

Right. And what is our label answer?

Crayons.

Yes. Diana and Stacy have 7 crayons altogether. 7 is our number answer. Crayons is our label answer. 7 crayons is our final answer.

The last thing we need to do is check to see if our answer makes sense. Let's see if the answer makes sense. "Diana has 2 crayons. Stacy has 5 crayons. How many crayons do the girls have altogether?" Does it make sense that the girls have 7 crayons?

Yes.

Yes. This is a Total problem. So, the total is always more than the numbers in parts 1 and 2. Is 7 more than 2 and more than 5?

Yes.

Did we answer the question, "How many crayons do the girls have altogether?"

Yes.

We did because we said that they had 7 crayons.

Good job working a Total problem. That was a lot to learn today. Let's review.

What's a Total problem?

When parts are put together into a total.

Good. A Total problem is when parts are put together into a total.

When you see a word problem, what's the first thing you do? (Point to RUN poster.)

RUN through the problem.

Good. What does R stand for?

Read the problem.

U?

Underline the label and cross out irrelevant information.

N?

Name the problem type.

Good. Today we learned about Total problems. When you name a Total problem, what do you write next to the problem to help you remember it's a Total problem?

T.

Great. Then you use the Total poster to help you solve it!

You earn a treasure coin!

(Student works.)

4: Shipshape Sorting

Starts Lesson 7.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

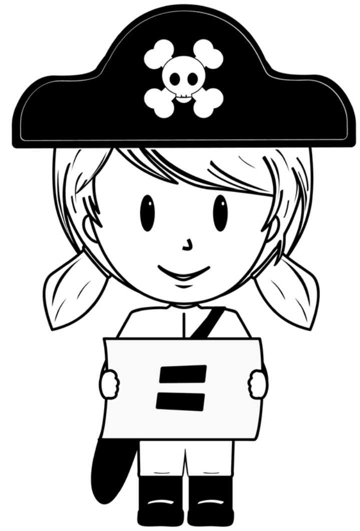
Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 6



ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Total with T missing; irrelevant information
4. ~~Shipshape Sorting~~
5. Jolly Roger Review

Materials

Posters

Counting Up
RUN/Total

Student Materials

Equation Quest: Lesson 6
Buccaneer Problems: Lesson 6
Jolly Roger Review: Lesson 6
Cubes
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

Look at A.

Point to A.

Blank is *the same as* 4 plus 4. Let's say that together.

Blank is the same as 4 plus 4.

Every number sentence has two sides. One side is here, on this side of the equal sign (point to __)**. The other side is there, on that side of the equal sign** (point to 4 + 4)**.**

Your job is to make the sides the same. Does it matter where the equal sign is in the number sentence?

No.

So, to solve this problem with cubes, we can place 4 cubes of one color on that side (point) **of the equal sign.**

(Places cubes.)

Then we place 4 cubes of another color on that side (point) **of the equal sign.**

(Places cubes.)

Now, the equal sign (point to =) **acts as a balance. We need to make these sides the same. How many cubes do we have on that side** (point)**? Add the 4 cubes and 4 cubes.**

8.

So, if we have 8 cubes on that side of the equal sign (point)**, how many cubes do we need on this side** (point)**?**

8.

That's right. To make the sides the same, we need 8 cubes. Place 8 cubes on this side (point)**.**

(Places cubes.)

Okay, let's check that this side (point) **is the same as that side** (point)**. On this**

side of the equal sign (point to left)**, there are 1, 2, 3, 4, 5, 6, 7, 8 cubes** (touch each cube)**.**

On that side of the equal sign (point to right)**, there are 1, 2, 3, 4, 5, 6, 7, 8 cubes** (touch each cube)**. Is this side** (point to left) ***the same as*** **that side** (point to right)**?**

Yes.

The two sides are the same. 8 is *the same as* 4 plus 4. Go ahead and write 8.

(Writes.)

What does the equal sign mean?

The same as.

That's right. The equal sign means the same as.

Let's try another one. Clear all the cubes.

(Clears.)

Point to B.

This problem says blank plus 3 is *the same as* 5. Let's read that together.

Blank plus 3 is the same as 5.

This problem looks a little different, but we can solve it. All we need to do is make the sides the same.

To solve this problem with cubes, place 3 cubes on this side (point) **of the mat.**

(Places cubes.)

Now, place 5 cubes on that side of the equal sign (point)**.**

(Places cubes.)

The equal sign acts as a balance. We need to make these sides the same.

How many cubes can we add to this side (point) **to make the sides the same? Let's add 1 cube at a time. Let's use different colored cubes to make it easy to see how many cubes we added.**

(Adds cubes.)

Are the sides the same?

Yes.

You have 5 cubes on this side of the equal sign (point)**, and 5 cubes on that side of the equal sign** (point)**.**

How many cubes did you add to make the sides the same?

2.

That's right. You added 2 cubes. So, 2 plus 3 is the same as 5. Go ahead and write 2.

(Writes.)

Let's read the number sentence together.

2 plus 3 is the same as 5.

What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as*.

When you see a problem like this (point to B)**, don't worry! All you need to do is make the sides the same!**

3: Buccaneer Problems

Today, we'll work more on math word problems where the important information is in a <u>story</u>. We read the story carefully to find the important information.

Yesterday we worked on Total problems. Total means the <u>entire</u> amount, or the <u>whole</u> amount. In a Total problem, two or more parts are <u>put together</u> into a <u>total</u>.

Remember, Pirate Math Equation Quest is all about solving word problems. When there's a missing number in the story, it's a word <u>problem</u>. We have to find X and solve the problem. We figure out what the missing number is.

When we solve word problems, what two things do we have in our answer?

A number and a label.

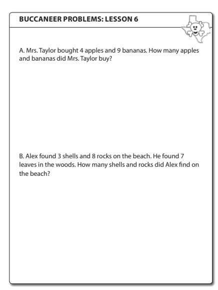
Very good. You must have a number *and* a label. What's a label?

A word that tells us about our number.

Excellent. A label is a word that tells us about our missing information.

Point to A.

Display RUN poster.



BUCCANEER PROBLEMS: LESSON 6

A. Mrs. Taylor bought 4 apples and 9 bananas. How many apples and bananas did Mrs. Taylor buy?

B. Alex found 3 shells and 8 rocks on the beach. He found 7 leaves in the woods. How many shells and rocks did Alex find on the beach?

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

What should we do anytime we see a table or graph with a word problem?

Number it.

<u>Solution to Problem A:</u>

Mrs. Taylor bought 4 apples and 9 bananas. How many apples and bananas did Mrs. Taylor buy?

Problem Type:	*Total*
Relevant Information:	*P1 = 4; P2 = 9; T = X*
Number Sentence:	*4 + 9 = X*
Answer:	*X = 13 apples and bananas*

Now let's solve this word problem. When we see a word problem, what's the first thing we do?

RUN through it!

Let's run through the problem: What does R stand for?

Read the problem.

Good! Listen as I read the problem. "Mrs. Taylor bought 4 apples and 9 bananas. How many apples and bananas did Mrs. Taylor buy?"

What does U stand for?

Underline the label and cross out irrelevant information.

Good. Where do we look to find the label?

In the question sentence.

Excellent! Now this problem is different from the problems we worked last time. Look here (point to question)**, the question says, "How many apples and bananas did Mrs. Taylor buy?"**

The question asks about apples *and* bananas. It's not just asking about apples. It's not just asking about bananas. It's asking about apples *and* bananas. So we need to underline both labels. We underline apples, and we underline bananas.

If we just underlined apples, would that be correct?

No.

If we just underlined bananas, would that be correct?

No.

Why not?

Because the story is about apples and bananas.

That's right. Two different things are important in this problem: Apples and bananas. So we underline apples *and* bananas. Be careful. Sometimes we have 1 word for our label. Sometimes we need 2 words for our label.

(Writes.)

After we underline the label, we have to check for irrelevant information. Sometimes we have extra numbers in a problem that are not about the label. We do not need these numbers to answer the question, so we call this irrelevant information. If there is irrelevant information, we should cross it out.

Is there any irrelevant information?

No.

Are all of the numbers about the label we underlined?

Yes.

What does N stand for?

Name the problem type.

After you read the problem, underline the labels, and check for irrelevant information, you name the problem type. A Total problem puts parts together into a total. Does this problem put parts together into a total?

Yes.

Right. This is a Total story because we have two parts, apples and bananas. The parts are put together into a total number of apples and bananas. (Make hand motions.)

This is a Total problem. What should we write next to the problem to remind us it is a Total problem?

T.

That's right. Write a T next to the word problem.

(Writes.)

The RUN poster helped us organize our paper to solve the problem! We said this is a Total problem. (Point to the T.) **So we use the Total poster to solve it.**

Display Total poster.

Let's look at the five steps. What's Step 1?

Write P1 + P2 = T.

Go ahead and write the Total equation.

(Writes.)

Good. In a Total problem, parts are put together into a total. The Total equation, P1 plus P2 is the same as T, helps us organize our work. Equation is a fancy word for number sentence. Equation is what high school students say when they solve math problems. P1 plus P2 is the same as T is the Total equation.

Step 2 is "Find T." What does T stand for?

The total.

Let's look at the problem to see if it gives us the total or if we need to find the total. The problem says, "Mrs. Taylor bought 4 apples and 9 bananas. How many apples and bananas did Mrs. Taylor buy?"

We have two parts: the apple part and the banana part. This problem tells us the number of apples (point)**. There are 4 apples. That's part 1. The problem also tells us the number of bananas** (point)**. There are 9 bananas. That's part 2.**

The question asks, "How many apples and bananas did Mrs. Taylor buy?" Is the

question asking us to find T or one of the parts?

T.

The question asks us to find T because it asks us to find the number of apples *and* bananas. It doesn't ask us to find part 1: the number of apples. It doesn't ask us to find part 2: the number of bananas. It asks us to find the number of apples *and* bananas. So, we have to find the total, or T.

T is missing. In number sentences, how do we mark missing information?

With an X.

Right. Write X in the number sentence under the T.

(Writes.)

Step 3 is "Find P1 and P2."

What do P1 and P2 stand for?

Part 1 and part 2.

Very good. Let's work on part 1, or P1. The problem (point) **says, "Mrs. Taylor bought 4 apples." We already underlined the word "apples" to help us remember this problem is talking about apples and bananas. Is 4 talking about apples or bananas?**

Apples.

4 is talking about apples. So, it's an important number. The apples are P1. What number stands for P1?

4.

4 is P1. Let's check off 4 in the problem and write 4 in the number sentence underneath P1.

(Writes.)

Let's think about part 2, or P2. We have the apples part. What part do we need

to do now?

The bananas part.

That's right. This problem isn't just about apples, it's also about bananas. How many bananas did Mrs. Taylor buy?

9.

9 is talking about bananas, so it's an important number for solving the problem. The bananas are P2. What number stands for P2?

9.

9 is P2. We check off 9 in the problem and write 9 in the number sentence underneath P2.

(Writes.)

Have we found all the important pieces of information?

Yes.

Right. We also have one piece of missing information, T, and it's marked with X. We know P1 and P2 from the story. What's Step 4?

Write the signs.

Good. Step 4 is write the signs. For Total problems, we always use P1 plus P2 is the same as T. That's why we wrote our Total equation this way (point)**. We filled in the numbers and X, but we still don't have any math signs. What math signs do we need to complete our number sentence?**

Plus and the same as sign.

Right. We still need our plus sign and our same as sign. Go ahead and write the plus and the same as sign in the number sentence.

(Writes.)

4 stands for part 1. 9 stands for part 2. X stands for Total. Now it's time to Find

X!

To solve this problem, we need to balance the two sides. Let's use our cubes. Place 4 cubes and 9 cubes.

(Places.)

If we have 4 cubes and 9 cubes on this side (point)**, how many cubes do you need to place on that side to make the sides the same** (point)**?**

13.

Yes. 4 plus 9 is the same as 13. Go ahead and write 4 plus 9 is the same as 13.

(Writes.)

So, the answer is 13. Let's write X is the same as 13.

(Writes.)

Our answer to a word problem must have a number. But that's not all. What else do we need to write in our answer?

A label.

Yes. Our answer to a word problem must have a number and a label. Think about what the problem is about. Look at the labels we underlined. What's a good label for the number 13?

Apples and bananas.

Right! The question is asking about apples and bananas. So that's the best label for our number 13. We underlined apples *and* bananas earlier to help us remember what the problem is about.

We can't label with just apples or just bananas, because that's not what's missing. X stands for apples *AND* bananas. We have to use both words! Our label is apples and bananas. Let's write our label, apples and bananas, next to our number answer. Do that now.

(Writes.)

The last thing we need to do is check to see if our answer makes sense. Let's see if the answer makes sense. "Mrs. Taylor bought 4 apples and 9 bananas. How many apples and bananas did Mrs. Taylor buy?" Does 13 apples and bananas make sense?

Yes.

Yes. This is a Total problem. The Total is always more than the numbers in parts 1 and 2. Is 13 more than 4 and is it more than 9?

Yes.

Did we answer the question, "How many apples and bananas did Mrs. Taylor buy?"

Yes.

We did because she bought 13 apples and bananas. Our answer is 13 apples and bananas. The answer has a number and a word label.

Good job working this Total problem. Let's look at the next one.

Point to B.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

Solution to Problem B:

Alex found 3 shells and 8 rocks on the beach. He found 7 leaves in the woods. How many shells and rocks did Alex find on the beach?

Problem Type:	*Total*
Relevant Information:	*P1 = 3; P2 = 8; T = X*
Irrelevant Information:	~~*He found 7 leaves in the woods*~~
Number Sentence:	*3 + 8 = X*
Answer:	*X = 11 shells and rocks*

Now let's solve this word problem. What's the first thing we do every time we see a word problem?

RUN through it!

Let's run through the problem. What does R stand for?

Read the problem.

Yes. Listen as I read the problem. "Alex found 3 shells and 8 rocks on the beach. He found 7 leaves in the woods. How many shells and rocks did Alex find at the beach?"

U. What does U stand for?

Underline the label and cross out irrelevant information.

Let's think about what to underline. We need to decide what the problem is about. Usually, the question gives hints as to what the problem is about. The question says, "How many shells and rocks did Alex find at the beach?"

Is this problem talking about shells?

Yes.

Let's underline shells.

(Writes.)

Is this problem talking about anything else?

Yes.

What else does the problem talk about? It's not just about shells.

Rocks.

That's right. The question is also asking about rocks. Let's underline rocks.

(Writes.)

Now, I see the word "leaves" (point) **here. Does the question ask about leaves?**

No.

The question asks about how many rocks and shells Alex found. This 7 (point to 7) **in the story doesn't tell about rocks or shells. We call this number <u>irrelevant information</u>. We see the words "irrelevant information" here** (point) **on the RUN poster.**

Listen carefully. Sometimes you find extra numbers in a problem that you don't need to answer the question. We call this <u>irrelevant information</u>.

Are leaves a kind of rock or a kind of shell?

No.

That's right. Leaves are not rocks or shells. We don't even find leaves on the beach! The number of leaves is irrelevant information. We don't need it to solve the word problem. So I put a line through "He found 7 leaves in the woods." This shows I don't need that information. It's irrelevant information, so I cross it out.

Cross out: ~~*He found 7 leaves in the woods.*~~

Remember, sometimes you don't use <u>every</u> piece of information or <u>every</u> number in a problem. You have to be picky and choose only the information you really need. The labels help you decide which numbers are important information and which numbers are irrelevant information. Always cross out irrelevant information.

N. What does N stand for?

Name the problem type.

Good. After you read the problem, underline the labels, and check for irrelevant information, you name the problem type. A Total problem puts parts together into a total. Does this problem put parts together into a total?

Yes.

Right. This problem puts parts together into a total. This is a Total problem. What are the two parts?

Shells and rocks.

Great. The problem is putting together shells and rocks. What should I do to help me remember this is a Total problem?

Write T next to the problem.

Yes. Write T next to the problem to remind us it's a Total problem.

(Writes.)

Before we move to the Total poster, let's look at the word problem. We said the problem is about shells and rocks. Is this number about shells and rocks? (Point to 7 leaves in the story.)

No.

The RUN poster helped us organize our paper so we can solve the problem! We said this is a Total problem. (Point to T.) **Now we use the Total poster to solve it.**

Let's look at the five steps. What's Step 1?

Write P1 + P2 = T.

Good. P1 plus P2 is the same as T is our Total equation. The Total equation helps us organize our work.

(Writes.)

Step 2: "Find T." We have to decide the total. Let's first look at the question to see if the problem tells us the total or if the problem tells us to find the total.

The question says, "How many shells and rocks did Alex find at the beach?" Is the question just asking us to find the number of shells?

No.

Is the question just asking us to find the number of rocks?

No.

Is the question asking us to find the number of shells and rocks?

Yes.

The question is asking us to find the total number of shells *and* rocks. The total, or T, is missing.

In number sentences, how do we mark missing information?

With an X.

Right. Put X in the number sentence. Where do write the X?

Under the T.

Good. Write X under the T because the Total is what's missing.

(Writes.)

Step 3: "Find P1 and P2." Let's think about the two parts. In the question, we underlined shells and rocks. So, one part is the number of shells. The other part is the number of rocks. We ONLY want to find information that tells us about shells and rocks. P1 is shells. P2 is rocks. We only want those numbers.

How many shells did he find?

3 shells.

Right. The story tells us he found 3 shells. We know he found 3 shells because 3 is next to the word shells. Check off the 3 in the problem, and write the number 3 in the number sentence underneath P1. We check off the 3 to remember we've already used it.

(Writes.)

Have we found all the important information we need?

No.

What do we still need to find?

Part 2.

We still need to find P2, which is the number of rocks. Take a minute and look in the story.

What's P2?

8 rocks.

Right. The story tells us he found 8 rocks. We know he found 8 rocks because 8 is next to the word rocks.

Check off the 8 in the problem and write the number 8 in the number sentence underneath P2. We check off 8 to remember we've already used it.

(Writes.)

Have we found all the important information we need?

Yes.

Right. We only have one piece of missing information, T, and it's marked with an X. We found P1 and P2 in the story.

What's Step 4?

Write the signs.

Good. This is easy. Look at the signs in P1 plus P2 is the same as T. We filled in the numbers and missing information, but we still need math signs. What math signs do we need to complete our number sentence?

Plus and the same as signs.

Right. We still need our plus sign and our same as sign. Go ahead and write the plus and the same as sign.

(Writes.)

3 stands for P1. 8 stands for P2. X stands for T. Does this look like a number sentence we know how to solve?

Yes!

To solve this problem, we need to balance the two sides. Let's use our cubes. Place 3 cubes and 8 cubes.

(Places.)

If we have 3 cubes and 8 cubes on this side (point)**, how many cubes do you need to place on that side to make the sides the same** (point)**?**

11.

Yes. 3 plus 8 is the same as 11. Go ahead and write 3 plus 8 is the same as 11.

(Writes.)

So, the answer is 11. Let's write X is the same as 11.

(Writes.)

Great! In word problems, our answer must have a number but that's not enough. What else do we need in our answer?

A label.

Yes. We always need a number and a label. If we don't write a label, the number will be lonely! We know the number answer is 11. Now we have to figure out what the label for 11 should be. Think about what the problem is about. Look at what we underlined. What did we underline?

Shells and rocks.

Right! The question asks us about shells and rocks, so that's the best label. We can't label with just shells or just rocks, because that's not what's missing. The missing piece is shells AND rocks so we have to use both! Our label is shells and rocks. Write your label next to the number 11.

(Writes.)

The last thing we need to do is check to see if our answer makes sense. Let's

see if the answer makes sense. "Alex found 3 shells and 8 rocks on the beach. He found 7 leaves in the woods. How many shells and rocks did Alex find at the beach?" Does 11 shells and rocks make sense?

Yes.

Yes. This is a Total problem. So, the Total is always more than the numbers in parts 1 and 2. Is 11 more than 3 and 8? Does our answer make sense?

Yes.

Our answer makes sense because he found 11 shells and rocks. We have a number and a label in the answer. Good job working this Total problem.

Point to C.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

Solution to Problem C:

For a building project, the carpenter needs 32 nails and 56 screws. The carpenter has 2 hammers. How many nails and screws does the carpenter have altogether?

Problem Type:	*Total*
Relevant Information:	*P1 = 32; P2 = 56; T = X*
Irrelevant Information:	~~*The carpenter has 2 hammers.*~~
Number Sentence:	*32 + 56 = X*
Answer:	*X = 88 nails and screws*

Follow Activity Guide: Total.

When you see a word problem, what's the first thing you do? (Point to RUN poster.)

RUN through the problem.

Good. What does R stand for?

Read the problem.

U?

Underline the label and cross out irrelevant information.

N?

Name the problem type.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

You earn a treasure coin!

4: Shipshape Sorting

Starts Lesson 7.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

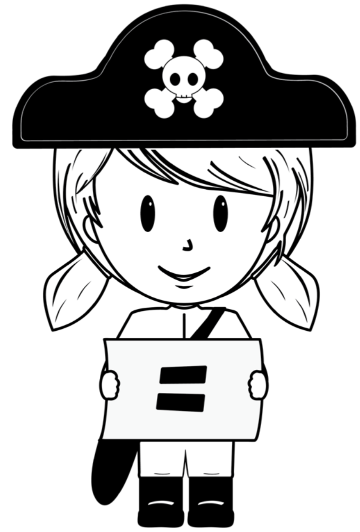
Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 7

ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Total with P1 or P2 missing
4. Shipshape Sorting
5. Jolly Roger Review



Materials

Posters

Counting Up
RUN/Total

Student Materials

Equation Quest: Lesson 7	Cubes
Buccaneer Problems: Lesson 7	Treasure Map
Jolly Roger Review: Lesson 7	

Tutor Materials

Math Fact Flash Cards	Sorting Mat
Timer	Gold coins
Sorting Cards	Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

Look at A.

Point to A.

5 plus blank is *the same as* 8. Let's say that together.

5 plus blank is the same as 8.

Every number sentence has two sides. One side is here, on this side of the equal sign (point to 5 + __)**. The other side is there, on that side of the equal sign** (point to 8)**.**

Your job is to make the sides the same. To solve this problem with cubes, we can place 5 cubes of one color on this side (point) **of the equal sign.**

(Places cubes.)

Then, we place 8 cubes of another color on that side (point) **of the equal sign.**

(Places cubes.)

Now, the equal sign (point to =) **acts as a balance. We need to make these sides the same. Add 1 cube at a time. Use different colored cubes to make it easy to see how many cubes you added.**

(Adds cubes.)

Are the sides the same?

Yes.

You have 8 cubes on this side of the equal sign (point)**, and 8 cubes on that side of the equal sign** (point)**.**

How many cubes did you add to make the sides the same?

3.

(Writes.)

5 plus 3 is the same as 8.

That's right. You added 3 cubes. So, 5 plus 3 is *the same as* 8. Go ahead and write 3.

(Writes.)

Let's read the number sentence together.

5 plus 3 is the same as 8.

Let's try another one. Clear all the cubes.

(Clears.)

Point to B.

This problem says blank plus 3 is *the same as* 5. Let's read that together.

Blank plus 3 is the same as 5.

This problem looks a little different, but we can solve it. All we need to do is make the sides the same.

To solve this problem with cubes, place 3 cubes on this side (point) **of the mat.**

(Places cubes.)

Now, place 5 cubes of that side of the equal sign (point)**.**

(Places cubes.)

The equal sign acts as a balance. We need to make these sides the same. How many cubes can we add to this side (point) **to make the sides the same? Let's add 1 cube at a time. Let's use different colored cubes to make it easy to see how many cubes we added.**

(Adds cubes.)

Are the sides the same?

Yes.

You have 5 cubes on this side of the equal sign (point)**, and 5 cubes on that side of the equal sign** (point)**.**

How many cubes did you add to make the sides the same?

2.

That's right. You added 2 cubes. So, 2 plus 3 is *the same as* 5. Go ahead and write 2.

(Writes.)

Let's read the number sentence together.

2 plus 3 is the same as 5.

What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as*.

When you see a problem like this (point to B)**, don't worry! All you need to do is make the sides the same!**

Today, we'll work on word problems where we have to make the sides the same, and we'll use our Equation Quest skills!

3: Buccaneer Problems

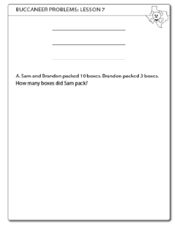
Last time, we worked on Total problems. Let's review.

What's a Total problem?

When parts are put together into a total.

In a Total problem parts are put together to make a total. *All* Total problems have the same Total equation. What's the Total equation?

P1 + P2 = T.


BUCCANEER PROBLEMS: LESSON 7

A. Sam and Brandon packed 10 boxes. Brandon packed 3 boxes. How many boxes did Sam pack?

That's right. The Total equation is Part 1 plus Part 2 is the same as the Total. Let's practice writing the Total equation from memory.

On these lines (point)**, write the Total equation 3 times.**

(Writes.)

Remind me. When we solve word problems, what two things do we have in our answer?

A number and a label.

Very good. You must have a number *and* a label. What is a label?

A word that tells us what the problem is mostly about.

Excellent. A label is a word that tells us what the problem is mostly about. Now let's practice solving word problems!

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

Point to A.

<u>Solution to Problem A:</u>

Sam and Brandon packed 10 boxes. Brandon packed 3 boxes. How many boxes did Sam Pack?

Problem Type:	*Total*
Relevant Information:	*P1 = 3; P2 = X; T = 10*
Number Sentence:	*3 + X = 10*
Answer:	*X = 7 boxes*

What's the first thing we do every time we see a word problem?

RUN through it!

Good. What does R stand for?

Read the problem.

Listen as I read the problem. "Sam and Brandon packed 10 boxes. Brandon packed 3 boxes. How many boxes did Sam pack?"

What does U stand for?

Underline the label and cross out irrelevant information.

First, look at the question to see if it helps with the label. The question is, "How many boxes did Sam pack?" What's this problem mostly about?

Boxes.

This story is mostly about boxes. Let's underline the word boxes in the question. This will help us remember we're looking for numbers that talk about boxes.

(Underlines.)

Is there any irrelevant information?

No.

Are all of the numbers about the label we underlined?

Yes.

What does N stand for?

Name the problem type.

After you read the problem and underline the label, you name the problem type. How do we know when it's a Total problem?

When parts are put together into a total.

Does this problem put parts together into a total?

Yes.

What are the parts?

Sam's boxes and Brandon's boxes.

That's right. This problem is about Sam's boxes. That's one part. This problem is also about Brandon's boxes. That's the other part. Two parts are put together for a total. This is a Total problem.

So far, we've solved Total problems when the missing information is the Total. We've gotten pretty good at doing these Total problems. Today I'll teach you about Total problems that are trickier.

In these Total problems, the story gives you T, or the Total number. The <u>missing</u> number is one of the parts. The question asks us to find one of the parts.

To figure out whether the problem is a Total problem, always ask yourself: Are parts put together into a total? Remember. What's missing might be the total. But what's missing might be one of the parts. Either way, the problem is still a Total problem. It's still about parts being put together into a total.

Let me read the problem again.

Reread Problem A.

This problem is about two parts: one part is Sam's boxes; the other part is Brandon's boxes. The problem is also about a total. The total is the number of boxes the boys packed together. But the total is not in the question, like we're used to. To figure out if a problem is a Total problem, you can't just look at the question.

Sometimes the story gives you the total in another part of the story, and the question asks you to find one of the parts. This makes it harder to name the problem type. You have to think hard to decide whether a problem is talking about parts being put together to make a total.

In a few weeks, we'll learn about other types of problems. Then, we'll have to work even harder to figure out whether the problem is a Total problem or another type of problem. We need to get really good at naming Total problems so when we learn about other problems, we know what we're doing.

Let me read the problem one more time. Listen for the parts and the total, no matter where they are in the story. Think: Are parts put together into a total?

Reread Problem A.

Yes.

Right. In this problem, there are two parts and a total. This is a little tricky. The first sentence says that Sam and Brandon packed 10 boxes. Does this mean that Sam packed 10 boxes?

No.

Does this mean that Brandon packed 10 boxes?

No.

That's right. This sentence tells the number of boxes that Sam and Brandon packed *altogether*. It's not just talking about Sam's boxes. It's not just talking about Brandon's boxes. It's talking about the boxes they packed *together*. It's talking about the total.

This problem is different from the Total problems we've worked before. Those other problems always asked us to find the total. This problem (point) **tells us the total. Today, we have to find one of the parts.**

Since this problem is about putting parts together into a total, we know it's a Total problem. What should I put next to the problem?

T.

Right. I put T next to the problem to remind me it's a Total problem.

(Writes.)

Good! The RUN poster helped us organize our paper so we can solve the problem! We said this is a Total problem. (Point to the T.) **We use the Total poster to solve it.**

Display Total poster.

What's Step 1?

Write P1 + P2 = T.

Good. We write the Total equation: P1 plus P2 is the same as T.

(Writes.)

Step 2: "Find T." In the problems we've worked on before today, the missing information was always the total. This problem is different. The first sentence says, "Sam and Brandon packed 10 boxes." This sentence tells us the total number of boxes Sam and Brandon packed. It's not talking about the number of boxes Sam packed. It's not talking about the number of boxes Brandon packed. It's talking about the boxes Sam *and* Brandon packed altogether.

If Sam and Brandon packed 10 boxes, the total is 10. This problem tells us the total. It asks us to find one of the parts.

The total, or T, is 10. Check off the 10 in the problem, and write the number 10 in the number sentence underneath T, like this. We check off the 10 so I remember I've already used it.

(Writes.)

Step 3 says, "Find P1 and P2." We know the total is 10. Now we have to find the parts. Sam's boxes is a part. Brandon's boxes is a part. How many boxes did Sam pack?

We don't know.

That's right. We know the total number of boxes the boys packed together, and we know how many Brandon packed. The missing information is how many Sam packed. The missing information is one of the parts. When one of the parts is missing, we mark P2 with X. We need to find P2. That's what's missing.

Where do I mark the X?

Under P2.

Good. Write X under P2 because part 2 is missing.

(Writes.)

In Total problems, when one of the parts is missing, it doesn't matter if we call the missing part P1 or P2. We get the same answer whether we call the missing part P1 or P2. Let's solve this problem with P2 missing. Then I'll show you what I mean.

We still need to fill in part 1. Remember, the missing part is how many boxes Sam packed. We decided to call Sam's missing part "part 2". Brandon's boxes will be part 1. How many they packed together is the total.

How many boxes did Brandon pack? What does the problem tell us?

3.

The problem says, "Brandon packed 3 boxes." Part 1 is 3. Check off the 3 in the problem and write the number 3 in the number sentence underneath P1, like this.

(Writes.)

Have we found all the important information we need?

Yes.

Right. We only have one piece of missing information, P2, and it's marked with X. We found T and P1 in the story. Now let's go to Step 4. What's Step 4?

Write the signs.

Good. What math signs do we need to complete our number sentence?

Plus and the same as signs.

Let's write them in the number sentence.

(Writes.)

3 stands for part 1. X stands for part 2. 10 stands for total.

Let's find X!

We want to get the X by itself on this side (point) **of the equal sign. To do that, I need to move 3 to that side of the equal sign. We want to make this side zero.**

If you have 3 and want to get zero, you can subtract 3. Because 3 minus 3 is what?

0.

(Writes, subtracts below the number, and crosses out the numbers.)

Now we need to balance the sides of the equal sign, so we have to do the same thing to the other side.

For this problem, we subtracted 3 from this side of the equal sign, so we have to subtract 3 from this side of the equal sign.

(Writes minus 3 and subtracts number.)

X is *the same as* 7.

So, write X is the same as 7.

(Writes.)

Great! In word problems, our answer must have a number and a label. We know the number answer is 7. Now we have to figure out what the label for 7 should be. Think about what the problem is mostly about. Start by looking in the question sentence. What did we underline?

Boxes.

Right! The question is asking about boxes, so that's the best label. We write boxes for the label!

(Writes.)

The last thing we need to do is check to see if our answer makes sense. Let's see if the answer makes sense. "Sam and Brandon packed 10 boxes. Brandon packed 3 boxes. How many boxes did Sam pack?" Does 7 boxes make sense?

Yes.

Why does it make sense?

(Student.)

Yes. This is a Total problem. The total is always more than the numbers in parts 1 and 2. 10 is more than 7 and more than 3. Did we answer the question, "How many boxes did Sam pack?"

Yes.

We did because he packed 7 boxes. We have a number and a label in the answer.

Remember, I told you that when one of the parts is missing in a Total problem, it doesn't matter if you mark P1 or P2 with X. Let me show you what I mean. Let's write our Total equation again.

(Writes.)

When we just solved this, we marked P2 with X (point to first number sentence)**. This time, let's mark P1 with X. Let's see if we get the same answer.**

(Writes.)

Let's solve it. The Total is still how many boxes Sam and Brandon packed together. How many did they pack together?

10.

(Writes.)

Good. We're trying to find the number that Sam packed, that's X. How many did Brandon pack? Look at the problem.

3.

(Writes.)

Right. Now I put the plus and the same as sign like before.

(Writes.)

What's our answer?

7.

Good! X is the same as 7. Is this the same answer we got the first time we solved the problem?

Yes.

Good. When one of the parts is missing in Total problems, it doesn't matter if we mark P1 or P2 with X. Let's always mark P2 with X. This will make checking our work and finding X easier. Let's solve the next problem!

Point to B.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

Yes.

What should we do anytime we see a table or graph with a word problem?

Number it.

<u>Solution to Problem B:</u>

The table shows the animals on Farmer Mack's farm. If he has 15 cows and horses, how many cows does he have?

Problem Type:	*Total*
Relevant Information:	*P1 = 7; P2 = X; T = 15*
Number Sentence:	*7 + X = 15*
Answer:	*X = 8 cows*

Every time we see a word problem, what's the first thing we do?

Follow Activity Guide: RUN.
When you get to "N" begin script again.

Remember, sometimes you have to think hard to decide whether a problem is a Total problem. Look for the total and the parts anywhere in the story. Sometimes the total is not in the question. Whenever you think a problem might be a Total problem, ask yourself: Are there parts put together into a total? If the answer is yes, it's a Total problem.

This problem talks about two parts: one part is horses; the other part is cows. There's also a total. The total is the horses and cows Farmer Mack has already put together.

The RUN poster helped us organize our paper so we can solve the problem! We said this is a Total problem. (Point to the T.) **We use the Total poster to solve it.**

What's Step 1?

Write P1 + P2 = T.

Good. We write the Total equation: P1 plus P2 is the same as T.

(Writes.)

Step 2: "Find T." The problem says, "If he has 15 cows and horses, how many cows does he have?"

This is where students sometimes get confused. Let's talk about this. The first part of the sentence says, "If he has 15 cows and horses." 15 is not just about cows. 15 is not just about horses. 15 is about cows *and* horses. This word "and" (point) **is really important here because it shows that 15 talks about both cows *and* horses.**

If 15 is about cows *and* horses, is 15 one of the parts or is 15 the total?

Total.

That's right. 15 is about the total number of cows and horses altogether. 15 is the total. It's T. Check off 15 in the problem and write 15 under T.

(Writes.)

Step 3: "Find P1 and P2." We already know the total, 15. There are 15 cows *and* horses. The cows are one part. The horses are the other part. Which part do we know?

The horses.

We do know the horses part. How many horses does Farmer Mack have?

7.

Where should we write 7?

Under P1.

In a Total problem that tells us T, the problem always tells us one part and asks us to find the other part. What do we call the part that's missing?

P2.

Right. We always call the missing part P2. We always call the part we know P1. In this problem, we know the horses part, which is 7. What do we call this, P1 or P2?

P1.

Right. We'll call the horses Part 1 because that's the part the problem tells us.

P1 is 7. Remember, in Total problems with a missing part, we always call the part we know part 1. X is part 2.

What's P1 again?

7.

I check off the 7 in the problem and write the number 7 in the number sentence underneath P1, like this. Check off the 7 so I remember I've already used it.

(Writes.)

Part 2 is the number of cows. How many cows does Farmer Mack have?

We don't know.

The question asks, "How many cows does he have?" We have to find the cows part. P2 is missing. How do we mark missing information?

With an X.

P2 is missing. Write an X under P2.

(Writes.)

Now let's go to Step 4. What's Step 4?

Write the signs.

Good. What math signs do we need to complete our number sentence?

Plus and the same as signs.

Let's write them in the number sentence.

(Writes.)

7 stands for part 1. X stands for part 2. 15 stands for total.

Let's find X!

We want to get the X by itself on this side (point) **of the equal sign. To do that, I need to move 7 to that side of the equal sign. We want to make this side zero.**

If you have 7 and want to get zero, you can subtract 7. Because 7 minus 7 is what?

0.

(Writes, subtracts below the number, and crosses out the numbers.)

Now we need to balance the sides of the equal sign, so we have to do the same thing to the other side.

For this problem, we subtracted 7 from this side of the equal sign, so we have to subtract 7 from this side of the equal sign.

(Writes minus 7 and subtracts number.)

X is *the same as* 8.

So, X is the same as 8. Go ahead and write X is the same as 8.

(Writes.)

Great! In word problems, our answer must have a number and a label. We know the number answer is 8. Now we have to figure out what the label for 8 should be. Think about what the problem is mostly about. Start by looking in the question sentence.

Right! We underlined cows, because cows is the word that tells us about our missing information. What do we write for our label?

Cows.

Right! We write cows for the label!

(Writes.)

The last thing we need to do is check to see if our answer makes sense. Let's see if the answer makes sense. "If he has 15 horses and cows, how many cows does he have?" Why does 8 cows make sense?

(Student.)

Yes. This is a Total problem. The Total is always more than the numbers in parts 1 and 2. 15 is more than 7 and more than 8. Did we answer the question, "How many cows does he have?"

Yes.

We did because he has 8 cows. We have a number and a label in the answer.

Excellent work on this Total problem!

Let's solve the next problem!

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or table?

No.

Point to C.

<u>*Solution to Problem C:*</u>

The baker has 42 chocolate and strawberry cupcakes. If 26 of the cupcakes are chocolate, how many are strawberry?

Problem Type:	*Total*
Relevant Information:	*P1 = 26; P2 = X; T = 42*
Number Sentence:	*26 + X = 42*
Answer:	*X = 16 strawberry cupcakes*

Follow Activity Guide: RUN.
Follow Activity Guide: Total.
When you get to "find X" begin script again.

In this problem, we have 26 plus X is the same as 42.

We want to get the X by itself on this side (point) **of the equal sign. To do that, I need to move 26 to that side of the equal sign. We want to make this side zero.**

If you have 26 and want to get zero, you can subtract 26. Because 26 minus 26 is what?

0.

(Writes, subtracts below the number, and crosses out the numbers.)

Now we need to balance the sides of the equal sign, so we have to do the same thing to the other side.

For this problem, we subtracted 26 from this side of the equal sign, so we have to subtract 26 from this side of the equal sign.

(Writes minus 26 and subtracts number.)

X is *the same as* 16.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

You earn a treasure coin!

4: Shipshape Sorting

Shipshape Sorting

T	**D**
C	**?**

Each day, we'll play Shipshape Sorting.

Display Sorting Cards.
Display Sorting Mat.

I'll show these cards. On each sorting card, there's a word problem. I'll read the problem out loud. Your job is to decide what type of problem it is, and sort it on this mat (point)**. You don't solve the problem, you just decide what type of problem it is.**

So far, we've learned about Total problems, so you'll only use the T or Total box (point) **and the question mark box** (point). **If you think the problem is a Total problem, put the card here** (point). **If it's NOT a Total problem, put the card in this question mark box** (point)**.**

You'll have 1 minute to listen to as many problem as you can and sort them in the correct boxes. Do you have any questions?

Begin.

Great! You did a nice job with the sorting. Let's see how many are correct.

Go through cards (answers on back of each card).
Review up to 3 incorrect cards by saying:

Look at the question. Does the word problem tell a story about two or more amounts combined for a total? Does the word problem tell a story about two amounts being compared? Or does the word problem tell a story about an amount that increases or decreases?

(Responds.)

Affirm correct response.
Review incorrect response.

Nice work with Shipshape Sorting!

You earn a treasure coin!

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

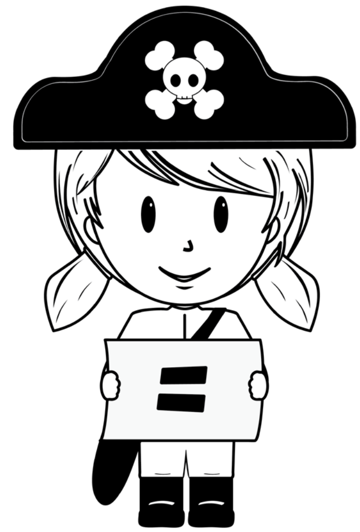
Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 8



ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Computation: Addition without regrouping
4. Shipshape Sorting
5. Jolly Roger Review

Materials

Posters

Counting Up
RUN/Total

Student Materials

Equation Quest: Lesson 8
Buccaneer Problems: Lesson 8
Jolly Roger Review: Lesson 8
Cubes
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

Look at A.

Point to A.

4 plus 6 is *the same as* blank. Let's say that together.

4 plus 6 is the same as blank.

Every number sentence has two sides. One side is here, on this side of the equal sign (point to 4 + 6)**. The other side is there, on that side of the equal sign** (point to __)**.**

Your job is to make the sides the same. Today, instead of using cubes to make the sides the same, we'll draw pictures. Let's draw to make the sides the same.

To solve this problem with pictures, draw 4 circles on this side (point)**.**

(Draws.)

Now, we add 2. So, draw 6 squares on this side (point)**.**

(Draws.)

Now, the equal sign acts as a balance. We need to make these sides the same. How many can we draw on that side (point) **to make the sides the same? Let's draw circles one at a time.**

(Draws.)

So, are the sides the same?

Yes.

You have 10 on this side of the equal sign (point)**, and 10 on that side of the equal sign** (point)**. So, 4 plus 6 is *the same as* what?**

10.

Go ahead and write 10.

(Writes.)

Point to B.

Point to B.

This problem says 6 is *the same as* blank plus 2. Let's read that together.

6 is the same as blank plus 2.

This problem looks a little different, but we can solve it. All we need to do is make the sides the same.

To solve this problem with drawing, draw 6 circles on this side (point)**.**

(Draws.)

Now, draw 2 squares on that side of the equal sign (point)**.**

(Draws.)

The equal sign acts as a balance. We need to make these sides the same. Draw triangles on that side (point) **until the sides are the same.**

(Draws.)

So, 6 is the same as what plus 2?

4.

Go ahead and write 4.

(Writes.)

Let's do one more problem.

Point to C.

Blank plus 3 is *the same as* 9. How many circles should you draw in this box (point)**?**

3.

Draw 3 circles.

(Draws.)

Now, how many squares should you draw in that box (point)**?**

9.

Draw 9 squares.

(Draws.)

Now, make the sides the same. Draw triangles until the sides are balanced.

(Draws.)

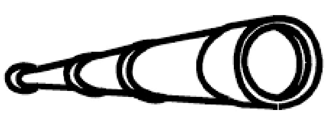
So, blank plus 3 is the same as 9?

6.

Write 6.

(Writes.)

Good work! Today, you'll use your Equation Quest skills to balance equations within word problems.



3: Buccaneer Problems

Last time, we worked on Total problems. Let's review.

What's a Total problem?

When parts are put together into a total.

In a Total problem parts are put together to make a total. *All* Total problems have the same Total equation. What's the Total equation?

P1 + P2 = T.

That's right. The Total equation is Part 1 plus Part 2 is the same as the Total.

Let's practice solving word problems!

Point to A.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>*Solution to Problem A:*</u>

> *James rode his bike 14 miles on Saturday. Then, he rode 23 miles on Sunday. How many miles did James ride his bike?*
>
> *Problem Type:* *Total*
> *Relevant Information:* *P1 = 14; P2 = 23; T = X*
> *Number Sentence:* *14 + 23 = X*
> *Answer:* *X = 37 miles*

What's the first thing we do every time we see a word problem?

RUN through it!

Good. What does R stand for?

Read the problem.

Listen as I read the problem. "James rode his bike 14 miles on Saturday. Then, he rode 23 miles on Sunday. How many miles did James ride his bike?"

What does U stand for?

Underline the label and cross out irrelevant information.

First, look at the question to see if it helps with the label. The question is, "How many miles did James ride his bike?" What's this problem mostly about?

Miles.

This story is mostly about miles. Let's underline the word miles in the question.

This will help us remember we're looking for numbers that talk about miles.

(Underlines.)

Is there any irrelevant information?

No.

Are all of the numbers about the label we underlined?

Yes.

What does N stand for?

Name the problem type.

After you read the problem, underline the label, and check for irrelevant information, you name the problem type. How do we know when it's a Total problem?

When parts are put together into a total.

Does this problem put parts together into a total?

Yes.

What are the parts?

The miles on Saturday and the miles on Sunday.

That's right. This problem is about the miles that James rode his bike. We've learned about Total problems when the missing information is in the total. We've also learned about Total problems when the missing information is one of the parts.

To figure out whether the problem is a Total problem, always ask yourself: Are parts put together into a total? Remember. What's missing might be the total. But what's missing might be one of the parts. Either way, the problem is still a Total problem. It's still about parts being put together into a total.

What's missing in this problem, the total or one of the parts?

The total.

Good! The RUN poster helped us organize our paper so we can solve the problem! We said this is a Total problem. (Point to the T.) **We use the Total poster to solve it.**

Display Total poster.

What's Step 1?

Write P1 + P2 = T.

Good. We write the Total equation: P1 plus P2 is the same as T.

(Writes.)

Step 2: "Find T." Does this problem give us the total or ask us to find the total?

Ask us to find the total.

So, how do we mark the total?

X!

Go ahead and write X under T.

(Writes.)

Step 3 says, "Find P1 and P2." We know the total is X. Now we have to find the parts. What are the parts?

14 is P1. 23 is P2.

Great. Write 14 under P1. Write 23 under P2. Check off the numbers 14 and 23 in the problem.

(Writes.)

Have we found all the important information we need?

Yes.

Right. Now let's go to Step 4. What's Step 4?

Write the signs.

Good. What math signs do we need to complete our number sentence?

Plus and the same as signs.

Let's write them in the number sentence.

(Writes.)

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student responds).

Let's find X! Today, we have to find X with two-digit numbers, which have digits in the ones and tens place. What's a two-digit number?

A number with two digits.

Yes, a two-digit number is a number with two digits.

Point to B.

For example, 58 has two digits. 5 and 8. 8 is in the ones place. 5 is in the tens place.

Look at this number.

Point to C.

This is 91. What number?

91.

Is this a two-digit number?

Yes.

Why is it a two-digit number?

Because 91 has two digits.

What are the two digits in 91?

9 and 1.

That's right. 91 is made of two digits: 9 and 1. 1 is in the ones place. 9 is in the tens place.

Point to D.

Now, I want you to write three two-digit numbers. Write them on the lines.

(Writes.)

Great! You wrote __, __, and __. Each are two-digit numbers because each number has two digits.

Today, let's add two-digit numbers.

Point to E.

When we add two-digit numbers, we need to do something special. We will use counting up with these problems. First, we count up the ones. Then, we count up the tens. Let me show you what I mean.

14 plus 23 (point)**. 14 is a two-digit number. 14 has 4 ones and 1 ten. 23 is a two-digit number. 23 has 3 ones and 2 tens.**

When we add two-digit numbers, we always write the numbers on top of each other. For 14 plus 23, we write the 14 up here (point to 14)**. We write the 23 under the 14** (point to 23)**. Writing the numbers on top of each other like this** (point) **makes adding easier.**

This plus sign (point) **tells us to add. What sign tells us to add?**

The plus sign.

When we add two-digit numbers, we start in the ones column (point)**. We call this the ones column because the numbers in the ones place are in this column. The ones column is always here, on the right-hand side** (point)**. Point to the ones column with me.**

(Points.)

After we finish adding the ones, we add the numbers in the tens column. The numbers in the tens place are lined up in the tens column. The tens column is always next to the ones column (point)**. Point to the tens column with me.**

(Points.)

To help us work with the ones and tens places, we should always draw a line between the two places like this.

Draw a line between the ones column and tens column.

What numbers are in the ones column?

4 and 3.

Very good. The 4 of 14 is in the ones column. The 3 of 23 is also in the ones column. What numbers are in the tens column?

1 and 2.

Yes, the 1 of 14 is in the tens column. The 2 of 23 is in the tens column.

To start adding, always start in the ones column. This may seem weird at first. When you read, you always read in this direction from left to right (point)**. Math is different from reading. In math, you add two digits from right to left. First, you add the ones. Then, you add the tens. Let's practice that now.**

So, 4 and 3 are in the ones column. We add 4 and 3. What's 4 plus 3? Count up if you need to!

7.

That's right 4 plus 3 is 7. So, write a 7 in the ones column below the equal line.

Write 7.

We added the ones column. We're finished with the ones column. So, we move over to the tens column. What two numbers are in the tens column?

1 and 2.

Very nice. 1 and 2 are in tens column. If it helps, put your finger over the ones column (place finger over ones column)**. Now you can focus only on the tens column, and you won't be confused by the ones column.**

This problem has a plus sign, so we'll add 1 plus 2. What's 1 plus 2?

3.

Great! 1 plus 2 is 3, so write 3 in the tens column below the equal line.

Write 3.

Now, look at the ones and tens of the answer. In the answer, we have 3 tens and 7 ones (point)**. 3 tens and 7 ones is the same as 37. So 14 plus 23 is the same as 37. What's 14 plus 23?**

37.

Let's go back to our word problem (point to A)**. We know that James rode his bike 14 miles on Saturday and 23 miles on Sunday. We want to know the total miles he rode his bike, so we added 14 miles plus 23 miles to get 37 miles. So, 14 plus 23 is the same as 37 miles. How many miles did James bike?**

37 miles.

Great work on that word problem! So, for the rest of the Buccaneer Problems, we'll add two-digit numbers.

You earn a treasure coin!

Point to F.

Do you add or subtract?

Add.

Great! This plus sign (point) **tells us to add. Remember, when we add two-digit numbers, we start in the ones column** (point)**. We call this the ones column because the numbers in the ones place are in this column. What's this column called?**

Ones.

The ones column is always here, on the right-hand side (point)**. After we finish adding the ones, we add the numbers in the tens column. The numbers in the tens place are lined up in the tens column. What's this column called?**

Tens.

The tens column is always next to the ones column (point)**. To help us work with the ones and tens places, what can we draw down the middle to make the math easier?**

A line.

Bravo! Let's draw a line down the middle between the ones column and tens column to make the math easier.

(Draws.)

Where do you always start?

Ones column.

Right! We start in the ones column. What numbers do you add in the ones column?

6 plus 2.

Great! We add 6 plus 2 because we are only thinking about the ones column right now. What's 6 plus 2?

8.

That's right! 6 plus 2 is the same as 8. So, we write an 8 under the equal line in the ones column.

(Writes.)

Which column should we add next?

The tens column.

Right! Now, we add the tens column. What numbers do you add in the tens column?

5 plus 1.

Awesome! We add the 5 and 1 in the tens column. What is 5 plus 1?

6.

Great! So, we write a 6 under the equal line in the tens column.

(Writes.)

Look at the ones and tens of the answer. In the answer, we have 6 tens and 8 ones (point)**. 6 tens and 8 ones is the same as 68. What's 56 plus 12?**

68.

That's right. 56 plus 12 is the same as 68.

So, let's look at the next Buccaneer Problem on adding two-digit numbers.

Point to G.

Do you add or subtract?

Add.

Great! This plus sign (point) **tells us to add. What's this column called** (point)**?**

Ones.

The ones column is always here, on the right-hand side (point)**. Which column do we add next?**

Tens.

Right! We add the tens column. The tens column is always next to the ones column (point)**.**

To help us work with the ones and tens places, what can we draw down the middle to make the math easier?

A line.

Bravo! Draw a line down the middle between the ones column and tens column to make the math easier.

(Draws.)

Where do you always start?

Ones column.

Right! We start in the ones column. What numbers do you add in the ones column?

9 plus 0.

Great! We add 9 plus 0 because we are only thinking about the ones column right now.

What's 9 plus 0?

9.

That's right! 9 plus 0 is the same as 9. So, write a 9 under the equal line in the ones column.

(Writes.)

Which column should we add next?

The tens column.

Right! We add the tens column next. What numbers do you add in the tens column?

2 plus 6.

Awesome! We add the 2 and 6 in the tens column. What is 2 plus 6?

8.

Great! So, we write an 8 under the equal line in the tens column.

(Writes.)

Look at the ones and tens of the answer. In the answer, we have 8 tens and 9 ones (point)**. What is 8 tens and 9 ones the same as?**

89.

Right! 8 tens and 9 ones is 89. So, what's 29 plus 60?

89.

Great! 29 plus 60 is the same as 89.

So, let's look at the next Buccaneer Problem on adding two-digit numbers.

Point to H.

Do you add or subtract?

Add.

What's this column called (point to ones)**?**

Ones.

The ones column is always here, on the right-hand side (point)**. Which column do we add next?**

Tens.

Right! We add the tens column. The tens column is always next to the ones column (point)**.**

To help us work with the ones and tens places, what can we draw down the middle to make the math easier?

A line.

Draw a line down the middle between the ones column and tens column to make the math easier.

(Draws.)

Where do you always start?

Ones column.

Yes. We start in the ones column. What numbers do you add in the ones column?

5 plus 4.

What's 5 plus 4?

9.

That's right! 5 plus 4 is the same as 9. So, we write a 9 under the equal line in the ones column.

(Writes.)

Which column should we add next?

The tens column.

Right! What numbers do you add in the tens column?

2 plus 6.

What is 2 plus 6?

8.

Great! So, we write an 8 under the equal line in the tens column.

(Writes.)

Look at the ones and tens of the answer. In the answer, we have 8 tens and 9 ones (point)**. What is 8 tens and 9 ones?**

89.

Right! 8 tens and 9 ones is 89. So, what's 25 plus 64?

89.

Awesome! 25 plus 64 is the same as 89.

You earn a treasure coin!

4: Shipshape Sorting

Each day, we'll play Shipshape Sorting.

Shipshape Sorting

T	**D**
C	**?**

Display Sorting Cards.
Display Sorting Mat.

I'll show these cards. On each sorting card, there's a word problem. I'll read the problem out loud. Your job is to decide what type of problem is it and sort it on this mat (point)**. You don't solve the problem, you decide what type of problem**

it is.

So far, we've learned about Total problems, so you'll only use the T or Total box (point) **and the question mark box** (point). **If you think the problem is a Total problem, put the card here** (point). **If it's NOT a Total problem, put the card in this question mark box** (point)**.**

You'll have 1 minute to listen to as many problem as you can and sort them in the correct boxes. Do you have any questions?
Begin.

Hold up and read cards for 1 minute.

Great! You did a nice job with the sorting. Let's see how many are correct.

Go through cards (answers on back of each card).

Review up to 3 incorrect cards by saying:

Look at the question. Does the word problem tell a story about two or more amounts combined for a total? Does the word problem tell a story about two amounts being compared? Or does the word problem tell a story about an amount that increases or decreases?

(Responds.)

Affirm correct response.
Review incorrect response.

Nice work with Shipshape Sorting!

You earn a treasure coin!

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

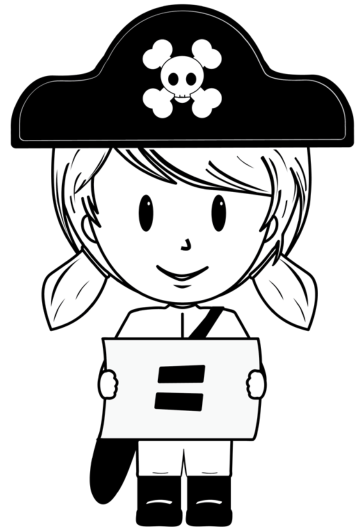
Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 9

ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Computation: Addition with regrouping
4. Shipshape Sorting
5. Jolly Roger Review



Materials

Posters

Counting Up
RUN/Total

Student Materials

Equation Quest: Lesson 9
Buccaneer Problems: Lesson 9
Jolly Roger Review: Lesson 9
Cubes
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

Look at A.

Point to A.

7 is *the same as* 4 plus blank. Let's say that together.

7 is the same as 4 plus blank.

Every number sentence has two sides. One side is here, on this side of the equal sign (point to 7)**. The other side is there, on that side of the equal sign** (point to 4 + __)**.**

Your job is to make the sides the same by drawing pictures. How many should you draw on this side (point)**?**

7.

(Draws.)

How many should you draw on that side (point)**?**

4.

(Draws.)

Now, the equal sign acts as a balance. We need to make these sides the same. How many can we draw on that side (point) **to make the sides the same? Draw circles one at a time.**

(Draws.)

So, are the sides the same?

Yes.

You have 7 on this side of the equal sign (point)**, and 7 on that side of the equal sign** (point)**. So, 7 is the same as 4 plus what?**

3.

Go ahead and write 3.

(Writes.)

Point to B.

This problem says blank is *the same as* 3 plus 2. Let's read that together.

Blank is the same as 3 plus 2.

Look at this side (point)**. We don't know how many to draw just yet. So, let's look at that side** (point)**.**

Draw 3 and 2.

(Draws.)

Remember, the equal sign acts as a balance. We need to make these sides the same. Draw triangles on that side (point) **until the sides are the same.**

(Draws.)

So, what is *the same as* 3 plus 2?

5.

Go ahead and write 5.

(Writes.)

Let's do one more problem.

Point to C.

Blank plus 5 is *the same as* 9. How many circles should you draw in this box (point)**?**

5.

(Draws.)

How many circles on that side (point)**?**

9.

(Draws.)

Now, make the sides the same. Draw triangles until the sides are balanced.

(Draws.)

So, what plus 5 is *the same as* 9?

4.

Write 4.

(Writes.)

Good work! Today, you'll use your Equation Quest skills to balance equations within word problems.

3: Buccaneer Problems

What's a Total problem?

When parts are put together into a total.

In a Total problem parts are put together to make a total. *All* Total problems have the same Total equation. What's the Total equation?

P1 + P2 = T.

That's right. The Total equation is Part 1 plus Part 2 is the same as the Total.

Let's practice solving word problems!

Point to A.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>Solution to Problem A:</u>

Sarah scored 26 points in the basketball game on Saturday. On Sunday, she scored 37 points. How many points did she score in both games?

Problem Type:	*Total*
Relevant Information:	*$P1 = 26$; $P2 = 37$; $T = X$*
Number Sentence:	*$26 + 37 = X$*
Answer:	*$X = 63$ points*

What's the first thing we do every time we see a word problem?

RUN through it!

Good. What does R stand for?

Read the problem.

Listen as I read the problem. "Sarah scored 26 points in the basketball game on Saturday. On Sunday, she scored 37 points. How many points did she score in both games?"

What does U stand for?

Underline the label and check for irrelevant information.

First, look at the question to see if it helps with the label. The question is, "How many points did Sarah score?" What's this problem mostly about?

Points.

This story is mostly about points. Let's underline the word points in the question. This will help us remember we're looking for numbers that talk about points.

(Underlines.)

Is there any irrelevant information?

No.

Are all of the numbers about the label we underlined?

Yes.

What does N stand for?

Name the problem type.

After you read the problem, underline the label, and check for irrelevant information, you name the problem type. How do we know when it's a Total problem?

When parts are put together into a total.

Does this problem put parts together into a total?

Yes.

What are the parts?

The points on Saturday and the points on Sunday.

That's right. This problem is about the points that Sarah scored. We've learned about Total problems when the missing information in the total. We've also learned about Total problems when the missing information is one of the parts.

To figure out whether the problem is a Total problem, always ask yourself: Are parts put together into a total? Remember. What's missing might be the total. But what's missing might be one of the parts. Either way, the problem is still a Total problem. It's still about parts being put together into a total.

What's missing in this problem, the total or one of the parts?

The total.

Good! The RUN poster helped us organize our paper so we can solve the problem! We said this is a Total problem. (Point to the T.)

We use the Total poster to solve it.

Display Total poster.

What's Step 1?

Write P1 + P2 = T.

Good. We write the Total equation: P1 plus P2 is the same as T.

(Writes.)

Step 2: "Find T." Does this problem give us the total or ask us to find the total?

Ask us to find the total.

So, how do we mark the total?

X!

Go ahead and write X under T.

(Writes.)

Step 3 says, "Find P1 and P2." We know the total is X. Now we have to find the parts. What are the parts?

26 is P1. 37 is P2.

Write 26 under P1. Write 37 under P2. Check off the numbers in the problem.

(Writes and checks off the numbers.)

Have we found all the important information we need?

Yes.

Right. Now let's go to Step 4. What's Step 4?

Write the signs.

Good. What math signs do we need to complete our number sentence?

Plus and the same as signs.

Let's write them in the number sentence.

(Writes.)

Let's find X! Today, we have to find X with two-digit numbers with ones and tens. What's a two-digit number?

A number with two digits.

That's right. Two digit numbers have two digits or numbers. When we work with two numbers, each digit sits in a different place. What do we call these places?

The ones place and the tens place.

We've learned to add two-digit numbers. Today, we'll work again on adding two-digit numbers, but these problems are trickier. You still draw a line between the ones column and the tens column.

(Draws.)

Remember, always draw a line to separate the ones column and tens column. That makes the adding easier.

Now, there's something new today. Watch. 26 plus 37.

Point to B.

When we add, where do we start?

In the ones column.

Right! We start in the ones column. What two numbers are in the ones column?

6 and 7.

What's 6 plus 7? If you need to, count up!

13.

Great! 6 plus 7 is the same as 13.

This is the tricky part. I can't write 13 in the ones column below the equal line (point)**. The greatest number you can ever have in the ones column is 9. What's the greatest number you can ever have in the ones column?**

9.

That's right! 9 is the greatest number you can have in the ones column. Is 13 greater than 9?

Yes.

13 is more than 9. So, we can't write 13 in the ones place. We look closely at the number 13. We'll split 13 into tens and ones. We'll write the tens above the tens column (point) **and the ones in the ones column below the equal line** (point)**. That may seem like a lot of work, but I'll show you how easy it is.**

So 13 is 1 ten (point) **and 3 ones** (point)**. We know 13 is 1 ten and 3 ones because the 1 of 13 is in the tens place** (point) **and the 3 of the 13 is in the ones place** (point)**. Now, we can only write ones place numbers in the ones column. If 3 is in the ones place, write 3 in the ones column under the equal line.**

(Writes.)

Now we still have to deal with the one 1 that's in the tens place in 13. If 1 is in the tens place, where should we write it?

(Writes.)

Yes. We write the 1 in the tens column. But we do not write the 1 below the equal line. Instead, write it up here (point) **on the top of the tens column.**

(Writes.)

If you look carefully, you still wrote the number 13. You just separated the 1 and the 3. You wrote the 3 (point) **below the equal line in the ones column. You wrote the 1** (point) **above the tens column. Anytime you have an answer more than 9, you separate the number into ones and tens and write it like that.**

We finished adding the ones column. What do we add next?

The tens column.

Yes, now we add the tens column. We wrote the number 1 at the top of the tens column. So, we'll add the number 1 to the other numbers in the tens column. What numbers are in the tens column?

1 and 2 and 3.

So, let's add 2 plus 3 first. What's 2 plus 3?

5.

Yes, 2 plus 3 is 5. Now we're not finished yet. We also have to add in the 1 from 13. So 5 plus 1 is what?

6.

Yes, 5 plus 1 is 6. So, I write 6 in the tens column below the equal line.

(Writes.)

Very good! 26 plus 37 is the same as 63. What's 26 plus 37?

63.

Wow! That was a little more work than the addition problems we've done before. But let me tell you a secret to make these problems easy for you.

After you add the ones, if the number is more than 9, you always write a 1 above the tens column and the other number in the ones column. When do you write a 1 above the tens column?

If the answer is more than 9.

Yes! When the answer is more than 9 write a 1 above the tens column and write the other number in the ones column.

Let's go back to our word problem (point to A)**. We know that Sarah scored 26 points on Saturday and 37 points on Sunday. We want to know the total points she scored, so we added 26 plus 37 to get 63 points. So, 26 plus 37 is the same as 63 points. How many points did Sarah score?**

63 points.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Great work on that word problem. For the rest of the Buccaneer Problems, we'll work on adding two-digit numbers.

Point to C.

Do you add or subtract?

Add.

Great! This plus sign (point) **tells us to add. Remember, when we add two-digit numbers, we start in the ones column** (point)**. We call this the ones column because the numbers in the ones place are in this column. What's this column called?**

Ones.

The ones column is always here, on the right-hand side (point)**. After we finish adding the ones, we add the numbers in the tens column. The numbers in the tens place are lined up in the tens column. What's this column called?**

Tens.

The tens column is always next to the ones column (point)**. To help us work with the ones and tens places, what can we draw down the middle to make the math easier?**

A line.

Bravo! Draw a line down the middle between the ones column and tens column to make the math easier.

(Draws.)

Which digits are in the ones place?

4 and 8.

What is 4 plus 8? Count up if you need to!

12.

Great! 4 plus 8 is the same as 12. Now, what's the rule about numbers in the ones column below the equal line?

If the number is more than 9, write the 1 in the tens column and the other number in the ones.

That's right. 9 is the greatest number you can have in the ones column. Is 12 greater than 9?

Yes.

12 is more than 9. So, write the 1 in the tens column and the 2 in the ones column.

(Writes.)

We just took the answer 12 and separated it into ones and tens. We wrote the 1 in 12 above the tens column (point)**. We wrote the 2 in 12 below in the ones column** (point)**. Now what do we do?**

Move to the tens column.

Very good. Once you've added the ones column, move to the tens column. What numbers are in the tens column?

1 and 6 and 2.

6 and 2 are in the tens column. We also have the 1 we just wrote in the tens column. Let's add 6 and 2 together. Then we'll add 1 more. What's 6 plus 2?

8.

Yes. 6 plus 2 is the same as 8. Now, add in the 1 we wrote In the tens column. What's 8 plus 1?

9.

Write 9 below the equal line in the tens column.

(Writes.)

What's 64 plus 28?

92.

Awesome! 64 plus 28 is the same as 92.

Look at this problem. 32 plus 21.

Point to D.

Do you add or subtract?

Add.

To help us work with the ones and tens places, what can we draw down the middle to make the math easier?

A line.

Good. Draw a line down the middle between the ones column and tens column to make the math easier.

(Draws.)

Where do you always start?

Ones column.

Right! We start in the ones column. What numbers do you add in the ones column?

2 plus 1.

Great! We add 2 plus 1 because we are only thinking about the ones column right now. What's 2 plus 1?

3.

What’s the rule about numbers in the ones column below the equal line?

If the number is more than 9, write the 1 in the tens column and the other number in the ones.

That’s right. If the number is greater than 9, write the 1 in the tens column and the other number in the ones column.

Is 3 greater than 9?

No.

You’re right. 3 is less than 9 so we can just add and move to the next column. Which column should we add next?

The tens column.

Right! We add the tens column next. What numbers do you add in the tens column?

3 plus 2.

Awesome! We add the 3 and 2 in the tens column. What is 3 plus 2?

5.

Great! So, write a 5 under equal line in the tens column.

(Writes.)

Look at the ones and tens of the answer. In the answer, we have 5 tens and 3 ones (point)**. What’s the answer?**

53.

You earn a treasure coin!

Let’s look at the next Buccaneer Problem. 53 plus 27.

Point to E.

Do you add or subtract?

Add.

To help us work with the ones and tens places, what can we draw down the middle to make the math easier?

A line.

Draw a line down the middle between the ones column and tens column to make the math easier.

(Draws.)

Where do you always start?

Ones column.

Right! We start in the ones column. What numbers do you add in the ones column?

3 plus 7.

Great! We add 3 plus 7 because we are only thinking about the ones column right now. What's 3 plus 7?

10.

What's the rule about numbers in the ones column below the equal line?

If the number is more than 9, write the 1 in the tens column and the other number in the ones.

That's right. 9 is the greatest number you can have in the ones column. Is 10 greater than 9?

Yes.

Right! 10 is more than 9. So, write the 1 in the tens column and the 0 in the ones column.

(Writes.)

You just took the answer 10 and separated it into ones and tens. We wrote the 1 in 10 above the tens column (point)**. You wrote the 0 in 10 below in the ones column** (point)**. Now what do we do?**

Move to the tens column.

Very good. Once you've added the ones column, move to the tens column. What numbers are in the tens column?

1 and 5 and 2.

5 and 2 are in the tens column. We also have the 1 we just wrote in the tens column. Let's add 5 and 2 together. Then we'll add 1 more. What's 5 plus 2?

7.

Yes. 5 plus 2 is the same as 7. Now, add in the 1 we wrote in the tens column. What's 7 plus 1?

8.

Write 8 below the equal line in the tens column.

(Writes.)

What's 53 plus 27?

80.

Awesome! 53 plus 27 is the same as 80.

Look at this problem.

Point to F.

Do you add or subtract?

Add.

Great! What's this column called (point)**?**

Ones.

The ones column is always here, on the right-hand side (point)**. Which column do we add next?**

Tens.

Right! We add the tens column. The tens column is always next to the ones column (point)**.**

To help us work with the ones and tens places, what can we draw down the middle to make the math easier?

A line.

Draw a line down the middle between the ones column and tens column to make the math easier.

(Draws.)

Where do you always start?

Ones column.

Right! We start in the ones column. What numbers do you add in the ones column?

5 plus 3.

What's 5 plus 3?

8.

What's the rule about numbers in the ones column below the equal line?

If the number is more than 9, write the 1 in the tens column and the other number in the ones.

If the number is more than 9, write the 1 in the tens column and the other number below the equal line. Do we need to do that?

No.

You're right! 5 plus 3 is 8, which is less than 9. Which column should we add next?

The tens column.

Right! We add the tens column next. What numbers do you add in the tens column?

4 plus 5.

What is 4 plus 5?

9.

Write a 9 under the equal line in the tens column.

(Writes.)

To know the answer to 45 plus 53, look at the ones and tens of the answer. What's 45 plus 53?

98.

Let's work on one last problem.

Point to G.

Do you add or subtract?

Add.

What should you draw down the middle?

A line.

Draw a line down the middle.

(Draws.)

Where do you always start?

Ones column.

What numbers do you add in the ones column?

8 plus 3.

What's 8 plus 3?

11.

What's the rule about numbers in the ones column below the equal line?

If the number is more than 9, write the 1 in the tens column and the other number in the ones.

Write 1 in the tens and 1 in the ones.

(Writes.)

Now what do we do?

Move to the tens column.

Very good. Once you've added the ones column, move to the tens column. What numbers are in the tens column?

1 and 3 and 2.

3 and 2 are in the tens column. We also have the 1 we just wrote in the tens column. Let's add 3 and 2 together. Then we'll add 1 more. What's 3 plus 2?

5.

Yes. 3 plus 2 is the same as 5. Now, add in the 1 we wrote in the tens column.

What's 5 plus 1?

6.

So let's write 6 below the equal line in the tens column.

(Writes.)

What's 38 plus 23?

61.

Awesome! 38 plus 23 is the same as 61.

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

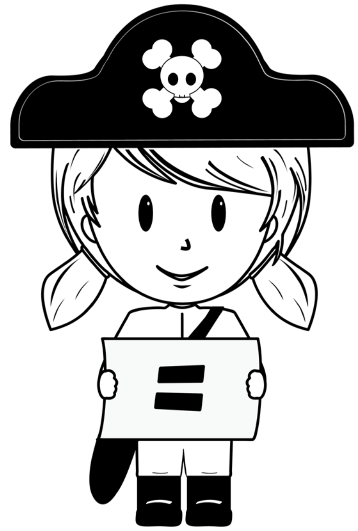
Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 10



ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
    Computation: Subtraction with regrouping
4. Shipshape Sorting
5. Jolly Roger Review

Materials

Posters

Counting Up
RUN/Total

Student Materials

Equation Quest: Lesson 10
Buccaneer Problems: Lesson 10
Jolly Roger Review: Lesson 10
Cubes
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

Look at A.

Point to A.

How do you read this number sentence?

4 plus blank is the same as 9.

So, in Pirate Math Equation Quest, you've learned how to use X to represent missing information. Look at this number sentence.

Point to B.

This says 4 plus X is *the same as* 9. Read that with me.

4 plus X is the same as 9.

Do these number sentences mean the same thing?

Yes.

You can use a blank or an X. You could even use a question mark. It doesn't matter. We need to balance the sides of the equal sign and find the missing information.

Today, we're going to solve for X in a new way. Let me show you.

4 plus X is *the same as* 9. When you see the equal sign like this, the first thing we'll do is draw a line down from the equal sign.

Draw line coming down from the equal sign.

This line (point) **will help us remember to balance the two sides of the equal sign.**

Now, we'll balance this equation by doing a fancy thing called isolating the X. Say that with me.

Isolating the X.

To isolate something means to put it by itself. First, let's find the X. Where's the X?

(Points.)

Let's circle the X to make it easy to see.

(Circles.)

Now, we're going to isolate the X. Say that with me.

Isolate the X.

Let's say it again.

Isolate the X.

We want to get the X by itself on this side (point) **of the equal sign.**

To do that, I need to move this 4 (point)**. Here's what cool about math. To isolate the X, I need to move this 4** (point) **to that side of the equal sign. Basically, I want to make this side zero. If I have 4** (point) **and I want to get to zero, I can subtract 4. Because 4 minus 4 is what?**

0.

So, let me show you how I write this. I'll write 4 minus 4.

Write –4 on left side below the 4.

But, and here's the important thing, we need to balance around the equal sign. Whatever we do to this side of the equal sign, we have to do the same thing to the other side.

For this problem, we are subtracting 4 from this side (point to left side) **of the equal sign, so we need to subtract 4 from this side** (point to the right side) **of the equal sign. So, if I subtracted 4 on this side** (point)**, what do I have to do to the other side?**

Subtract 4.

Yes, I have to subtract 4 on that side (point)**. I'll write minus 4 over here.**

Write –4 on right side below the 9.

Now, let's do some math. What's 4 minus 4 (point)**?**

0.

4 minus 4 is *the same as* 0. When it's an answer of 0, I cross out the 4 minus 4, like this.

Cross out 4
–4

Now, let's do the math on that side. What's 9 minus 4 (point)**?**

5.

So, I write 5 right here.

Write 5.

We isolated the X. X is *the same as* 5.

Write X = 5.

I write X is *the same as* 5 to solve for X. If we put 5 in for X, then 4 plus 5 is the same as 9.

Write 4 + 5 = 9.

Is 4 plus 5 *the same as* 9?

Yes.

4 plus 5 is *the same as* 9.

Let's go back and talk about what we just did. First, we drew a line down from the equal sign to help us remember to balance this number sentence. Anything we do to one side (point) **of the equal sign we have to do to the other side of the equal sign** (point)**. What should you draw down from the equal sign?**

A line.

Then, we wanted to isolate the X, so what did we draw around the X?

A circle.

Drawing a circle around the X helped us remember we need to isolate the X. Say that with me.

Isolate the X.

Look down here.

Point to C.

This picture shows isolating the X. See how X (point to right side) **is mixed with all these numbers?**

Yes.

When we isolate the X, we draw a circle around X (point to circle) **and we separate, or isolate, X from all the numbers. What does it mean to isolate the X?**

Separate X from the numbers.

In this problem (point to B)**, we isolated the X by moving this 4** (point) **from this side of the equal sign to that side of the equal sign. So, the X is on this side** (point to the left side) **by itself. It's isolated! To move the 4, we subtracted 4 from this side** (point) **because when we subtract 4 from 4, we get 0.**

But remember, anything you do to this side of the equal sign, you have to do to the other side of the equal sign. What do you have to remember about the equal sign?

Anything you do to one side, you have to do to the other side.

So, you subtracted 4 from this side (point)**, so you had to subtract 4 from that side** (point)**. This side ended up as 0** (point) **and that side ended up as 5** (point)**. So, X was the same as what?**

5.

You solved for X! What a pirate you are! We'll work more on this next time!

3: Buccaneer Problems

Last time, we worked on Total problems. Look at this problem.

Point to A.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

Solution to Problem A:

Jessica spent $67 to buy some movies and music. If she spent $24 on movies, how much did she spend on music?

Problem Type:	*Total*
Relevant Information:	*P1 = 24; P2 = X; T = 67*
Number Sentence:	*24 + X = 67*
Answer:	*X = $43*

What's the first thing we do every time we see a word problem?

RUN through it!

Good. What does R stand for?

Read the problem.

Listen as I read the problem. "Jessica spent $67 to buy some movies and music. If she spent $24 on movies, how much did she spend on music?"

What does U stand for?

Underline the label and cross out irrelevant information.

First, look at the question to see if it helps with the label. The question is, "How much did she spend on music?" What's this problem mostly about?

Dollars.

This story is mostly about dollars spent on music. Let's underline the word music in the question. This will help us remember we're looking for numbers that talk about dollars spent on music.

(Underlines.)

Is there any irrelevant information?

No.

Are all of the numbers about the label we underlined?

Yes.

What does N stand for?

Name the problem type.

After you read the problem and underline the label, you name the problem type. How do we know when it's a Total problem?

When parts are put together into a total.

Step 2: "Find T." Does this problem give us the total or ask us to find the total?

Gives us the total.

The first sentence says, "Jessica spent $67 to buy some movies and music." 67 is not just about movies. 67 is not just about music. 67 is about movies and music. This word "and" (point) **is really important here because it shows that 67 talks about both movies and music.**

If 67 is about movies and music, is 67 one of the parts or is 67 the total?

Total.

That's right. 67 is about the total amount of movies and music. 67 is the total. It's T. Check off 67 in the problem and write 67 under T.

(Writes and checks off number.)

Step 3: "Find P1 and P2." We already know the total, 67. The movies are one part. The music is the other part. Which part do we know?

The movies part.

We know the movies amount. How much did Jessica spend on movies?

24.

Where should we write 24?

Under P1.

Go ahead and write P1 and check off 24 in the problem.

(Writes and checks off number.)

In a Total problem that tells us T, the problem always tells us one part and asks us to find the other part. What do we call the part that's missing?

P2.

How do we mark P2?

With an X.

Go ahead and write X under P2.

(Writes.)

Now let's go to Step 4. What's Step 4?

Write the signs.

Good. What math signs do we need to complete our number sentence?

Plus and the same as signs.

Let's write them in the number sentence.

(Writes.)

24 stands for part 1. X stands for part 2. 67 stands for total.

Let's find X! The easiest thing to do is to subtract 67 minus 24.

Point to B.

Look at this problem 67 minus 24. Do you add or subtract?

Subtract.

Yes, the minus sign tells you to subtract. Just like with addition, when you compute, you use two steps. You subtract the ones column first. Then, in a second step, you subtract the tens column. Before we do that, draw a line down the middle to separate the two columns or two steps.

(Draws.)

Which column do we start with?

The ones.

Right! What two numbers are in the ones column?

7 and 4.

What's 7 minus 4?

3.

Yes. 7 minus 4 is the same as 3. So we write a 3 in the ones column below the equal line.

(Writes.)

We subtracted the ones column. So, where do we move next?

The tens column.

Yes, we move over to the tens column. What two numbers are in the tens column?

6 and 2.

What's the number you start with?

6.

What's the minus number?

2.

What's 6 minus 2?

4.

Nice work! 6 minus 2 is the same as 4. So, we write 4 in the tens column below the equal line.

(Writes.)

Look at the ones and tens of the answer. In the answer, we have 4 tens and 3 ones (point)**. 4 tens and 3 ones is the same as 43. So 67 minus 24 is the same as 43. What's the answer?**

43.

Let's go back to our word problem (point to A)**. We know that Jessica spent $67 on movies and music. We know she spent $24 on movies. We want to know how much she spent on music, so we subtracted 63 minus 24. So, 67 minus 24 is the same as $43. How much money did Jessica spend on music?**

43 dollars.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Great work on that word problem!

Point to C.

Look at the sign. Do we add or subtract?

Subtract.

Very good! The minus sign tells us to subtract. To help us work with the ones and tens places, what can we draw down the middle to make the math easier?

A line.

Draw a line down the middle between the ones column and tens column to make the math easier.

(Draws.)

Now when we subtract, where do we start?

In the ones column.

Right! We start in the ones column. What two numbers are in the ones column?

8 and 1.

What's 8 minus 1?

7.

Great! 8 minus 1 is the same as 7. So, write 7 in the ones column below the equal line.

(Writes.)

We're done with subtracting the ones column. What do we subtract next?

The tens column.

Yes, now we subtract the tens column. What numbers are in the tens column?

5 and 3.

So, let's subtract 5 minus 3 first. What's 5 minus 3?

2.

Yes, 5 minus 3 is 2. So, write 2 in the tens column below the equal line.

(Writes.)

To know the answer to 58 minus 31, look at the ones and tens of the answer. What's 58 minus 31?

27.

58 minus 31 is the same as 27.

Let's look at the next Buccaneer problem! There's something new in this problem. Watch.

Point to D.

53 minus 28. First, do we add or subtract?

Subtract.

How do you know that you subtract?

The minus sign.

Very good! The minus sign (point) **tells you to subtract. What do you draw between the tens and ones column?**

A line.

Yes, you draw a line between the tens and ones column.

(Draws.)

When we subtract, where do we start?

In the ones column.

What two numbers are in the ones column?

3 and 8.

Right! This is where it gets tricky. What's the number you start with?

3.

Yes, 3 is the number you start with. You know this because it's the top number (point)**. What's the minus number?**

8.

8 is the minus number. It's the number after the minus sign. Can you switch the numbers around in subtraction?

No.

That's right. You cannot switch the numbers around. If the minus number is greater than the number you start with, you have to do something different.

We can't do 3 minus 8 so I move to the tens column. I cross out the number you start with in the tens column.

Cross out 5.

I write one number less. What's one number less than 5, or 5 minus 1?

4.

So I write 4 above the tens column.

Write 4.

Now I just took 1 ten from the tens, and I give that 1 to the ones. I write that 1 right here in the ones column.

Write 1 next to 3. It should look like the number 13.

Now the ones column reads 13 minus 8. We can do that problem! In the ones

column of a two-digit problem, if the number you subtract is greater than the number you start with, you can still do the subtraction!

What's 13 minus 8?

5.

Great! 13 minus 8 is the same as 5. So, write 5 in the ones column under the equal line.

(Writes.)

We haven't finished this problem. We're done with subtracting the ones column. What do we subtract next?

The tens column.

Yes, now we subtract the tens column. We crossed the 5 out and wrote a 4 above it. So, now the problem is 4 minus 2. What's 4 minus 2?

2.

Yes, 4 minus 2 is the same as 2. So, write 2 in the tens column below the equal line.

(Writes.)

What's 53 minus 28?

25.

Very good! 53 minus 28 is the same as 25.

Wow! That was a little more work than the other subtraction problems. But let me tell you a secret to make these problems easy for you.

When you look at the ones column, if the minus number is greater than the number you start with, you always move to the tens column, where you cross out the number you start with there and write one less above it. Then you go back to the ones column, where you write the number 1 next to the number

you start with. I like to say it like this "Cross ten out, write one less, then move one before." Say it with me.

Cross ten out, write one less, then move one before.

So, in this problem. I crossed the ten out. That's where I crossed out the 5 (point)**. I wrote one less. That's where I wrote the 4** (point) **because 4 is one less than 5. Then I wrote 1 in the ones column** (point)**.**

You earn a treasure coin!

Let's look at the next Buccaneer problem!

Point to E.

72 minus 45. First, do we add or subtract?

Subtract.

How do you know that you subtract?

The minus sign.

Very good! The minus sign tells you to subtract. What do you draw between the tens and ones column?

A line.

Draw a line between the tens and ones column.

(Draws.)

When we subtract, where do we start?

In the ones column.

What two numbers are in the ones column?

2 and 5.

Right! What's the number you start with?

2.

Yes, 2 is the number you start with. You know this because it's the top number (point)**. What's the minus number?**

5.

5 is the minus number. It's the number after the minus sign. Can you switch the numbers around in subtraction?

No.

That's right. You cannot switch the numbers around. Is the minus number greater than the number you start with?

Yes.

Right! We can't do 2 minus 5, so where do I move to?

The tens column.

Cross out the number you start with in the tens column.

(Writes.)

Write one number less. What's one number less than 7 or 7 minus 1?

6.

Write 6 above the tens column.

(Writes.)

Now where do you give the 1 ten from the tens?

Give that 1 to the ones.

Right! Write that 1 right here in the ones column.

(Writes.)

Now the ones column reads 12 minus 5. We can do that problem! In the ones column of a two-digit problem, if the number you subtract is greater than the number you start with, you can still do the subtraction!

What's 12 minus 5?

7.

Great! 12 minus 5 is the same as 7. So, write 7 in the ones column under the equal line.

(Writes.)

We haven't finished this problem. We're done with subtracting the ones column. What do we subtract next?

The tens column.

Yes, now we subtract the tens column. We crossed the 7 out and wrote a 6 above it. So, now the problem is 6 minus 4. What's 6 minus 4?

2.

Yes, 6 minus 4 is the same as 2. So, write 2 in the tens column below the equal line.

(Writes.)

What's 72 minus 45?

27.

Very good! 72 minus 45 is the same as 27. Let's look at what you did. Did you, Cross ten out, write one less, then move one before?

Yes.

You crossed ten out, wrote one less, then moved one before. That will help you when the minus number is greater than the number you start with!

Let's look at the next Buccaneer problem!

Point to F.

54 minus 22. First, do we add or subtract?

Subtract.

How do you know that you subtract?

The minus sign.

Draw a line between the tens and ones column.

(Draws.)

When we subtract, where do we start?

In the ones column.

What two numbers are in the ones column?

4 and 2.

Right! What's the number you start with?

4.

Yes, 4 is the number you start with. You know this because it's the top number (point)**. What's the minus number?**

2.

2 is the minus number. It's the number after the minus sign. Can you switch the numbers around in subtraction?

No.

You cannot switch the numbers around. Is the minus number is greater than the number you start with?

No.

Right! Can we do 4 minus 2?

Yes.

What's 4 minus 2?

2.

Right 4 minus 2 is the same as 2. So, we write 2 under the equal line.

(Writes.)

Which column do we move to next?

The tens column.

Which numbers are in the tens column?

5 and 2.

Right! So, what is 5 minus 2?

3.

Yes! 5 minus 2 is the same as 3. So, we write 3 under the equal line.

(Writes.)

What's 54 minus 22?

32.

Awesome! 54 minus 22 is the same as 32.

Let's look at the next Buccaneer problem!

Point to G.

96 minus 58. First, do we add or subtract?

Subtract.

What should you draw to make the math easier?

A line.

Draw a line between the tens and ones column.

(Draws.)

When we subtract, where do we start?

In the ones column.

What two numbers are in the ones column?

6 and 8.

Can you subtract 6 minus 8?

No.

So, you need to: cross ten out, write one less, then move one before. Say that with me.

Cross ten out, write one less, then move one before.

Let's say it three times fast.

Cross ten out, write one less, then move one before.
Cross ten out, write one less, then move one before.
Cross ten out, write one less, then move one before.

Go ahead and cross ten out and write one less.

(Writes.)

Now, move one before.

(Writes.)

Now the ones column reads 16 minus 8. Can we do that problem?

Yes.

What's 16 minus 8?

8.

Great! 16 minus 8 is the same as 8. So, write 8 in the ones column under the equal line.

(Writes.)

We haven't finished this problem. We're done with subtracting the ones column. What do we subtract next?

The tens column.

Yes, now we subtract the tens column. We crossed the 9 out and wrote an 8 above it. What's 8 minus 5?

3.

Write 3 in the tens column below the equal line.

(Writes.)

What's 96 minus 58?

38.

Now remember. In subtraction, when the minus number is more than the number you start with, you can cross ten out, write one less, then move one before. What can you do?

Cross ten out, write one less, then move one before.

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

Let’s count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

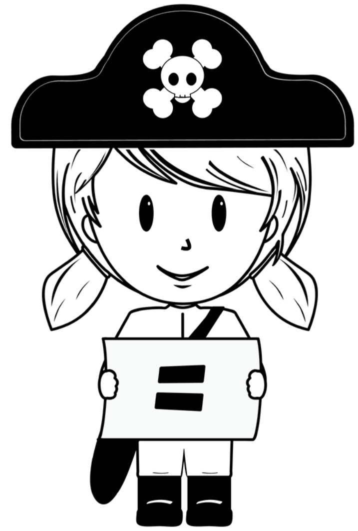
Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you’ll choose a prize out of the treasure box!

Lesson 11

ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Total with P1 or P2 missing
4. Shipshape Sorting
5. Jolly Roger Review



Materials

Posters

Counting Up
RUN/Total

Student Materials

Equation Quest: Lesson 11
Buccaneer Problems: Lesson 11
Jolly Roger Review: Lesson 11
Cubes
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

Last time, we worked on isolating the X. Look here.

Point to A.

This picture shows isolating the X. See how X (point to right side) **is mixed with all these numbers?**

Yes.

When we isolate the X, we draw a circle around X (point to circle) **and we separate, or isolate, X from all the numbers. What does it mean to isolate the X?**

Separate X from the numbers.

Let's isolate the X with this problem.

Point to B.

How do you read this number sentence?

X plus 3 is the same as 7.

When you see the equal sign like this, the first thing we'll do is draw a line down from the equal sign. What's the first thing?

Draw a line down from the equal sign.

Go ahead and draw the line coming down from the equal sign.

(Draws.)

This line (point) **will help us remember to balance the two sides of the equal sign. What do you want to do?**

Balance the two sides of the equation.

Now, we'll balance this equation by doing a fancy thing called isolating the X. Say that with me.

Isolating the X.

To isolate something means to put it by itself. What does isolate mean?

Put something by itself.

And what do we want to isolate?

X.

First, where's the X?

(Points.)

Circle the X to make it easy to see.

(Circles.)

Now, let's isolate the X. Say that with me.

Isolate the X.

Let's say it again.

Isolate the X.

We want to get the X by itself on this side (point) **of the equal sign. We want to isolate the X.**

To isolate the X, we need to move this 3 (point) **to that side of the equal sign. By moving the 3, we make this side** (point) **zero. If you have 3** (point) **and want to get to zero, you can subtract 3. Because 3 minus 3 is what?**

0.

That's right. 3 minus 3 is the same as 0. So, write minus 3.

(Writes.)

Now remember the important thing. The equal sign means *the same as*. You need to do the same thing to that side (point) **of the equal sign. Whatever you do to this side of the equal sign, we have to do the same thing to the other side.**

For this problem, we subtracted 3 from this side (point to left side) **of the equal**

sign, so you need to subtract 3 from this side (point to the right side) **of the equal sign. Go ahead and write minus 3 on the that side** (point)**.**

(Writes.)

Now, let's do the math. What's 3 minus 3 (point)**?**

0.

3 minus 3 is the same as 0. When it's an answer of 0, cross out the 3 minus 3.

(Cross out.)

Now, let's do the math on that side. What's 7 minus 3 (point)**?**

4.

Write 4 right here.

Write 4.

We isolated the X. X is *the same as* 4. Write X is the same as next to 4.

(Writes.)

Now, let's check the number sentence. You solved that X is the same as 4. Rewrite the number sentence using 4 for X.

(Writes.)

Is 4 plus 3 *the same as* 7?

Yes.

4 plus 3 is the same as 7.

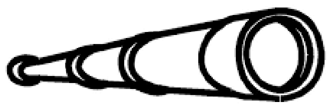
So, what did we do here? You isolated the X. Tell me how you did that.

(Explains.)

Yes. You drew a line down from the equal sign to help you remember to

balance this number sentence. Then, you isolated the X by circling the X and subtracting 3 from both sides of the equal sign. You solved for X! Great pirate skills!

We'll work more on this next time!



3: Buccaneer Problems

Last time, we worked on Total problems. Let's review.

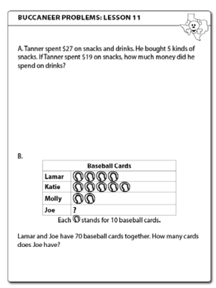
What's a Total problem?

When parts are put together into a total.

In a Total problem parts are put together to make a total. *All* Total problems have the same Total equation. What's the Total equation?

P1 + P2 = T.

Point to A.



BUCCANEER PROBLEMS: LESSON 11

A. Tanner spent $27 on snacks and drinks. He bought 5 kinds of snacks. If Tanner spent $19 on snacks, how much money did he spend on drinks?

B.

Baseball Cards	
Lamar	⚾⚾⚾⚾
Katie	⚾⚾⚾⚾⚾
Molly	⚾⚾
Joe	?

Each ⚾ stands for 10 baseball cards.

Lamar and Joe have 70 baseball cards together. How many cards does Joe have?

That's right. The Total equation is Part 1 plus Part 2 is the same as the Total. Sometimes the part is missing; sometimes the total is missing. We can use our Total equation to help us solve the problem.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>Solution to Problem A:</u>

Tanner spent $27 on snacks and drinks. He bought 5 kinds of snacks. If Tanner *spent $19 on snacks, how much money did he spend on drinks?*

Problem Type:	*Total*
Relevant Information:	*P1 = $19; P2 = X; T = $27*
Irrelevant Information:	~~*He bought 5 kinds of snacks.*~~
Number Sentence:	*$19 + X = $27*
Answer:	*X = $8 on drinks*

Follow Activity Guide: RUN

When you get to "N" begin script again.

Last time, we learned that you have to think hard to decide whether a problem is a Total problem. Look for the total and the parts anywhere in the story. Sometimes the total is not in the question. Whenever you think a problem might be a Total problem, ask yourself: Are there parts put together into a total? If the answer is yes, it's a Total problem.

This problem talks about two parts: one part is Tanner's snacks; the other part is Tanner's drinks. There's also a total. The total is the amount that Tanner spent on snacks and drinks.

The RUN poster helped us organize our paper so we can solve the problem! We said this is a Total problem. (Point to the T.) **We use the Total poster to solve it.**

What's Step 1?

Write P1 + P2 = T.

Good. We write the Total equation: P1 plus P2 is the same as T.

(Writes.)

Step 2: "Find T." Does this problem give us the total or ask us to find the total?

Gives us the total.

The first sentence says, "Tanner spent $27 on snacks and drinks." 27 is not just about snacks. 27 is not just about drinks. 27 is about snacks *and* drinks. This word "and" (point) **is really important here because it shows that 27 talks about both snacks *and* drinks.**

If 27 is about snacks *and* drinks, is 27 one of the parts or is 27 the total?

Total.

That's right. 27 is about the total amount of snacks *and* drinks. 27 is the total. It's T. Check off 27 in the problem and write 27 under T.

(Writes.)

Step 3: "Find P1 and P2." We already know the total, 27. The snacks are one part. The drinks are the other part. Which part do we know?

The snack amount.

We know the snack amount. How much did Tanner spend on snacks?

19.

Where should we write 19?

Under P1.

In a Total problem that tells us T, the problem always tells us one part and asks us to find the other part. What do we call the part that's missing?

P2.

Right. We always call the missing part P2. We always call the part we know P1. In this problem, we know the snacks amount. What do we call this, P1 or P2?

P1.

Right. We'll call the snacks Part 1 because that's the part the problem tells us. P1 is 19. Remember, in Total problems with a missing part, we always call the part we know Part 1. X is Part 2.

What's P1 again?

19.

Check off the 19 in the problem and write the number 19 in the number sentence underneath P1.

(Writes.)

Part 2 is the amount for drinks. How much did Tanner spend on drinks?

We don't know.

The question asks, "How much money did he spend on drinks?" We have to find the drinks amount. P2 is missing. How do we mark missing information?

With an X.

P2 is missing. Write an X under P2.

(Writes.)

Now let's go to Step 4. What's Step 4?

Write the signs.

Good. What math signs do we need to complete our number sentence?

Plus and the same as signs.

Let's write them in the number sentence.

(Writes.)

19 stands for Part 1. X stands for Part 2. 27 stands for total.

We want to isolate the X, or get the X by itself on this side (point) **of the equal sign. Let's first circle X so we remember to isolate it. To get X by itself, I need to move the 19 to that side of the equal sign. We want to make this side zero.**

If you have 19 and want to get zero, you can subtract 19. Because 19 minus 19 is what?

0.

(Writes, subtracts below the number, and crosses out the numbers.)

Now we need to balance the sides of the equal sign, so we have to do the same

thing to the other side.

For this problem, we subtracted 19 from this side of the equal sign, so we have to subtract 19 from this side of the equal sign.

(Writes minus 19 and subtracts 27 minus 19.)

We isolated the X. X is *the same as* 8.

So, 19 plus 8 is *the same as* 27.

Let's find X!

So, X is the same as 8. Go ahead and write X is the same as 8.

(Writes.)

Great! In word problems, our answer must have a number and a label. We know the number answer is 8. What's a good label for 8?

Dollars.

Yes! 8 is about dollars. Go ahead and write "dollars" or the dollar sign.

(Writes.)

So, how much did Tanner spend on drinks?

$8.

The last thing we need to do is check to see if our answer makes sense.

Does our answer make sense? Why?

(Student explains.)

Excellent work. Let's try another problem!

Point to B.

Here's a table (point). **What do we do before working on the word problem?**

Number the table or graph.

Let's number this table. The key says that each baseball stands for 10 baseball cards. So, let's count by tens.

<u>*Solution to Problem B:*</u>

Lamar and Joe have 70 baseball cards together. How many cards does Joe have?

Problem Type:	*Total*
Relevant Information:	*P1 = 40; P2 = X; T = 70*
Number Sentence:	*40 + X = 70*
Answer:	*X = 30 baseball cards*

Assist student in numbering table.

Now, we can RUN through the problem!

Follow Activity Guide: RUN.
Follow Activity Guide: Total.

Let's find X!

We want to isolate the X, or get the X by itself on this side (point) **of the equal sign. Let's first circle X so we remember to isolate it. To get X by itself, I need to move the 40 to that side of the equal sign. We want to make this side zero.**

If you have 40 and want to get zero, you can subtract 40. Because 40 minus 40 is what?

0.

(Writes, subtracts below the number, and crosses out the numbers.)

Now we need to balance the sides of the equal sign, so we have to do the same thing to the other side.

For this problem, we subtracted 40 from this side of the equal sign, so we have to subtract 40 from this side of the equal sign.

(Writes minus 40 and subtracts 70 minus 40.)

We isolated the X. X is *the same as* 30.

So, 40 plus 30 is *the same as* 70.

So, X is the same as 30. Go ahead and write X is the same as 30.

(Writes.)

Remember, we must have a label. What's a good label for 30? What did we underline?

Baseball cards.

Right! We underlined baseball cards, because baseball cards is the word that tells us about our missing information. What do we write for our label?

Baseball cards.

(Writes.)

Let's see if the answer makes sense. "How many baseball cards does Joe have?" If Lamar has 40 cards and Joe has 30, does it make sense that they have 70 cards together?

Yes.

Let's solve the next problem!

Point to C.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>*Solution to Problem C:*</u>

The Oz family has 3 children. They also have 9 cats and dogs. If the family has 4 cats, how many dogs does the family have?

Problem Type: *Total*
Relevant Information: *P1 = 4; P2 = X; T = 9*
Irrelevant Information: ~~*The Oz family has 3 children.*~~

Number Sentence: $4 + X = 9$
Answer: $X = 5$ *dogs*

Follow Activity Guide: RUN.
Follow Activity Guide: Total.
When you get to "find X" begin script again.

In this problem, we have 4 plus X is the same as 9.

We want to isolate the X, or get the X by itself on this side (point) **of the equal sign. Let's first circle X so we remember to isolate it. To get X by itself, I need to move the 4 to that side of the equal sign. We want to make this side zero.**

If you have 4 and want to get zero, you can subtract 4. Because 4 minus 4 is what?

0.

(Writes, subtracts below the number, and crosses out the numbers.)

Now we need to balance the sides of the equal sign, so we have to do the same thing to the other side.

For this problem, we subtracted 4 from this side of the equal sign, so we have to subtract 4 from this side of the equal sign.

(Writes minus 4 and subtracts 9 minus 4.)

We isolated the X. X is *the same as* 5.

So, 4 plus 5 is *the same as* 9.

So, X is the same as 5. Go ahead and write X is the same as 5. Also, write a label for 5.

(Writes.)

Did we answer the question, "How many dogs does the family have?"

Yes.

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

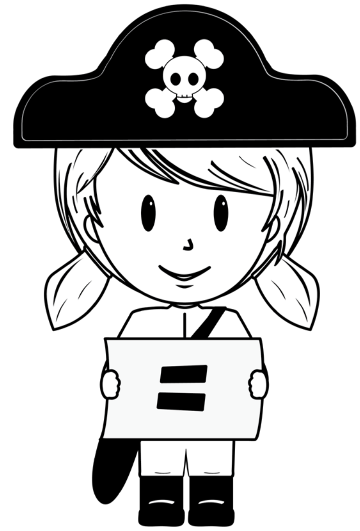
Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 12

ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Total
4. Shipshape Sorting
5. Jolly Roger Review



Materials

Posters

Counting Up
RUN/Total

Student Materials

Equation Quest: Lesson 12
Buccaneer Problems: Lesson 12
Jolly Roger Review: Lesson 12
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Time for Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

Last time, we worked on isolating the X. What does it mean to isolate the X?

To get X by itself.

When we isolate the X, we need to get X by itself. Let's try that!

Point to A.

How do you read this number sentence?

4 plus X is the same as 10.

When you see the equal sign like this, the first thing we'll do is draw a line down from the equal sign. What's the first thing?

Draw a line down from the equal sign.

Go ahead and draw the line coming down from the equal sign.

(Draws.)

This line (point) **will help us remember to balance the two sides of the equal sign. What do you want to do?**

Balance the two sides of the equation.

Now, we'll balance this equation by doing a fancy thing called *isolating the X*. Say that with me.

Isolating the X.

What does isolate mean?

Put something by itself.

And what do we want to isolate?

X.

First, where's the X?

(Points.)

Circle the X to make it easy to see.

(Circles.)

Now, let's *isolate the X*. Say that with me.

Isolate the X.

We want to get the X by itself on this side (point) **of the equal sign. We want to isolate the X. To isolate the X, we need to move this 4** (point) **to that side of the equal sign. How could we move this 4?**

Subtract 4 from both sides.

To move this 4, we need to subtract 4. But we don't only subtract 4 from this side (point)**, we have to subtract 4 from both sides** (point)**. Remember, anything you do to this side of the equal sign** (point)**, you have to do where?**

To that side.

So, write minus 4 on both sides.

(Writes.)

Time to do the math. What's 4 minus 4 (point)**?**

0.

4 minus 4 is the same as 0. When it's an answer of 0, cross out the 4 minus 4.

(Cross out.)

Now, let's do the math on that side. What's 10 minus 4 (point)**?**

6.

Write 6 right here.

(Writes.)

So, you isolated the X. X is the same as what?

6.

Write X is *the same as* next to 6.

(Writes.)

Now, check the number sentence. You solved that X is *the same as* 6. Rewrite the number sentence using 6 for X.

(Writes.)

Is 4 plus 6 *the same as* 10?

Yes.

4 plus 6 is *the same as* 10.

Excellent work on isolating the X!

Point to B.

Look at this problem. 6 plus 9 is *the same as* X.

First, there's an equal sign. Always draw a line down from the equal sign when you see an equal sign.

(Draws.)

Now, it's time to isolate the X. Where's the X? Circle it.

(Circles.)

We need to isolate the X, or get X by itself. Look at this number sentence. Do we need to isolate the X?

No.

Why don't we need to isolate the X?

Because X is already isolated. It's already by itself!

In this problem, X is already isolated on that side (point) **of the equal sign. To solve this, all you have to do is add 6 plus 9. What's 6 plus 9?**

15.

So, write 15 is the same as X.

(Writes.)

Now, check the number sentence. You solved that X is *the same as* 15. Rewrite the number sentence using 15 for X.

(Writes.)

Is 6 plus 9 *the same as* 15?

Yes.

Excellent work!

It's important to always think about what you need to do. Sometimes, when you isolate the X, you need to move numbers from one side of the equal sign to the other. Other times, when you isolate the X, you just need to add or subtract. Be a smart math pirate and think about how to isolate the X!

3: Buccaneer Problems

We've learned about Total problems. What's a Total problem?

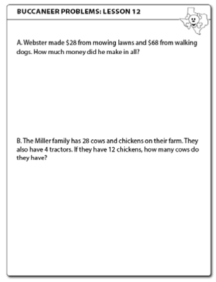
When parts are put together into a total.

In a Total problem parts are put together to make a total. *All* Total problems have the same Total equation. What's the Total equation?

P1 + P2 = T.

That's right. The Total equation is Part 1 plus Part 2 is the same as the Total. Sometimes the part is missing; sometimes the total is missing.
We can use our Total equation to help us solve the problem.

Point to A.



BUCCANEER PROBLEMS: LESSON 12

A. Webster made $28 from mowing lawns and $68 from walking dogs. How much money did he make in all?

B. The Miller family has 28 cows and chickens on their farm. They also have 4 tractors. If they have 12 chickens, how many cows do they have?

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>Solution to Problem A:</u>

> *Webster made $28 from mowing lawns and $68 from walking dogs. How much money did he make in all?*

Problem Type:	*Total*
Relevant Information:	*P1 = $28; P2 = $68; T = X*
Number Sentence:	*$28 + $68 = X*
Answer:	*X = $96*

Follow Activity Guide: RUN.
Follow Activity Guide: Total.

Let's find X!

We want to get the X by itself on this side (point) **of the equal sign.**

Is the X by itself?

Yes.

Exactly, the X already is by itself on this side (point) **of the equal sign, so you just solve.**

Do you add or subtract?

Add.

That's right. The X already is isolated because it's T, so you can just add 28 and 68 to find T.

(Adds.)

X is *the same as* 96. Are the two sides the same?

Yes.

So, X is the same as 96.

(Writes.)

What does our number need?

A label.

What's a good label for 96?

Dollars.

Yes! 96 is about dollars. Go ahead and write "dollars" or the dollar sign.

(Writes.)

So, how much money did Webster make in all?

$96.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Excellent work. Let's try another problem!

Point to B.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>Solution to Problem B:</u>

> *The Miller family has 28 cows and chickens on their farm. They also have 4 tractors. If they have 12 chickens, how many cows do they have?*
>
> *Problem Type:* *Total*
> *Relevant Information:* *P1 = 12; P2 = X; T = 28*
> *Irrelevant Information:* *~~They also have 4 tractors.~~*
> *Number Sentence:* *12 + X = 28*
> *Answer:* *X = 16 cows*

Follow Activity Guide: RUN.
Follow Activity Guide: Total.

Let's find X!

We want to isolate the X, or get the X by itself on this side (point) **of the equal sign. Let's first circle X so we remember to isolate it. To get X by itself, I need to move the 12 to that side of the equal sign. We want to make this side zero.**

If you have 12 and want to get zero, you can subtract 12. Because 12 minus 12 is what?

0.

(Writes, subtracts below the number, and crosses out the numbers.)

Now we need to balance the sides of the equal sign, so we have to do the same thing to the other side.

For this problem, we subtracted 12 from this side of the equal sign, so we have to subtract 12 from this side of the equal sign.

(Writes minus 12 and subtracts 28 minus 12.)

We isolated the X. X is *the same as* 16.

So, 12 plus 16 is *the same as* 28.

So, X is the same as 16.

(Writes.)

Remember, we must have a label. What's a good label for 16? What did we underline?

Cows.

We underlined cows, so what do we write for our label?

Cows.

(Writes.)

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Let's solve the next problem!

Point to C.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

Yes.

What do we need to do?

Number it.

Exactly! Let's number the graph.

(Student numbers graph.)

Solution to Problem C:

What is the total number of sunny and rainy days?

Problem Type:	*Total*
Relevant Information:	*P1 = 6; P2 = 4; T = X*
Irrelevant Information:	*~~cloudy days~~*

Number Sentence:	*6 + 4 = X*
Answer:	*X = 10 days*

Follow Activity Guide: RUN.
Follow Activity Guide: Total.
When you get to "find X" begin script again.

In this problem, we have 6 plus 4 is the same as X.

We want to get the X by itself on this side (point) **of the equal sign.**

Is the X by itself?

Yes.

Exactly, the X already is by itself on this side (point) **of the equal sign, so you just solve.**

Do you add or subtract?

Add.

That's right. The X already is isolated because it's T, so you can just add 6 and 4 to find T.

(Adds.)

X is *the same as* 10. Are the two sides the same?

Yes.

So, X is the same as 10. Write a label for 10.

(Writes.)

Did we answer the question, "What is the total number of sunny and rainy days?"

Yes.

The last thing we need to do is check to see if our answer makes sense. Does

our answer make sense? Why?

(Student explains.)

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

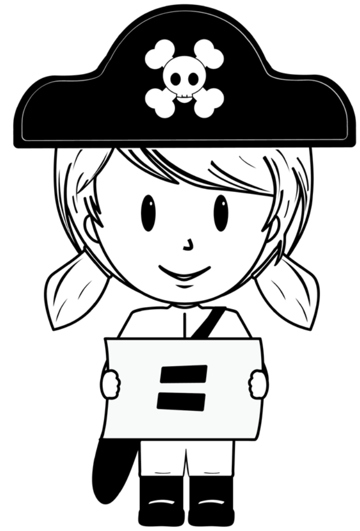
Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 13

ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Total
4. Shipshape Sorting
5. Jolly Roger Review



Materials

Posters

Counting Up
RUN/Total

Student Materials

Equation Quest: Lesson 13
Buccaneer Problems: Lesson 13
Jolly Roger Review: Lesson 13
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Equation Quest time! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

We've worked on isolating the X. What does it mean to isolate the X?

To get X by itself.

When we isolate the X, we need to get X by itself. Let's try that!

Point to A.

How do you read this number sentence?

5 plus X is the same as 9.

When you see the equal sign like this, what should you draw down from the equal sign?

Draw a line down from the equal sign.

Draw the line coming down from the equal sign.

(Draws.)

This line (point) **will help us remember to balance the two sides of the equal sign. What do you want to do?**

Balance the two sides of the equation.

Now, we'll balance this equation by doing a fancy thing called isolating the X. What does isolate mean?

Put something by itself.

And what do we want to isolate?

X.

First, where's the X?

(Points.)

Circle the X to make it easy to see.

(Circles.)

Now, let's isolate the X. Say that with me.

Isolate the X.

We want to get the X by itself on this side (point) **of the equal sign. We want to isolate the X. To isolate the X, we need to move this 5** (point) **to that side of the equal sign. How could we move this 5?**

Subtract 5 from both sides.

To move this 5, we need to subtract 5. But we don't only subtract 5 from this side (point)**, we have to subtract 5 from both sides** (point)**. Remember, anything you do to this side of the equal sign** (point)**, you have to do where?**

To that side.

So, write minus 5 on both sides.

(Writes.)

Time to do the math. What's 5 minus 5 (point)**?**

0.

5 minus 5 is the same as 0. When it's an answer of 0, cross out the 5 minus 5.

(Cross out.)

Now, let's do the math on that side. What's 9 minus 5 (point)**?**

4.

Write 4.

(Writes.)

So, you isolated the X. X is *the same as* what?

4.

Write X is the same as next to 4.

(Writes.)

Check the number sentence. You solved that X is the same as 4. Rewrite the number sentence using 4 for X.

(Writes.)

Is 5 plus 4 *the same as* 9?

Yes.

5 plus 4 is *the same as* 9.

Excellent work on isolating the X.

Point to B.

Look at this problem. 14 plus X is the same as 25. This problem has numbers that are greater, but you isolate the X in the same way. Let's do that.

What should you draw down from the equal sign?

Draw a line down from the equal sign.

Draw the line coming down from the equal sign.

(Draws.)

This line (point) **will help us remember to balance the two sides of the equal sign. What do you want to do?**

Balance the two sides of the equation.

Now, we'll balance this equation by isolating the X. Where's the X?

(Points.)

Circle the X to make it easy to see.

(Circles.)

Now, let's isolate the X. To isolate the X, we need to move this 14 (point) **to that side of the equal sign. How could we move this 14?**

Subtract from both sides.

To move 14, we need to subtract 14. We have to subtract 14 from both sides (point)**. Remember, anything you do to this side of the equal sign** (point)**, you have to do where?**

To that side.

So, write minus 14 on both sides.

(Writes.)

Time to do the math. What's 14 minus 14 (point)**?**

0.

Cross out the 14 minus 14.

(Cross out.)

Do the math on that side (point)**. What's 25 minus 14** (point)**?**

11.

Write 11.

(Writes.)

So, you isolated the X. X is the same as what?

11.

Write X is the same as next to 11.

(Writes.)

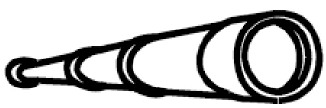
Check the number sentence. Rewrite the number sentence using 11 for X.

(Writes.)

Great. 14 plus 11 is *the same as* 25.

So, it doesn't matter if numbers are less (point to A) **or greater** (point to B)**. You can always isolate the X.**

You can use your isolating the X strategy in word problems. Let's practice that now.



3: Buccaneer Problems

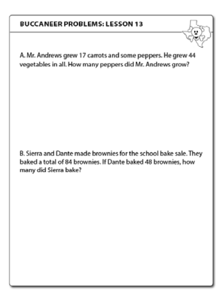
We've learned about Total problems. What's a Total problem?

When parts are put together into a total.

In a Total problem parts are put together to make a total. *All* Total problems have the same Total equation. What's the Total equation?

P1 + P2 = T.

Point to A.



BUCCANEER PROBLEMS: LESSON 13

A. Mr. Andrews grew 17 carrots and some peppers. He grew 44 vegetables in all. How many peppers did Mr. Andrews grow?

B. Sierra and Dante made brownies for the school bake sale. They baked a total of 84 brownies. If Dante baked 48 brownies, how many did Sierra bake?

That's right. The Total equation is Part 1 plus Part 2 is the same as the Total. Sometimes the part is missing; sometimes the total is missing. We can use our Total equation to help us solve the problem.

Whenever we see a word problem, we first have to check if there is a graph or a

table. Is there a graph or a table?

No.

<u>*Solution to Problem A:*</u>

Mr. Andrews grew 17 carrots and some peppers. He grew 44 vegetables in all. How many peppers did Mr. Andrews grow?

Problem Type:	*Total*
Relevant Information:	*P1 = 17; P2 = X; T = 44*
Number Sentence:	*17 + X = 44*
Answer:	*X = 27 peppers*

Follow Activity Guide: RUN.
Follow Activity Guide: Total.

Let's find X!

We want to isolate the X, or get the X by itself on this side (point) **of the equal sign. Let's first circle X so we remember to isolate it. To get X by itself, I need to move the 17 to that side of the equal sign. We want to make this side zero.**

If you have 17 and want to get zero, you can subtract 17. Because 17 minus 17 is what?

0.

(Writes, subtracts below the number, and crosses out the numbers.)

Now we need to balance the sides of the equal sign, so we have to do the same thing to the other side.

For this problem, we subtracted 17 from this side of the equal sign, so we have to subtract 17 from this side of the equal sign.

(Writes minus 17 and subtracts 44 minus 17.)

We isolated the X. X is *the same as* 27.

So, 17 plus 27 is *the same as* 44.

So, X is the same as 27.

(Writes.)

What does our number need?

A label.

What's a good label?

Dollars.

Yes! 27 is about peppers. Go ahead and write "peppers."

(Writes.)

So, how many peppers did Mr. Andrews grow?

27 peppers.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Excellent work. Let's try another problem!

Point to B.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>Solution to Problem B:</u>

Sierra and Dante made brownies for the school bake sale. They baked a total of 84 brownies. If Dante baked 48 brownies, how many did Sierra bake?

Problem Type:	*Total*
Relevant Information:	*P1 = 48; P2 = X; T = 84*
Number Sentence:	*48 + X = 84*
Answer:	*X = 36 brownies*

Follow Activity Guide: RUN.
Follow Activity Guide: Total.

Let's find X!

We want to isolate the X, or get the X by itself on this side (point) **of the equal sign. Let's first circle X so we remember to isolate it. To get X by itself, I need to move the 48 to that side of the equal sign. We want to make this side zero.**

If you have 48 and want to get zero, you can subtract 48. Because 48 minus 48 is what?

0.

(Writes, subtracts below the number, and crosses out the numbers.)

Now we need to balance the sides of the equal sign, so we have to do the same thing to the other side.

For this problem, we subtracted 48 from this side of the equal sign, so we have to subtract 48 from this side of the equal sign.

(Writes minus 48 and subtracts 84 minus 48.*)*

We isolated the X. X is *the same as* 36.

So, 48 plus 36 is *the same as* 84.

So, X is the same as 36.

(Writes.)

Remember, we must have a label. What's a good label for 36? What did we underline?

Brownies.

So what do we write for our label?

Brownies

(Writes.)

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Let's solve the next problem!

Point to C.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

Yes.

What should we do anytime we see a table or graph with a word problem?

Number it.

Solution to Problem C:

Mila counted cars on her walk home from school. Here is Mila's graph. How many white and grey cars did Mila see?

Problem Type:	*Total*
Relevant Information:	*P1 = 15; P2 = 25; T = X*
Irrelevant Information:	~~*blue; black; red*~~
Number Sentence:	*15 + 25 = X*
Answer:	*X = 40 cars*

Follow Activity Guide: RUN.
Follow Activity Guide: Total.

We want to get the X by itself on this side (point) **of the equal sign.**

Is the X by itself?

Yes.

Exactly, the X already is by itself on this side (point) **of the equal sign, so you just solve.**

Do you add or subtract?

Add.

That's right. The X already is isolated because it's T, so you can just add 15 and 25 to find T.

(Adds.)

X is *the same as* 40. Are the two sides the same?

Yes.

So, X is the same as 40. Write a label for 40.

(Writes.)

Did we answer the question?

Yes.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

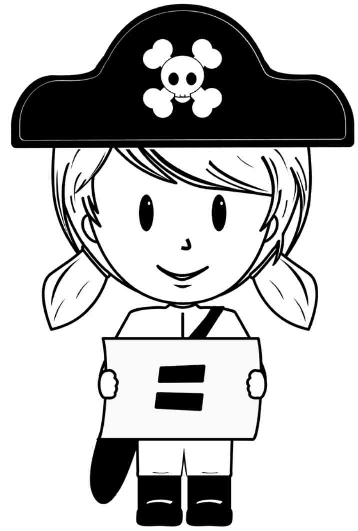
Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 14

ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Total with three parts
4. Shipshape Sorting
5. Jolly Roger Review



Materials

Posters

Counting Up
RUN/Total

Student Materials

Equation Quest: Lesson 14
Buccaneer Problems: Lesson 14
Jolly Roger Reviews: Lesson 14
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Equation Quest time! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

We've worked on isolating the X. What does it mean to isolate the X?

To get X by itself.

When we isolate the X, we need to get X by itself. Let's try that!

Point to A.

How do you read this number sentence?

29 plus X is the same as 45.

Follow Activity Guide: Equation Quest – Addition.

Excellent work on isolating the X.

Point to B.

Look at this problem. 31 is *the same as* X plus 16.

What should you draw down from the equal sign?

Draw a line down from the equal sign.

Draw the line coming down from the equal sign.

(Draws.)

This line (point) **will help us remember to balance the two sides of the equal sign. What do you want to do?**

Balance the two sides of the equation.

Now, we'll balance this equation by isolating the X. Where's the X?

(Points.)

Circle the X to make it easy to see.

(Circles.)

This time, the X is on that side (point) **of the equal sign. Here's what awesome about isolating the X. It does not matter if X is on this side** (point) **of the equal sign or that side** (point) **of the equal sign.**

To isolate the X, we need to move this 16 (point) **to this side of the equal sign. How could we move this 16?**

Subtract from both sides.

To move 16, we need to subtract 16. Write minus 16 on both sides.

(Writes.)

Time to do the math. What's 16 minus 16 (point)**?**

0.

Cross out the 16 minus 16.

(Cross out.)

Do the math on this side (point)**. What's 31 minus 16** (point)**?**

15.

Write 15.

(Writes.)

So, you isolated the X. X is *the same as* what?

15.

Write X is the same as next to 15.

(Writes.)

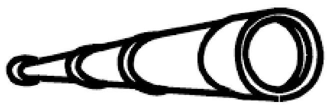
Check the number sentence. Rewrite the number sentence using 15 for X.

(Writes.)

Excellent. 31 is *the same as* 15 plus 16.

Remember, it doesn't matter is X is on this side (point) **or that side** (point)**. You can isolate the X on either side of the equal sign!**

You should use your isolating the X skill in word problems. Let's practice that now.



3: Buccaneer Problems

We've learned about Total problems. What's a Total problem?

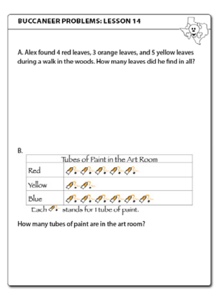
When parts are put together into a total.

In a Total problem parts are put together to make a total. Now, sometimes Total problems can have *more* than two parts! And that's okay. It's still a Total problem, and we can still use the Total equation. What's the Total equation?

P1 + P2 = T.

That's right. The Total equation is Part 1 plus Part 2 is the same as the Total. But when we have three parts, we can change the Total equation to be P1 plus P2 plus P3 is the same as T. Let me show you how this works!

Point to A.



BUCCANEER PROBLEMS: LESSON 14

A. Alex found 4 red leaves, 3 orange leaves, and 5 yellow leaves during a walk in the woods. How many leaves did he find in all?

B.

Tubes of Paint in the Art Room	
Red	
Yellow	
Blue	

Each stands for 1 tube of paint.

How many tubes of paint are in the art room?

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>*Solution to Problem A:*</u>

Alex found 4 red leaves, 3 orange leaves, and 5 yellow leaves during a walk in the woods. How many leaves did he find in all?

Problem Type:	*Total*
Relevant Information:	*P1 = 4; P2 = 3; P3 = 5; T = X*
Number Sentence:	*5 + 4 + 3 = X*
Answer:	*X = 12 leaves*

What's the first thing we do every time we see a word problem?

RUN through it!

Good. What does R stand for?

Read the problem.

Listen as I read the problem. "Alex found 4 red leaves, 3 orange leaves, and 5 yellow leaves during a walk in the woods. How many leaves did he find in all?"

What does U stand for?

Underline the label and cross out irrelevant information.

What's this problem mostly about?

Leaves.

This problem is mostly about leaves: Red leaves, orange leaves, and yellow leaves. Let's underline the word "leaves."

(Underlines.)

Now let's check for irrelevant information. We ONLY want to find information that tells us about leaves. What is irrelevant information?

Information we don't need.

Good. Numbers that tell us about other things are <u>irrelevant information</u>. We have to be picky. We only use numbers that tell us about leaves. We cross out irrelevant information.

Let's look at the problem together. Listen as I read the first sentence. "Alex

found 4 red leaves, 3 orange leaves, and 5 yellow leaves during a walk in the woods." This sentence tells us a lot of information. Think about which numbers tell about leaves.

Give about 15 seconds for students to think about the information.

Is there any irrelevant information?

No.

Are all of the numbers about the label we underlined? Are all the numbers about leaves?

Yes.

To decide if information is important or irrelevant, you must figure out if you're putting together 2 things or 3 things. If all these numbers are about the label (point)**, then all three numbers are important. None of these numbers are irrelevant information. All if these numbers are about leaves** (point to label)**.**

Don't let irrelevant information trick you. But remember: Figure out which numbers are important. You use all the important numbers to answer the question. Figure out which numbers are irrelevant. Cross out irrelevant information. In this problem, all of the numbers are about leaves. We use all three numbers.

What does N stand for?

Name the problem type.

After you read the problem, underline the label, and check for irrelevant information, you name the problem type. How do we know when it's a Total problem?

When parts are put together into a total.

Is that what is happening in this problem?

Yes.

How do you know?

(Student.)

Right. This problem puts <u>parts</u> together into a total. The question is "How many leaves did he find in all?" It tells us that we're putting the leaves together. We know this is a Total problem because we're putting the leaves he found together.

What should I put next to the problem to remind me it's a Total problem?

T.

Right. Write T next to the problem to remind you it's a Total problem.

(Writes.)

The RUN poster helped us organize our paper so we can solve the problem! We said this is a Total problem. (Point to the T.) **Use the Total poster to solve it.**

Display Total poster.

Let's look at the five steps. What's Step 1?

Write P1 + P2 = T.

Good. We write the Total equation: P1 plus P2 is the same as T. In a Total problem, two parts are put together to make a Total. The Total equation, P1 plus P2 is the same as T, helps us remember how to write our number sentence for a Total problem.

(Writes.)

Step 2: "Find T." Let's first look at the question to see if the problem tells us the total or if the problem tells us to find the total.

The question says, "How many leaves did he find in all?" Is the question asking us to find the total number of leaves?

Yes.

If the question is asking us to find the total number of leaves, what is missing?

T or one of the parts?

T.

Right. The missing information asks about ALL the leaves. We know the missing information is the total. We need to find the Total, or T. That's what's missing.

In number sentences, how do we mark missing information?

With an X.

Right. I put X in the number sentence. Where do I mark the X?

Under the T.

Good. Put X under the T because the total is what's missing.

(Writes.)

Step 3: "Find P1 and P2." We need to think about the story and figure out what numbers P1 and P2 are. Remember, the total is how many leaves he found in all. If we're putting together leaves, we want to find the numbers that tell us about leaves. Those will be part 1 and part 2.

Which numbers are about leaves? Let's look at the first number. It says "4 red leaves." Is this about leaves?

Yes.

Good. That's P1. Check off the 4 in the problem and write the number 4 in the number sentence underneath P1.

(Writes.)

Let's look at the next number. It says "3 orange leaves." Is this about leaves?

Yes.

Good. That's P2. Check off the 3 in the problem and write the number 3 in the number sentence underneath P2, like this.

(Writes.)

Let's look at the next number. It says "5 yellow leaves." Is this about leaves?

Yes.

Do we have a place to put the 5 in the Total equation?

No.

You're right! In this Total problem, we're putting together 3 things instead of 2 things. The question asks, "How many leaves did he find in all?" He found 4 red leaves, 3 orange leaves, AND 5 yellow leaves. To answer the question we need to put 3 things together.

Let's add another part to the Total equation.

Write P3 at the beginning of our Total equation and write an extra plus sign. We need P3 because we're adding a third part to the Total equation.

(Writes.)

Work should look like this:

$$\begin{array}{ccccccc} P3 & + & P1 & + & P2 & = & T \\ & & 4 & & 3 & & X \end{array}$$

Now, what's P3?

5.

Good. That's P3. Check off the 5 in the problem and write the number 5 in the number sentence underneath P3, like this.

(Writes.)

Sometimes Total problems put 3 things together to find the total. We still name these problems Total problems because we're still putting things together.

Now let's go to Step 4. What's Step 4?

Write the signs.

Good. What math signs do we need to complete our number sentence?

+ and + and =.

Right. We need two plus signs and the same as sign. Let's write them in the number sentence.

(Writes.)

5 stands for Part 3. 4 stands for Part 1. 3 stands for Part 2. X stands for the Total. Does this look like a number sentence we know how to solve?

Yes.

Don't let the number sentence trick you. X is at the end. We solve it! We're going to add to find X.

We want to get the X by itself on this side (point) **of the equal sign.**

Is the X by itself?

Yes.

Exactly, the X already is by itself on this side (point) **of the equal sign, so you just solve.**

Do you add or subtract?

Add.

That's right. The X already is isolated because it's T, so you can just add P1 plus P2 plus P3 to find T.

(Adds.)

X is *the same as* 12. Are the two sides the same?

Yes.

Great! In word problems, our answer must have a number and a label. We know the number answer is 12. Now we have to figure out what the label for 12 should be. Think about what the problem is mostly about. Start by looking in the question sentence. Look at what we underlined. What did we underline?

Leaves.

Right! The question is asking about leaves, so that's the best label. X stands for the total leaves.

(Writes.)

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense?

(Student explains.)

Let's see if the answer makes sense. "Alex found 4 red leaves, 3 orange leaves, and 5 yellow leaves during a walk in the woods. How many leaves did he find in all?" Does 12 leaves make sense?

Yes.

Why does it make sense?

(Student explains.)

Did we answer the question, "How many leaves did he find in all?"

Yes.

We did because he found 12 leaves. We have a number and a label in the answer. Great job!

Excellent work. Let's try another problem!

Point to B.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

Yes.

What should we do anytime we see a table or graph with a word problem?

Number it.

Let's number this graph before working on the problem!

(Student numbers graph.)

<u>Solution to Problem B:</u>

How many tubes of paint are in the art room?

Problem Type:	*Total*
Relevant Information:	*P1 = 5; P2 = 2; P3 = 6; T = X*
Number Sentence:	*6 + 5 + 2 = X*
Answer:	*X = 13 tubes*

Follow Activity Guide: RUN.
Follow Activity Guide: Total.

Let's find X!

We want to get the X by itself on this side (point) **of the equal sign.**

Is the X by itself?

Yes.

Exactly, the X already is by itself on this side (point) **of the equal sign, so you just solve.**

Do you add or subtract?

Add.

That's right. The X already is isolated because it's T, so you can just add P1 plus P2 plus P3 to find T.

(Adds.)

X is *the same as* 13. Are the two sides the same?

Yes.

So, X is the same as 13.

(Writes.)

Remember, we must have a label. What's a good label? What did we underline?

Tubes.

So what do we write for our label?

(Writes.)

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Let's solve the next problem!

Point to C.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

Yes.

What should we do anytime we see a table or graph with a word problem?

Number it.

Let's number this graph before working on the problem!

(Student numbers graph.)

Solution to Problem C:

> *The table shows how much money each person spent at the grocery store. How much did Carter, Truman, and Lincoln spend?*

Problem Type:	*Total*
Relevant Information:	*P1 = 13; P2 = 32; P3 = 40; T = X*
Irrelevant Information:	~~*Jackson*~~
Number Sentence:	*40 + 13 + 32 = X*
Answer:	*X = $85*

Follow Activity Guide: RUN.
Follow Activity Guide: Total.

We want to get the X by itself on this side (point) **of the equal sign.**

Is the X by itself?

Yes.

Exactly, the X is already by itself on this side (point) **of the equal sign, so you just solve.**

Do you add or subtract?

Add.

That's right. The X is already isolated because it's T, so you can just add P1 plus P2 plus P3 to find T.

(Adds.)

X is *the same as* 85. Are the two sides the same?

Yes.

So, X is the same as 85. Write a label for 85.

(Writes.)

Did we answer the question?

Yes.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

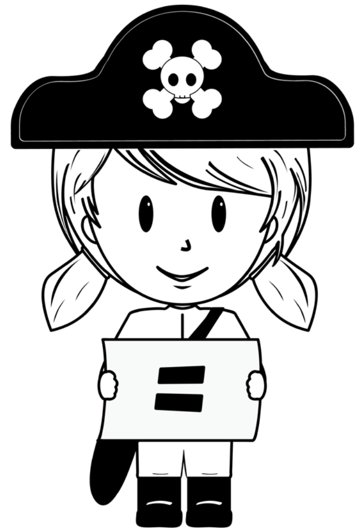
Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 15



ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems Total
4. Shipshape Sorting
5. Jolly Roger Review

Materials

Posters

Counting Up
RUN/Total

Student Materials

Equation Quest: Lesson 15
Buccaneer Problems: Lesson 15
Jolly Roger Review: Lesson 15
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's do our Equation Quest! What does the equal sign mean?

The same as.

The equal sign means *the same as* (point)**.**

We've worked on isolating the X. What does it mean to isolate the X?

To get X by itself.

When we isolate the X, we need to get X by itself. Let's try that!

Point to A.

How do you read this number sentence?

X plus 4 is the same as 11.

Let's use the cubes to isolate the X.

Place cubes.
Place X.

So, on this side (point) **we have an X. Place the X.**

(Places X.)

We also have 4. Place 4 cubes.

(Places cubes.)

On that side (point)**, we have 11. Place 11 cubes.**

(Places cubes.)

Now, we need to isolate the X. What do we need to do?

Isolate the X.

What does it mean to isolate the X?

Get X by itself.

If you want to get the X by itself, you need to subtract these 4 (point)**. But, if you subtract 4 from this side, what do you have to do to that side?**

(Subtracts cubes.)

You isolated the X. X is *the same as* what?

7.

That's right. X is *the same as* 7. Excellent work on isolating the X.

Point to B.

Look at this problem. 9 is *the same as* 3 plus X. Let's use the cubes again.

On this side (point)**, we have an 9. How many cubes do you place?**

(Places cubes.)

On that side (point)**, we have 3 and an X. So, place 3 cubes and the X.**

(Places cubes and X.)

Now, we need to isolate the X. What do we need to do?

Isolate the X.

What does it mean to isolate the X?

Get X by itself.

Does it matter which side of the equal sign the X is on?

No.

It doesn't matter which side of the equal sign the X is on. If you want to get the X by itself, you need to subtract these 3 (point)**. But, if you subtract 3 from this side, what do you have to do to that side?**

Subtract 3.

Subtract 3 from both sides.

(Subtracts cubes.)

You isolated the X. X is *the same as* what?

6.

Good pirate-ing! X is *the same as* 6.

3: Buccaneer Problems

We've learned about Total problems. What's a Total problem?

When parts are put together into a total.

In a Total problem parts are put together to make a total. Now, sometimes Total problems can have *more* than two parts! And that's okay. It's still a Total problem, and we can still use the Total equation. What's the Total equation?

P1 + P2 = T.

That's right. The Total equation is Part 1 plus Part 2 is the same as the Total. But when we have three parts, we can change the Total equation to be P1 plus P2 plus P3 is the same as T. Let me show you how this works!

Point to A.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>Solution to Problem A:</u>

Katie has 14 goldfish and 13 rainbow fish. Jim has 22 clown fish. How many fish do they have in all?

Problem Type: *Total*

Relevant Information: *P1 = 14; P2 = 13; P3 = 22; T = X*

Number Sentence: *22 + 14 + 13 = X*
Answer: *X = 49 fish*

Follow Activity Guide: RUN.
Follow Activity Guide: Total.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Look at this problem.

Point to B.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>Solution to Problem B:</u>

Mrs. Chan packed 34 sandwiches for the picnic. She also packed 6 cookies. If she packed 17 ham sandwiches, how many peanut butter sandwiches did she pack?

Problem Type: *Total*
Relevant Information: *P1 = 17; P2 = X; T = 34*
Irrelevant Information: *~~She also packed 6 cookies.~~*
Number Sentence: *17 + X = 34*
Answer: *X = 17 peanut butter sandwiches*

Follow Activity Guide: RUN.
Follow Activity Guide: Total.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Let's solve the next problem!

Point to C.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

Yes.

What should we do anytime we see a table or graph with a word problem?

Number it.

Solution to Problem C:

Jamie spent $7 on a burger and a soda. How much did the soda cost?

Problem Type:	*Total*
Relevant Information:	*P1 = 4; P2 = X; T = 7*
Irrelevant Information:	~~*Fries*~~
Number Sentence:	*4 + X = 7*
Answer:	*X = $3*

Follow Activity Guide: RUN.
Follow Activity Guide: Total.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

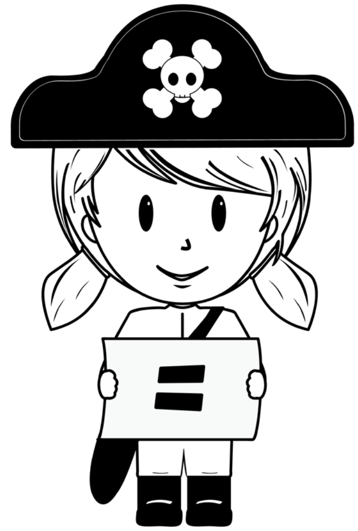
Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 16



ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Computation: Regrouping
4. Shipshape Sorting
5. Jolly Roger Review

Materials

Posters

Counting Up
RUN/Total

Student Materials

Equation Quest: Lesson 16
Buccaneer Problems: Lesson 16
Jolly Roger Review: Lesson 16
Cubes
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's do our Equation Quest! What does the equal sign mean?

The same as.

The equal sign means *the same as* (point)**.**

We've worked on isolating the X. What does it mean to isolate the X?

To get X by itself.

When we isolate the X, we need to get X by itself. Let's try that!

Point to A.

Follow Activity Guide: Equation Quest – Addition.

Look at this problem. Let's isolate the X!

Point to B.

Follow Activity Guide: Equation Quest – Addition.

3: Buccaneer Problems

Today, let's do something different. Let's review solving addition and subtraction problems where we do the math in steps.

Point to A.

What's the problem?

92 minus 68.

First, do we add or subtract?

Subtract.

How do you know that you subtract?

The minus sign.

Very good! The minus sign (point) **tells you to subtract. What do you draw between the tens and ones column?**

A line.

Yes, you draw a line between the tens and ones column.

(Draws.)

When we subtract, where do we start?

In the ones column.

What two numbers are in the ones column?

2 and 8.

Can you subtract 2 minus 8?

No.

When you need to subtract the minus number, but it's greater than the number you start with, you can: cross ten out, write one less, then move one before. Say that with me.

Cross ten out, write one less, then move one before.

Cross out the number you start with in the tens column.

(Writes.)

Write one less.

(Writes.)

Move one before.

(Writes.)

What's 12 minus 8?

4.

Great! Write 4 in the ones column under the equal line.

(Writes.)

We haven't finished this problem. We're done with subtracting the ones column. What do we subtract next?

The tens column.

Yes, now we subtract the tens column. We crossed the 9 out and wrote an 8 above it. So, now the problem is 8 minus 6. What's 8 minus 6?

2.

Write 2 in the tens column below the equal line.

(Writes.)

What's 92 minus 68?

24.

92 minus 68 is 24. That was a little more work than the other subtraction problems. What's our way to remember what to do?

Cross ten out, write one less, then move one before.

Let's look at the next Buccaneer problem!

Point to B.

Look at this problem. 51 plus 29.

Look at the sign. Do we add or subtract?

Add.

What should you draw down the middle?

A line.

Draw a line down the middle.

(Draws.)

Where do you always start?

Ones column.

What numbers do you add in the ones column?

1 plus 9.

What's 1 plus 9?

10.

In addition, what's the rule about numbers in the ones column below the equal line?

If the number is more than 9, write the 1 in the tens column and the other number in the ones column.

Write 1 in the tens and 0 in the ones.

(Writes.)

Now what do we do?

Move to the tens column.

Very good. Once you've added the ones column, move to the tens column. What numbers are in the tens column?

1 and 5 and 2.

5 and 2 are in the tens column. We also have the 1 we just wrote in the tens column. Add 5 and 2 together. Then we'll add 1 more. What's 5 plus 2?

7.

Yes. 5 plus 2 is the same as 7. Now, add in the 1 we wrote in the tens column. What's 7 plus 1?

8.

So let's write 8 below the equal line in the tens column.

(Writes.)

What's 51 plus 29?

80.

Awesome! 51 plus 29 is the same as 80.

Point to C.

42 minus 21. Do you add or subtract?

Subtract.

Yes, the minus sign tells you to subtract. Draw a line down the middle to separate the two columns or two steps.

(Draws.)

Which column do we start with?

The ones.

Right! What two numbers are in the ones column?

2 and 1.

What's 2 minus 1?

1.

Do you need to cross ten out, write one less, then move one before?

No!

You don't need to cross ten out, write one less, then move one before. You don't have to do that because the minus number isn't greater than the number you start with.

So, subtract the ones.

(Writes.)

We subtracted the ones column. So, where do we move next?

The tens column.

Yes, we move over to the tens column. What two numbers are in the tens column?

4 and 2.

What's 4 minus 2?

(Writes.)

What's the answer?

21.

Point to D.

65 plus 14. Look at the sign. Do we add or subtract?

Add.

Draw a line down the middle between the ones column and tens column to make the math easier.

(Draws.)

Now when we add, where do we start?

In the ones column.

Right! We start in the ones column. What two numbers are in the ones column?

5 and 4.

What's 5 plus 4?

9.

Do you have to write a 1 in the tens?

No.

Go ahead and write 9 below the equal line.

(Writes.)

What do we add next?

The tens column.

Yes, now we add the tens column. What numbers are in the tens column?

6 and 1.

What's 6 plus 1?

7.

Write 7 in the tens column below the equal line.

(Writes.)

What's 65 plus 14?

79.

65 plus 14 is the same as 79.

You earn a treasure coin!

Point to E.

Solve problems E, F, G, and H.

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

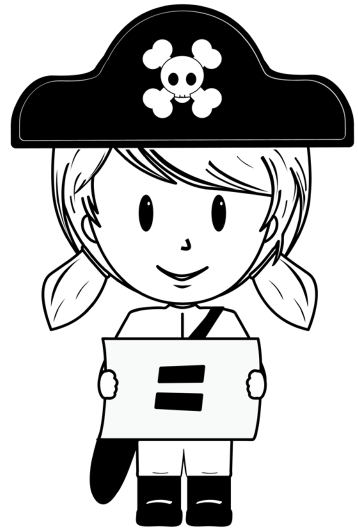
Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 17



ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Difference with D missing
4. Shipshape Sorting
5. Jolly Roger Review

Materials

Posters

Counting Up
RUN/Total
Difference/Change

Student Materials

Equation Quest: Lesson 17
Buccaneer Problems: Lesson 17
Jolly Roger Review: Lesson 17
Cubes
Treasure map

Tutor Materials

Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

Look at A.

Point to A.

10 minus 6 is *the same as* 4.

Up to this point, we've worked on addition number sentences. Today, we'll start to work on subtraction number sentences.

What makes this (point to A) **a subtraction number sentence?**

The minus sign.

That's right. Here is the minus sign (point)**. The minus sign tells us to subtract.**

How would we read this number sentence?

10 minus 6 is the same as 4.

Even though this has a minus sign, we still use the same as when you see the equal sign. Let's read it together.

10 minus 6 is the same as 4.

Great. Now, let's use the cubes to solve a few problems.

Point to B.

5 minus 2 is *the same as* blank. Blank can be *the same as* X. Because we've been isolating the X, write an X on the blank space.

(Writes.)

To solve this problem with cubes, we can place 5 cubes (place 5 cubes of one color) **on this side of the equal sign.**

Place 5 cubes.

Now, the minus sign tells us that we need to subtract or take away. How many cubes do we need to subtract?

2.

We need to subtract 2.

Subtract 2 cubes from the 5 cubes.

Now, on that side of the equal sign (point)**, we have an X.**

Place X.

So, 3 cubes is *the same as* X. So, X is the same as what?

3.

Yes, 5 minus 2 is *the same as* 3.

What does the equal sign mean?

The same as.

That's right. The equal sign means the same as.

Let's try another one.

Point to C.

This problem says blank is *the same as* 8 minus 3. Let's read that together.

Blank is the same as 8 minus 3.

This problem looks a little different, but we can solve it. All we need to do is make the sides the same.

First, how can we mark the blank space?

With an X.

Blank and X mean the same thing. So, you can write an X on the blank space.

(Writes.)

To solve this problem with cubes, place an X on this side (point)**.**

(Places X.)

Now, on that side (point)**, place 8 cubes.**

(Places cubes.)

But you're not finished. The minus sign tells you to subtract how many?

3.

So, subtract 3 cubes from the 8.

(Subtracts cubes.)

The equal sign acts as a balance. X is *the same as* what?

5.

That's right. If you plug in 5 for X, 5 is *the same as* 8 minus 3. Let's read the number sentence together.

5 is the same as 8 minus 3.

Good work for today!

3: Buccaneer Problems

Let's review. What's a Total problem?

When parts are put together into a total.

In a Total problem, parts are put together to make a total. *All* Total problems have the same Total equation. What's the Total equation?

P1 + P2 = T.

When we solve word problems, what two things do we have in our answer?

A number and a label.

Very good. You must have a number *and* a label. What is a label?

A word that tells us about our missing information.

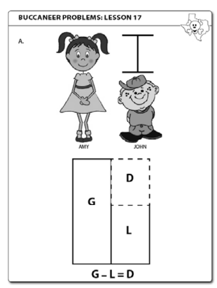
Excellent. A label is a word that tells us about our missing information. Now let's practice solving word problems!

Today, we'll learn a new type of problem. We call these Difference problems.

Difference means the difference between two amounts. In a Difference problem, you compare two amounts. When you compare, you put two amounts side by side to see which amount is greater and which amount is less. You compare two numbers and you find the difference between the amount that's greater and the amount that's less.

Let me show you what I mean.

Point to A.



Look at this picture. This is Amy. Her name is written here (point) **under her picture. And this is John** (point)**. His name is written here under his picture. In this picture, Amy is taller than John. In a Difference problem, our job is to figure out how *much* taller Amy is than John. The difference between Amy and John is this much.**

Point to the difference in the heights.

When we compare Amy and John, this is the difference between their heights. Who is taller?

Amy.

That's right. Amy is taller. Who is shorter?

John.

Right. When we <u>compare</u> how tall they are, Amy is taller. John is shorter.

When you compare two things, like people, or two amounts of something, one amount is greater, and one amount is less. In Difference problems, our job is to figure out how *much* greater/taller or less/smaller one amount is compared to the other amount. Look up here. Let me show you another example.

Point to Difference Picture.

This box is the amount that's greater (point and trace around entire "G" box)**. It's like Amy** (write Amy's name in the greater box)**. This box is the amount that's less** (point and trace around the entire "L" box)**. It's like John** (write John's name in the less box)**. This is the Difference between Amy and John** (Point and trace around the box with the dotted line.)

In Difference problems, we compare two amounts to find the difference. One amount is greater. The other amount is less.

To find the difference, we <u>subtract</u>. What signs do we use in subtraction number sentences?

A minus sign and the same as sign.

That's right. To find the difference, we subtract. In our Difference equation, we use a minus sign and the same as sign.

Let's think back to Total problems. In Total problems, we put parts together into a total. What signs do we use in our Total equation, P1 plus P2 is the same as T?

A plus sign and the same as sign.

Right. For our Total equation, we always use a plus sign and the same as sign.

In Difference problems, we compare two amounts to find the difference. In our Difference equation, we use a minus sign and the same as sign, like this.

Point to the bottom of Difference Chart.

The Difference equation is G minus L is the same as D. The amount that's greater minus the amount that's less is the same as the Difference. Here is the minus sign (point), **and here is the same as sign** (point)**.**

Let me show you how the Difference equation is like the picture. G is the amount that's greater or Amy. Let's say Amy is 5 feet tall. I write 5 underneath G and put 5 in the box with G.

Write 5 underneath G and put 5 in the box with G.

L is the amount that's less or John. Let's say John is 3 feet tall. I write 3 underneath L and put 3 in the box with L.

Write 3 underneath L and put 3 in the box with L.

We're finding the Difference between Amy and John. That's this much.

Show with your hands the amount between Amy and John.

This is what's missing. So I write X underneath D and put X in the box with D.

Write X underneath D and put X in the box with D.

Now I put the minus and the same as sign into the number sentence. Now I can find X! When X is at the end, I solve it. I need to subtract. What's 5 minus 3?

2.

Right. 5 minus 3 is the same as 2. X is the same as 2. The difference between Amy and John is 2 feet. Amy is 2 feet taller than John. John is 2 feet shorter than Amy.

2 feet is the difference between Amy and John. In the picture, it's this (trace your finger around the box with D.) **In Difference problems, the story is about one amount being greater or less than another amount. The story is about the difference between these amounts.**

You earn a treasure coin!

Let's solve a Difference problem!

Point to B.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>Solution to Problem B:</u>

Kim scored 7 goals in Friday's soccer game. She scored 5 goals in Saturday's soccer game. How many more goals did she score on Friday?

Problem Type:	*Difference*
Relevant Information:	*G = 7; L = 5; D = X*
Number Sentence:	*7 – 5 = X*
Answer:	*X = 2 (more) goals*

Follow Activity Guide: RUN.
When you get to the "N" follow script below.

Remember, you have to think hard to name the problem type. Before today, we've been learning about Total problems. We look for the total and the parts anywhere in the story. Always ask yourself, are parts put together into a total? If the answer is yes, it's a Total problem.

Today we learned about Difference problems. In Difference problems, we look for two things compared in the story. Sometimes the question asks us to find how much greater or how much less. Either way, the problem is asking about the difference.

Let's decide. Is this problem about parts and a total, or is the problem about two amounts or numbers being compared? Listen as I read the problem again!

"Kim scored 7 goals in Friday's soccer game. She scored 5 goals in Saturday's soccer game. How many more goals did she score on Friday?"

This problem talks about the number of goals Kim scored: She scored some on Friday, and she scored some on Saturday. The question asks how many more goals she scored on Friday. Is this a Total problem or a Difference problem?

Difference Problem.

This problem is a Difference problem because we compare how many goals she scored on Friday to how many goals she scored on Saturday. She scored an amount that's greater on one night (hold one hand face level) **and an amount that's less on the other night** (hold other hand chest level)**. We're looking for the difference** (move hands back and forth)**. We're not finding a Total because we're not putting the goals together into a total.**

Difference problems use words like *more, fewer*, and *less* to tell us the greater and less amounts.

What does *more* mean?

Greater.

That's right. *More* means greater. What does *fewer* mean?

Smaller.

Yes. *Fewer* means smaller. What does *less* mean?

Smaller.

Very good. *Fewer* and *less* actually mean the same thing. Both *fewer* and *less* mean smaller.

The words *more, fewer*, and *less* help us decide the amount that's greater and the amount that's less.

Difference problems are not like Total problems because Difference problems have a compare sentence. Look at the problem again.

"Kim scored 7 goals in Friday's soccer game. She scored 5 goals in Saturday's soccer game. How many more goals did she score on Friday?"

Do you see the words *more, fewer,* or *less* in the problem?

Yes.

Read the sentence that has the word *more* in it.

How many more goals did she score on Friday?

The question is our compare sentence. It asks, "How many more goals did she score on Friday?"

This is the compare sentence because it has the compare word *more*. It is really asking us, "How many more goals did she score on Friday *than* on Saturday?" It helps us decide the amount that's greater and the amount that's less. It helps us decide the numbers that are greater and the numbers that are less.

When the compare sentence asks us to find the difference, we know that the number that's greater and the number that's less are in the problem. The number that's greater will be G. The number that's less will be L.

Whenever I find a compare sentence, I put brackets around the sentence to help me remember it's a compare sentence. It has our compare word.

Put brackets around compare sentence.

This compare sentence asks us to find the difference between Friday's goals and Saturday's goals. The problem tells us the amount that's greater and the amount that's less. We have to find the difference.

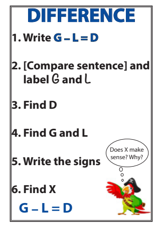
Display Difference Picture.

It's like this (point to the D box). **The goals she scored Friday is the number that's greater or the amount that's greater. The goals she scored Saturday is the number that's less or the amount that's less. The story is about one amount being greater or less than another amount. The story is about the difference between these amounts. It's about the difference between the two numbers. The question asks us to compare these amounts. It asks us to compare these numbers** (point) **and find the Difference or D. I put D next to the problem to remind me it's a Difference problem.**

Write D next to the problem. Monitor that the student does this as well.

The RUN poster helped us organize our paper so we can solve the problem! We said this is a Difference problem (Point to the D). **We use the Difference poster to solve it.**

Display Difference poster.



To solve a Difference problem, we have six steps. Step 1. "Write G minus L is the same as D." In a Difference problem, the story is about one amount being greater or less than another amount. This G stands for the number that's greater. This L stands for the number that's less. We subtract G minus L. G minus L is the same as the Difference, D. Once we know the problem is a Difference problem, we write G minus L is the same as D. (Point.) **This is the Difference equation.**

Write G – L = D.

What does G stand for?

The amount or number that's greater.

What does L stand for?

The amount or number that's less.

What does D stand for?

Difference.

Step 2: "[Compare sentence] and label G and L." We talked about this earlier. What's the compare sentence in this problem?

How many more goals did she score on Friday?

That's right. We put brackets around our compare sentence to help us remember.

Now let's go ahead and label the amount that's greater (G) and the amount that's less (L) in our word problem.

(Writes.)

I write G above Friday, because Friday is talking about the number that's greater. G stands for greater. I write L above Saturday, because Saturday is talking about the number that's less. L stands for less. Remember. <u>Don't write G and L over the numbers</u>, like this (write and then erase)**. Write G and L above the words that represent the greater and less numbers** (demonstrate).

Write G above Friday and L above Saturday.

Over which day did we write G?

Friday.

Over which day did we write L?

Saturday.

Look at Step 3: "Find D."

D is the Difference. It's always with words like *more, fewer,* and *less*. We have to find out whether the difference is given, or whether you have to find the difference. If the difference were given, it might say "Kim scored 2 more goals on Friday" or "Kim scored 4 fewer goals on Saturday."

In this problem, the difference is not given. Do you see a number written next to more?

No.

The question is asking us how many more, so we have to *find* the difference.

If the difference is not given, then you write X under D.

(Writes.)

Step 4: "Find G and L." G stands for the number that's greater. L stands for the number that's less. If the difference, or D, is missing, it's really easy to find G and L.

Remember, this problem is talking about goals. We underlined the word "goals" to help us remember to use numbers that talk about goals. What numbers in this problem talk about goals?

7 and 5.

That's right. 7 talks about the goals on Friday. 5 talks about the goals on Saturday. Both of these numbers talk about goals. They are both important numbers.

Good. And how many goals did Kim score on Friday?

7.

Excellent. 7 is the number that's greater. That's why we wrote G above Friday. Friday is G because Kim scored more goals on Friday. Check off 7 in the story and write 7 under G.

Check off 7 in the story and write 7 under G.

Over which day did we write L?

Over Saturday.

Good. And how many goals did Kim score on Saturday?

5.

Yes. On Saturday, Kim scored fewer goals. 5 is the number that's less. That's why we wrote L above Saturday. Saturday is L because Kim scored fewer goals on Saturday. I check off 5 in the story and write 5 under L.

Check off 5 in the story and write 5 under L. Monitor that the student does this as well.

Now we have G, L, and D filled in the Difference equation. Look at Step 5.

Step 5: "Write the signs." For Difference problems, what math signs do we need to complete our number sentence?

Minus and the same as signs.

Right. We still need our minus sign and our same as sign. I write these in the number sentence like this.

Write the minus sign and the same as sign.

7 stands for the number that's greater, or G. 5 stands for the number that's less, or L. X stands for the Difference, or D. Does this look (point) **like a number sentence we know how to solve?**

Yes!

Let's read the number sentence together.

7 minus 5 is the same as X.

Step 6: "Find X!" You know how to do this!

We want to get the X by itself on this side (point) **of the equal sign.**

Is the X by itself?

Yes.

The X is by itself on that side (point) **of the equal sign, so we can go ahead and solve.**

Do you add or subtract?

Subtract.

That's right. The X is isolated because it's D, so you can just subtract 7 minus 5 to find D.

(Subtracts.)

X is *the same as* 2.

Are the two sides the same?

Yes.

Great! In word problems, our answer must have a number and a label. We know the number answer is 2. Now we have to figure out what the label for 2 should be. Think about what the problem is about. Look at what we underlined. What did we underline?

Goals.

Right! The question is asking about goals, so that's the best label. We write goals for the label! Goals is the word that tells us about our missing information.

Write "goals" next to 2.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

"Kim scored 7 goals in Friday's soccer game. She scored 5 goals in Saturday's soccer game. How many more goals did she score on Friday?" Does 2 goals make sense?

Yes.

The Difference story is about one amount being greater or less than another amount. The story is about the difference between these amounts. The answer, 2 goals, makes sense. It's the difference between Friday's and Saturday's goals. Let me show you why. Let's look at our Difference Picture with G, L, and D.

Display Difference Picture.

Friday's goals is the number that's greater, so that's like this box.

Write 7 in the box.

Saturday's goals is the number that's less, so that's like this box.

Write 5 in the box.

The difference between Friday and Saturday is the Difference, so that's like this box.

Write 2 in the box.

The number that's greater is 7, so the number that's less and the Difference number cannot be greater than 7. Is 2 greater than 7?

No.

Right. 2 makes sense. Did we answer the question, "How many more goals did she score on Friday?"

Yes. She scored 2 more goals.

Good. We have a number and a label in the answer.

Good job working this Difference problem.

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

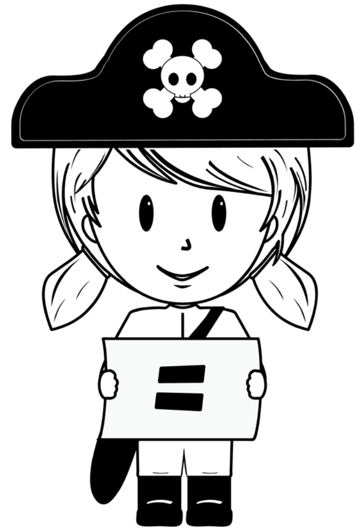
Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 18



ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Difference, Compare sentences
4. Shipshape Sorting
5. Jolly Roger Review

Materials

Posters

Counting Up
RUN/Total
Difference/Change

Student Materials

Equation Quest: Lesson 18
Buccaneer Problems: Lesson 18
Jolly Roger Review: Lesson 18
Cubes
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's do our Equation Quest! What does the equal sign mean?

The same as.

The equal sign means *the same as* (point)**.**

We've worked on isolating the X. What does it mean to isolate the X?

To get X by itself.

When we isolate the X, we need to get X by itself. Let's try that!

Point to A.

Follow Activity Guide: Equation Quest – Addition.

Look at problem B. 8 minus 3 is *the same as* X.

We've solved addition equations. Now, it's time to learn how to solve subtraction equations. What makes this (point to B) **a subtraction equation?**

The minus sign.

This is a subtraction equation because of the minus sign. Even though the problem is about subtraction, what should you draw down from the equal sign?

Draw a line down from the equal sign.

Draw the line coming down from the equal sign.

(Draws.)

This line (point) **will help us remember to balance the two sides of the equal sign. What do you want to do?**

Balance the two sides of the equation.

Now, we'll balance this equation by isolating the X. Where's the X?

(Points.)

Circle the X to make it easy to see.

(Circles.)

Do you need to isolate the X?

No!

The X is already isolated (point)**. So, all you need to do is 8 minus 3. What's 8 minus 3?**

5.

Write 5.

(Writes.)

So, X is *the same as* what?

5.

Write X is *the same as* next to 5.

(Writes.)

Check the number sentence. Rewrite the number sentence using 5 for X.

(Writes.)

Excellent. 8 minus 3 is *the same as* 5.

You should use your isolating the X skill in word problems. Let's practice that now.

3: Buccaneer Problems

Let's review Total problems.

What's a Total problem?

When parts are put together into a total.

In a Total problem, parts are put together to make a total. All Total problems have the same Total equation. What's the Total equation?

P1 + P2 = T.

That's right. The Total equation is Part 1 plus Part 2 is the same as the Total.

Now let's review Difference problems. In Difference problems, we compare two amounts to find the difference. What does it mean to compare two amounts?

(Student.)

Good. One amount is greater. The other amount is less.

The Difference equation is G minus L is the same as D (point)**. The amount that's greater minus the amount that's less is the same as the difference. What's the Difference equation?**

G – L = D.

Let's say the equation together, one more time.

G – L = D.

Let's review. What's the Total equation?

P1 + P2 = T.

Good. Say it again.

P1 + P2 = T.

Now say the Difference equation again.

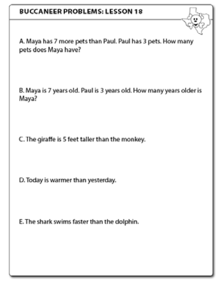
G – L = D.

Excellent. Now let's practice solving word problems!

So far, we've talked about how Difference problems use words like *more*, *fewer,* and *less* to tell us the amount that is greater and the amount that is less. We call *more*, *fewer*, and *less* compare words.

Difference problems always use compare words, but the compare words aren't always *more*, *fewer*, or *less*.

Point to A.


BUCCANEER PROBLEMS: LESSON 18

A. Maya has 7 more pets than Paul. Paul has 3 pets. How many pets does Maya have?

B. Maya is 7 years old. Paul is 3 years old. How many years older is Maya?

C. The giraffe is 5 feet taller than the monkey.

D. Today is warmer than yesterday.

E. The shark swims faster than the dolphin.

Look at this problem. "Maya has 7 more pets than Paul. Paul has 3 pets. How many pets does Maya have?"

Point to B.

Now look at this problem. "Maya is 7 years old. Paul is 3 years old. How many years older is Maya?"

What's the same about these problems?

They are both about Maya and Paul.

Right. Both problems are about Maya and Paul. And the numbers in both problems are the same. But these problems are not the same in an important way. Let me show you. This problem (point) **says, "Maya has 7 more pets than Paul. Usually, the word *more* helps us know it's a Difference problem. Do you see the word *more* in this other problem?** (Point.)

No.

That's right. This problem (point) **does not have the word *more*. But it's still a Difference problem. The question asks, how many years older is Maya** (emphasize "er")**? Let's talk about the word *older*** (emphasize "er")**. The "er" in *older* is like saying more. *Older* is the same as saying "more old." How many more years old is Maya than Paul? *Older*** (emphasize "er") **is a compare word. Words that end in "er," like *older*, are usually compare words. Think about the word tall. How can you make tall into a compare word?**

Change tall to taller.

Yes. We make tall into a compare word by changing tall to taller. Taller is like

saying what?

More tall than.

We can say Mary is taller than Harry. That's like saying Mary is *more* tall than Harry. How can we make thick into a compare word?

Change thick to thicker.

Yes. We make thick into a compare word by changing thick to thicker. Thicker is like saying what?

More thick than.

We can say ice cream is thicker than water. That's like saying ice cream is *more* thick that water.

Thicker is like saying what?

More thick than.

So if you see a problem with a word that has "er" at the end, ask yourself, Is this a Difference problem? When you see a word that ends in "er," try to say the sentence with the word *more*.

Look at this sentence.

Point to C.

"The giraffe is 5 feet taller than the monkey."

Do you see a compare word?

Yes. Taller.

Good. Let's say the sentence in a different way. Let's use the word *more*.

The giraffe is 5 feet more tall than the monkey.

This is the compare sentence because things are compared in this sentence. Whenever you see a compare sentence, draw brackets around the sentence,

like this.

Draw bracket at beginning and end of sentence.
[The giraffe is 5 feet taller than the monkey.]

In this compare sentence, we're going to label the amount that's greater and the amount that's less. If the giraffe is taller, is the giraffe greater or less than the monkey?

Greater.

The giraffe is greater. So, write G above giraffe. G stands for greater.

(Writes.)

If the giraffe is the amount that's taller or greater, then the monkey is the amount that's less. Write L above monkey. L stands for less.

(Writes.)

Excellent work marking that compare sentence.

Point to D.

"Today is warmer than yesterday."

Do you see a compare word?

Yes. Warmer.

Tell me another way to say that sentence.

Today is more warm than yesterday.

This is the compare sentence because things are compared in this sentence. Whenever you see a compare sentence, draw brackets around the sentence.

(Draws brackets.)

In this compare sentence, we're going to label the amount that's greater and the amount that's less. If today is warmer than yesterday, then which day has

the temperature that's greater?

Today.

Today has the temperature that's greater. So, write G above today. G stands for greater.

(Writes.)

If today has the temperature that's greater, then yesterday has the temperature that's less. Write L above yesterday. L stands for less.

(Writes.)

Great job! Let's try one more. Look at this sentence.

Point to E.

"The shark swims faster than the dolphin."

What's the compare word?

Faster.

How can you say this sentence in a different way? Remember to use the word *more*.

The shark swims more fast than the dolphin.

Excellent! What do you do to the compare sentence?

Draw brackets.

Go ahead and draw brackets around the compare sentence.

(Draws.)

If the shark swims faster, does the shark have the amount that's greater or the amount that's less?

The amount that's greater.

The shark swims faster, so the shark is the amount that's greater. So, write G above today. G stands for greater.

(Writes.)

If the shark is the amount that's greater, then what is the amount that's less?

Dolphin.

Write L above dolphin. L stands for less.

(Writes.)

Now, you should look for compare words and a compare sentence. Remember, compare words are words like *more* or *less*. Compare words also are words that end in "er" that mean more than or less than. Words like *thicker, faster, smaller* (emphasize "er") **are all compare words.**

 **You earn a treasure coin!**

Let's go back to our word problem about Maya and Paul. We wrote the problem again so you have extra space to solve it. Let's look at Problem F.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

Solution to Problem F:

Maya is 7 years old. Paul is 3 years old. How many years older is Maya?

Problem Type:	*Difference*
Relevant Information:	*G = 7; L = 3; D = X*
Number Sentence:	*7 – 3 = X*
Answer:	*X = 4 years (older)*

Let's RUN through the word problem. What does R stand for?

Read the problem.

Listen as I read the problem. "Maya is 7 years old. Paul is 3 years old. How many years older is Maya?

What does U stand for?

Underline the label and cross out irrelevant information.

What's this problem mostly about?

Years.

Yes. Let's underline years.

(Underlines.)

Is there any irrelevant information?

No.

How do you know?

All the numbers are talking about the label.

What does N stand for?

Name the problem type.

What kind of problem is it? Is it a Difference problem or a Total problem?

Difference.

How do you know it's a Difference problem?

(Student.)

What word helped us to decide that it's a Difference problem?

Older.

Good. This problem has the word *older*, which is a compare word. The problem compares the number of years old Paul is to the number of years old Maya is. It

asks how many years older is Maya. That's why it's a Difference problem.

What should I put next to the problem to remind me it's a Difference problem?

D.

Right. I put D next to the problem, like this, to remind me it's a Difference problem.

(Writes.)

The RUN poster helped us organize our paper so we can solve the problem! We said this is a Difference problem. (Point to the D.) **We use the Difference poster to solve it.**

Display Difference poster.

Let's look at the six steps. What's Step 1?

Write G – L = D.

Good. Write the Difference equation, G minus L is the same as D.

(Writes.)

Step 2: "[Compare sentence] and label G and L."

What's the compare sentence in this problem?

How many years older is Maya?

Good. This is a compare sentence because it has the compare word *older*. Let's put brackets around the compare sentence to remind us that it is the compare sentence.

(Brackets.)

Now let's label G and L in the word problem.

(Writes.)

Who has the amount that's greater?

Maya.

So we'll write a G above Maya's name.

(Writes.)

Who has the amount that's less?

Paul.

So we'll write an L above Paul's name.

(Writes.)

Step 3 says, "Find D." We always have to have an "X" or a number under D in our Difference equation.

Does the compare sentence give the difference or ask us to find the difference?

Asks us to find the difference.

When the compare sentence asks us to find the difference, we know that the numbers that are greater and less are in the problem. The number that's greater will be G. The number that's less will be what?

L.

That's right! The number that's less is L. This compare sentence asks us to find the difference between Paul's and Maya's age. The question asks us to find how many years older Maya is. So we have to find the difference. If there were a number next to our compare word, then we would know the difference.

If the difference is missing, what do we write under D?

X.

That's right. D is the missing information. We write X under D.

(Writes.)

Step 4 is "Find G and L."

How old is Maya?

7 years old.

How old is Paul?

3 years old.

Who has the number that's greater?

Maya.

Check 7 off, and then write 7 under G.

(Writes.)

Who has the number that's less?

Paul.

Check 3 off, and then write 3 under L.

(Writes.)

Do we have all the information we need?

Yes.

Step 4 says, "Write the signs." What signs do you write in a Difference problem?

Minus and the same as signs.

Write the minus and the same as signs. Remember, you always use a minus sign in Difference problems.

(Writes.)

Does this look like a number sentence we know how to solve?

Yes!

What do we do now?

Find X!

We want to get the X by itself on this side (point) **of the equal sign.**

Is the X by itself?

Yes.

The X is by itself on that side (point) **of the equal sign, so we can go ahead and solve.**

Do you add or subtract?

Subtract.

That's right. The X is isolated because it's D, so you can just subtract 7 minus 3 to find D.

(Subtracts.)

X is *the same as* 4.

Are the two sides the same?

Yes.

In word problems, our answer must have a number and a label. Look at what we underlined. What did we underline?

Years.

Right! The question is asking about years, so that's the best label. Write your label.

(Writes.)

Let's see if the answer makes sense. "Maya is 7 years old. Paul is 3 years old. How many years older is Maya?" Does 4 years make sense?

Yes.

Why?

(Student explains.)

The Difference story is about one amount being greater or less than another amount. The story is about the difference between these amounts. The answer, 4 years, makes sense.

Good job working this Difference problem.

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Please note, students may work on compare sentences on the Jolly Roger Review. Students should (1) bracket the compare sentence, (2) write G for the amount that's greater, and (3) write L for the amount that's less.

Treasure Map

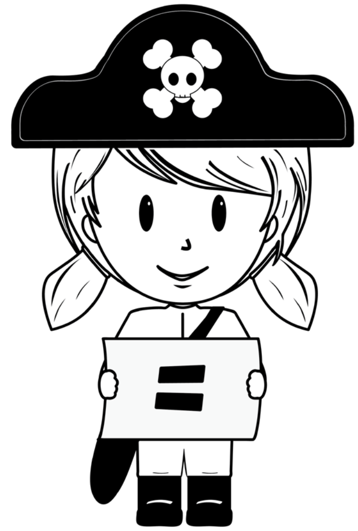
Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 19



ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Total and Difference
4. Shipshape Sorting
5. Jolly Roger Review

Materials

Posters

Counting Up
RUN/Total
Difference/Change

Student Materials

Equation Quest: Lesson 19
Buccaneer Problems: Lesson 19
Jolly Roger Review: Lesson 19
Cubes
Treasure map

Tutor Materials

Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

Look at A.

Point to A.

6 minus 4 is *the same as* blank. Let's say that together.

6 minus 4 is the same as blank.

Today, let's draw to make the sides the same. To solve this problem with pictures, draw 6 circles on this side (point)**.**

(Draws.)

Now, we subtract 4. To subtract 4, cross out 4 circles.

(Draws.)

Now, the equal sign acts as a balance. We need to make these sides the same. How many can we draw on that side (point) **to make the sides the same? Let's draw circles one at a time.**

(Draws.)

So, are the sides the same?

Yes.

You have 2 on this side of the equal sign (point)**, and 2 on that side of the equal sign** (point)**. So, 6 minus 4 is the same as what?**

2.

Go ahead and write 2.

(Writes.)

Point to B.

This problem says blank is the same as 6 minus 2. Let's read that together.

This problem looks a little different, but we can solve it. All we need to do is

make the sides the same.

To solve this problem with drawing, draw 6 circles on that side (point)**.**

(Draws.)

Now, you need to subtract 2 from 6. So, cross out 2 of the circles.

(Draws.)

The equal sign acts as a balance. We need to make these sides the same. Draw triangles on that side (point) **until the sides are the same.**

(Draws.)

So, what is the same as 6 minus 2?

4.

Go ahead and write 4.

(Writes.)

Let's do one more problem.

Point to C.

4 plus blank is the same as 7. Start by drawing 4 circles.

(Draws.)

Now, how many squares should you draw in that box (point)**?**

7.

Draw 7 squares.

(Draws.)

Now, make the sides the same. Draw triangles until the sides are balanced.

(Draws.)

So, 4 plus what is *the same as* 7?

3.

Write 3.

(Writes.)

Good work! Remember to always balance both side of the equal sign!
Let's review Total problems.

3: Buccaneer Problems

What's a Total problem?

When parts are put together into a total.

In a Total problem, parts are put together to make a total. *All* Total problems have the same Total equation. What's the Total equation?

P1 + P2 = T.

That's right. The Total equation is Part 1 plus Part 2 is the same as the Total.

Now let's review Difference problems. In Difference problems, we <u>compare</u> two amounts to find the difference. One amount is greater. The other amount is less.

The Difference equation is G minus L is the same as D (point).**The amount that's greater minus the amount that's less is the same as the difference. What's the Difference equation?**

G – L = D.

Let's say the equation together, one more time.

G – L = D.

Let's review. What's the Total equation?

P1 + P2 = T.

Good. Say it again.

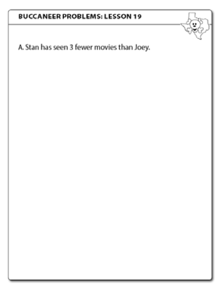
P1 + P2 = T.

Now say the Difference equation again.

G – L = D.

Compare words help us find the compare sentence. The compare sentence helps us find the amount that's greater and the amount that's less.

Point to A.


BUCCANEER PROBLEMS: LESSON 19

A. Stan has seen 3 fewer movies than Joey.

Listen: "Stan has seen 3 fewer movies than Joey."

First, is this a compare sentence? Is something compared in this sentence?

Yes.

Whenever you see a compare sentence, draw brackets around the sentence.

(Draws brackets.)

Let's think about who has the amount that's greater and the amount that's less. Listen: "Stan has seen fewer movies than Joey." Who has the amount that's greater?

Joey.

Good. The problem tells us that Joey has the amount that's greater. I write G over Joey to remind me that he has the amount that's greater.

(Writes.)

Who has the amount that's less?

Stan.

Good. The problem tells us Stan has fewer. I write L over Stan to remind me he has the amount that's less.

(Writes.)

That was good practice to help us think about Difference problems!

 **You earn a treasure coin!**

Point to B.

Let's practice solving word problems!

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>*Solution to Problem B*</u>:

8 dogs are running in the park. 4 dogs are sleeping in the grass. How many more dogs are running than sleeping?

Problem Type: *Difference*
Relevant Info: *G = 8; L = 4; D = X*
Number Sentence: *8 – 4 = X*
Answer: *X = 4 (more) dogs*

What's the first thing we do every time we see a word problem?

RUN through it!

Follow Activity Guide: RUN.

When you get to the "N" follow script below.

Remember, you have to think hard to name the problem type.
If you think it's a Total problem, ask: Are parts put together for a total?

We've also learned about Difference problems. If you think it's a Difference problem, ask: Are two amounts compared for a difference? Difference problems compare two amounts for a difference. When we compare two amounts, you find the amount that's greater and the amount that's less.

Let's decide. Is this problem about parts put together into a total, or is it about two amounts compared for a difference? Listen as I read the problem again.

"8 dogs are running in the park. 4 dogs are sleeping in the grass. How many more dogs are running than sleeping?"

What type of problem is this?

Difference.

How do you know it's a Difference problem?

(Student.)

That's right. What amounts are we comparing?

Running dogs and sleeping dogs.

That's right. The story is about two amounts being compared: running dogs and sleeping dogs. The story is about the difference between these amounts. Write D to remind me it's a Difference problem.

(Writes.)

To figure out if this is a Difference problem, it's helpful to look for a compare sentence. A compare sentence usually has the words *more, fewer,* or *less.* Do you see a compare sentence in this problem?

Yes.

What's the compare sentence?

How many more dogs are running than sleeping?

That's right. There is a compare sentence. It says, "How many more dogs are running than sleeping?" The question is asking us to compare the running dogs to the sleeping dogs. We know the problem is asking us to compare because it asks how many *more*. I put brackets around the compare sentence to help me remember this is where it is.

(Writes.)

Follow Activity Guide: Difference.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Point to C.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>*Solution to Problem C:*</u>

8 dogs are running in the park. 4 dogs are sleeping in the grass. How many dogs are there?

Problem Type:	*Total*
Relevant Info:	*P1 = 8; P2 = 4; T = X*
Number Sentence:	*8 + 4 = X*
Answer:	*X = 12 dogs*

What's the first thing we do every time we see a word problem?

RUN through it!

Follow Activity Guide: RUN.
When you get to the "N" follow script below.

How are these problems the same? How are they not the same?

They are the same because they are both about 8 dogs running and 4 dogs sleeping. The questions are not the same.

Good. The questions are different. The question in Problem B says, "How many dogs are there in all?"

If you think it's a Total problem, ask yourself: Are parts put together into a total?

If you think it's a Difference problem, ask yourself: Are two amounts compared for a difference?

Point to Problem B.

Problem B compared the dogs. We knew that from the question: "How many *more* dogs are running than sleeping?"

In Problem C, the question says, "How many dogs are there?" Does this question ask us to compare the dogs?

No.

In Problem C, the question doesn't ask us to compare the dogs. Does it ask us to put them together into a total?

Yes.

Good, the question is "How many dogs are there?" This means the sleeping and running dogs are put together into a total. The parts are the running dogs and the sleeping dogs. It's a Total problem. I put T next to the problem to remind me it's a Total problem.

(Writes.)

Let's solve this Total problem.

Follow Activity Guide: Total.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

We've learned a lot about Total and Difference problems. Every time you name the problem type, you have to think: Is this a Total or Difference problem? When you name the problem type think about the question and what's missing.

Then, ask yourself: Are parts put together into a total? If your answer is yes, then it's a Total problem. If your answer is no, ask yourself: Are two amounts compared for a difference? If the answer is yes, then it's a Difference problem.

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Please note, students may work on compare sentences on the Jolly Roger Review. Students should (1) bracket the compare sentence, (2) write G for the amount that's greater, and (3) write L for the amount that's less.

Treasure Map

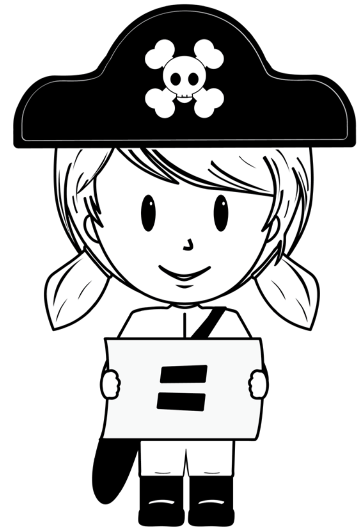
Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 20



ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Total and Difference
4. Shipshape Sorting
5. Jolly Roger Review

Materials

Posters

Counting Up
RUN/Total
Difference/Change

Student Materials

Equation Quest: Lesson 20
Buccaneer Problems: Lesson 20
Jolly Roger Review: Lesson 20
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure map

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

Look at A.

Point to A.

Follow Activity Guide: Equation Quest – Addition.

Look at B.

Point to B.

Follow Activity Guide: Equation Quest – Subtraction.

3: Buccaneer Problems

Let's review Total problems.

What's a Total problem?

When parts are put together into a total.

In a Total problem, parts are put together to make a total. All Total problems have the same Total equation. What's the Total equation?

P1 + P2 = T.

That's right. The Total equation is Part 1 plus Part 2 is the same as the Total.

Now let's review Difference problems. In Difference problems, we compare two amounts to find the Difference. What does it mean to compare two amounts?

(Student.)

Good. One amount is greater. The other amount is less.

The Difference equation is G minus L is the same as D (point)**. The amount that's greater minus the amount that's less is the same as the difference. What's the Difference equation?**

G – L = D.

Let's say the equation together, one more time.

G – L = D.

Let's review. What's the Total equation?

P1 + P2 = T.

Good. Say it again.

P1 + P2 = T.

Now say the Difference equation again.

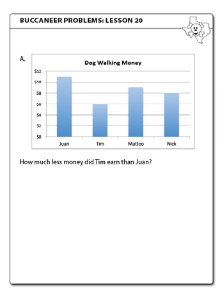
G – L = D.

Excellent. Now let's practice solving word problems!

So far, we've talked about how Difference problems use words like *more*, *fewer*, and *less* to tell us the amount that's greater and the amount that's less. We call *more*, *fewer*, and *less* compare words.

Difference problems always use compare words, but the compare words aren't always *more*, *fewer*, or *less*.

Point to A.



Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

Yes.

What should we do before solving the word problem?

Number it.

Go ahead and number this graph!

(Numbers.)

Solution to Problem A:

How much less money did Tim earn than Juan?	
Problem Type:	*Difference*
Relevant Information:	*G = 11, L = 6, D = X*
Number Sentence:	*11 – 6 = X*
Answer:	X = $5 (less)

Follow Activity Guide: RUN.
Follow Activity Guide: Difference.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Point to B.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

Solution to Problem B:

The monkey ate 26 bananas. The gorilla ate 18 bananas. ~~Each banana was 7 inches long.~~ How many fewer bananas did the gorilla eat?

Problem Type:	*Difference*
Relevant Information:	*G= 26, L = 18, D = X*
Irrelevant Information:	*~~Each banana was 7 inches long.~~*
Number Sentence:	*26 – 18 = X*
Answer:	*X = 8 (fewer) bananas*

Follow Activity Guide: RUN.
Follow Activity Guide: Difference.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Point to C.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

Yes.

What should we do before solving the word problem?

Number it.

Go ahead and number this graph!

(Numbers.)

<u>*Solution to Problem C:*</u>

This graph shows the number of books some students have read. How many books have Josh and Pedro read?

Problem Type:	*Total*
Relevant Information:	*P1 = 35; P2 = 25; T = X*
Number Sentence:	*35 + 25 = X*
Answer:	*X = 60 books*

Follow Activity Guide: RUN.
Follow Activity Guide: Total.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Please note, students may work on compare sentences on the Jolly Roger Review. Students should (1) bracket the compare sentence, (2) write G for the amount that's greater, and (3) write L for the amount that's less.

Treasure Map

Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

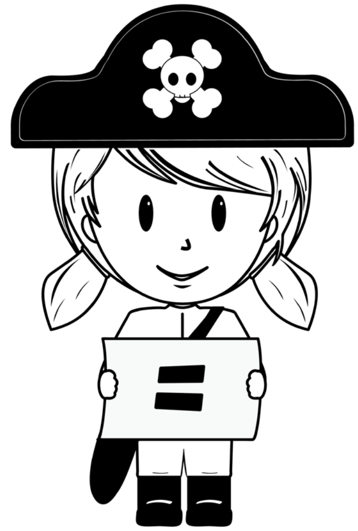
Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 21

ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Difference with D and L missing
4. Shipshape Sorting
5. Jolly Roger Review



Materials

Posters

Counting Up
RUN/Total
Difference/Change

Student Materials

Equation Quest: Lesson 21
Buccaneer Problems: Lesson 21
Jolly Roger Review: Lesson 21
Cubes
Treasure map

Tutor Materials

Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

Look at A.

Point to A.

10 minus blank is *the same as* 4. When you see a blank, we can mark the blank with an X. Go ahead and write X on the blank.

(Writes.)

So, 10 minus X is *the same as* 4. Let's read that together.

10 minus X is the same as 4.

Let's use cubes to solve this number sentence.

To solve this problem with cubes, place 10 cubes of one color on that side (point) **of the equal sign.**

(Places cubes.)

Then, place 4 cubes of another color on that side (point) **of the equal sign.**

(Places cubes.)

Now, the equal sign (point to =) **acts as a balance. We need to make these sides the same. Because this problem has a minus sign, we need to figure out how many to subtract from 10 to make the sides the same.**

We have 4 (point) **on that side, so subtract cubes from 10 until you get to 4.**

(Subtracts cubes.)

How many cubes did you subtract?

6.

So, 10 minus 6 is the same as 4. Are the two sides are the same?

Yes.

Excellent work! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as*.

Let's try another one. Clear all the cubes.

(Clears.)

Point to B.

This problem says 7 minus X is *the same as* 5. Let's read that together.

7 minus X is the same as 5.

To solve this problem with cubes, place 7 cubes on this side (point) **of the mat.**

(Places cubes.)

Now, place 5 cubes on that side of the equal sign (point)**.**

(Places cubes.)

The equal sign acts as a balance. We need to make these sides the same. How many cubes do you need to subtract to make the sides the same?

(Subtracts cubes.)

Are the sides the same?

Yes.

You subtracted 2 cubes. So, 7 minus 2 is *the same as* 5.

Let's read the number sentence together.

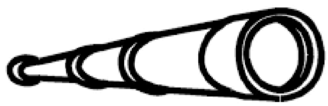
7 minus 2 is the same as 5.

What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as.*

Now, let's work on word problems!



3: Buccaneer Problems

Let's review Total problems.

What's a Total problem?

When parts are put together into a total.

In a Total problem, parts are put together to make a total. All Total problems have the same Total equation. What's the Total equation?

P1 + P2 = T.

That's right. The Total equation is Part 1 plus Part 2 is the same as the Total.

Now let's review Difference problems. In Difference problems, we compare two amounts to find the difference. What does it mean to compare two amounts?

(Student.)

Good. One amount is greater. The other amount is less.

The Difference equation is G minus L is the same as D (point)**. The amount that's greater minus the amount that's less is the same as the difference. What's the Difference equation?**

G – L = D.

Let's say the equation together, one more time.

G – L = D.

Let's review. What's the Total equation?

P1 + P2 = T.

Good. Say it again.

P1 + P2 = T.

Now say the Difference equation again.

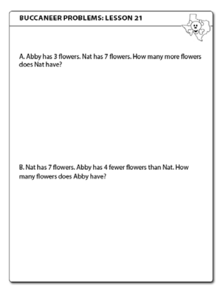
G – L = D.

Excellent. Now let's practice solving word problems!

So far, we've talked about how Difference problems use words like *more*, *fewer*, and *less* to tell us the amount that's greater and the amount that's less. We call *more*, *fewer*, and *less* compare words.

Difference problems always use compare words, but the compare words aren't always *more*, *fewer*, or *less*.

Point to A.


BUCCANEER PROBLEMS: LESSON 21

A. Abby has 3 flowers. Nat has 7 flowers. How many more flowers does Nat have?

B. Nat has 7 flowers. Abby has 4 fewer flowers than Nat. How many flowers does Abby have?

Let's solve some word problems.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>*Solution to Problem A:*</u>

Abby has 3 flowers. Nat has 7 flowers. How many more flowers does Nat have?

Problem Type:	*Difference*
Relevant Information:	*G = 7, L = 3, D = X*
Number Sentence:	*7 – 3 = X*
Answer:	*X = 4 (more) flowers*

What's the first thing we do when we see a word problem?

RUN through it.

Follow Activity Guide: RUN.
Follow Activity Guide: Difference.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

This problem is a Difference problem. The question asked us to compare Abby's and Nat's flowers. It asked us to find the difference between the amounts. Looking at the question helps us figure out it's a Difference problem.

Let's look at another problem about Abby and Nat's flowers.

Point to B.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>Solution to Problem B:</u>

Nat has 7 flowers. Abby has 4 fewer flowers than Nat. How many flowers does Abby have?

Problem Type:	*Difference*
Relevant Information:	*G = 7; L = X; D = 4*
Number Sentence:	*7 – X = 4*
Answer:	*X = 3 flowers*

Let's RUN through it. Listen as I read, "Nat has 7 flowers. Abby has 4 fewer flowers than Nat. How many flowers does Abby have?"

What does the question ask?

How many flowers does Abby have?

Problem A told us how many flowers Nat has and how many flowers Abby has. The question asked us to <u>compare</u> the flowers they have, to find the difference.

In Problem B, it's harder to name the problem type because the question doesn't give us a clue. The question doesn't ask us to <u>put together</u>, like in a Total problem, or to <u>compare</u>, like in a Difference problem. The question just asks, "How many flowers does Abby have?"

To decide if this is a Difference problem, we look for a compare sentence. First let's look to see if there is a compare word. Is there a compare word in Problem B?

Yes.

What's the compare word?

Fewer.

That's right! What's the compare sentence?

Abby has 4 fewer flowers than Nat.

Great job. The compare sentence is, "Abby has 4 fewer flowers than Nat." This is the compare sentence because it has the word *fewer*. Let's put our brackets around the compare sentence.

Put brackets around the compare sentence. Monitor that the student does this as well.

If a problem has a compare sentence talking about *fewer*, what kind of problem is this?

Difference.

Ask yourself: Are two amounts compared for a difference?

Yes.

What is being compared?

(Student.)

Two amounts, Abby's flowers and Nat's flowers, are compared for a difference. This is a Difference problem. I write D next to the problem to remind me it's a Difference problem.

(Writes.)

The RUN poster helped us organize our paper so we can solve the problem! We said this is a Difference problem. (Point to D.) **Now we use the Difference poster to solve it. What's Step 1?**

Write G – L = D.

Good. Let's do that now.

(Writes.)

Step 2 says, "[Compare sentence] and label G and L." We put brackets around it to help us! What is the compare sentence?

Abby has 4 fewer flowers than Nat.

The compare sentence is, "Abby has 4 fewer flowers than Nat." The compare sentence isn't asking "how many fewer." Instead, the compare sentence is telling us that "Abby has 4 fewer flowers."

Now let's label G and L in the word problem. Who has the amount that's greater?

Nat.

So we'll write a G above Nat's name.

Who has the amount that's less?

Abby.

So we'll write an L above Abby's name.

(Writes.)

Step 3 says, "Find D." Because this problem says Abby has 4 fewer flowers, it's

giving us the difference. The difference is 4.

Now, this can be tricky. Sometimes students think that 4 is about the number of flowers for Abby. But that's not true. 4 is about the difference between Abby's and Nat's flowers. We know it's the difference because 4 has the word *fewer* after it. Fewer describes the difference, so if a number is in front of the word *fewer*, that number is the difference.

If the problem gives D, we write that number under D in the equation. This problem says that the difference is 4. We write 4 under D and check it off in the problem.

(Writes.)

Step 4 says, "Find G and L."

Let's think. What numbers go with G and L? Nat has the amount that's greater. How many flowers does Nat have?

7.

That's right. The problem tells us Nat has 7 flowers. From the compare sentence, we know Nat has the amount of flowers that's greater. 7 is G. I check off 7 and write 7 under G.

(Writes.)

Abby has the amount that's less. How many flowers does Abby have?

We don't know.

Does Abby have 4 flowers?

No.

We know Abby has 4 *fewer*, but that doesn't mean Abby has 4 flowers. Does Abby have 7 flowers?

No.

That's right. Nat has 7 flowers. Does the problem tell us how many flowers

Abby has?

No. It's missing!

That's right. Abby's number of flowers is missing. We know this because the question asks, "How many flowers does Abby have?" We have to find Abby's number of flowers.

So what's missing? What's X?

L.

Right. The number that's less, or L, is missing. So I put X underneath L.

(Writes.)

What's Step 5?

Write the signs.

Good. What math signs do we use to complete our number sentence?

Minus and the same as signs.

(Writes.)

7 stands for G. X stands for L. 4 stands for Difference. Does this look like a number sentence we know how to solve?

Yes!

Let's find X!

We want to get the X by itself on this side (point) **of the equal sign. Because this problem has a minus sign, we need to figure out how to subtract from 7 to make the sides the same. Let's use some cubes to help us out.**

We have 4 on that side, so subtract cubes from 7 until you get to 4.

(Subtracts cubes.)

How many cubes did you subtract?

3.

So, 7 minus 4 is *the same as* 3.

X is *the same as* 3.

Are the two sides the same?

Yes.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Point to C.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

Yes.

What do we need to do when we see a graph or table?

Number it.

(Student numbers graph.)

<u>Solution to Problem C:</u>

Lynn earned 2 more gold coins than Katy. How many gold coins did Katy earn?

Problem Type:	*Difference*
Relevant Information:	*G = 7, L = X, D = 2*
Number Sentence:	*7 – X = 2*
Answer:	*X = 5 gold coins*

What's the first thing we do when we see a word problem?

RUN through it.

Follow Activity Guide: RUN.
Follow Activity Guide: Difference.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

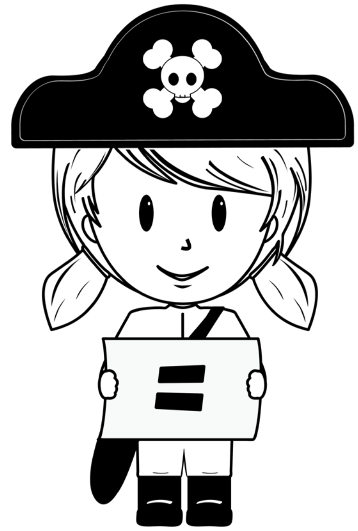
Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 22

ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Total and Difference
4. Shipshape Sorting
5. Jolly Roger Review



Materials

Posters

Counting Up
RUN/Total
Difference/Change

Student Materials

Equation Quest: Lesson 22
Buccaneer Problems: Lesson 22
Jolly Roger Review: Lesson 22
Cubes
Treasure map

Tutor Materials

Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

Look at A.

Point to A.

X minus 6 is *the same as* 3. Let's say that together.

X minus 6 is the same as 3.

When you see the equal sign like this, the first thing we'll do is draw a line down from the equal sign. What's the first thing?

Draw a line down from the equal sign.

Go ahead and draw the line coming down from the equal sign.

(Draws.)

This line (point) **will help us remember to balance the two sides of the equal sign. What do you want to do?**

Balance the two sides of the equation.

Now, we'll balance this equation by isolating the X. Say that with me.

Isolating the X.

To isolate something means to put it by itself. What does isolate mean?

Put something by itself.

And what do we want to isolate?

X.

First, where's the X?

(Points.)

Circle the X to make it easy to see.

(Circles.)

To isolate the X (point to X)**, we need to move the 6. Look at this 6. It's not plus 6, it's minus 6** (point to minus sign)**. If we want to move the 6 to that side of the equal sign** (point)**, we need to add 6. We add 6 because minus 6 and plus 6 is the same as zero.**

So, write plus 6 under the minus 6.

(Writes.)

And if you add 6 to this side (point)**, what do you have to do to that side?**

Add 6.

You have to add 6 to that side of the equal sign.

(Writes.)

Now, it's time to do the math. What's minus 6 and plus 6 (point)**?**

0.

Cross out the minus 6 plus 6.

(Cross out.)

Do the math on this side (point)**. What's 3 plus 6** (point)**?**

9.

Write 9.

(Writes.)

So, you isolated the X. X is *the same as* what?

9.

Write X is *the same as* next to 9.

(Writes.)

Check the number sentence. Rewrite the number sentence using 9 for X.

(Writes.)

Excellent. 9 minus 6 is *the same as* 3.

Look at this problem.

Point to B.

This problem is 8 minus X is *the same as* 2. In this problem, we need to isolate the X.

When you see the equal sign like this, draw a line down from the equal sign.

(Draws.)

Now, we'll balance this equation by isolating the X. Where's the X?

(Points.)

Circle the X to make it easy to see.

(Circles.)

To isolate the X (point to X) **in this problem, we do something different than before. Look at the X. Is there a plus sign or minus sign in front of the X?**

Minus sign.

When there is a minus sign in front of the X, we isolate the X by doing two things.

First, we move the X to the other side of the number sentence. To do that, I cross out this X and write it over here.

Write X on the right side.

Second, we move the number on that side, in this case it's a 2, to this side of the equal sign. To do that, I write minus 2 on that side.

Write – 2 below 2.

But if I subtract 2 from that side (point)**, I have to subtract 2 from this side** (point)**.**

Write –2.

Now, it's time to do the math. What's 2 minus 2 (point)**?**

0.

Cross out the 2 minus 2.

(Cross out.)

Do the math on this side (point)**. What's 8 minus 2** (point)**?**

6.

Write 6.

(Writes.)

So, you isolated the X. X is the same as what?

6.

Write 6 is *the same as* X.

(Writes.)

Check the number sentence. Rewrite the number sentence using 6 for X.

(Writes.)

Excellent. 8 minus 6 is *the same as* 2.

Now, you *only* isolate the X in that way when it's a minus X problem.

We'll work more on that next time!

3: Buccaneer Problems

Let's review Total problems.

What's a Total problem?

When parts are put together into a total.

In a Total problem, parts are put together to make a total. All Total problems have the same Total equation. What's the Total equation?

P1 + P2 = T.

That's right. The Total equation is Part 1 plus Part 2 is the same as the Total.

Now let's review Difference problems. In Difference problems, we compare two amounts to find the difference. What does it mean to compare two amounts?

(Student.)

Good. One amount is greater. The other amount is less.

The Difference equation is G minus L is the same as D (point)**. The amount that's greater minus the amount that's less is the same as the difference. What's the Difference equation?**

G – L = D.

Let's say the equation together, one more time.

G – L = D.

Let's review. What's the Total equation?

P1 + P2 = T.

Good. Say it again.

P1 + P2 = T.

Now say the Difference equation again.

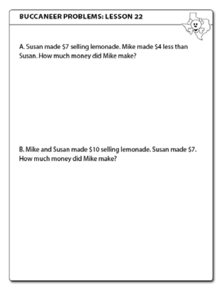
G – L = D.

Excellent. Now let's practice solving word problems!

So far, we've talked about how Difference problems use words like *more*, *fewer*, and *less* to tell us the amount that's greater and the amount that's less. We call *more*, *fewer*, and *less* compare words.

Difference problems always use compare words, but the compare words aren't always *more*, *fewer*, or *less*.

Point to A.



BUCCANEER PROBLEMS: LESSON 22

A. Susan made $7 selling lemonade. Mike made $4 less than Susan. How much money did Mike make?

B. Mike and Susan made $10 selling lemonade. Susan made $7. How much money did Mike make?

Let's solve some word problems!

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>*Solution to Problem A:*</u>

Susan made $7 selling lemonade. Mike made $4 less than Susan. How much money did Mike make?

Problem Type:	*Difference*
Relevant Information:	*G = 7; L = X; D = 4*
Number Sentence:	*7 – X = 4*
Answer:	*X = $3 (Mike made)*

What's the first thing we do when we see a word problem?

RUN! through it.

Follow Activity Guide: RUN.
When you get to the "N" follow script below.

Remember, you have to think hard to name the problem type. Are parts put together into a total? Are two amounts compared to find the difference?

Let's think about this together. Naming the problem can be tricky. Do you see a compare word in this problem?

Yes.

What's the compare word?

Less.

Great! What's the compare sentence?

Mike made $4 less than Susan.

That's right. The compare sentence is, "Mike made $4 less than Susan." This is the compare sentence because it has the word *less*. Let's put brackets around our compare sentence.

(Writes.)

If a problem has a compare sentence, what kind of problem is this?

Difference.

You're right. Two amounts are compared for a difference: how much money Susan made and how much money Mike made. This is a Difference problem. I write D next to the problem to remind me it's a Difference problem.

(Writes.)

The RUN poster helped us organize our paper so we can solve the problem! We said this is a Difference problem. (Point to D.) **Now we use the Difference poster to solve it.**

Display Difference Poster.

What's Step 1?

Write G – L = D.

Good. Let's do that now.

(Writes.)

Step 2: "[Compare sentence] and label G and L."

Mike made $4 less than Susan.

Now let's label G and L in the word problem.

Who has the amount that's greater?

Susan.

So we'll write a G above Susan's name.

Who has the amount that's less?

Mike.

So we'll write an L above Mike's name.

(Writes.)

Step 3: "Find D." Does the compare sentence tell the difference or ask us to find the difference? Let's look at our compare word in our compare sentence. Is there a number next to our compare word, *less*?

Yes!

Great! What number is next to the compare word?

4.

Because this problem says Mike made $4 *less,* it's giving us the difference. Where do we write 4?

Underneath D.

That's right! Write 4 underneath D and check off the number in the problem.

(Writes and checks off 4.)

Step 4: "Find G and L."

First, look at the compare sentence.

Susan is G and Mike is L.

Now, what do we write under G?

7.

(Writes and checks off 7.)

That's right. What do we write under L?

X.

That's right! We don't know what L is. That is the missing information. Great job.

(Writes.)

What's Step 5?

Write the signs.

Good. What math signs do we use to complete our number sentence?

The minus sign and the same as sign.

(Writes.)

7 stands for G. X stands for L. 4 stands for Difference. Does this look like a number sentence we know how to solve?

Yes!

Let's read the number sentence together.

Read number sentence aloud with student.

Let's find X!

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Let's try the next problem.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

Point to B.

<u>*Solution to Problem B:*</u>

Mike and Susan made $10 selling lemonade. Susan made $7. How much money did Mike make?

Problem Type:	*Total*
Relevant Info:	*P1 = 7; P2 = X; T = 10*
Number Sentence:	*7 + X = 10*
Answer:	*X = $3 (Mike made)*

What's the first thing we do every time we see a word problem?

RUN through it!

Follow Activity Guide: RUN.
When you get to the "N" follow script below.

Remember, you have to think hard to name the problem type.

If you think it might be a Total problem, ask yourself: Are parts put together into a total?

We've also learned about Difference problems. If you think it might be a Difference problem, ask yourself: Are two amounts compared for a difference?

Have we heard this story before?

Yes/No.

You're right. We've heard parts of this story before. We just worked a problem about Mike and Susan's lemonade. (Point to A.)

This problem is not exactly the same as problem A.

Let's take a moment to think about this problem: Is it about parts put together to make a total or is it about two amounts being compared for a difference? Listen as I read the problem again.

"Mike and Susan made $10 selling lemonade. Susan made $7. How much money did Mike make?"

Is the problem talking about putting parts together or comparing two amounts?

Putting parts together.

Excellent job! "Mike and Susan made $10 selling lemonade." It tells us how much money they made <u>together</u>. 10 dollars is the total amount of money Mike and Susan made together. This story does not compare how much Mike and Susan made. It does not tell us about the difference in how much the kids made. Is this a Total or a Difference problem?

Total.

Good. This is a Total problem because the problem tells us about the total amount of money Mike and Susan made. What do we write next to the problem?

T.

Great! Let's do that now.

(Writes.)

Let's solve this Total problem.

Follow Activity Guide: Total.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Let's review. How are these problems alike? How are they not alike?

Student responds.

Right. They are alike because they have the same question. The question won't help us decide which problem is a Total and which is a Difference. The problems also are alike because they both tell us that Susan made $7. That won't help us decide which problem is a Total and which is a Difference.

To decide which problem is a Total and which is a Difference, we have to look at how these problems are not alike. Here are the important ways these problems are not alike.

Problem A tells us that Mike made $4 less than Susan (point)**. This tells us the difference, so we name Problem A a Difference problem** (point)**. But Problem B tells us that Mike and Susan made $10 together** (point)**. That tells us the total, so we name Problem B a Total problem** (point)**.**

When you name a problem as a Total or a Difference problem, remember to ask yourself: Are parts put together into a total? Or are two amounts compared for a difference?

You earn a treasure coin!

Point to C.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

Yes.

What do we need to do when we see a graph or table?

Number it.

(Student numbers graph.)

<u>Solution to Problem C:</u>

Beth spent $5 less than John on pizza. How much money did Beth spend on pizza?

Problem Type:	*Difference*
Relevant Info:	*G = $12; L = X; D = $5*
Number Sentence:	*12 – X = 5*
Answer:	*X = $7 (Beth spent)*

Follow Activity Guide: RUN.
Follow Activity Guide: Difference.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

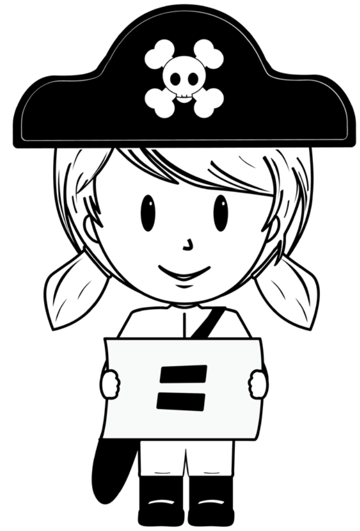
Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 23

ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Total and Difference
4. Shipshape Sorting
5. Jolly Roger Review



Materials

Posters

Counting Up
RUN/Total
Difference/Change

Student Materials

Equation Quest: Lesson 23
Buccaneer Problems: Lesson 23
Jolly Roger Review: Lesson 23
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

Look at A.

Point to A.

This problem is 9 minus X is *the same as* 4. In this problem, we need to isolate the X.

When you see the equal sign like this, draw a line down from the equal sign.

(Draws.)

Now, we'll balance this equation by isolating the X. Where's the X?

(Points.)

Circle the X to make it easy to see.

(Circles.)

To isolate the X (point to X) **in this problem, we do something different than before. Look at the X. Is there a plus sign or minus sign in front of the X?**

Minus sign.

When there is a minus sign in front of the X, we isolate the X by doing something different.

First, we move the X to the other side of the number sentence. To do that, cross out this X and write it over here.

(Writes.)

Second, we move the number on that side, in this case it's a 4, to this side of the equal sign. To do that, write minus 4 on that side.

(Writes.)

But if you subtract 4 from that side (point)**, you subtract 4 from this side** (point)**.**

(Writes.)

Now, it's time to do the math. What's 4 minus 4 (point)**?**

0.

Cross out the 4 minus 4.

(Cross out.)

Do the math on this side (point)**. What's 9 minus 4** (point)**?**

5.

Write 5.

(Writes.)

So, you isolated the X. X is *the same as* what?

5.

Write 5 is *the same as* X.

(Writes.)

Check the number sentence. Rewrite the number sentence using 5 for X.

(Writes.)

Excellent. 9 minus 5 is *the same as* 4.

Now, you only isolate the X in that way when it's a minus X problem. Look at this problem.

Point to B.

X minus 6 is *the same as* 4. Let's say that together.

X minus 6 is the same as 4.

What should you draw?

Draw a line down from the equal sign.

Go ahead and draw the line coming down from the equal sign.

(Draws.)

We'll balance this equation by isolating the X. What does isolate mean?

Put something by itself.

And what do we want to isolate?

X.

First, where's the X?

(Points.)

Circle the X to make it easy to see.

(Circles.)

To isolate the X (point to X)**, we need to move the 6. Look at this 6. It's not plus 6, it's minus 6** (point to minus sign)**. If we want to move the 6 to that side of the equal sign** (point)**, we need to add 6. We add 6 because minus 6 and plus 6 is the same as zero.**

So, write plus 6 under the minus 6.

(Writes.)

And if you add 6 to this side (point)**, what do you have to do to that side?**

Add 6.

You have to add 6 to that side of the equal sign.

(Writes.)

Now, it's time to do the math. What's minus 6 and plus 6 (point)**?**

0.

Cross out the minus 6 plus 6.

(Cross out.)

Do the math on this side (point)**. What's 4 plus 6** (point)**?**

10.

Write 10.

(Writes.)

So, you isolated the X. X is *the same as* what?

10.

Write X is *the same as* next to 10.

(Writes.)

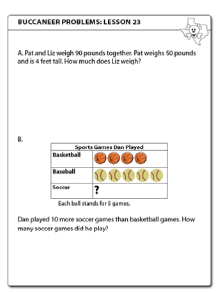
Check the number sentence. Rewrite the number sentence using 10 for X.

(Writes.)

Excellent. 10 minus 6 is *the same as* 4. Good work!

3: Buccaneer Problems

Point to A.



BUCCANEER PROBLEMS: LESSON 23

A. Pat and Liz weigh 90 pounds together. Pat weighs 50 pounds and is 4 feet tall. How much does Liz weigh?

B.

Sports Games Dan Played	
Basketball	●●●●
Baseball	●●●●●
Soccer	?

Each ball stands for 5 games.

Dan played 10 more soccer games than basketball games. How many soccer games did he play?

Let's solve some word problems!

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>Solution to Problem A:</u>

Pat and Liz weigh 90 pounds together. Pat weighs 50 pounds and is 4 feet tall. How much does Liz weigh?

Problem Type:	*Total*
Relevant Information:	*P1 = 50; P2 = X; T = 90*
Irrelevant Information:	*~~and is 4 feet tall~~.*
Number Sentence:	*50 + X = 90*
Answer:	*X = 40 pounds*

Follow Activity Guide: RUN.
Follow Activity Guide: Total.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Let's try the next problem.

Point to B.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

Yes.

What do we need to do when we see a graph or table?

Number it.

(Student numbers graph.)

<u>Solution to Problem B:</u>

Dan played 10 more soccer games than basketball games. How many soccer games did he play?

Problem Type:	*Difference*

Relevant Info:	*G = X; L = 20; D = 10*
Number Sentence:	*X – 20 = 10*
Answer:	*X = 30 soccer games*

Follow Activity Guide: RUN.

Remember, you have to think hard to name the problem type. Is this a Total problem? Are parts put together into a total? Or, is this a Difference problem? Are two amounts compared to find the difference?

Give student 10 seconds to think.

Let's think about this together. Naming the problem can be tricky. Do you see a compare word in this problem?

Yes.

You're right. ***More*** **is a compare word. Two amounts, Dan's soccer games and basketball games, are compared for a difference, so this is a Difference problem. I write D next to the problem to remind me it's a Difference problem.**

(Writes.)

The RUN poster helped us organize our paper so we can solve the problem! We said this is a Difference problem. (Point to D.) **Now we use the Difference poster to solve it.**

What's Step 1?

Write G – L = D.

Good. Let's do that now.

(Writes.)

Let's go to Step 2, "[Compare sentence] and label G and L." Remember, we put brackets around our compare sentence to help us remember.

Dan played 10 more soccer games than basketball games.

(Writes.)

Now let's label G and L in the word problem.

(Writes.)

What's the amount that's greater?

Soccer games.

So we'll write a G above soccer games.

What's the amount that's less?

Basketball games.

So we'll write an L above basketball games.

Step 3 says, "Find D." Does the compare sentence tell the difference or ask us to find the difference? Let's look at our compare word in our compare sentence. Is there a number next to our compare word, *more*?

Yes!

Great! Sometimes students think that 10 tells about the number of soccer games. But that's not true. 10 tells about the difference between Dan's soccer games and basketball games. We know it's the difference because 10 has the word *more* after it. More describes the difference, so if a number is in front of the word *more,* that number is talking about the difference.

Because this problem says Dan played 10 more soccer games, it's giving us the difference. The difference is 10.

If the problem gives D, we write that number under D in the Difference equation. This problem says that the difference is 10, so we write 10 under D.

(Writes and checks off 10.)

Step 4 says, "Find G and L."

It's easy to decide what's G and what's L. Soccer is G and basketball is L. How many basketball games did Dan play? Where do we find that information?

In the graph.

Yes! Look at the graph. How many basketball games did Dan play?

20.

If basketball is the amount that's less, L, where do we write 20?

Under L.

That's right. I check off 20 and write 20 under L.

(Writes and checks off 20 in the graph.)

What's G?

We don't know!

If we don't know some information, how do we mark it?

With an X.

Let's write an X under G.

(Writes.)

What's Step 5?

Write the signs.

Good. What math signs do we use to complete our number sentence?

The minus sign and the same as sign.

(Writes.)

X stands for G. 20 stands for L. 10 stands for Difference.

We want to get the X by itself on this side (point) **of the equal sign. To do that, you move 20** (point to L) **to that side of the equal sign. This is not plus 20. It's**

minus 20 (point to the minus sign)**.**

If you move the 20 to that side of the equal sign (point)**, we need to add 20. We add 20 because minus 20 and plus 20 is the same as zero.**

(Writes, adds below the number, and crosses out the numbers.)

And if you added 20 to this side (point)**, what do you have to do to that side?**

Add 20.

(Adds.)

We isolated the X. X is *the same as* 30.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

You earn a treasure coin!

Point to C.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

Yes.

What do we need to do when we see a graph or table?

Number it.

(Student numbers graph.)

<u>Solution to Problem C:</u>

A ruler costs 55 cents more than glue. How much money does the ruler cost?
Problem Type: *Difference*
Relevant Info: $G = X$; $L = 20$ *cents*; $D = 55$ *cents*
Number Sentence: $X - 20 = 55$

Answer: *X = 75 cents*

Follow Activity Guide: RUN.
Follow Activity Guide: Difference.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

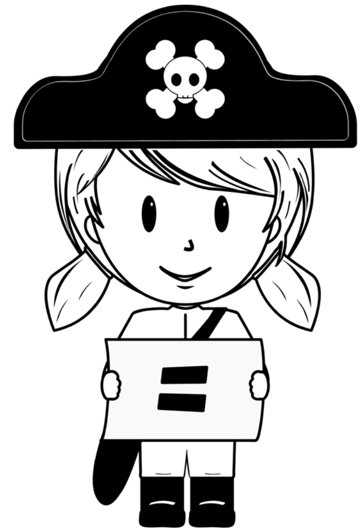
Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 24



ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Total and Difference
4. Shipshape Sorting
5. Jolly Roger Review

Materials

Posters

Counting Up
RUN/Total
Difference/Change

Student Materials

Equation Quest: Lesson 24
Buccaneer Problems: Lesson 24
Jolly Roger Review: Lesson 24
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

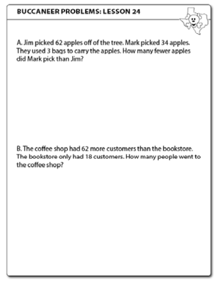
The same as.

That's right. The equal sign means *the same as* (point)**.**

Follow Activity Guide: Equation Quest – Addition or Subtraction.

3: Buccaneer Problems

Point to A.


BUCCANEER PROBLEMS: LESSON 24

A. Jim picked 62 apples off of the tree. Mark picked 34 apples. They used 3 bags to carry the apples. How many fewer apples did Mark pick than Jim?

B. The coffee shop had 62 more customers than the bookstore. The bookstore only had 18 customers. How many people went to the coffee shop?

Let's solve some word problems!

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

Solution to Problem A:

> *Jim picked 62 apples off of the tree. Mark picked 34 apples. They used 3 bags to carry the apples. How many fewer apples did Mark pick than Jim?*
>
> *Problem Type:* *Difference*
> *Relevant Information:* *G = 62; L = 34; D = X*
> *Irrelevant Information:* ~~*They used 3 bags to carry the apples.*~~
> *Number Sentence:* *62 – 34 = X*
> *Answer:* *X = 28 apples*

Follow Activity Guide: RUN.
Follow Activity Guide: Difference.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Let's try the next problem.

Point to B.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>Solution to Problem B:</u>

The coffee shop had 62 more customers than the bookstore. The bookstore only had 18 customers. How many people went to the coffee shop?

Problem Type: *Difference*
Relevant Info: *G = X; L = 18; D = 62*
Number Sentence: *X – 18 = 62*
Answer: *X = 80 customers*

Follow Activity Guide: RUN.
Follow Activity Guide: Difference.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

You earn a treasure coin!

Point to C.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

Yes.

What do we need to do when we see a graph or table?

Number it.

(Student numbers graph.)

<u>Solution to Problem C:</u>

How many Lego people do Darian, Becky, and Molly have altogether?

Problem Type: *Total*
Relevant Info: *P1 = 24; P2 = 15; P3 = 12; T = X*

Number Sentence: $24 + 15 + 12 = X$
Answer: $X = 51$ *Lego people*

Follow Activity Guide: RUN.
Follow Activity Guide: Total.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

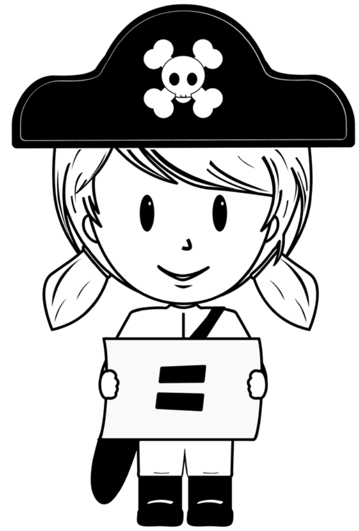
Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 25



ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Total and Difference
4. Shipshape Sorting
5. Jolly Roger Review

Materials

Posters

Counting Up
RUN/Total
Difference/Change

Student Materials

Equation Quest: Lesson 25
Buccaneer Problems: Lesson 25
Jolly Roger Review: Lesson 25
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

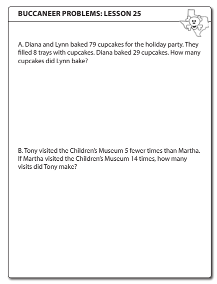
The same as.

That's right. The equal sign means *the same as* (point)**.**

Follow Activity Guide: Equation Quest – Addition or Subtraction.

3: Buccaneer Problems

Point to A.



BUCCANEER PROBLEMS: LESSON 25

A. Diana and Lynn baked 79 cupcakes for the holiday party. They filled 8 trays with cupcakes. Diana baked 29 cupcakes. How many cupcakes did Lynn bake?

B. Tony visited the Children's Museum 5 fewer times than Martha. If Martha visited the Children's Museum 14 times, how many visits did Tony make?

Let's solve some word problems!

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>Solution to Problem A:</u>

Diana and Lynn baked 79 cupcakes for the holiday party. They filled 8 trays with cupcakes. Diana baked 29 cupcakes. How many cupcakes did Lynn bake?

Problem Type: *Total*
Relevant Information: *P1 = 29; P2 = X; T = 79*
Irrelevant Information: *~~They filled 8 trays with cupcakes.~~*
Number Sentence: *29 + X = 79*
Answer: *X = 50 cupcakes*

Follow Activity Guide: RUN.
Follow Activity Guide: Total.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Let's try the next problem.

Point to B.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>*Solution to Problem B:*</u>

Tony visited the Children's Museum 5 fewer times than Martha. If Martha visited the Children's Museum 14 times, how many visits did Tony make?

Problem Type: *Difference*
Relevant Info: *G = 14; L = X; D = 5*
Number Sentence: *14 – X = 5*
Answer: *X = 9 fewer visits*

Follow Activity Guide: RUN.
Follow Activity Guide: Difference.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

 **You earn a treasure coin!**

Point to C.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

Yes.

What do we need to do when we see a graph or table?

Number it.

(Student numbers graph.)

<u>*Solution to Problem C:*</u>

How many fewer nests did John find than Denny?

Problem Type: *Difference*
Relevant Info: *G = 6; L = 3; D = X*

Number Sentence: $6 - 3 = X$
Answer: $X = 3$ *nests*

Follow Activity Guide: RUN.
Follow Activity Guide: Difference.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

Let's count the number of coins you earned today and mark them on your Treasure Map.

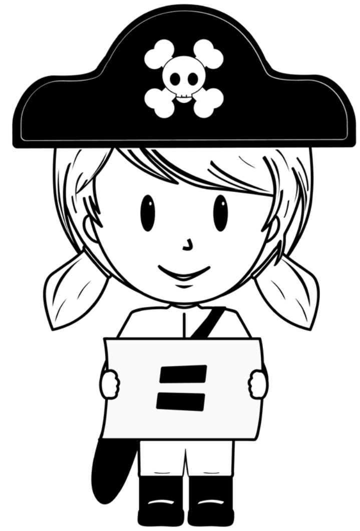
Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

*****Note: There are no Lesson Guides for Lessons 26-33 because these lessons review already presented content. At this point in the intervention, tutors are familiar with the content that will be presented in the upcoming 8 lessons. Lessons 26-33 continue to review Total and Difference problems. For additional guidance, tutors can refer to the Activity Guides. Lesson Guides continue again on Lesson 34 with the introduction of Change problems.***

Lesson 34



ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Change
4. Shipshape Sorting
5. Jolly Roger Review

Materials

Posters

Counting Up
RUN/Total
Difference/Change

Student Materials

Equation Quest: Lesson 34
Buccaneer Problems: Lesson 34
Jolly Roger Review: Lesson 34
Treasure Map

Tutor Materials

Crayons
Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

Follow Activity Guide: Equation Quest – Addition or Subtraction.

3: Buccaneer Problems

Over the last few weeks, we've learned about Total and Difference problems. When you see a word problem, how do you know if it's a Total problem?

When you put parts together into a total.

Good. In Total problems, parts are put together into a total. Sometimes the missing information is the total. Other times, the missing information is one of the parts.

How do you know if it's a Difference problem?

When you compare two amounts for a difference.

Good. In Difference problems, you compare two amounts for a difference. Sometimes the missing information is the difference. Other times it's the amount that's greater or the amount that's less.

Today, we'll learn about a new type of problem. We call these Change problems.

Change problems tell us a starting amount. Then, something happens to increase or decrease the amount we started with. What does the word *increase* mean?

To make bigger.

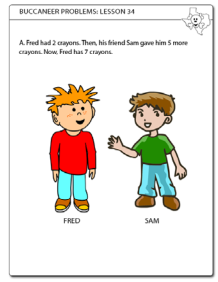
Yes, the word *increase* means to make bigger or more. What does the word *decrease* mean?

To make smaller.

Great. The word *decrease* means to make smaller or less. So, Change problems tell us a starting amount. At a different time, something happens to make the amount you started with bigger or smaller.

Look at this problem.

Point to A.



"Fred had 2 crayons. Then, his friend Sam gave him 5 more crayons. Now, Fred has 7 crayons."

This is a Change story because the story tells us the number of crayons Fred started with. Then his friend, Sam, changed Fred's amount by giving Fred some more. So Fred ends with a new number of crayons.

Circle 2, 5, and 7 in the story.

Here's the number sentence that goes with this story: 2 plus 5 is the same as 7.

Write 2 + 5 = 7.

This number sentence stands for what's happening in this Change story. Fred starts with 2 crayons. Then something happens to change Fred's amount. What happens?

His friend gives him more.

Right. His friend gives him 5 more. So Fred ends with 7. That's like the number sentence: 2 plus 5 is the same as 7. Let me show you how this works.

This is a picture of Fred (point)**. Fred's name is written here** (point)**. How many crayons should Fred start with?**

2.

That's right. Let's count 2 crayons. 1, 2. I'll put them here under Fred's picture.

Place 2 crayons under Fred's picture.

This is Fred's friend, Sam. Sam's name is written here (point)**. How many crayons should the friend have?**

5.

That's kind of right. We know Sam has at least 5 crayons because that's how many Sam gives to Fred. I'll give him a bunch of crayons because we don't know how many his friend has exactly. I'll put them here under Sam's picture.

Place approximately 7-10 crayons under Sam's picture.

The story says Fred has 2 crayons. That means 2 is how many crayons Fred starts with (point)**.**

In Change problems, the story tells us a starting amount. At a different time, something happens to change the starting amount. We end with a new amount. In this problem, Fred's 2 crayons is the starting amount. What happens to change the starting amount?

His friend gives him some.

Right. The change amount is how many his friend Sam gives him (point)**. How many does the story say his friend gives him?**

5.

Good. If Fred gets 5 crayons from his friend, does his amount increase or decrease?

Increase.

Good. To find the new amount, we start with 2. When his friend Sam gives him 5 more, the starting amount increases by 5. I'll take 5 crayons from Sam and give them to Fred.

Count 5 crayons one at a time as the "friend" gives "Fred" 5 and put them under Fred.

Let's review. Fred starts with 2. Then Sam gives him 5. The starting amount *increases* when the friend gives him 5 more.

So I ADD. Fred's 2 crayons plus the 5 crayons Sam gave him makes 7. Fred ends with 7 crayons. This is like the number sentence 2 plus 5 is the same as 7. (Point to 2 + 5 = 7.)

When a change problem increases, I have a starting amount. Then I add the change amount. This gives me the end amount.

Take 2 crayons from underneath Fred and place them under 2 in the number sentence. Then take the remaining 5 crayons and place them under the 5 in the number sentence.

The Change equation for this problem is ST plus C is the same as E.

Write ST + C = E.

ST (point) **stands for the starting amount. C** (point) **stands for the change amount. And E** (point) **stands for the end amount.**

What does ST (point) **stand for?**

The starting amount.

What does C (point) **stand for?**

The change amount.

What does E (point) **stand for?**

The end amount.

Sometimes the Change equation has a plus sign. Other times, it has a minus sign. If the change amount is increasing, we use a plus sign. If the change amount is decreasing, we use a minus sign. Let me show you what I mean.

Point to B.

"Harry had 9 crayons. Then he gave 3 crayons to Will. Now, Harry has 6 crayons."

This is a Change story because it tells us the number of crayons Harry started with. Then something happened to change the amount he started with. What

happened?

He gave some crayons to Will.

Yes. That's what happened. Harry gave some crayons to Will. Did this increase or decrease the number of crayons Harry started with?

Decrease.

That right. He gave crayons away. This decreased the number of crayons Harry had. Harry ends with less crayons.

Circle 9, 3, and 6 in the story.

Here's the number sentence that goes with this story: 9 minus 3 is the same as 6.

Write 9 – 3 = 6.

This number sentence stands for what's happening in this Change story. Harry starts with 9 crayons. Then something happens to change his amount. What happens?

He gives some to Will.

Right. He gives some to Will. So Harry ends up with 6 crayons. That's like the number sentence: 9 minus 3 is the same as 6. Let me show you how this works.

This is Harry (point)**. Harry's name is here** (point)**. How many crayons does Harry start with?**

9.

That's right. Let's count 9 crayons. 1, 2, 3, 4, 5, 6, 7, 8, 9. I'll put them here, under Harry's picture.

This is Will (point)**. How many crayons does Will have?**

0.

That's right. Will doesn't have any crayons yet.

In Change problems, the story tells us a starting amount. At a different time, something happens to change the starting amount. So we end with a new amount. In this problem, Harry starts with 9 crayons (point)**. What happens to change this starting amount?**

He gives some to Will.

Right. The change amount is how many Harry gives to Will. How many does the story say Harry gives to Will?

3.

Good. When Harry gives 3 crayons to Will, does his number of crayons increase or decrease?

Decrease.

Good. When Harry gives crayons away, his number of crayons decreases. So he ends up with a new amount. To find the new amount, we start with 9 and then Harry gives 3 crayons to Will.

Take 3 crayons from underneath Harry's picture and place them under Will's picture.

So I SUBTRACT. 9 crayons minus the 3 crayons he gave away. 9 minus 3 is the same as 6. So Harry ends with 6 crayons (count 6 crayons under Harry's picture)**. This is like the number sentence 9 minus 3 is the same as 6** (Point to 9 – 3 = 6)**.**

When a Change problem decreases, I have a starting amount. Then I subtract the change amount. This gives me the end amount.

The Change equation for this problem is ST minus C is the same as E.

Write ST – C = E.

Remind me. What does ST stand for?

The starting amount.

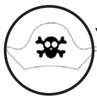
What does C (point) **stand for?**

The change amount.

What does E (point) **stand for?**

The end amount.

Sometimes the Change equation has a plus sign. Other times, it has a minus sign. If the change amount is increasing, we use a plus sign. If the change amount is decreasing, we use a minus sign.

 **You earn a treasure coin!**

Let's practice solving a Change problem!

Point to C.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>*Solution to Problem C:*</u>

There were 9 apples on the apple tree. Then 5 apples fell off. How many apples are on the tree now?

Problem Type:	*Change, decrease*
Relevant Information:	*ST = 9; C = 5; E = X*
Number Sentence:	*9 – 5 = X*
Answer:	*X = 4 apples*

What's the first thing we do every time we see a word problem?

RUN through it!

Follow Activity Guide: RUN.
When you get to the "N" follow script below.

Remember, you have to think hard to name the problem type. Before today, we only knew about Total and Difference problems. If you think it's a Total problem, ask yourself: Are parts put together into a total? If you think it's a Difference problem, ask yourself: Are two amounts compared for a difference?

In Change problems, the story tells us a starting amount. Something happens in the story to CHANGE the starting amount. If you think it's a Change problem, ask yourself: Does a starting amount increase or decrease to a new amount?

In Change problems, the starting amount can <u>increase</u>, which means we add, or the starting amount can <u>decrease</u>, which means we subtract.
Let's decide. Is this problem about parts and a total? Or is it about two amounts compared for a difference? Or is it about a starting amount that increases or decreases to a new amount?

Listen as I read the problem again.

"There were 9 apples on the apple tree. Then 5 apples fell off. How many apples are on the tree now?"

This problem talks about apples: There are 9 on the apple tree, then some fell off. The question asks how many are on the tree now. Is this a Total, Difference, or a Change problem?

Change.

This problem is a Change problem because the problem tells us a starting amount: the tree starts with 9 apples. Then something happens to change the amount. What happens?

Some fell off.

Good. Some fell off. If some got picked, did the starting amount increase or decrease?

Decrease.

Right. This is a Change problem. I'll write C next to the problem to help me remember it's a Change problem.

Write C.

Now, the tree starts with 9 apples. Then some fell off. It's a starting amount that decreases. If it's decreasing, do we add or subtract?

Subtract.

Right. Do we use a plus or a minus sign?

Minus sign.

Good. We use a minus sign. I write the minus sign before C to remind me it's a Change problem that decreases. I put the minus sign to remind me to subtract.

Write – next to C.

When we RUN through a problem, it helps us organize our paper so we can solve the problem! We said this is a Change problem. (Point to the –C.) **We use the Change poster to solve it.**

Display Change poster.

To solve a Change problem, we have six steps. The steps are a lot like the Total and Difference Steps.

Step 1 is to write the Change equation. We write ST plus C is the same as E OR ST minus C is the same as E. The sign depends on whether the change is increasing or decreasing. Does this problem have an increase or decrease?

Decrease.

That's right. The change decreases. That's why we wrote a minus sign next to the C. If we wrote a minus sign, we use the Change equation ST minus C is the same as E.

We need to write the Change equation now.

Write ST – C = E.

Step 2: "Find ST." We have to decide the starting amount. Look at the problem. Does it tell us the starting amount of apples?

Yes.

How many apples did the tree start with?

9.

The starting amount, or ST, is 9. I check off the 9 and write 9 underneath ST.

Check off 9 in the story and write 9 underneath ST.

Step 3: "Find C." We have to decide the change amount. Sometimes the problem will tell us the change amount. Other times, the change amount is X. Look at the problem. Does it tell about a change to the number of apples?

Yes.

How many apples fell off the tree?

5.

That's right. 5 apples fell off. If some fell off, this describes a change in the number of apples. So, the change amount, or C, is 5. I check off the 5 and write 5 underneath C.

Check off 5 in the story and write 5 underneath C.

Step 4 says: "Find E." We have to decide the end amount. Sometimes the problem tells us the end amount. Other times, the end amount is X. Look at the problem. Does it tell about the end number of apples?

No.

The question asks, "How many apples are on the tree now?" We have to find the end amount of apples. How do we mark missing information?

With an X.

Right. We're missing the end amount, so I put X underneath E.

Write X underneath E.

Step 5: "Write the signs." Change problems can have a plus sign or a minus sign. In this problem, we said the start amount decreased. To help us remember this, we wrote ST minus C is the same as E when we wrote the

Change equation. This means we use a minus sign and the same as sign to complete the number sentence.

Write the minus sign and the same as sign.

9 stands for the starting amount. 5 stands for the change. X stands for the end amount. Does this (point) **look like a number sentence we know how to solve?**

Yes!

Let's read the number sentence together.

Read number sentence aloud with student.

Let's find X! You know how to do this!

Great! In word problems, our answer must have a number and a label. We know the number answer is 4. Now we have to figure out what the label for 4 should be. Think about what the problem is mostly about. What did we underline?

Apples.

Right! The problem is mostly about apples, so that's the best label. We write apples for the label!

Write apples next to 4.

Let's see if the answer makes sense. "There were 9 apples on the apple tree. Then 5 apples fell off. How many apples are on the tree now?" Does 4 apples make sense?

Yes.

Right. 4 makes sense. Did we answer the question, "How many apples are on the tree now?"

Yes. There are 4 apples.

Good. We have a number and a label in the answer.

Good job working this Change problem!

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

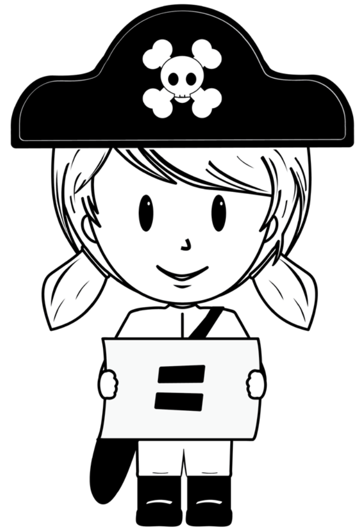
Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 35



ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Change with E missing, *more* practice
4. Shipshape Sorting
5. Jolly Roger Review

Materials

Posters

Counting Up
RUN/Total
Difference/Change

Student Materials

Equation Quest: Lesson 35
Buccaneer Problems: Lesson 35
Jolly Roger Review: Lesson 35
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

Follow Activity Guide: Equation Quest – Addition or Subtraction.

3: Buccaneer Problems

Let's review. What's the Total equation?

P1 + P2 = T.

Good. Say it again.

P1 + P2 = T.

Now say the Difference equation.

G – L = D.

Good. Say it again.

G – L = D.

Yesterday we learned about Change problems. Change problems tell us a starting amount. Then, something happens to increase or decrease the amount we started with. You have to decide which Change equation to use. What are the two Change equations?

ST + C = E and ST – C = E.

Let's solve some word problems!

The past few weeks, we've learned about Total and Difference problems. When you see a word problem, how do you know if it's a Total problem?

When you put parts together into a total.

Good. In Total problems, parts are put together into a total. Sometimes the missing information is the total. Other times, the missing information is one of the parts.

How do you know if a problem is a Difference problem?

When you compare two amounts for a difference.

Good. In Difference problems, you compare two amounts for a difference. Sometimes the missing information is the difference. Other times, the missing information is the amount that's greater or the amounth that's less.

Today, we'll work again on Change problems.

Change problems tell us a starting amount. Then, something happens to increase or decrease the amount we started with. What does the word *increase* mean?

To make bigger.

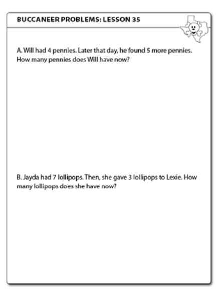
Yes, the word *increase* means to make bigger or more. What does the word *decrease* mean?

To make smaller.

Great. The word *decrease* means to make smaller or less. So, Change problems tell us a starting amount. At a different time, something happens to make the amount you started with bigger or smaller.

Look at this problem.

Point to A.


BUCCANEER PROBLEMS: LESSON 35

A. Will had 4 pennies. Later that day, he found 5 more pennies. How many pennies does Will have now?

B. Jayda had 7 lollipops. Then, she gave 3 lollipops to Lexie. How many lollipops does she have now?

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

Solution to Problem A:

Will had 4 pennies. Later that day, he found 5 more pennies. How many pennies does Will have now?

Problem Type:	*Change, increase*
Relevant Information:	*ST = 4; C = 5; E = X*
Number Sentence:	*4 + 5 = X*
Answer:	*X = 9 pennies*

What's the first thing we do every time we see a word problem?

RUN through it!

Follow Activity Guide: RUN.
When you get to the "N" follow script below.

Remember, you have to think hard to name the problem type. Before today, we only knew about Total and Difference problems. If you think it's a Total problem, ask yourself: Are parts put together into a total? If you think it's a Difference problem, ask yourself: Are two amounts compared for a difference?

In Change problems, the story tells us a starting amount. Something happens in the story to CHANGE the starting amount. If you think it's a Change problem, ask yourself: Does a starting amount increase or decrease to a new amount?

Let's decide. Is this problem about parts and a total? Or, is it about two amounts compared for a difference? Or, is it about a starting amount that increases or decreases to a new amount? Listen as I read the problem again.

"Will had 4 pennies. Later that day, he found 5 more pennies. How many pennies does Will have now?"

This problem talks about pennies: Will had 4 pennies. Later that day, he found 5 more pennies. The question asks how many pennies does Will have now? Is this a Total, Difference, or a Change problem?

Change.

Is *more* a compare word or is *more* telling us about a change?

Change.

This problem is a Change problem because the problem tells us a starting amount: Will starts with 4 pennies. Then something happens to change the amount. What happens?

Will found more pennies.

Good. Will found more pennies. If Will found more pennies, did the starting amount increase or decrease?

Increase.

Right. This is a Change problem. I'll write C next to the problem to help me remember it's a Change problem.

Write C.

We said the starting amount increased. If it's increasing, do we add or subtract?

Add.

Right. Do we use a plus sign or a minus sign?

Plus sign.

Good. We use a plus sign. I write the plus sign before C to remind me it's a Change problem that increases. I put the plus sign to remind me to add.

Write + next to C.

The RUN poster helped us organize our paper so we can solve the problem! We said this is a Change problem. (Point to C.) **Now we use the Change poster to solve it.**

Display Change poster.

To solve a Change problem, we have six steps. The steps are a lot like the Total and Difference Steps.

Step 1 is to write the Change equation. We write ST plus C is the same as E OR ST minus C is the same as E. The sign depends on whether the change is

increasing or decreasing. Does this problem have an increase or decrease?

Increase.

That's right. The change increases. That's why we wrote a plus sign next to the C. If we wrote a plus sign, we use the Change equation ST plus C is the same as E.

We need to write the Change equation now.

Write ST + C = E.

Step 2: "Find ST." We have to decide the starting amount. Look at the problem. Does it tell us the starting amount of pennies?

Yes.

How many pennies did Will start with?

4.

The starting amount, or ST, is 4. I check off the 4 and write 4 underneath ST.

Check off 4 in the story and write 4 underneath ST.

Step 3: "Find C." We have to decide the change amount. Sometimes the problem will tell us the change amount. Other times, the change amount is X. Look at the problem. Does it tell about a change to the number of pennies?

Yes.

How many pennies did Will find?

5.

That's right. Will found 5 pennies. If Will found pennies, this describes a change in the number of pennies. So, the change amount, or C, is 5. I check off the 5 and write 5 underneath C.

Check off 5 in the story and write 5 underneath C.

Step 4 says: "Find E." We have to decide the end amount. Sometimes the problem tells us the end amount. Other times, the end amount is X. Look at the problem. Does it tell about the end number of pennies?

No.

The question asks, "How many pennies does Will have now?" We have to find the end amount of pennies. How do we mark missing information?

With an X.

Right. We're missing the end amount, so I put X underneath E.

Write X underneath E.

Step 5: "Write the signs." Change problems can have a plus or a minus sign. In this problem, we said the starting amount increased. To help us remember this, we wrote ST plus C is the same as E when we wrote the Change equation. This means we use a plus sign and the same as sign to complete the number sentence.

Write the plus sign and the same as sign.

4 stands for the starting amount. 5 stands for the change. X stands for the end amount. Does this (point) **look like a number sentence we know how to solve?**

Yes!

Let's read the number sentence together.

Read number sentence aloud with student.

Let's find X! You know how to do this!

Great! In word problems, our answer must have a number and a label. We know the number answer is 9. Now we have to figure out what the label for 9 should be. Think about what the problem is mostly about. What did we underline?

Pennies.

Right! The problem is mostly about pennies, so that's the best label. We write pennies for the label!

(Writes.)

The last thing we need to do is check to see if our answer makes sense. Let's see if the answer makes sense. "Will had 4 pennies. Later that day, he found 5 more pennies. How many pennies does Will have now?" Does 9 pennies make sense?

Yes.

Right. 9 pennies makes sense. Did we answer the question, "How many pennies does Will have now?"

Yes. Will has 9 pennies.

Good. We have a number and a label in the answer.

Good job working this Change problem!

Let's do another problem.

Point to B.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>Solution to Problem B:</u>

Jayda had 7 lollipops. Then she gave 3 lollipops to Lexie. How many lollipops does she have now?

Problem Type:	*Change, decrease*
Relevant Information:	*ST = 7; C = 3; E = X*
Number Sentence:	*7 – 3 = X*
Answer:	*X = 4 lollipops*

What's the first thing we do every time we see a word problem?

RUN through it!

Follow Activity Guide: RUN.
When you get to the "N" follow script below.

Remember, you have to think hard to name the problem type.

Are parts put together into a total? Are two amounts compared for a difference? Is there a starting amount that increases or decreases to a new amount?

Wait 10 seconds for student to think.

What type of problem is this?

Change.

You're right! It's a Change problem. How did you know it's a Change problem?

Jayda starts with 7 lollipops then gives some away.

That's right. The story is about Jayda's lollipops. She starts with 7. Then she gives some away. She ends with a new amount. The story is about a starting amount that changes.

What should we write to remind us it's a Change problem?

(Student.)

Write a C.

(Writes.)

Does it increase or decrease?

Decrease.

How do you know it's a decrease?

(Student.)

Good. When Jayda gave the lollipops away, it decreased her amount. Will we

add or subtract to find the end amount?

Subtract.

Right. Write the minus sign in front of C to remind me it's a Change problem that decreases.

(Writes.)

Let's solve this Change problem.

Follow Activity Guide: Change.

The last thing we have to do is check to see if our answer makes sense. Does the answer make sense? Why?

(Student explains.)

Great job working Change problems today.

For the next problems (C-I), we need to determine if the problem is a Difference problem or a Change problem. If the problem is a Difference problem, we will put a D next to the sentence. If the problem is a Change problem, we will put a C next to the sentence.

When we talked about Difference problems, we learned that *more* is a compare word. *More* also can be used to describe a change. You need to pay close attention when you see the word *more* because *more* could be used to compare two amounts, like in a Difference problem, or it could be used to show a change in an amount, like in a Change problem. Let's practice!

C. Will had more pennies than Stan. (D)
D. Chris had 6 more trains than Bill. (D)
E. Bill gave 6 more trains to Chris. (C)
F. Jackson ate 7 more candy bars than Rebecca. (D)
G. Rebecca gave Jackson 7 more candy bars. (C)
H. Richard gave Jean 4 more toy cars. (C)
I. Jean had 4 more toy cars than Richard. (D)

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

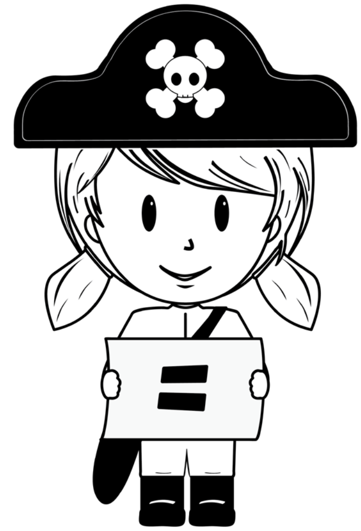
Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you'll choose a prize out of the treasure box!

Lesson 36



ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Change with C missing, *more* practice
4. Shipshape Sorting
5. Jolly Roger Review

Materials

Posters

Counting Up
RUN/Total
Difference/Change

Student Materials

Equation Quest: Lesson 36
Buccaneer Problems: Lesson 36
Jolly Roger Review: Lesson 36
Treasure Map

Tutor Materials

Crayons
Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

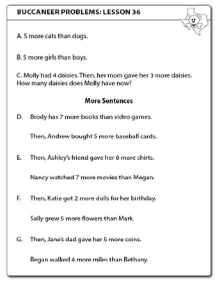
Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means the same as (point)**.**

Follow Activity Guide: Equation Quest – Addition or Subtraction.

3: Buccaneer Problems



BUCCANEER PROBLEMS: LESSON 36

A. 5 more cats than dogs.

B. 5 more girls than boys.

C. Molly had 4 daisies. Then, her mom gave her 3 more daisies. How many daisies does Molly have now?

More Sentences

D. Brody has 7 more books than video games.

Then, Andrew bought 5 more baseball cards.

E. Then, Ashley's friend gave her 6 more shirts.

Nancy watched 7 more movies than Megan.

F. Then, Katie got 2 more dolls for her birthday.

Sally grew 5 more flowers than Mark.

G. Then, Jane's dad gave her 5 more coins.

Regan walked 4 more miles than Bethany.

Let's review. What's the Total equation?

P1 + P2 = T.

Good. Say it again.

P1 + P2 = T.

Now say the Difference equation.

G – L = D.

Good. Say it again.

G – L = D.

Yesterday we learned about Change problems. Change problems tell us a starting amount. Then, something happens to increase or decrease the amount we started with. You have to decide which Change equation to use. What are the two Change equations?

ST + C = E and ST – C = E.

Before we solve some word problems, let's see if we can determine if the following problems are Difference problems or Change problems. For the problems (A-G), we need to determine if the problem is a Difference problem

or a Change problem. If the problem is a Difference problem, we will put a D next to the sentence. If the problem is a Change problem, we will put a C next to the sentence.

When we talked about Difference problems, we learned that *more* is a compare word. *More* also can be used to describe a change. You need to pay close attention when you see the word *more* because *more* could be used to compare two amounts, like in a Difference problem, or it could be used to show a change in an amount, like in a Change problem. Let's practice!

A. 5 more cats than dogs. (D).
B. 5 more girls than boys. (D).
C. Molly has 4 daisies. Then, her mom gave her 3 more daisies. How many daisies does Molly have now? (C).
D. Brody has 7 more books than video games. (D)
Then, Andrew bought 5 more baseball cards. (C).
E. Then, Ashley's friend gave her 6 more shirts (C).
Nancy watched 7 more movies than Megan. (D).
F. Then, Katie got 2 more dolls for her birthday. (C).
Sally grew 5 more flowers than Mark. (D).
G. Then, Jane's dad gave her 5 more coins. (C).
Regan walked 4 more miles than Bethany. (D).

Now that we have practiced identifying a problem as a Difference problem or a Change problem, let's solve some word problems!

Point to H.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>Solution to Problem H:</u>

Molly had 12 daisies. Then, she gave some to her mom for Mother's Day. Now, Molly has 4 left. How many daisies did Molly give to her mom?

Problem Type:	*Change, decrease*
Relevant Information:	$ST = 12; C = X; E = 4$
Number Sentence:	$12 - X = 4$
Answer:	$X = 8$ *daisies*

What's the first thing we do every time we see a word problem?

RUN through it!

Follow Activity Guide: RUN.
When you get to the "N" follow script below.

Remember, you have to think hard to name the problem type.

Are parts put together into a total? Are two amounts compared for a difference? Is there a starting amount that increases or decreases to a new amount?

Wait 10 seconds for student to think.

Change.

You're right! It's a Change problem. This problem is tricky to name. It's a Change problem, but it doesn't ask us for the end amount.

The problem starts with 12 daisies. Then something happens to change that amount. What happens?

She gave some to her mom.

Right. This problem is about one thing that gets changed. Then the problem tells us she has 4 left. Does "4 left" tell us how many she gave to her mom?

No.

Right. That tells us the end amount, the amount she has left. This question asks how many she gave to her mom. It asks us to find the amount of the change.

We know there were 12 daisies to start. We know there were 4 daisies at the end. Change problems start with an amount and then, at a different time, something happens to change it to make a new end amount.

Let's ask ourselves: Is there a starting amount that increases or decreases to a new amount?

Yes.

The answer is yes, write C next to the problem to remind me it's a Change problem.

(Writes.)

In Change problems, the missing amount can be the starting amount, the change amount, or the end amount. So far, we've been solving problems where the end amount was missing. This problem asks us to find the change amount.

Does the change increase or decrease?

Decrease.

Right. This is a decrease because she gives some of the daises to her mom. Write a minus sign before the C next to the problem to remind me it's a Change problem with a decrease.

(Writes.)

Let's solve this Change problem! Let's use the six steps for a Change problem.

What's Step 1?

Write ST – C = E.

Good. We write the Change equation: ST minus C is the same as E. We use the minus sign because this is a Change problem with a decrease.

Write ST – C = E. Monitor that the student does this as well.

Step 2: "Find ST." What's the starting amount of daisies?

12.

Yes. 12 is the starting amount of daisies. Where should I write 12?

Under ST.

Check off 12 and write 12 underneath ST.

Monitor that the student does this as well.

Step 3: "Find C." What's the change amount of daisies? Do we know how many daisies Molly gave to her mom?

No.

You're right. The change is what's missing. We mark missing information with an X.

(Writes.)

Step 4: "Find E." What's the end amount of daisies?

4.

We know 4 is the end amount, because the problem tells us she had 4 daisies left. Where should I write 4?

Under E.

Check off 4 and write 4 underneath E.

Monitor that the student does this as well.

Let's move to Step 5. What's Step 5?

Write the signs.

Good. What math signs do we use to complete our number sentence?

The minus sign and the same as sign.

(Writes.)

12 stands for the starting amount, or ST. X stands for change, or C. 4 stands for the end amount or E. Does this look like a number sentence we know how to solve?

Yes!

Let's read the number sentence together.

Read number sentence aloud with student.

Let's find X!

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Great job solving that Change problem. Let's try another one!

Point to I.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

Solution to Problem I:

The store had 30 t-shirts. The next day a truck brought more t-shirts. Now there are 50 t-shirts. How many t-shirts did the truck bring?

Problem Type:	*Change, increase*
Relevant Information:	*ST = 30; C = X; E = 50*
Number Sentence:	*30 + X = 50*
Answer:	*X = 20 t-shirts*

What's the first thing we do every time we see a word problem?

RUN through it!

Follow Activity Guide: RUN.
When you get to the "N" follow script below.

Remember, you have to think hard to name the problem type.

If you think it's a Total problem, ask yourself: Are parts put together into a total? If you think it's a Difference problem, ask yourself: Is there a compare word or words? Are two amounts compared for a difference? If you think it's a Change problem, ask yourself: Is there a starting amount that increases or

decreases to a new amount?

Wait 10 seconds for student to think.

Student responds. Use script language to assist student in identifying the correct problem type if he or she has trouble. Then continue below.

You're right! It's a Change problem. How did you know it's a Change problem?

The store had 30 t-shirts, then the next day a truck brought more.

That's right. This story is about a starting amount that changes. Write C to remind yourself it's a Change problem.

(Writes.)

Does it increase or decrease?

Increase.

Good. When the truck brought more t-shirts, it increased the amount of t-shirts in the store. Will we add or subtract to find the end amount?

Add.

Right. Write the plus sign in front of the C to remind me it's a Change problem that increases.

(Writes.)

Let's solve this Change problem.

Follow Activity Guide: Change.

Check, does our answer make sense? Why?

(Student explains.)

Great job working Change problems today. Now it's time for our game.

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

Let’s count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

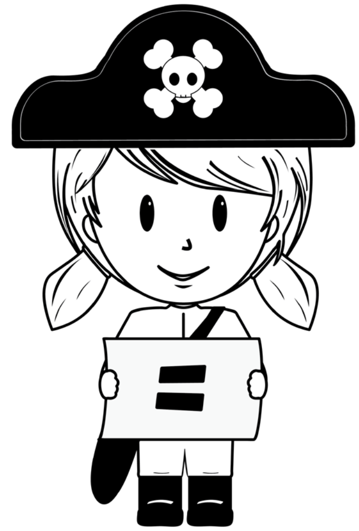
Go ahead and color __ places on your Treasure Map! (Student colors.)

Remember, once you fill up your Treasure Map, you’ll choose a prize out of the treasure box!

Lesson 37

ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Change with C and E missing
4. Shipshape Sorting
5. Jolly Roger Review



Materials

Posters

Counting Up
RUN/Total
Difference/Change

Student Materials

Equation Quest: Lesson 37
Buccaneer Problems: Lesson 37
Jolly Roger Review: Lesson 37
Treasure Map

Tutor Materials

Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means the same as (point)**.**

Follow Activity Guide: Equation Quest – Addition or Subtraction.

3: Buccaneer Problems

Let's review. What's the Total equation?

P1 + P2 = T.

Good. Say it again.

P1 + P2 = T.

What's the Difference equation?

G – L = D.

Now say the Difference equation again.

G – L = D.

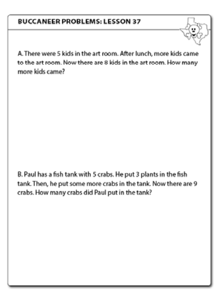
A few days ago we learned about Change problems. Change problems tell us a starting amount. Then, something happens to increase or decrease the amount we started with. What are the two Change equations?

ST + C = E and ST – C = E.

Great job! Say the two Change equations again.

ST + C = E and ST – C = E.

Point to A.



BUCCANEER PROBLEMS: LESSON 37

A. There were 5 kids in the art room. After lunch, more kids came to the art room. Now there are 8 kids in the art room. How many more kids came?

B. Paul has a fish tank with 5 crabs. He put 3 plants in the fish tank. Then, he put some more crabs in the tank. Now there are 9 crabs. How many crabs did Paul put in the tank?

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

Solution to Problem A:

> *There were 5 kids in the art room. After lunch, more kids came to the art room. Now there are 8 kids in the art room. How many more kids came?*
> *Problem Type:* *Change, increase*
> *Relevant Information:* *ST = 5; C = X; E = 8*
> *Number Sentence:* *5 + X = 8*
> *Answer:* *X = 3 kids*

What's the first thing we do every time we see a word problem?

RUN through it!

Follow Activity Guide: RUN.
When you get to the "N" follow script below.
Display "What Do You Ask Yourself?" poster.

Remember, you have to think hard to name the problem type.

Look at this poster (point)**. This will help us to name the problem type.**

If you think it's a Total problem, what do you ask yourself? (Point.)

Are parts put together into a total?

If you think it's a Difference problem, what do you ask yourself? (Point.)

Are two amounts compared for a difference?

Yes. Are two amounts compared for a difference? What helps you figure out if two amounts are compared for a difference?

A compare sentence.

Yes! To figure out if this is a Difference problem, look for a compare sentence. Remember, a compare sentence usually has *more*, *fewer*, *less*, or "er" words. But be careful. Change problems also have the word *more*.

If you think it's a Change problem, what do you ask yourself? (Point.)

Is there a starting amount that increases or decreases to a new amount?

Is this a Total problem, a Difference problem, or a Change problem?

Change.

How do you know it's a Change problem?

There's a starting amount that increases to a new amount.

You're right! This problem is tricky. It's a Change problem, but it doesn't ask us for the end amount. Also, it has the word *more* here (point)**. What do we usually call the word *more*?**

A compare word.

Right. But in this problem, *more* is not a compare word. *More* tells us that there was a change. The problem starts with 5 kids. Then something happens to change that amount, to make more kids. What happens?

More kids came into the art room.

Right. This problem is about one thing that changes. The problem tells us there are 8 kids in the art room. Does 8 tell us how many more kids came into the art room?

No.

Right. 8 tells us the end amount, the amount of kids that ended up in the art room. This question asks how many more kids came into the art room to make 8. In this problem, *more* is the change. The problem asks us to find the amount of the change.

We know there were 5 kids to start. We know there were 8 at the end. Change problems start with an amount and then, at a different time, something happens to change it to make a new end amount.

Let's ask ourselves: Is there a starting amount that increases or decreases to a new amount?

Yes.

The answer is yes. Write C next to the problem to remind me it's a Change problem.

(Writes.)

In Change problems, the missing amount can be the starting amount, the change amount, or the end amount. This problem asks us to find the Change amount.

Does this change increase or decrease?

Increase.

Right. This is an increase because more kids came into the art room. Write a plus sign before the C next to the problem. This reminds me it's a Change problem with an increase.

(Writes.)

The RUN poster helped us organize our paper so we can solve the problem! We said this is a Change problem. (Point to C.) **Now we use the Change poster to solve it.**

Follow Activity Guide: Change.

Great job solving a Change problem. Does the answer make sense? Why?

(Student explains.)

Good job! Let's try another problem!

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

Point to B.

Solution to Problem B:

Paul has a fish tank with 5 crabs. He put ~~3 plants~~ in the fish tank. Then, he put some more crabs in the tank. Now there are 9 crabs. How many crabs did Paul put in the tank?

Problem Type:	*Change, increase*
Relevant Information:	*ST = 5; C = X; E = 9*
Irrelevant Information:	*~~3 plants~~*
Number Sentence:	*5 + X = 9*
Answer:	*X = 4 crabs*

What's the first thing we do every time we see a word problem?

RUN through it!

Follow Activity Guide: RUN.
When you get to the "N" follow script below.
Display "What Do You Ask Yourself?" poster.

If you think it's a Total problem, what do you ask yourself? (Point.)

Are parts put together into a total?

Good. If it's a Total problem, ask yourself, Are parts put together into a total?

If you think it's a Difference problem, what do you ask yourself? (Point.)

Are two amounts compared for a difference?

Yes. Are two amounts compared for a difference? What helps you figure out if two amounts are compared for a difference?

A compare sentence.

If you think it's a Change problem, what do you ask yourself? (Point.)

Is there a starting amount that increases or decreases to a new amount?

Is this a Total, Difference, or Change problem?

Change.

How do you know it's a Change problem?

There's a starting amount that increases to a new amount.

You're right! It's a Change problem. This problem is tricky. It's a Change problem, but it doesn't ask us for the end amount.

Listen as I read the problem again and look carefully: "Paul has a fish tank with 5 crabs. He put 3 plants in the fish tank. Then, he put some more crabs in the tank. Now there are 9 crabs. How many crabs did Paul put in the tank?"

Paul put more crabs in the fish tank.

Right. This problem is about one thing that gets changed. The problem tells us there are 9 crabs in the fish tank. Does 9 tell us how many more crabs Paul put into the tank?

No.

Right. 9 tells us the end amount, the amount of crabs that ended up in the fish tank. This question asks how many more Paul put in the fish tank to make 9 crabs. In this problem, *more* is the change. The problem asks us to find the amount of the change.

We know there were 5 crabs to start. We know there were 9 at the end. Change problems start with an amount and then, at a different time, something happens to change it to make a new end amount.

Let's ask ourselves: Is there a starting amount that increases or decreases to a new amount?

Yes.

The answer is yes. Write C next to the problem to remind me it's a Change problem.

(Writes.)

The RUN poster helped us organize our paper so we can solve the problem! We said this is a Change problem. (Point to C.) **Now we use the Change poster to solve it.**

Follow Activity Guide: Change.

Check, does our answer make sense? Why?

(Student explains.)

Point to C.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>Solution to Problem C:</u>

Ted had 5 library books. After school, he returned 2 books and checked out ~~4 movies~~. How many books does Ted have now?

Problem Type:	*Change, decrease*
Relevant Information:	*ST = 5; C = 2; E = X*
Irrelevant Information:	*~~4 movies~~*
Number Sentence:	*5 – 2 = X*
Answer:	*X = 3 books*

Follow Activity Guide: RUN.
Follow Activity Guide: Change.

Check, does our answer make sense? Why?

(Student explains.)

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

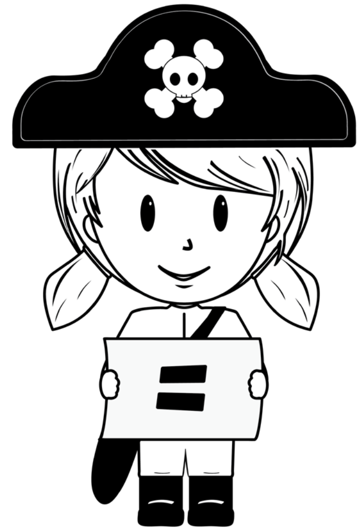
Treasure Map

Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Lesson 38



ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
    Change with ST missing
4. Shipshape Sorting
5. Jolly Roger Review

Materials

Posters

Counting Up
RUN/Total
Difference/Change

Student Materials

Equation Quest: Lesson 38
Buccaneer Problems: Lesson 38
Jolly Roger Review: Lesson 38
Treasure Map

Tutor Materials

Cubes
Math Fact Flash Cards
Timer
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means the same as (point)**.**

Follow Activity Guide: Equation Quest – Addition or Subtraction.

3: Buccaneer Problems

Let's review. What's the Total equation?

P1 + P2 = T.

Good. Say it again.

P1 + P2 = T.

What's the Difference equation?

G – L = D.

Now say the Difference equation again.

G – L = D.

Recently we learned about Change problems. Change problems tell us a starting amount. Then, something happens to increase or decrease the amount we started with. What are the two Change equations?

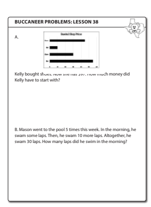
ST + C = E and ST – C = E.

Great job! Say the two Change equations again.

ST + C = E and ST – C = E.

Let's solve some word problems!

Point to A.



Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

Yes.

What do we need to do?

Number it.

(Student numbers graph.)

Solution to Problem A:

Kelly bought shoes. Now she has $97. How much money did Kelly have to start with?

Problem Type:	*Change, decrease*
Relevant Info:	*ST = X; C = 45; E = 97*
Number Sentence:	*X – 45 = 97*
Answer:	*X = $142*

What's the first thing we do every time we see a word problem?

RUN through it!

Follow Activity Guide: RUN.
When you get to the "N" follow script below.
Display "What Do You Ask Yourself?" poster.

Remember, you have to think hard to name the problem type. Look at this poster (point)**. This will help us to name the problem type.**

If you think it's a Total problem, what do you ask yourself? (Point.)

Are parts put together into a total?

If you think it's a Difference problem, what do you ask yourself? (Point.)

Are two amounts compared for a difference?

If you think it's a Change problem, what do you ask yourself? (Point.)

Is there a starting amount that increases or decreases to a new amount?

Wait 10 seconds for student to think.

Let's name some problem types. Use your hands. How do you show a Total

problem?

Student puts fingers in shape of T.

How do you show a Difference problem?

Student puts fingers in shape of D.

How do you show a Change problem?

Student puts finger in shape of C.

What type of problem is this?

C.

You're right! It's a Change problem. This problem is tricky to name. It's a Change problem, but it doesn't ask us for the end amount. Listen as I read the problem again: Kelly bought some shoes. Now she has $97. How much money did Kelly have to start with?

Let's ask ourselves: Is there a starting amount that increases or decreases to a new amount? If the answer is yes, write C next to the problem to remind me it's a Change problem.

(Writes.)

In Change problems, the missing amount can be the start amount, the change amount, or the end amount. This problem is missing the start amount. Does the change increase or decrease?

Decrease.

Right. This is a decrease because she bought shoes. Write a minus sign before the C next to the problem to remind me it's a Change problem with a decrease.

(Writes.)

Let's solve this Change problem!

Let's use the six steps on our Change poster. What's Step 1?

Write the Change equation.

Do we write ST plus C is the same as E or ST minus C is the same as E?

ST – C = E.

We write the Change equation: ST minus C is the same as E.

(Writes.)

Step 2: "Find ST." What's the starting amount of money?

We don't know.

That's right. The question asks, "How much money did Kelly have to start with?" We have to find the start amount, so ST is missing.

Where do we mark X?

Underneath ST.

Right. Put X underneath ST.

(Writes.)

Step 3: "Find C." What's the change in the amount of money?

45.

Yes. We know from the graph that Kelly spent $45 on shoes, so $45 is telling about the change.

Check off 45 in the graph and write 45 underneath C.

(Writes.)

Step 4: "Find E." What the end amount of money?
97.

The story says, "Now she has $97." This tells us how much money Kelly has now,

so it's the end amount of money.

Check off 97 in the problem and write 97 underneath E.

(Writes.)

Before we move to Step 5, let's make sure we have all the information we need. Are there any numbers we did not check off or use in our Change equation?

No.

You're right. We don't have any other numbers in our word problem. We can move to Step 5. What's Step 5?

Write the signs.

Good. What math signs do we use to complete our number sentence?

Minus and the same as signs.

Write the minus and the same as signs.

X stands for start. 45 stands for change. 97 stands for end. Does this look like a number sentence we know how to solve?

Yes!

Let's read the number sentence together.

(Read number sentence together.)

Great job solving that Change problem.

Before today, we worked on Change problems that asked us to find the end amount. Problem A was different. It asked us to find the starting amount.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?
(Student explains.)

Point to B.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

What's the first thing we do every time we see a word problem?

RUN through it!

Follow Activity Guide: RUN.
Follow Activity Guide: Change.

<u>Solution to Problem B:</u>

Mason ~~went to the pool 5 times~~ this week. In the morning, he swam some laps. Then, he swam 10 more laps. Altogether, he swam 30 laps. How many laps did he swim in the morning?

Problem Type:	*Change, increase*
Relevant Information:	*ST = X; C = 10; E = 30*
Irrelevant Information:	*~~went to the pool 5 times~~*
Number Sentence:	*X + 10 = 30*
Answer:	*X = 20 laps*

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Point to C.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

What's the first thing we do every time we see a word problem?

RUN through it!

Follow Activity Guide: RUN.
Follow Activity Guide: Change.

<u>Solution to Problem C:</u>

Lena earned some money raking leaves. Then, she spent $3 at the candy store and has $5 left. How much money did Lena have to start with?

Problem Type:	*Change, decrease*
Relevant Information:	*ST = X; C = 3; E = 5*
Number Sentence:	*X – 3 = 5*
Answer:	*X = $8*

Follow Activity Guide: RUN.
Follow Activity Guide: Change.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

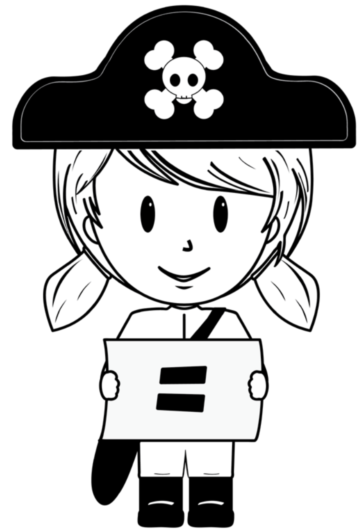
Treasure Map

Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Lesson 39



ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Difference and Change
4. Shipshape Sorting
5. Jolly Roger Review

Materials

Posters

Counting Up
RUN/Total
Difference/Change

Student Materials

Equation Quest: Lesson 39
Buccaneer Problems: Lesson 39
Jolly Roger Review: Lesson 39
Treasure Map

Tutor Materials

Cubes
Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

Today, we'll learn how to solve different types of number sentences.

Look here.

Point to A.

6 plus 2 is *the same as* blank plus 1. Say that with me.

6 plus 2 is the same as blank plus 1.

In this number sentence, there's a plus sign on both sides. There's a plus sign here (point) **and a plus sign here** (point)**. That's okay. You just need to think about balancing both sides of the equal sign. Let's do this problem with the cubes.**

On this side, you have 6 (place 6 cubes of one color) **and 2** (place 2 cubes of another color)**.**

On that side, you have X (place X) **plus 1** (place 1 cube)**.**

Now, on this side, we can add together 6 cubes and 2 cubes. What's 6 plus 2?

8.

So, there are 8 cubes on this side (point)**.**

On that side, we want to isolate the variable. We have this 1 cube. How can I move this 1 cube? I can subtract 1 (subtract 1 cube)**. But, if I subtract 1 cube from that side** (point)**, then I subtract 1 cube from this side** (subtract 1 cube)**.**

Now, we have 7 cubes is *the same as* X. What is X *the same as*?

7.

Yes. X is *the same as* 7.

Let's use 7 for X in the number sentence. 6 plus 2 is *the same as* 7 plus 1. Does that make sense?

Yes!

6 plus 2 is 8. 7 plus 1 is 8. The sides are the same!

Look at this problem. 5 plus 4 is the same as 6 plus blank.

Point to B.

Let's use the cubes. Look at this side. Place 5 cubes and 4 cubes.

(Places cubes.)

Now, look at that side. You have an X and 6 cubes.

(Places X and cubes.)

Time to isolate the X.

You have how many cubes on this side (point)**?**

9.

There are 9 cubes here. Look at that side (point)**. You need to isolate the X. How can you isolate the X?**

Subtract 6 cubes.

If you subtract 6 cubes from that side (point)**, how many cubes do you subtract from this side** (point)**?**

6.

Subtract 6 cubes from both sides.

(Subtracts cubes.)

So, X is *the same as* what?

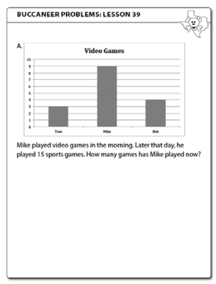
3.

Let's plug that in and see if it works. 5 plus 4 is *the same as* 6 plus 3. Does that make sense?

Yes!

Great job using the cubes to isolate the X. Even if there are plus or minus signs on both sides, we still do the same thing. We balance the sides of the equal sign!

3: Buccaneer Problems



Let's review. What's the Total equation?

P1 + P2 = T.

Good. Say it again.

P1 + P2 = T.

What's the Difference equation?

G – L = D.

Now say the Difference equation again.

G – L = D.

Yesterday we talked about Change problems. Change problems tell us a starting amount. Then, something happens to increase or decrease the amount we started with. What are the two Change equations?

ST + C = E and ST – C = E.

Great job! Say the two Change equations again.

ST + C = E and ST – C = E.

Let's solve some word problems!

Point to A.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

Yes.

What do we need to do?

Number it.

(Student numbers graph.)

<u>*Solution to Problem A:*</u>

Mike played video games in the morning. Later that day, he played 15 sports games. How many games has Mike played now?

Problem Type:	*Change, increase*
Relevant Info:	*ST = 9; C = 15 E = X*
Number Sentence:	*9 + 15 = X*
Answer:	*X = 24 games*

What's the first thing we do every time we see a word problem?

RUN through it!

Follow Activity Guide: RUN.
When you get to the "N" follow script below.
Display "What Do You Ask Yourself?" poster.

Remember, you have to think hard to name the problem type. Look at this poster (point)**. This will help us to name the problem type.**

If you think it's a Total problem, what do you ask yourself? (Point.)

Are parts put together into a total?

If you think it's a Difference problem, what do you ask yourself? (Point.)

Are two amounts compared for a difference?

If you think it's a Change problem, what do you ask yourself? (Point.)

Is there a starting amount that increases or decreases to a new amount?

The RUN poster helped us organize our paper so we can solve the problem! We said this is a Change problem. (Point to C.) **Now we use the Change poster to solve it.**

Follow Activity Guide: Change.

Great job solving that Change problem. The last thing we need to do is check and see if our answer makes sense. Does the answer make sense? Why?

(Student explains.)

Good job! Let's try another one!

Point to B.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

Solution to Problem B:

There were some puppies at the pet store. A family came to the pet store and bought 1 puppy. Now, there are 4 puppies left. How many puppies were at the pet store to start with?

Problem Type:	*Change, decrease*
Relevant Information:	*ST = X; C = 1; E = 4*
Number Sentence:	*X – 1 = 4*
Answer:	*X = 5 puppies*

What's the first thing we do every time we see a word problem?

RUN through it!

Follow Activity Guide: RUN.
When you get to the "N" follow script below.
Display "What Do You Ask Yourself?" poster.

Remember, you have to think hard to name the problem type. Look at this poster (point)**. This will help us to name the problem type.**

If you think it's a Total problem, what do you ask yourself? (Point.)

Are parts put together into a total?

If you think it's a Difference problem, what do you ask yourself? (Point.)

Are two amounts compared for a difference?

If you think it's a Change problem, what do you ask yourself? (Point.)

Is there a starting amount that increases or decreases to a new amount?

The RUN poster helped us organize our paper so we can solve the problem! We said this is a Change problem. (Point to C.) **Now we use the Change poster to solve it.**

Follow Activity Guide: Change.

Great job solving that Change problem. The last thing we need to do is check and see if our answer makes sense. Does the answer make sense? Why?

(Student explains.)

Point to C.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

Solution to Problem C:

> *Bess had a party. She invited 2 fewer boys than girls to the party. She invited 15 boys. How many girls did she invite?*
> *Problem Type: Difference*

Relevant Information: *G = X; L = 15; D = 2*
Number Sentence: *X – 15 = 2*
Answer: *X = 17 girls*

Follow Activity Guide: RUN.
When you get to the "N" follow script below.
Display "What Do You Ask Yourself?" poster.

Remember, you have to think hard to name the problem type. Look at this poster (point)**. This will help us to name the problem type.**

If you think it's a Total problem, what do you ask yourself? (Point.)

Are parts put together into a total?

If you think it's a Difference problem, what do you ask yourself? (Point.)

Are two amounts compared for a difference?

If you think it's a Change problem, what do you ask yourself? (Point.)

Is there a starting amount that increases or decreases to a new amount?

The RUN poster helped us organize our paper so we can solve the problem! We said this is a Difference problem. (Point to D.) **Now we use the Difference poster to solve it.**

Follow Activity Guide: Difference.

Great job solving that Difference problem. The last thing we need to do is check and see if our answer makes sense. Does the answer make sense? Why?

(Student explains.)

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

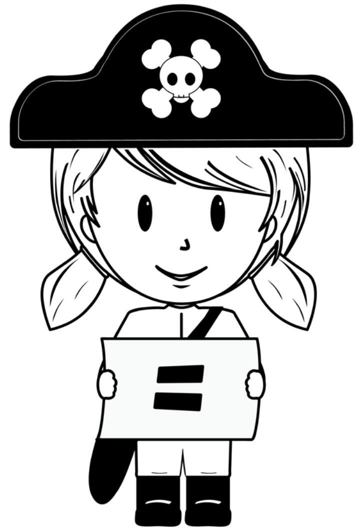
Treasure Map

Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Lesson 40



ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Total and Change with 2 changes
4. Shipshape Sorting
5. Jolly Roger Review

Materials

Posters

Counting Up
RUN/Total
Difference/Change

Student Materials

Equation Quest: Lesson 40
Buccaneer Problems: Lesson 40
Jolly Roger Review: Lesson 40
Treasure Map

Tutor Materials

Cubes
Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

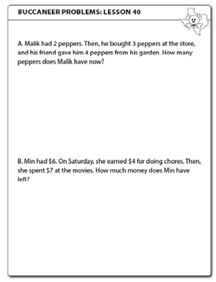
Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

Follow Activity Guide: Equation Quest – Multi-Operational.

3: Buccaneer Problems


BUCCANEER PROBLEMS: LESSON 40

A. Malik had 2 peppers. Then, he bought 3 peppers at the store, and his friend gave him 4 peppers from his garden. How many peppers does Malik have now?

B. Min had $6. On Saturday, she earned $4 for doing chores. Then, she spent $7 at the movies. How much money does Min have left?

Before we get started today, let's talk about when you solve word problems. We solve word problems when we meet. When else do you solve word problems?

(Student.)

That's right! You solve word problems with your math teacher in class, when you take a test, and when you do your homework. It's important to use your Pirate Math Equation Quest skills whenever you solve a word problem. Pirate Math Equation Quest can help you solve any word problem!

When can you use your Pirate Math Equation Quest skills?

(Student.)

That's right! Be sure to use your Pirate Math Equation Quest skills when you see a word problem anywhere!

Let's review. What's the Total equation?

P1 + P2 = T.

Good. Say it again.

P1 + P2 = T.

What's the Difference equation?

G – L = D.

Now say the Difference equation again.

G – L = D.

Change problems tell us a starting amount. Then, something happens to increase or decrease the amount we started with. What are the two Change equations?

ST + C = E and ST – C = E.

Great job! Say the two Change equations again.

ST + C = E and ST – C = E.

Let's solve some word problems!

Point to A.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>*Solution to Problem A:*</u>

Malik had 2 peppers. Then, he bought 3 peppers at the store, and his friend gave him 4 peppers from his garden. How many peppers does Malik have now?

Problem Type:	*Change, increase, increase*
Relevant Info:	*ST = 2; C = + 3; C = + 4; E = X*
Number Sentence:	*2 + 3 + 4 = X*
Answer:	*X = 9 peppers*

What's the first thing we do every time we see a word problem?

RUN through it!

What does R stand for?

Read the problem.

Let's read it!

Read the problem.

What does U stand for?

Underline the label and cross out irrelevant information.

Let's do that now.

Underline the label. Monitor that the student does this as well.

Is there irrelevant information? Are all the numbers about the label?

There is no irrelevant information. All the numbers are about the label.

What does N stand for?

Name the problem type.

Let's name the problem type. Is this a Total, Difference, or Change problem? Think about the problem.

Display "What Do You Ask Yourself?" poster.

If you think it's a Total problem, what do you ask yourself? (Point.)

Are parts put together into a total?

If you think it's a Difference problem, what do you ask yourself? (Point.)

Are two amounts compared for a difference?

Yes. Let's think whether two amounts compared for a difference. What helps you figure out if two amounts are compared for a difference?

A compare sentence.

If you think it's a Change problem, what do you ask yourself? (Point.)

Is there a starting amount that increases or decreases to a new amount?

Listen as I read the question again. Let's think about what the question is asking.

Repeat question.

This question asks, "How many peppers does Malik have now?" Let's ask ourselves: Is there a starting amount that increases or decreases to a new amount?

Yes.

The answer is yes. This is a Change problem. Write C to remind me it's a Change problem.

(Writes.)

Now let's figure out if it's an increase or decrease. What happens in the story to change the amount of peppers Malik has?

He bought 3.

Yes. He bought 3. Look carefully though. Another thing happened in this story to change the start amount. What is it?

His friend gave him 4.

That's right. In this problem, there are two changes! We have to figure out if these changes increased or decreased the starting amount. What happened in the story first?

He bought 3.

Is that an increase or decrease?

Increase.

Good. I put a plus sign in front of the C. We're not done, though. What happened next?

His friend gave him 4.

Is that an increase or decrease?

Increase.

Good. That's another change. I write another plus C next to the problem. This reminds me there are two changes, and both changes increase Malik's amount of peppers.

Write plus C plus C on my paper. This reminds me it's a Change problem with two changes.

(Writes.)

Let's review. This is a Change problem because a starting amount, Malik's peppers, changes to a new end amount. So far, we've solved problems where only one thing happens to change the starting amount. In this problem, two things happen to change the starting amount. Let's look at the Change poster.

Display Change poster.

Here are the six steps for a Change problem. Step 1 says to write the Change equation.

We write ST plus C is the same as E or ST minus C is the same as E. Our Change equation sets up a problem when there's only one change. In this problem, though, there are two changes. Our Change equation should look like this:

Write ST + C + C = E.

We put two changes in the equation so we get the right end amount.

Step 2: "Find ST." What's Malik's starting amount of peppers?

2.

2 is the starting amount of peppers. So, Check off 2 and write 2 under ST.

(Writes.)

Step 3: "Find C." Remember, this problem talks about two changes. So, let's think about the first change.

Malik bought 3 peppers. So, what's the first change?

3.

Very good! First, Malik bought 3 peppers. Check off 3 in the story and write 3 under the first C.

(Writes.)

There's still another C. So we can't move to Step 4 yet. What's the other change?

4.

Yes! Then Malik's friend gave him 4 peppers. The other change is 4. Check off 4 in the story, and I write 4 under the other C.

(Writes.)

Now we can move to Step 4. "Find E." What's the end amount of peppers?

We don't know.

That's right. The question asks, "How many peppers does Malik have now?" We have to find the end amount of peppers. Write X underneath E.

(Writes.)

Sometimes Change problems ask us to put two changes in the equation. These are still Change problems, because there's still a starting amount that changes. It just changes more than once.

When a problem has extra numbers, it's easy to think there's irrelevant information. Don't be fooled. To decide if information is important or irrelevant, you must think carefully about the problem. Figure out if the starting amount changes just one time or more than one time. If all the numbers are about the label (point), **then there's more than one change. All of the numbers are important.**

Don't let irrelevant information trick you. You have to figure out which numbers are important information. In this problem, there is no irrelevant

information. All of the numbers (point to each number) **are about the label, so all of the numbers are important.**

Let's go to Step 5. What's Step 5?

Write the signs.

Good. What math signs do we use to complete our number sentence?

+ and + and =.

(Writes.)

2 stands for the starting amount. 3 stands for the first change. 4 stands for the next change. X stands for end. We had to be sure that we put the changes in same order we see them in the problem. He bought peppers first, so that's the first change. His friend gave him some second, so that's the next change.

Does this look like a number sentence we know how to solve?

Yes/No.

Don't let the number sentence trick you. We solved some like this when we solved Total problems with three parts.

X is at the end, so we solve it! We add to find X.

Let's read the number sentence together.

Read number sentence aloud with student.

Let's find X!

Let's look at the first sign. Is this a plus or a minus sign?

Plus sign. We add.

Right. The plus sign tells us to add. I add 2 plus 3. What's 2 plus 3?

5.

Good. I write 5 underneath 2 plus 3 to remind me it's 5. I'm not finished though. What do we do next to find X?

Add 5 + 4.

Good. We know 2 plus 3 is the same as 5. We add 5 plus 4 to find X. What number does X stand for in 2 plus 3 plus 4 is the same as X?

9.

Right! You said 2 plus 3 is the same as 5. Then, 5 plus 4 is the same as 9. X is the same as 9. Let's put 9 in the problem where X.

Write 2 + 3 + 4 = 9, and then X = 9.

Right. 2 plus 3 plus 4 is the same as 9. That makes sense. So X is the same as 9. Great! In word problems, our answer must have a number and a label. We know the number answer is 9. Now we figure out what the label for 9 should be. Think about what the problem is mostly about. Start by looking in the question sentence. Look at what we underlined. What did we underline in the question?

Peppers.

Right! The problem is mostly about peppers, so that's the best label. X stands for the peppers Malik has at the end.

Write peppers next to 9.

Let's see if the answer makes sense. "Malik had 2 peppers. Then, he bought 3 peppers at the store, and his friend gave him 4 peppers from his garden. How many peppers does Malik have now?"

Did we answer the question, "How many peppers does he have now?

Yes.

We did because he has 9 peppers. We have a number and a label in the answer.

Let's review. This Change problem tells us about two changes. Two things happened to change the starting amount. We have to be careful when we

see an extra number in a problem. Sometimes the extra number is irrelevant information. But other times, the extra number is important information, like in the problem we just solved. So be careful. You have to think hard to decide whether a number is irrelevant or important.

Great job solving that Change problem. Let's try another one!

Point to B.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>*Solution to Problem B:*</u>

Min had \$6. On Saturday, she earned \$4 for doing chores. Then, she spent \$7 at the movies. How much money does Min have left?

Problem Type:	*Change, increase, decrease*
Relevant Info:	*ST = 6; C = + 4; C = – 7; E = X*
Number Sentence:	*6 + 4 – 7 = X*
Answer:	*X = \$3*

Follow Activity Guide: RUN.
When you get to the "N" follow script below.
Display "What Do You Ask Yourself?" poster.

If you think it's a Total problem, what do you ask yourself? (Point.)

Are parts put together into a total?

If you think it's a Difference problem, what do you ask yourself? (Point.)

Are two amounts compared for a difference?

If you think it's a Change problem, what do you ask yourself? (Point.)

Is there a starting amount that increases or decreases to a new amount?

Put up a T for Total, D for Difference, or C for Change.

Give student 10 seconds to decide.

Read problem to student. If student says C, continue below. If student does not say C, assist them using script language to identify the correct problem type. Then continue below.

You said Change, you're right!

Follow Activity Guide: Change.

The last thing we need to do is check and see if our answer makes sense. Does the answer make sense? Why?

(Student explains.)

Let's do one more problem.

Point to C.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>*Solution to Problem C:*</u>

Gina spent $34 at the post office. She spent $19 to mail packages. Gina spent the rest on stamps. How much did Gina spend on stamps?

Problem Type:	*Total*
Relevant Info:	*P1 = $19; P2 = X; T = $34*
Number Sentence:	*$19 + X = $34*
Answer:	*X = $15*

Follow Activity Guide: RUN.
Follow Activity Guide: Total.

The last thing we need to do is check and see if our answer makes sense. Does the answer make sense? Why?

(Student explains.)

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

Let's count the number of coins you earned today and mark them on your Treasure Map.

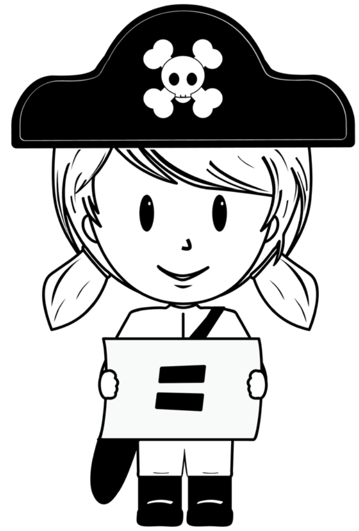
Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Lesson 41

ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Change with 1 and 2 changes
4. Shipshape Sorting
5. Jolly Roger Review



Materials

Posters

Counting Up
RUN/Total
Difference/Change

Student Materials

Equation Quest: Lesson 41
Buccaneer Problems: Lesson 41
Jolly Roger Review: Lesson 41
Treasure Map

Tutor Materials

Cubes
Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

Follow Activity Guide: Equation Quest – Multi-Operational.

3: Buccaneer Problems

Before we get started today, let's talk about when you solve word problems. We solve word problems when we meet. When else do you solve word problems?

(Student.)

That's right! You solve word problems with your math teacher in class, when you take a test, and when you do your homework. It's important to use your Pirate Math Equation Quest skills whenever you solve a word problem. Pirate Math Equation Quest can help you solve any word problem!

When can you use your Pirate Math Equation Quest skills?

(Student.)

That's right! Be sure to use your Pirate Math Equation Quest skills when you see a word problem anywhere!


BUCCANEER PROBLEMS: LESSON 41

A. Dan had $6 in his piggy bank. Then, he got $5 from the tooth fairy. He also earned $10 mowing lawns. How much money is in his piggy bank now?

B. Jean ate 5 strawberries. Her dad gave her some more strawberries. She ate 8 strawberries in all. How many strawberries did her dad give her?

Let's review. What's the Total equation?

P1 + P2 = T.

Good. Say it again.

P1 + P2 = T.

What's the Difference equation?

G – L = D.

Now say the Difference equation again.

G – L = D.

Change problems tell us a starting amount. Then, something happens to increase or decrease the amount we started with. What are the two Change equations?

ST + C = E and ST – C = E.

Great job! Say the two Change equations again.

ST + C = E and ST – C = E.

Let's solve some word problems!

Point to A.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>*Solution to Problem A:*</u>

Dan had $6 in his piggy bank. Then, he got $5 from the tooth fairy. He also earned $10 mowing lawns. How much money is in his piggy bank now?

Problem Type:	*Change, increase, increase*
Relevant Info:	*ST = 6; C = + 5; C = + 10; E = X*
Number Sentence:	*6 + 5 + 10 = X*
Answer:	*X = $21*

What's the first thing we do every time we see a word problem?

RUN through it!

Follow Activity Guide: RUN.
Follow Activity Guide: Change.

The last thing we need to do is check and see if our answer makes sense. Does the answer make sense? Why?

(Student explains.)

Point to B.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

Solution to Problem B:

Jean ate 5 strawberries. Her dad gave her some more strawberries. She ate 8 strawberries in all. How many strawberries did her dad give her?

Problem Type:	*Change, increase*
Relevant Info:	*ST = 5; C = X; E = 8*
Number Sentence:	*5 + X = 8*
Answer:	*X = 3 strawberries*

Follow Activity Guide: RUN.
Follow Activity Guide: Change.

The last thing we need to do is check and see if our answer makes sense. Does the answer make sense? Why?

(Student explains.)

Point to C.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

Solution to Problem C:

Thomas had 24 M&Ms and ~~12 Skittles~~. At lunch, Thomas ate some M&Ms. If he has 6 M&Ms left, how many did he eat?

Problem Type:	*Change, decrease*
Relevant Info:	*ST = 24; C = X; E = 6*
Irrelevant Info:	~~*12 Skittles*~~

Number Sentence: *$24 - X = 6$*
Answer: *$X = 18$ M&Ms*

Follow Activity Guide: RUN.
Follow Activity Guide: Change.

The last thing we need to do is check and see if our answer makes sense. Does the answer make sense? Why?

(Student explains.)

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

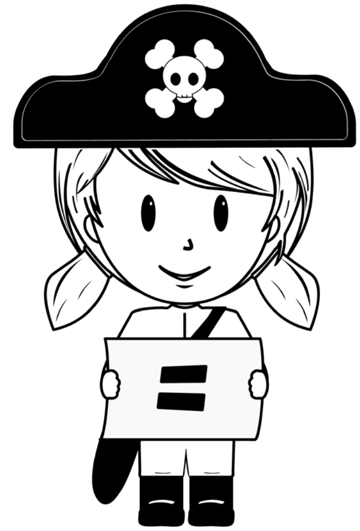
Treasure Map

Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Lesson 42



ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Change with 1 and 2 changes
4. Shipshape Sorting
5. Jolly Roger Review

Materials

Posters

Counting Up
RUN/Total
Difference/Change

Student Materials

Equation Quest: Lesson 42
Buccaneer Problems: Lesson 42
Jolly Roger Review: Lesson 42
Treasure Map

Tutor Materials

Cubes
Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

Follow Activity Guide: Equation Quest – Multi-Operational.

3: Buccaneer Problems

Before we get started today, let's talk about when you solve word problems. We solve word problems when we meet. When else do you solve word problems?

(Student.)

That's right! You solve word problems with your math teacher in class, when you take a test, and when you do your homework. It's important to use your Pirate Math Equation Quest skills whenever you solve a word problem. Pirate Math Equation Quest can help you solve any word problem!

When can you use your Pirate Math Equation Quest skills?

(Student.)

That's right! Be sure to use your Pirate Math Equation Quest skills when you see a word problem anywhere!

Let's review. What's the Total equation?

$P1 + P2 = T$.

Good. Say it again.

$P1 + P2 = T$.

What's the Difference equation?

$G - L = D$.

Now say the Difference equation again.

$G - L = D$.

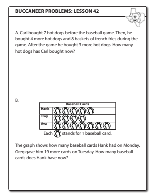
Change problems tell us a starting amount. Then, something happens to increase or decrease the amount we started with. What are the two Change equations?

ST + C = E and ST – C = E.

Great job! Say the two Change equations again.

ST + C = E and ST – C = E.

Point to A.


BUCCANEER PROBLEMS: LESSON 42

A. Carl bought 7 hot dogs before the baseball game. Then, he bought 4 more hot dogs and 8 baskets of french fries during the game. After the game he bought 3 more hot dogs. How many hot dogs has Carl bought now?

B.

Baseball Cards

Hank
Troy
Ava

Each stands for 1 baseball card.

The graph shows how many baseball cards Hank had on Monday. Greg gave him 19 more cards on Tuesday. How many baseball cards does Hank have now?

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>*Solution to Problem A:*</u>

Carl bought 7 hot dogs before the baseball game. Then he bought 4 more hot dogs and ~~8 baskets of french fries~~ during the game. After the game he bought 3 more hot dogs. How many hot dogs did Carl buy?

Problem Type:	*Change, increase, increase*
Relevant Info:	*ST = 7; C = + 4; C = + 3; E = X*
Irrelevant Info:	~~*8 baskets of french fries*~~
Number Sentence:	*7 + 4 + 3= X*
Answer:	*X = 14 hot dogs*

What's the first thing we do every time we see a word problem?

RUN through it!

Follow Activity Guide: RUN.
Follow Activity Guide: Change.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?
(Student explains.)

Point to B.

Whenever we see a word problem, we first have to check if there is a graph or a

table. Is there a graph or a table?

Yes.

What do we need to do?

Number it.

(Student numbers graph.)

What's the first thing we do every time we see a word problem?

RUN through it!

<u>Solution to Problem B:</u>

> *The graph shows how many baseball cards Hank had on Monday. Greg gave him 9 more cards on Tuesday. How many baseball cards does Hank have now?*
>
> *Problem Type:* *Change, increase*
> *Relevant Info:* *ST = 5; C = 9; E = X*
> *Number Sentence:* *5 + 9 = X*
> *Answer:* *X = 14 baseball cards*

Follow Activity Guide: RUN.
Follow Activity Guide: Change.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Point to C.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

What's the first thing we do every time we see a word problem?
RUN through it!

<u>Solution to Problem C:</u>

> *Kara had some money in her piggy bank. For her birthday she got $15 and 3*

~~games~~. Now she has $32 in her piggy bank. How much money did Kara have to start with?

Problem Type:	*Change, increase*
Relevant Info:	*ST = X; C = 15; E = 32*
Irrelevant Info:	*~~3 games~~*
Number Sentence:	*X + 15 = 32*
Answer:	*X = $17*

Follow Activity Guide: RUN.
Follow Activity Guide: Change.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

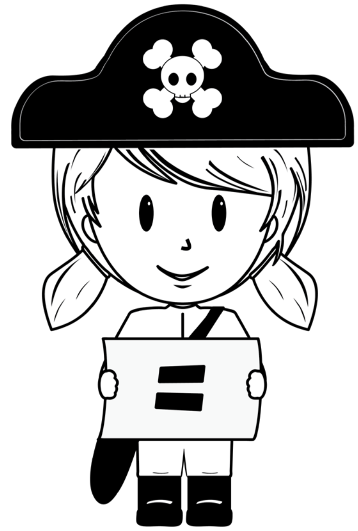
Treasure Map

Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

Lesson 43



ACTIVITIES

1. Math Fact Flash Cards
2. Equation Quest
3. Buccaneer Problems
   Total, Difference, and Change
4. Shipshape Sorting
5. Jolly Roger Review

Materials

Posters

Counting Up
RUN/Total
Difference/Change

Student Materials

Equation Quest: Lesson 43
Buccaneer Problems: Lesson 43
Jolly Roger Review: Lesson 43
Treasure Map

Tutor Materials

Cubes
Math Fact Flash Cards
Timer
Sorting Cards
Sorting Mat
Gold coins
Treasure box

1: Math Fact Flash Cards

Use Activity Guide: Math Fact Flash Cards.

2: Equation Quest

Let's get started with our Equation Quest! What does the equal sign mean?

The same as.

That's right. The equal sign means *the same as* (point)**.**

Follow Activity Guide: Equation Quest – Multi-Operational.

3: Buccaneer Problems

Starting with Lesson 43, fade out the posters for the students. Once you feel that students are ready, start to teach the lessons without the posters to see if they can remember the steps.

Before we get started today, let's talk about when you solve word problems. We solve word problems when we meet. When else do you solve word problems?

(Student.)

That's right! You solve word problems with your math teacher in class, when you take a test, and when you do your homework. It's important to use your Pirate Math Equation Quest skills whenever you solve a word problem. Pirate Math Equation Quest an help you solve any word problem!

When can you use your Pirate Math Equation Quest skills?

(Student.)

That's right! Be sure to use your Pirate Math Equation Quest skills when you see a word problem anywhere!

Let's review. What's the Total equation?

P1 + P2 = T.

Good. Say it again.

P1 + P2 = T.

What's the Difference equation?

G – L = D.

Now say the Difference equation again.

G – L = D.

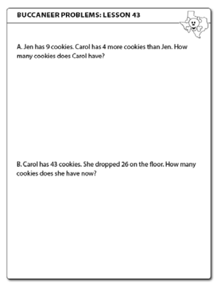
Change problems tell us a starting amount. Then, something happens to increase or decrease the amount we started with. What are the two Change equations?

ST + C = E and ST – C = E.

Great job! Say the two Change equations again.

ST + C = E and ST – C = E.

Point to A.


BUCCANEER PROBLEMS: LESSON 43

A. Jen has 9 cookies. Carol has 4 more cookies than Jen. How many cookies does Carol have?

B. Carol has 43 cookies. She dropped 26 on the floor. How many cookies does she have now?

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>*Solution to Problem A:*</u>

Jen has 9 cookies. Carol has 4 more cookies than Jen. How many cookies does Carol have?

Problem Type:	*Difference*
Relevant Info:	*G = X; L= 9; D = 4*
Number Sentence:	*X – 9 = 4*
Answer:	*X = 13 cookies*

What's the first thing we do every time we see a word problem?

RUN through it!

Follow Activity Guide: RUN.
Follow Activity Guide: Difference.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Point to B.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>Solution to Problem B:</u>

Carol has 43 cookies. She dropped 26 on the floor. How many cookies does she have now?

Problem Type:	*Change, decrease*
Relevant Info:	*ST = 43; C = 26; E = X*
Number Sentence:	*43 – 26 = X*
Answer:	*X = 17 cookies*

Follow Activity Guide: RUN.
Follow Activity Guide: Change.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Point to C.

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

No.

<u>Solution to Problem C:</u>

There are 15 chocolate and oatmeal cookies in the cookie jar. If there are 10 chocolate cookies, how many oatmeal cookies are there?

Problem Type:	*Total*
Relevant Info:	*P1 = 10; P2 = X; T = 15*
Number Sentence:	*10 + X = 15*
Answer:	*X = 5 oatmeal cookies*

Follow Activity Guide: RUN.
Follow Activity Guide: Total.

The last thing we need to do is check to see if our answer makes sense. Does our answer make sense? Why?

(Student explains.)

Let's look at the problems we worked on today. All the problems were about cookies. But the problems were different problem types.

Problem A (point) **is a Difference problem. The problem compared Carol and Jen's cookies when it told us Carol had more than** (emphasize *more than*) **Jen. The words *more* and *than*** (point) **helped us decide it was a Difference problem.**

Problem B (point) **is a Change problem. Carol's amount of cookies changed when she dropped some on the floor.**

Problem C (point) **is a Total problem. The problem put together chocolate and oatmeal cookies when it told us there were 15 oatmeal and chocolate cookies in the cookie jar.**

Every time you name the problem type, you have to think: Is this a Total, Difference, or Change problem? When you name the problem type, look at the question first. If the question doesn't give you a clue about the problem type, look at the whole story. Picture it in your head. Think: Is this a Total, Difference, or Change problem? Ask yourself our questions to help decide.

You earn a treasure coin!

4: Shipshape Sorting

Follow Activity Guide: Shipshape Sorting.

5: Jolly Roger Review

Use Activity Guide: Jolly Roger Review.

Treasure Map

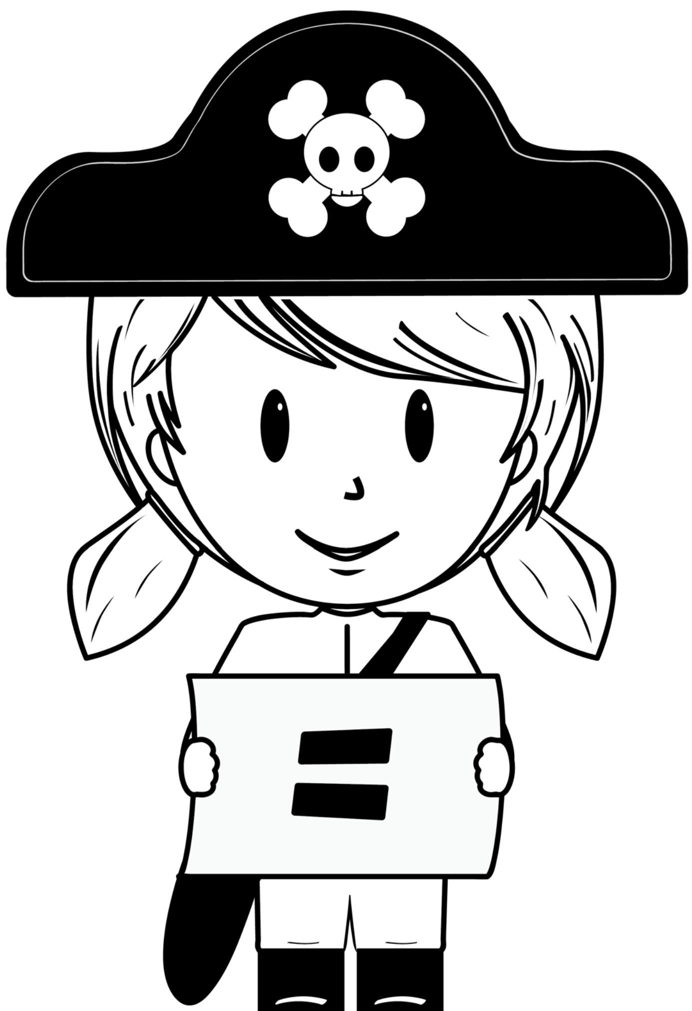
Let's count the number of coins you earned today and mark them on your Treasure Map.

Count coins.

Go ahead and color __ places on your Treasure Map! (Student colors.)

*****Note: There are no Lesson Guides for Lessons 44-51 because these lessons review already presented content. At this point in the intervention, tutors are familiar with the content that will be presented in the final 8 lessons. Lessons 44-51 continue to review Total, Difference, and Change problems. For additional guidance, tutors can refer to the Activity Guides.***

Activity Guides



Math Fact Flash Cards
ACTIVITY GUIDE

The first activity we'll do every day is Math Fact Flash Cards.

Display Math Fact Flash Cards.

Look at the problem, and tell me the answer as quickly as you can. If your answer is correct, I'll put it in a pile on the table. If your answer is incorrect, I will say, "count up," and you'll do the problem again by counting up. You can use the Counting Up Addition and Subtraction poster to help you. I'll put the card in the pile once you answer correctly.

You'll have 1 minute to answer as many flash cards as you can. Are you ready?

Show Math Fact Flash Cards for 1 minute.

Good! Let's count the cards in the pile.

Count cards with student.

You answered __ Math Fact Flash Cards correctly! Let's try to beat that score. You have 1 minute. Go!

Show Math Fact Flash Cards for 1 minute.

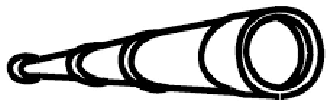
Let's count the cards in the pile.

Count cards with student.

You answered __ Math Fact Flash Cards correctly. You beat/did not beat your score. Now, we'll graph your higher score for today on your graph.

Help student color graph.

Every day we'll warm up our brain with these flash cards. As you get better in math, your graph will get higher and higher!



Equation Quest ACTIVITY GUIDE

It's time to solve some equations!

When we are solving an addition/subtraction problem, we can follow a few steps to help us solve any equation.

Can you remind me what the equal sign means?

The same as.

Exactly! The equal sign means the same as. Whenever we see the equal sign, what do we need to do?

Make the sides the same.

That's right. The equal sign acts as a balance, so what is on one side of the equal sign (point) **must be the same as what is on the other side of the equal sign** (point)**.**

We need to balance the sides and find the missing information.

Now let's read the number sentence.

(Reads number sentence, saying "the same as" in place of "equals.")

The first step to solving an equation is to draw a line down from the equal sign.

(Draws line coming down from the equal sign.)

This line (point) **helps us remember to balance the two sides of the equation.**

The second step is to isolate the X. Say that with me.

Isolate the X.

Say it again with me.

Isolate the X.

What does it mean to isolate the X?

To get X by itself.

That's right.

When we solve an equation, we need to isolate the X, or get the X by itself.

What do we need to do to see the X?

Circle the X.

That's right! We need to circle the X.

We circle the X so it's easy to see and so we remember that we need to get X by itself.

(Circles X.)

Now let's isolate the X.

Remind me again, what does it mean to isolate the X?

To get X by itself.

We drew a line down from the same as sign and we circled the X. Now we can do what?

Isolate the X.

Great job! Let's solve our equation by isolating the X!

Use the language in the tables that follow to assist students in solving the equations. The first table includes language for Total problems and Change increase problems. The second table includes language for Difference problems and Change decrease problems. The third table includes language for Multi-Operational problems.

TOTAL PROBLEMS; CHANGE INCREASE PROBLEMS	
<u>If X is P1 or P2</u> **We want to get the X by itself on this side** (point) **of the equal sign. To do that, I need to move** __ (point to P1 or P2, whichever has the number) **to that side of the equal sign. We want to make this side zero.** **If you have** ____ (point to part number) **and want to get zero, you can subtract** ___ (say part number)**. Because** __ (say part number) **minus** ___ (say part number) **is what?** 0. (Writes, subtracts below the number, and crosses out the numbers.) **Now we need to balance the sides of the equal sign, so we have to do the same thing to the other side.** **For this problem, we subtracted** ___ (say part number and point to the left side of the equal sign) **from this side of the equal sign**, **so we have to subtract** ___ (say part number and point to the right side of the equal sign) **from this side of the equal sign.** (Writes minus ___ and subtracts number.) **We isolated the X. X is the same as ___.**	*<u>If X is T</u>* **We want to get the X by itself on this side** (point) **of the equal sign.** **Is the X by itself?** Yes. **Exactly, the X already is by itself on this side** (point) **of the equal sign, so you just solve.** **Do you add or subtract?** Add. **That's right. The X already is isolated because it's T, so you can just add P1 and P2 to find T.** (Adds.) **X is the same as ___. Are the two sides the same?** Yes.

DIFFERENCE PROBLEMS; CHANGE DECREASE PROBLEMS		
If X is G: Add **We want to get the X by itself on this side** (point) **of the equal sign. To do that, you move** __ (point to L) **to that side of the equal sign. This is not plus** __ (say L)**. It's minus** __(say L and point to the minus sign)**.** **If you move the** __(say L) **to that side of the equal sign** (point)**, we need to add** __ (say L)**. We add** __ (say L) **because minus** ___ (say L) **and plus** __ (say L) **is the same as zero.** (Writes, adds below the number, and crosses out the numbers.) **And if you added** __ **to this side** (point)**, what do you have to do to that side?** Add __. (Adds.) **We isolated the X. X is the same as** ___**.**	*If X is L: Subtract* **We want to get the X by itself on this side** (point) **of the equal sign. Because this problem has a minus sign, we need to figure out how to subtract from** ___ (say G) **to make the sides the same. Let's use some cubes to help us out.** **We have**___(point to D) **on that side, so subtract cubes from** ___(say G) **until you get to** ___ (say D). (Subtracts cubes.) **How many cubes did you subtract?** (Answers.) **So,** __ (say G) **minus** __ (say D) **is the same as** __**.** **X is the same as** ___**.** **Are the two sides the same?** Yes.	*If X is D: Subtract* **We want to get the X by itself on this side** (point) **of the equal sign.** **Is the X by itself?** Yes. **The X is by itself on that side** (point) **of the equal sign, so we can go ahead and solve.** **Do you add or subtract?** Subtract. **That's right. The X is isolated because it's D, so you can just subtract G minus L to find D.** (Subtracts.) **X is the same as** ___**.** **Are the two sides the same?** Yes.

MULTI-OPERATIONAL PROBLEMS

Let’s look at the left side of the equal sign. Are there any numbers we can add/subtract?

(Responds and adds/subtract when applicable.)

Look at the right side of the equal sign. Are there any numbers we can add/ subtract?

(Responds and adds/subtract when applicable.)

Now that you added/subtracted the numbers, let’s look at our equation. Does this look like an equation we know how to solve?

Yes.

Can you find the X?

(Points to X.)

We need to isolate the X.

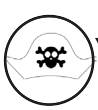
Based on the problem type and the location of X, follow the appropriate steps provided in the previous tables for solving the equations.

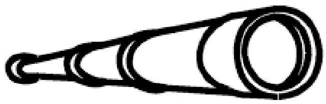
Read number sentence aloud with student.

Let’s go back and review what we did.

Review the same as sign, circling the X, and isolating the X aloud with student.

Nice work with Equation Quest!

 **You earn a treasure coin!**



RUN
ACTIVITY GUIDE

Whenever we see a word problem, we first have to check if there is a graph or a table. Is there a graph or a table?

If yes: Number the graph.

If no: Move on to R.

Follow the RUN poster.

What does R stand for?

Read the problem.

Let's read it!

Read the problem or allow the student to read the problem, if time permits.

Great! What does U stand for?

Underline the label and cross out irrelevant information.

First, look at the question sentence to see if it helps with the label. Then let's underline the label.

Let's do that now.

(Writes.)

Before we move to N in RUN, we need to check for irrelevant information. We only use numbers in the problem that tell us about ___ (fill in blank with label)**. A number that tells us about other things is irrelevant information. In this problem, do you see any number that is not about our label?**

Yes/No.

If student says no and is correct: **That's right. We need all the numbers in this problem to find our answer.**

If student says no but is incorrect: **One of the numbers in this problem is irrelevant. You don't need one of these numbers** (point) **to find your answer. Look again more carefully and explain to me which number is irrelevant. Do you see a number that is not about our label?**

If student says yes and correct: **Right. The number of** ___ (fill in blank with irrelevant information) **is irrelevant information.**

If student says yes but is incorrect: **Let's look again at this problem.** *Explain why we need each number. As you explain, engage the student by scanning each number and asking if the number is about our label.*

If there is irrelevant information: **So we've figured out that**___ (fill in blank with irrelevant information) **is irrelevant. We don't need this number** (point) **to solve the word problem. What do we do with irrelevant information?**

Cross it out.

Excellent. Let's do that now.

What does N stand for?

Name the problem type.

What's the problem type?

Total/Difference/Change.

Depending on the problem type, skip to appropriate section.

T

TOTAL

Is this a Total problem? Are parts put together into a total?

Yes.

You're right. The problem puts ___ and ___ together. It's a Total problem. The

question wants us to find how many ___ altogether. So we're putting ___ together. What kind of problem puts parts together?

Total.

Right. So what kind of problem is this?

Total.

Good. This is a Total problem because it puts ___ together. We ask ourselves: Are parts put together into a total? If the answer is yes, it's a Total problem. I put T next to the problem to remind me it's a Total problem.

(Writes.)

The RUN poster helped us organize our paper so we can solve the problem! We said this is a Total problem. (Point to T.) **Now we use the Total poster to solve it.**

Follow the Total Poster Activity Guide.

D

DIFFERENCE

Is this a Difference problem? Are two amounts compared for a difference?

Yes.

Right. The problem compares ___ and ___. It's about a difference. I put D next to the problem to remind me it's a Difference problem.

(Writes.)

The RUN poster helped us organize our paper so we can solve the problem! We said this is a Difference problem. (Point to D.) **Now we use the Difference poster to solve it.**

Follow the Difference Poster Activity Guide.

C

CHANGE

Is this a Change problem? Is there a starting amount that increases or

decreases to a new amount?

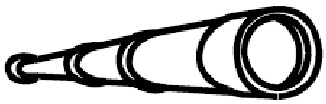
Yes.

You're right. This question gives us/asks for a starting amount. The amount changes to a new end amount. Put C next to the problem to remind me it's a Change problem.

(Writes.)

The RUN poster helped us organize our paper so we can solve the problem! We said this is a Change problem. (Point to C.) **Now we use the Change poster to solve it.**

Follow the Change Poster Activity Guide.



Total
ACTIVITY GUIDE

Let's use the Total poster to solve our word problem!

Let's look at the five steps. What's Step 1?

Write P1 + P2 = T.

Good. We write the Total equation: P1 plus P2 is the same as T. In a Total problem, parts are put together into a total. The Total equation, P1 plus P2 is the same as T, helps us remember how to write our number sentence for a Total problem.

(Writes.)

Step 2: "Find T." Does the problem give us the total or ask us to find the total?

___.

If T is missing:	*If T is a number:*
This problem asks us to find the total. That's what's missing. We have to find T. What should we write under T? X. (Writes.)	**This problem tells us the total is ___. Where should we write ___?** Underneath T. (Writes.)

Step 3: "Find P1 and P2." We need to think about the story and figure out the parts. What are the parts?

___ and ___.

If P1 is a number and P2 is missing:	*If P1 and P2 are numbers:*
This problem tells us about one of the parts and asks us to find the other part. So, ___ is P1. Where should we write ___? Under P1. (Writes and checks off the number.) **The other part is missing. We have to find P2. What should we write under P2?** X. (Writes.)	**This problem tells us P1 and P2. Where should we write ___ and ___?** Underneath P1 and P2. (Writes and checks off the numbers.)

Now let's go to Step 4. What's Step 4?

Write the signs.

Good. What math signs do we need to complete our number sentence?

+ and =.

Does this look like a number sentence we know how to solve?

Yes!

Let's read the number sentence together.

Read number sentence aloud with the student.

Let's solve for X!

After you find X, be sure to label the number answer with the word underlined in the problem. Ask student if he/she "answered the question."

The last thing we need to do is check to see if our answer makes sense. Does this answer make sense? Why?

(Student explains.)

Difference
ACTIVITY GUIDE

Here are the six steps for solving a Difference problem. What's Step 1?

Write G – L = D.

Good. We write the Difference equation: G minus L is the same as D.

(Writes.)

Step 2: "[Compare sentence] and label G and L." A compare sentence usually has the words *more, fewer, less,* or "er" words. Let's find the compare word. What's the compare word?

____.

Good. What's the compare sentence in this problem?

____.

Great job. Let's put brackets around our compare sentence.

(Brackets.)

Now let's label G and L in the word problem.

(Writes.)

Who/What is the amount that's greater?

____.

So we'll write a G above ____..

Who/What is the amount that's less?

____.

So we'll write an L above ___.

Step 3 says, "Find D." Does the compare sentence tell us D or ask us to find D? To help us decide, look at the compare word. Is there a number in front of the compare word?

If D is a number: **Very good. ____ is in front of our compare word, ____. The problem gives us D. The number doesn't tell us G or L. It tells about the difference between G and L. We write ____ under D.** (Writes.)	*If D is missing:* **That's right. There is no number in front of our compare word, ____. This compare sentence asks us to find the difference between G and L. The difference is what is missing. We write X under D.** (Writes.)

Step 4: "Find G and L."

We know that ___ has the amount that's greater and ___has the amount that's less when we look at the compare sentence. Let's review. Who's/What's G?

___.

That's right. ___ is the amount that's greater. To help us remember that, we wrote a G above ___.

(Writes.)

Who's/ What's L?

___.

___ is the amount that's less. To help us remember that, we wrote an L above ___.

(Writes.)

Now, let's think. What numbers go with G and L?

What's the number that's greater?

___.

If G is a number:	If G is missing:
This problem tells us the amount that's greater is ___. Where do we write ___? Underneath G. (Writes and checks off the number.)	**Yes. This problem doesn't tell us the amount that's greater. That's what's missing. We have to find G. What should we write under G?** X. (Writes.)

What's the amount that's less?

___.

If L is a number:	If L is missing:
This problem tells us the amount that's less is ___. Where do we write ___? Underneath L. (Writes and checks off the number.)	**Yes. This problem doesn't tell us the amount that's less. That's what's missing. We have to find L. What should we write under L?** X. (Writes.)

What's Step 5?

Write the signs.

Good. What math signs do we use to complete our number sentence?

– and =.

(Writes.)

___ stands for G. ___ stands for L. ___ stands for Difference. Does this look like

a number sentence we know how to solve?

Yes!

Let's read the number sentence together.

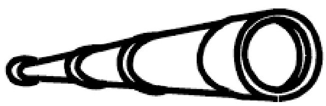
Read number sentence aloud with student.

Let's solve for X!

After you find X, be sure to label the number answer with the word underlined in the problem. Ask student if he/she "answered the question."

The last thing we need to do is check to see if our answer makes sense. Does this answer make sense? Why?

(Student explains.)



Change
ACTIVITY GUIDE

Here are the six steps for a Change problem. What's Step 1?

Write ST +/– C = E.

Good. We write the Change equation: ST plus or minus C is the same as E.

(Writes.)

Is this a Change increase or Change decrease?

Increase/decrease.

Remember, if it's a Change increase, we'll use the plus sign. If it's a Change decrease, we'll use the minus sign.

Step 2: "Find ST." We have to decide the starting amount. Sometimes the problem tells us the starting amount. Other times, the starting amount is X. Look at the problem. Does it tell us the starting amount?

If ST is a number:	*If ST is missing:*
Very good. ____ is the starting amount. The problem gives us ST. We write ____ under ST. (Writes and checks off the number.)	**That's right. In this problem, we have to figure out the starting amount. The starting amount is missing. We write X under ST.** (Writes.)

Step 3: "Find C." We have to decide the change amount. Sometimes the problem will tell us the change amount. Other times, the change amount is X. Look at the problem. Does it tell us about a change?

If C is a number: **Yes! ____ is the change. We write ____ under C.** (Writes and checks off the number.)	*If C is missing:* **Yes. We have to find the change. The change is what's missing. We write X under C.** (Writes.)

Step 4 says: "Find E." We have to decide the end amount. Sometimes the problem tells us the end amount. Other times, the end amount is X. Look at the problem. Does it tell us the end amount?

If E is a number: **Yes! ____ is the end amount. We write ____ under E.** (Writes and checks off the number.)	*If E is missing:* **Yes. We have to find the end amount. The end amount is what's missing. We write X under E.** (Writes.)

What's Step 5?

Write the signs.

Good. What math signs do we use to complete our number sentence?

+/– and =.

(Writes.)

___ stands for ST. ___ stands for C. ___ stands for E. Does this look like a number sentence we know how to solve?

Yes!

Let's read the number sentence together.

Read number sentence aloud with student.

Let's solve for X!

After you find X, be sure to label the number answer with the word underlined in the problem. Ask student if he/she "answered the question."

The last thing we need to do is check to see if our answer makes sense. Does this answer make sense? Why?

(Student explains.)

Shipshape Sorting
ACTIVITY GUIDE

It's time for Shipshape Sorting!

Shipshape Sorting

T	**D**
C	**?**

Display Sorting Cards.
Display Sorting Mat.

I'll show these cards. On each sorting card, there's a word problem. I'll read the word problem aloud. Your job is to decide what type of problem is on the card and to sort the card on this mat (point)**. You don't solve the problem, you decide what type of problem it is.**

<u>For Total lessons:</u> **So far, we've learned about Total problems, so you'll only use the T or Total box** (point) **and the question mark box** (point). **If you think the problem is a Total problem, put the card here** (point). **If it's NOT a Total problem, put the card in this question mark box** (point)**.**

<u>For Difference lessons:</u> **So far, we've learned about Total problems and Difference problems, so you'll use the Total, Difference, and question mark boxes. If you think the problem is a Total problem, put the card here** (point)**. If you think it's a Difference problem, put the card here** (point). **If it's NOT a Total or Difference problem, put the card in the question mark box** (point).

<u>For Change lessons:</u> **Now, we've learned about Total, Difference, and Change problems. If the problem is a Total problem, put the card in the Total box** (point). **If it's a Difference problem, put the card in the Difference box** (point). **If it's a Change problem, put the card in the Change box** (point). **You don't need to use the question mark box because all of the problems are Total, Difference, or Change.**

Do you have any questions? Begin.

Hold up and read cards for 1 minute.

Great! You did a nice job with the sorting. Let's see how many are correct.

Go through cards (answers are on the back of each card).

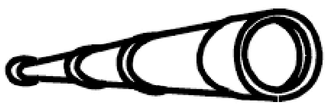
Review up to 3 incorrect cards by saying:

Look at the question. Does the word problem tell a story about two or more amounts combined for a total? Does the word problem tell a story about two amounts being compared? Or does the word problem tell a story about an amount that increases or decreases?

<u>If correct:</u> **That's right.**
<u>If incorrect:</u> **Let's look at this together** (Review problem)**.**

Nice work with Shipshape Sorting!

 **You earn a treasure coin!**



Jolly Roger Review
ACTIVITY GUIDE

The last activity we'll do every day is practice problems. We call these problems our Jolly Roger Review.

Display Jolly Roger Review.

On one side are addition and subtraction problems. On the other side is a word problem.

You have 1 minute to work on the addition and subtraction problems. Go ahead and get started.

Set timer for 1 minute.

Now, you have 2 minutes to work on the word problem. Go ahead.

Set timer for 2 minutes.

GRADING PROCEDURE FOR ADDITION AND SUBTRACTION

__ plus / minus __ is the same as__.

Circle answer if correct.

If incorrect addition: **I start with the greater number, __, and count up the number that's less, __.** (Count up.) **The answer is the last number I said, __. __ plus __ is the same as __.**

If incorrect subtraction: **I start with the minus number, __, and count up to the number you start with, __.** (Count up.) **The answer is the number of fingers I have up, __. __ minus __ is the same as __.**

GRADING PROCEDURE FOR WORD PROBLEM

In this problem, we:

If Total: **show a total when two or more numbers are added together. This problem is a Total problem.**

If Difference: **compare two numbers to find the difference. This problem is a Difference problem.**

If Change: **show an increase/decrease in an amount. This problem is a Change problem.**

To solve the problem, we read the problem, underline the label and cross out irrelevant information, and name the problem type. Then we write the number sentence and solve for X.

Solve the problem quickly, without reteaching any concepts.

Great job! You earn another treasure coin!