

Sample Pages from



Created *by* Teachers *for* Teachers and Students

Thanks for checking us out. Please call us at **800-858-7339** with questions or feedback or to order this product. You can also order this product online at **www.tcmpub.com**.

For correlations to state standards, please visit
www.tcmpub.com/administrators/correlations

Summer Scholars Mathematics Rising 4th Grade

This sample includes the following:

Management Guide pages

- Cover and Table of Contents (3 pages)
- How to Use This Resource pages (4 pages)
- Grade Level Details pages (6 pages)

Teacher's Guide pages

- Cover (1 page)
- Days 3–4 Overview (1 page)
- Day 3 Lesson (5 pages)
- Day 4 Lesson (3 pages)

Student Guided Practice Book pages

- Cover (1 page)
- Day 3 Student Pages (7 pages)
- Day 4 Student Pages (5 pages)

To Create a World ⁱⁿ which
Children Love to Learn!

800-858-7339 • www.tcmpub.com



SUMMER Scholars

Mathematics

Management Guide



Table of Contents

Welcome Letter	5
Overview	6
Effective Mathematics Intervention	6
Effective Mathematics Instruction for All Learners	7
Using Concrete Models	8
Concrete-Representational-Abstract Instructional Sequence	9
Math Fluency	10
Developing Mathematical Problem-Solving Skills	11
Why Teach Problem-Solving?	11
Making Connections	11
Problem-Solving Framework	11
Problem-Solving in <i>Summer Scholars</i>	13
Mathematical Practices/Processes	14
Promoting Mathematical Discourse in the Classroom	15
About the Routines	16
Understand and Plan Routine	16
Share and Discuss Routine	17
Reflect and Write Routine	17
Implementing the Routines	18
How to Introduce the Routines	18
Debriefing a Lesson	20
Introduction to STEAM Education	27
The Importance of STEAM Education	27
Defining STEAM	27
The Engineering Design Process	29
How to Facilitate Successful STEAM Challenges	30
Differentiation	32
Below-Level Support	32
Language Learner Support	32
Extend Learning	32
Using Summer Scholars	33
How to Use This Resource	33
What's Included?	33
Scaffolded Mathematics Instruction	34
Mathematical Discourse Task Cards	35
STEAM Challenges	36
Classroom Library	37
Assessment	38
Digital Assessment in <i>Summer Scholars</i>	38

Table of Contents *(cont.)*

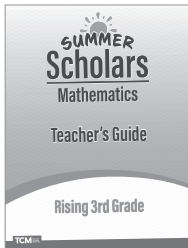
Technology	39
Digital Math Fluency Games.....	39
Interactive Ebooks.....	40
Audio Recordings	41
Additional Digital Resources.....	41
Planning Your Summer School Program	42
Pacing Plan Overview	42
Grade Level Details Overview.....	43
Grade Level Details	45
Rising 1st Grade.....	45
Scope and Sequence.....	46
STEAM Challenges and Materials	49
Classroom Library Information.....	50
Rising 2nd Grade.....	51
Scope and Sequence.....	52
STEAM Challenges and Materials	55
Classroom Library Information.....	56
Rising 3rd Grade	57
Scope and Sequence.....	58
STEAM Challenges and Materials	61
Classroom Library Information.....	62
Rising 4th Grade	63
Scope and Sequence.....	64
STEAM Challenges and Materials	67
Classroom Library Information.....	68
Rising 5th Grade	69
Scope and Sequence.....	70
STEAM Challenges and Materials	73
Classroom Library Information.....	74
Rising 6th Grade	77
Scope and Sequence.....	78
STEAM Challenges and Materials	81
Classroom Library Information.....	83
References Cited	85
Accessing Digital Assessments	87
English Resources	87
Spanish Resources	87
Digital Resources	88
Accessing the Digital Resources	88
Contents of the Digital Resources	88

How to Use This Resource

The *Summer Scholars Mathematics* curriculum has been designed to meet the needs of summer learning programs. Scaffolded lessons, mathematical discourse, and STEAM activities are presented in a flexible format to make learning (and teaching) fun and effective for everyone.

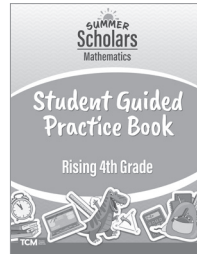
What's Included?

Teacher's Guide



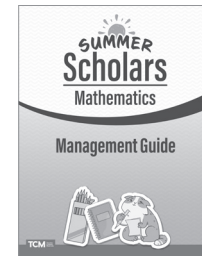
The daily lessons enhance instruction with research-based mathematics instructional practices.

Student Guided Practice Book



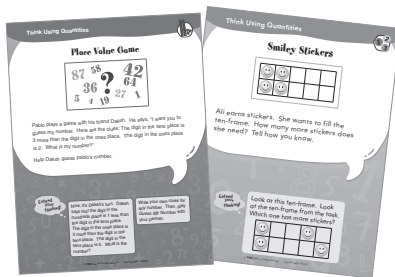
This book encourages students' mathematical fluency with multiple opportunities to apply learning.

Management Guide



This guide helps teachers plan effectively with flexible lesson pacing and a scope and sequence designed specifically for varied summer settings.

12 Mathematical Discourse Task Cards



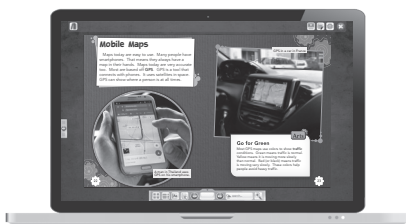
These cards provide rich problem-solving tasks for students to solve and discuss collaboratively. They are provided in both print and digital format.

Smithsonian STEAM Readers



These books and the included STEAM challenges foster content-area literacy and encourage students to collaboratively solve real-world problems.

Digital Resources



These resources increase student engagement and enhance instruction. Family Engagement Letters are provided for a strong school-home connection.

Classroom Library with 10 Books



These mathematics- and science-focused books inspire curiosity and a love of reading.

How to Use This Resource *(cont.)*

Scaffolded Mathematics Instruction

The student-centered Gradual Release of Responsibility model is embedded into each of the mathematics lessons. Within every two-day lesson, the responsibility shifts from the teacher (I Do) to the student (You Do).

Day 1
STEAM Challenge

Making Maps

Define the Problem

1. Display pages 4 and 5 in the Making Maps book. Ask students what they see or what they notice about the images.
2. Create two columns on the board or on chart paper, and label them "Type of Map" and "How It's Used." As a group, brainstorm different types of maps and their many uses in everyday life. Record the ideas in the chart. For example, a road map can be used to help people drive from place to place or to plan a road trip in advance.
3. Reveal the STEAM Challenge by reading aloud pages 26–27 of the book. Have students follow along to the STEAM Challenge on page xx of the Student Guided Practice Book.
4. Display *Make a Plan* from page xx of the Student Guided Practice Book. Have students summarize the challenge with partners. Summaries should include constraints and criteria.
 - Support students with the following sentence frame to help them summarize: Create a map that _____.

Vocabulary Activity

1. Write the vocabulary words on the board or on chart paper (accurate, compass, Sahara, satellites, sound waves), and discuss their meanings. Show students images related to the words to build context. (Pictures from the book may be used.)
2. Place students into groups. Assign each group a different vocabulary word. Have groups create small posters for the words, with pictures to help explain their meanings. Then have groups present their work.
3. Explain to students images and text work together to help readers understand information that might otherwise be challenging.

Read Aloud

1. Read aloud the beginning of the *Map* book for about 10 minutes.
2. Have pairs of students discuss information and any questions they have. Ask students to share their thoughts with the whole group.
3. Tell students you will read and act on the next day of instruction.

Icons indicate student groupings: whole group, collaborative, and independent.

Stopwatch icons indicate suggested durations.

Day 2
Place Value

One, Tens, and Hundreds

Progress Monitoring 8

1. Have students complete Quick-Check on page xx of the Student Guided Practice Book to gauge their progress toward mastery of the learning outcomes.
2. Based on the results of the Quick-Check and your observations during the lesson, identify students who may benefit from additional instruction in the learning outcomes. These students should be placed into a small group for reteaching.

Rotations 8

Place students into two groups. Work with one group on the *Refocus* activity while the other group is completing the *Practice* activity. Rotate after 15 minutes. Work with the second group on the *Extend* activity while the first group completes the *Practice* activity.

Refocus 8

1. Provide additional practice building concrete examples of place value with base ten blocks. Have students use base ten blocks to see that when there are 10 ones, this is exactly equal to one ten. As you model, have the ten blocks to prove the equality by one-to-one correspondence. Use 10 tens to build a hundreds square. Again, build directly on equality.
2. After these proofs of equality, present this example:
 - Show eight ones with base ten blocks. Write 8.
 - Add two more ones, counting to 10. Write 10, and point out the 1 in the tens place and the 0 in the ones place.
 - Ask students to find one block that is equal to one ten and zero ones. (*the ten*)
 - Use a ten block and four ones. Ask, "How many ones are there? (four) How many tens are there? (one) As an equation, that is $10 + 4$. How would we write this number? (14.)"
3. Support students as they complete Question 1 on *Refocus* from page xx of the Student Guided Practice Book.

Extend 8

1. Have students use patterns to add larger numbers, such as $8 + 4$, $80 + 40$, and $800 + 400$.
2. Support students as they complete the *Extend Learning Task* from page xx of the Student Guided Practice Book.

Practice 8

- **Refocus Group Practice:** Have students solve Question 2 on *Refocus* from page xx of the Student Guided Practice Book to reinforce their learning.
- **Extend Group Practice:** Have students complete independent practice from page xx of the Student Guided Practice Book to reinforce their learning.

Each lesson page and student page clearly indicates the instructional day.

Assessment opportunities are provided in every lesson.

Independent Practice

Name: _____ Date: _____

Directions: Write the number names and/or standard numerals.

Write the number name in words. Remember: Write it like you say it, and use the vocabulary chart to help you with spelling.

Extend Learning Task

Name: _____ Date: _____

Directions: Using the six digits given, create two three-digit numbers. Subtract them to get as close to zero as possible. For each round, the difference is your score. Remember, zero is the goal, so the lowest score wins!

Round One

Digits: 6 2 2 5 1 3

My numbers: _____

Difference: _____

Round Two

Digits: 4 5 7 8 9 1

My numbers: _____

Difference: _____

Round Three

Digits: 9 5 2 5 4 8

My numbers: _____

Difference: _____

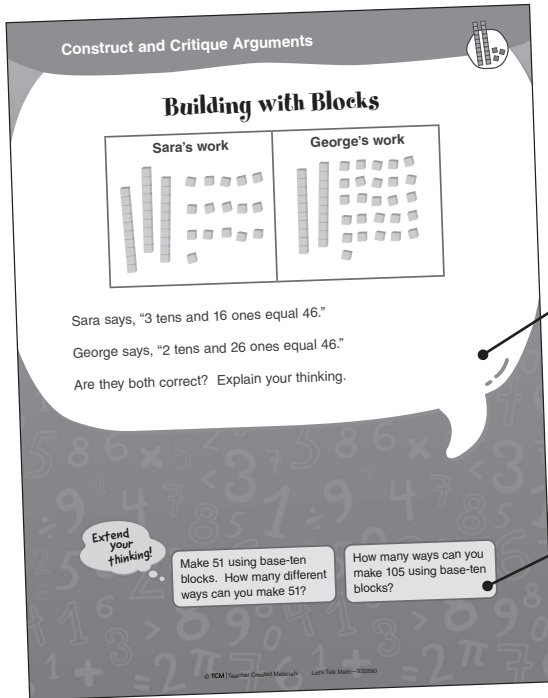
There are many ways for students to access the student activity pages:

- use individual books (purchased separately)
- make copies from provided book
- project pages on an interactive whiteboard
- print pages from digital resources
- share on digital devices (see page 41 for more information)

How to Use This Resource *(cont.)*

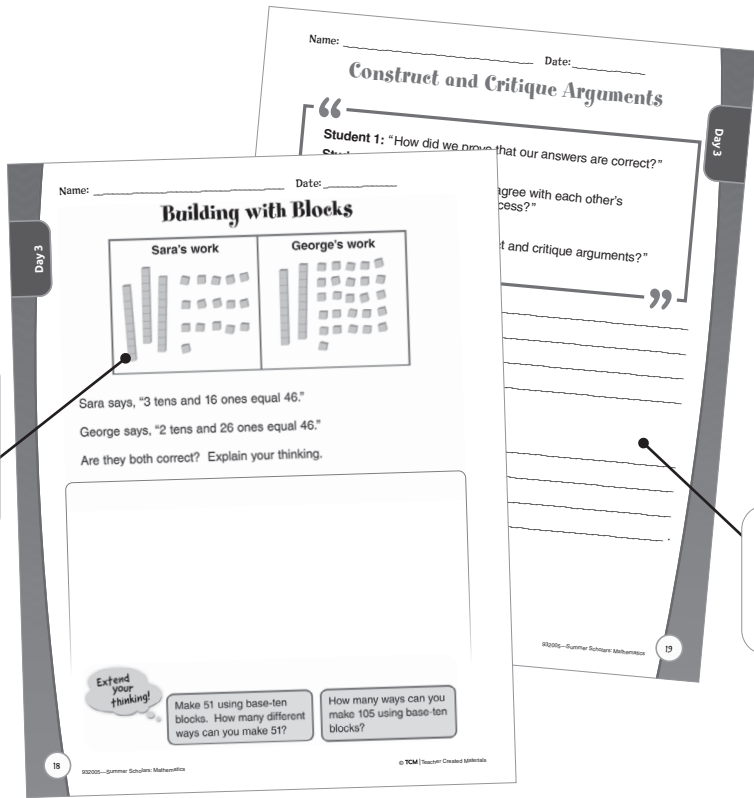
Mathematical Discourse Task Cards

The Mathematical Discourse Task Cards present rich math problems for students to solve and discuss collaboratively. The three mathematical discourse routines walk students through the problem-solving process.



Cards can be displayed for the whole class.

Extension questions challenge students to think more deeply about the mathematical concept.



Cards are reproduced in the *Student Guided Practice Book* for individual use.

Activity sheets help walk students through the routines.

How to Use This Resource *(cont.)*

STEAM Challenges

There are five STEAM Challenges included in each level of *Summer Scholars*. Each challenge is completed over five days to give students ample time to investigate, test, and retest their ideas. In addition to meeting specific criteria, students are also challenged to improve their work over the five days.

STEAM CHALLENGE

Day 1

Define the Problem
A new student just joined your class. Your teacher has asked you to create a school map for the student.

Constraints: Your map must be drawn from a bird's-eye view. You must include color in your map.

Criteria: Your map must have a map legend, a compass rose, and drawings of important places at your school. It should be clear and easy to use.

1 Research and Brainstorm
How do maps help people get around? What will different colors mean on your map? What are the important places at your school? Where are they located?

2 Design and Build
Decide what you will include in your map legend. Then, sketch your school as though you were looking from above. Draw and color your map.

3 Test and Improve
Share your map with your friends. Ask them to find a place on your map. Did they find it easily? Is your map clear? How can you improve your map? Improve your map, and present it again.

4 Reflect and Share
Could a new student read and understand your map? How can you make your map easier to follow?

Build background knowledge and spark student interest with engaging readers and short texts.

Students reflect on the process and their final products.

Days 3-4 Overview
Numbers to 1,000
Learning Outcome
Read and write numbers to 1,000 using base ten numerals and number names.

Focus
The following lesson will address these focus questions: What is the form numerals and number names? When can both forms be used? Ask questions on the board or on chart paper and read them aloud.

Student Misconception
This particular standard expands on students' previous knowledge. It is common and incorrect for students to add the word "and" over 100. Watch and listen for this so clarification can be made at that point, which is why the word is not correctly used within why.

Building with Blocks
Learning Outcome
Work collaboratively to solve a problem.

Making Maps
Learning Outcomes
Create and test a map of the school.

Materials
Student Guided Practice Book (pages xx-xx)
Number Name Cards (numname.pdf)
base ten blocks
chart paper
construction paper

Day 9

Rebuild and Refine
Name: _____ Date: _____
Directions: Gather your materials. Plan your steps. Rebuild your structure. Record the changes you make. Tell why you made those changes.


Think About It!
How do you need to change your steps to rebuild your structure?

Steps to Rebuild

Changes Made While Building	Reason for Changes

Activity sheets lead students through the Engineering Design Process.

Materials needed for each challenge are clearly listed. A full list of all STEAM Challenge materials is included in the digital resources.



SUMMER
Scholars

Mathematics

Rising 4th Grade

Grade Level Details

Rising 4th Grade Scope and Sequence

Mathematics Skills and Concepts 60–65 minutes per day		Problem-Solving and Discourse 10–15 minutes per day		STEAM 45 minutes per day	
Mathematics Focus	Standards	Mathematical Practice and Card Title	Standard	Challenge Title and STEAM Step	Standard
Day 1	Multiplication Models	Represent multiplication of whole numbers using a variety of approaches.	Think Using Quantities "Raphael's Number Line"	Make sense of quantities and their relationships in problems.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints.
					Measure lengths using rulers and generate measurement data.
Day 2				<i>The Wright Brothers</i> Design	Apply mathematics to solve problems arising in everyday life, society, and the workplace.
Day 3	Partitive Division	Interpret quotients of whole numbers as the number of objects partitioned into equal shares or as the number of shares.	Use Tools Strategically "Division with José"	Consider and use available tools when solving problems.	<i>The Wright Brothers</i> Build and Test
Day 4					<i>The Wright Brothers</i> Improve
Day 5	Problem-Solving with Multiplication	Use multiplication within 100 to solve one- and two-step word problems involving equal groups, arrays, and area models.	Generalize Your Thinking "Many Marbles"	Look for and express regularity in repeated reasoning.	<i>The Wright Brothers</i> Reflect and Share
Day 6					<i>Fossils</i> Learn Content, Understand the Challenge, and Brainstorm
Day 7	Problem-Solving with Division	Use multiplication within 100 to solve one- and two-step word problems involving equal groups, arrays, and area models.	Construct and Critique Arguments "Manny's Message"	Use assumptions, definitions, and previously established results to construct arguments.	<i>Fossils</i> Design and Build
Day 8					<i>Fossils</i> Test and Reflect

Rising 4th Grade Scope and Sequence *(cont.)*

Mathematics Skills and Concepts 60–65 minutes per day		Problem-Solving and Discourse 10–15 minutes per day		STEAM 45 minutes per day	
Mathematics Focus	Standards	Mathematical Practice and Card Title	Standard	Challenge Title and STEAM Step	Standard
Day 9 Square Units	Determine the area of a two-dimensional figure by counting the number of unit squares without gaps or overlaps.	Generalize Your Thinking "Cal's Area"	Look for and express regularity in repeated reasoning.	Fossils Redesign and Rebuild	Make sense of problems and plan, solve, justify and evaluate solutions.
				Fossils Retest and Share	
Day 11 Problem-Solving with Area	Find the areas of rectangles with whole-number side lengths to solve real-world problems.	Use Tools Strategically "Alina's Square"	Consider and use available tools when solving problems.	Making a Mummy Define the Problem	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints.
				Making a Mummy Design	
Day 13 Recognizing Perimeter	Determine the perimeters of polygons when given the side lengths.	Think Using Quantities "Glenda's Garden"	Make sense of quantities and their relationships in problems.	Making a Mummy Build and Test	Apply mathematics to solve problems arising in everyday life, society, and the workplace.
				Making a Mummy Improve	
Day 15 Unit Fractions	Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts.	Construct and Critique Arguments "Lucy Likes It! Do You?"	Use assumptions, definitions, and previously established results to construct arguments.	Making a Mummy Reflect and Share	Make sense of problems and plan, solve, justify and evaluate solutions.
				Animal Groups Learn Content, Understand the Challenge, and Brainstorm	
Day 16					

Rising 4th Grade Scope and Sequence *(cont.)*

Mathematics Skills and Concepts 60–65 minutes per day		Problem-Solving and Discourse 10–15 minutes per day		STEAM 45 minutes per day	
Mathematics Focus	Standards	Mathematical Practice and Card Title	Standard	Challenge Title and STEAM Step	Standard
Building Fractions from Unit Fractions	Compose and decompose a fraction $\frac{a}{b}$ as the quantity formed by adding the unit fraction $\frac{1}{b}$ to itself a times.	Think Using Quantities “Fair Shares”	Make sense of quantities and their relationships in problems.	<i>Animal Groups</i> Design and Build	Apply mathematics to solve problems arising in everyday life, society, and the workplace.
	Day 17	Day 18	<i>Animal Groups</i> Test and Reflect		
Scaled Graphs	Interpret scaled picture graphs and bar graphs; use scaled picture graphs and bar graphs to solve one- and two-step problems.	Construct and Critique Arguments “Football Bar Graph”	Use assumptions, definitions, and previously established results to construct arguments.	<i>Animal Groups</i> Redesign and Rebuild	Make sense of problems and plan, solve, justify and evaluate solutions.
	Day 19	Day 20	<i>Animal Groups</i> Retest and Share		
Volume and Mass	Measure and estimate liquid volumes and masses of objects using standard units; use the four operations to solve real-world problems involving masses or volumes that are given in the same units.	Analyze the Structure “Milk Bottles”	Observe closely to discern a pattern or structure in a problem.	<i>From Grass to Bridge</i> Define the Problem	Make sense of problems and plan, solve, justify and evaluate solutions.
	Day 21	Day 22	<i>From Grass to Bridge</i> Design		Measure lengths using rulers and generate measurement data.
Quadrilaterals	Understand the attributes of quadrilaterals and the different subcategories. Identify and draw examples of quadrilaterals that do not belong to any of the subcategories.	Construct and Critique Arguments “Same But Different”	Use assumptions, definitions, and previously established results to construct arguments.	<i>From Grass to Bridge</i> Build and Test	Apply mathematics to solve problems arising in everyday life, society, and the workplace.
	Day 23	Day 24	<i>From Grass to Bridge</i> Improve		Reason about, estimate, and solve word problems involving liquid volume and mass.
Culminating Activity				<i>From Grass to Bridge</i> Reflect and Share	Make sense of problems and plan, solve, justify and evaluate solutions.
Day 25					

Rising 4th Grade STEAM Challenges and Materials

This chart includes descriptions and needed materials for the five STEAM Challenges.

Challenge Name	Description	Materials
<i>The Wright Brothers</i> (reader)	Teams design gliders to transport cargo.	<ul style="list-style-type: none"> • copy paper • masking tape • measuring tape • paper clips (10 per student) • scissors
Fossils	Students design and build model fossils and display cases.	<ul style="list-style-type: none"> • air-dry clay or modeling clay • clothespins (4–5) • craft sticks (10–15) • objects to make fossils (leaves, shells, toys with feet for footprints, etc.) • pipe cleaners (10–15) • plastic wrap • transparent film sheets or sheet protectors (4–6) • wooden dowels (10–15)
<i>Making a Mummy</i> (reader)	Teams design boxes that protect a mummy during shipping.	<ul style="list-style-type: none"> • cardboard pieces • foam pieces • fragile item that breaks when dropped from a height of 1 meter (e.g., linking cubes, building blocks) • glue • packing peanuts • scrap paper • straws • tape • toothpicks
Animal Groups	Students make cooperative board games where the players work together to achieve a goal.	<ul style="list-style-type: none"> • game component pieces (dice, cards, buttons, etc.) • poster board
<i>From Grass to Bridge</i> (reader)	Teams design and build models of a bridge that will be used by cars, bikes, and travelers on foot.	<ul style="list-style-type: none"> • 2 desks or chairs, separated 7 inches • craft sticks (200 per team) • masking tape (1 roll per team) • notebook or small textbook • PVA glue (may be used in place of masking tape; requires drying time) • ruler • scissors • stopwatch

Rising 4th Grade Classroom Library Information

This chart includes important information about the books included in the classroom library.

Book Title	Lexile® Measure	*Guided Reading Level	Summary
<i>Earth's Moon</i>	680L	R	Our moon is magnificent. Sometimes, it appears in the night sky as a massive glowing disk. Other nights, it can't be seen at all. Without the moon, our world would be a different place.
<i>Electromagnetism</i>	620L	U	Electromagnetism—now that's a big word! But what is it? You can't see it, but it's hard at work. It may seem complex, but once you break it down, it's simple.
<i>Extreme Weather</i>	640L	Q	Twirling tornadoes, horrific hurricanes, deadly dust storms, and blowing blizzards. Depending on where you live, you may have experienced one of these frightening storms. Although being caught in extreme weather can be dangerous, being prepared can save your life!
<i>Food Webs</i>	660L	Q	A snail eats a leaf. A bird eats the snail. A cat eats the bird. Living things need one another to survive. This is how a food web works. Even you are part of a food web. Find out where you fit into food webs!
<i>What's It Worth? Financial Literacy</i>	630L	R	Using money wisely can be challenging. There are many things to consider. The more you understand value, the more sense you can make of dollars and cents!
<i>Contractors: Perimeter and Area</i>	720L	R	The job of a contractor can be a balancing act. Follow contractors as they use area and perimeter to balance wants and needs to make dreams come true.
<i>Photosynthesis</i>	630L	Q	Have you ever seen a tree at the grocery store buying dinner? Probably not! Plants create food in a very different way. They make their own food through photosynthesis.
<i>World's Toughest Races: Understanding Fractions</i>	660L	S	Tackle today's toughest races as you learn about fractions. You'll see what it takes to conquer a world-class course, fraction by fraction.
<i>Mission to Mars: Problem Solving</i>	710L	T	NASA wants to send humans to Mars within the next 25 years. But before that can happen, they must estimate and prepare. They need to problem solve to keep the crew alive on such a dangerous planet.
<i>Investigating Measurement: Volume and Mass</i>	650L	S	How much sports drink can fit in a plastic bottle? How many books can fit in a backpack? Explore real-life situations where being able to make exact measurements or form reasonable estimates can really come in handy.

*These titles have been officially leveled using the F&P Text Level Gradient™ Leveling System.



SUMMER **Scholars**

Mathematics

Teacher's Guide

Rising 4th Grade

Days 3–4 Overview

Partitive Division

Learning Outcome

- Interpret whole-number quotients of whole numbers; e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares.

Focus

The following lesson will address this focus question: *How is division related to equal groups?* You may wish to write the focus question on the board and read it aloud to students.

Student Misconception

While multiplication entails joining equal groups, partitive division (also known as the fair share model) takes a total amount and shares the amount fairly or equally. Students often confuse divisor and the dividend, flipping the numbers when writing equations. It is crucial to connect meaning to each number. The dividend is the total amount (not necessarily the bigger number) and, in partitive division, the divisor is the number of groups. In other words, total amount \div number of groups = how many go in each group.

.....

Mathematical Discourse

Learning Outcome

- Work collaboratively to solve a problem.
-

The Wright Brothers

Learning Outcome

- Create and test a paper glider.

Materials

- *Student Guided Practice Book* (pages 16–27)
- *Division with José* task card
- *The Wright Brothers* book
- Counters (1 counter.pdf)
- chart paper
- markers
- cups or jars (optional)

Materials per STEAM Group

- copy paper
- masking tape
- measuring tape
- paper clips (10 per student)
- scissors

Partitive Division

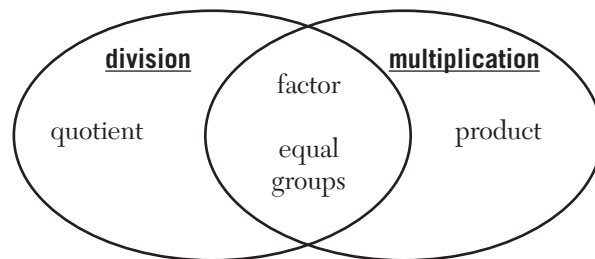
Warm-Up

1. Have eight students come to the front of the room. Ask, "How could I put these students into two equal groups?" Allow students to share their ideas. Model students' suggestions, ultimately ending with two groups of four students. Then say, "We put eight students into two groups. How many students are in each group?" Students should indicate that there are four students in each group.
2. Say, "I can use a division equation to show what the students modeled. We start with a number and then share that number equally into a certain number of groups." Write $8 \div 2 = 4$. Say, "I can read this as 8 divided by 2 is 4, or 8 divided into 2 groups is the same as 4 in each group."
3. Gather a group of six students, and model how to divide them into three equal groups. Use the same process that you followed in Steps 1–2 to represent the modeling with a division equation ($6 \div 3 = 2$).

Language and Vocabulary

1. Write the following terms along the top of a sheet of chart paper.

division	multiplication
equal groups	factor
quotient	product
2. Review the definition of each word with students. Then, draw a large Venn diagram below the list of terms. Say, "We have two big ideas that relate to our vocabulary terms. One is division. The other is multiplication." Write these labels at the top of each of the two categories on the Venn diagram, and cross them out on the list on the chart paper.
3. Say, "All our vocabulary terms have to do with either division, multiplication, or both. We can add them to our Venn diagram in one of these categories, to show how the vocabulary terms are related." Say a term aloud, and have students share their ideas about where it should be added to the Venn diagram and why. Your completed Venn diagram should look like the following:



Partitive Division

I Do

1. Say, "Today, we are going to examine different ways of taking a total amount and sharing it fairly or equally. Let's look at a word problem." Write the following problem on the board as you read it aloud: *Andrea is organizing her room. She decides to put her 24 toys into 6 buckets evenly. How many toys should she put into each bucket?*
2. Say, "Let's unpack this problem. We know that Andrea has 24 toys. She is placing them into six buckets. Let's use counters as part of our plan to solve." Gather 24 counters and put them into six groups, distributing them one at a time into each group until you run out. As an option, you could also pass out the counters into individual cups or jars, to model the buckets. Say, "When we divided the 24 counters into six groups, we put four counters in each group."
3. Say, "Now, let's make a drawing to show the problem. I will draw circles to show the groups. How many circles should I draw?" Students should indicate six circles. Say, "Now, we can draw a dot in each group until we count to 24." Have students count aloud with you as you add dots into each large circle. After you draw 24 dots, ask students to count the number in each circle. Students should indicate that there are four dots in each circle.

Support for Language Learners: As you model, emphasize words such as *evenly* and *equally*. This is a key idea for students to understand in partitive division problems, and students must have a clear understanding of vocabulary related to the idea of creating equal groups.

4. Say, "We started with the total, 24. We divided it into six groups and found that there are four in each group. I can write a division equation to show this." Write $24 \div 6 = 4$. Label each term (24: *total*; 6: *groups*; 4: *amount in each group*).
5. Say, "Let's distribute the toys again. Do you think we can distribute more than one at a time to make it go faster?" Have students share their ideas. Suggest distributing two toys at a time. Draw another six circles, and have a student write a 2 in each circle, counting as you go: two, four, six, etc. Say, "That went a little faster. Each group has two and two, or four. We found, again, that 24 divided into six groups gives four in each group."

Partitive Division

We Do

1. Display *Toy Soldiers* from page 16 of the *Student Guided Practice Book*. Give students counters or other counting manipulatives. Say, "Look at Question 1: *27 shared equally into 3 groups*. How will we model this with our counters?"
2. Allow students to work on modeling the problem with partners. Observe students to see how they are solving with the counters. Select one pair of students that completed the task correctly to model how to distribute the 27 counters into three groups. Ask, "How many counters did we put in each group?" Students should respond that they put nine counters in each group. Model how to write this as a division equation ($27 \div 3 = 9$), and have students do the same on their activity sheets. Label 27 as *total*, 3 as *groups*, and 9 as *amount in each group*.
3. Say, "Now, let's examine a word problem together." First, read the problem: *Zeke has 30 toy soldiers. He put them into 5 groups equally. How many soldiers did he put in each group?* Say, "Let's unpack this problem. What type of problem is this? How do you know?" Students should indicate that this is a division problem because it involves taking a total and sharing it into equal groups.
4. Say, "Let's use counters to model this problem. What do we know?" Students should indicate that Zeke has 30 soldiers, and he puts them into groups equally. Say, "In this problem, Zeke makes groups. How many groups will we make with our counters?" (5) Say, "We need to find out how many soldiers go in each group."
5. Allow students to model distributing the 30 counters into five groups independently as you observe. Bring the class back together, and have a student model for the class to see. Ask students how many counters are in each group (6).

6. Say, "Let's use a drawing to check our solution. How can we show the five groups?" Allow students to share their thinking. They should suggest making five large circles. Ask, "How will we show distributing the 30 soldiers to each group?" Help students recognize that you can draw dots one at a time in the circles until you reach 30. Have students complete this drawing in the picture box on the activity sheet. The drawings should look like the following:

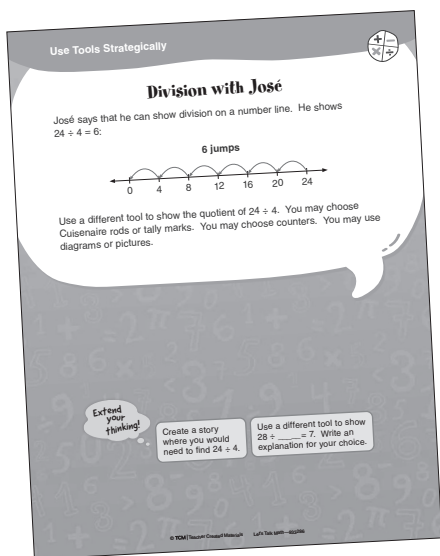


7. Ask, "How many dots did you draw in each group?" (6) Say, "We found that when we share 30 into five groups, we have six in each group. How can we write this as a division equation? What is the solution to our word problem?" Have students write the equation ($30 \div 5 = 6$) and solution (*Zeke put 6 soldiers in each group*) on the activity sheet. Then, have students explain how they solved. Provide the following sentence frames:
 - *There are _____ soldiers. They were divided into _____ groups.*
 - *My model shows _____ soldiers go in each group. I can write this as the division equation _____.*

You Do

1. Have students complete *Birthday Party* from page 17 of the *Student Guided Practice Book*. Provide the sentence frames from Step 7 of the We Do section to help students explain their reasoning.
2. Have students share their equations and reasoning. If students have difficulty explaining their reasoning, remind them to use the sentence frames and vocabulary terms.

Use Tools Strategically



Understand the Strategy

The Use Tools Strategically practice/process stems from *use appropriate tools strategically*. As this practice/process is introduced, it is important that students understand that tools are not always physical. Tools can be as simple as mental math or using your brain. The word *strategically* is emphasized because sometimes mathematicians do not have access to the most appropriate tools and must rely on their strategic thinking to identify replacement tools. For example, if a ruler or tape measure is not available to measure the length of something, sticky notes or blank paper could be used to get approximate measurements. Those might not be the most appropriate tools, but with strategic thinking, the item can be measured. In these tasks, suggested tools are offered for students to consider using. Sometimes, the tasks don't allow students to use traditional tools. This forces them to think strategically.

Procedure

1. Display the *Division with José* task card, and read aloud the text. Remind students to use the Understand and Plan, Share and Discuss, and Reflect and Write routines as they complete the task. Review these routines if needed. (See pages 21–26 in the *Management Guide*.)
2. Allow time for students to collaborate with partners as they follow the routines and work through the task from pages 18–19 in the *Student Guided Practice Book*. (Students will complete the extensions on the next day.)

Answer: Tool selection will vary but should show quotients of 6.

Possible Misconception: Students may not understand how a number line can show division.

Language Support

- **Tier 3:** quotient, number line, tally marks, Cuisenaire rods
- **Tier 2:** counters, diagrams, tool
- **Tier 1:** different

Scaffolding

Choose which type of division would be easiest for students to conceptualize: partitive or quotitive. If partitive, ask them to think about what tool would be helpful in showing 24 things shared between 4 groups. Ask, “How could we use tally marks as a tool to show 24 tally marks evenly shared among 4 groups?” If quotitive, ask them to choose a tool and start with 24 and make groups with 4 in each group. Ask, “How many groups will you make?”

The Wright Brothers

Materials and Preparation

- Identify an area for testing. Use masking tape to mark 4 meters (13 feet) from a specified starting point.
- Review all designs prior to building.
- Prepare all materials for the STEAM Challenge (copy paper, masking tape, measuring tape, paper clips, scissors).

Read Aloud

1. Review the information from the previous day's read aloud.
2. Read another section or a few pages of *The Wright Brothers* book for about five minutes. Pause periodically to discuss new information and any questions students may have.

Build

1. Have groups review their *Collaborative Design* activity sheet from the previous day. Explain that when students create their gliders, they must follow their design plans. Reassure them they will have the opportunity to change and improve their designs after they present them. Review classroom expectations for working with materials. Then, give students time to create gliders.
2. Have students complete *Think about It* from page 20 of the *Student Guided Practice Book*. Explain that reflection is an important part of the engineering design process. Read aloud numbers 1 and 2 on the activity sheet, and have students write their responses. Ask volunteers to share.

Test

1. Gather teams for testing. Explain that teams will offer feedback after the test. Use *Friendly Feedback* from page 21 of the *Student Guided Practice Book* to review best practices for giving feedback.
2. Explain that each team member will perform two trials of their team's glider, but the team will only record the longest distance out of all team members' flights. Have students use *Paper Glider Test Results* from page 22 of the *Student Guided Practice Book* to record their results as a team. Have students record each team's results as a bar on the scaled bar graph. If needed, review how to make a scaled bar graph.
3. Gather teams in an open space to test their gliders. Allow time for teams to test gliders from the starting point. If a glider travels 4 meters (13 feet) with "cargo," it is successful. Ask volunteers to give friendly feedback.

Partitive Division

Progress Monitoring

1. Have students complete *Quick Check* from page 23 of the *Student Guided Practice Book* to gauge student progress toward mastery of the learning outcomes. Provide students with unlined paper to show their work on the selected response questions.
2. Based on the results of the *Quick Check* activity sheet and your observations during the lesson, identify students who may benefit from additional instruction in the learning outcomes. These students will be placed into a small group for reteaching.

Rotations

Place students in two groups. Work with one group on the Refocus activity while the other group is completing the Practice activity. Rotate after 15 minutes. Work with the second group on the Extend activity while the first group completes the Practice activity.

Refocus

1. Orally present Question 1 on *Refocus* from page 24 of the *Student Guided Practice Book*. Have students draw a picture of the objects in the problem. Students should draw eight pencils and two boxes. Ask them to look at their picture and decide what the total is, as well as the number of groups that the total is shared equally into. When students correctly identify a total of eight being shared equally into two, have them write the phrase *8 shared equally into 2 groups*.
2. Ask students to solve by using counters or drawing a picture to represent sharing the eight pencils between the two boxes. Then, guide them in writing the corresponding division equation $8 \div 2 = \underline{\hspace{2cm}}$. Students should then write the quotient (4) and the solution (*Tre should put 4 pencils in each box*).

Extend

1. Have students complete *Extend Learning Task* from page 25 of the *Student Guided Practice Book*. They will write their own sharing division word problems. They will also solve the problem.
2. If time permits, allow students to trade problems with a partner and compare how they set up their word problems.

Practice

- **Refocus Group Practice:** Have them solve question 2 on *Refocus* from page 24 of the *Student Guided Practice Book* to reinforce their learning.
- **Extension Group Practice:** Have students complete *Independent Practice* from page 26 of the *Student Guided Practice Book* to reinforce their learning.

Partitive Division

Math in the Real World



1. Display *Math in the Real World: Bouncy Balls* from page 27 of the *Student Guided Practice Book*. Have a student read the task aloud. Tell students to explain or summarize the task to their partner. Have a few students share their summaries.
2. Ask students to think about what information they will need to solve the task and what the task is asking them to do. Then, have them share with a partner. Ask a few students to share out. Students should identify that we know how many bouncy balls each girl had and the number of friends she shared them with equally. We need to find out whose friends got more. Have students work in groups of two or three to complete the task.
3. As students are working, circulate and ask focusing, assessing, and advancing questions:
 - How many balls did Colleen share? How many friends did she share with? How many balls did Marla share? How many friends did she share with?
 - How can you model this problem with a picture?
 - What equations can you use to show how many bouncy balls Colleen and Marla shared with each friend?

Support for Language Learners:

- Both girls are sharing equally, so this is a _____ problem.
 - I used the equation _____ to show how many balls Colleen's and Marla's friends got.
 - _____'s friends got more bouncy balls.
4. Observe how students are solving the task, and choose a few groups who solved the task in different ways to share their solutions and reasoning. Begin with less complex solutions (e.g., distributing the bouncy balls one by one), and then see if any students tried to distribute them by twos. Make sure students explain their reasoning as they share solutions.
 5. As groups are sharing their solution paths, reasoning, and strategies, ask questions:
 - What was challenging about this problem? How did you solve those challenges?
 - How is this strategy similar to one that we have seen in a previous task?
 - Which strategy makes the most sense to you? Why?

Use Tools Strategically

Mathematical Discourse Card Extensions

1. Allow time for students to complete the routines for the *Division with José* task from the previous day.
2. Have students work in pairs to complete the extensions.
 - Create a story where you would need to find $24 \div 4$.
 - Use a different tool to show $28 \div \underline{\hspace{2cm}} = 7$. Write an explanation for your choice.

The Wright Brothers

STEAM Challenge

Materials and Preparation

- Review all designs.
- Prepare all materials for the STEAM Challenge (copy paper, masking tape, measuring tape, paper clips, scissors).

Read Aloud

1. Review the information from the previous day's read aloud.
2. Read another section or a few pages of *The Wright Brothers* book for about five minutes. Pause periodically to discuss new information and any questions students may have.

Improve

1. Have groups review the feedback they received on the previous day of instruction.
2. Provide time for teams to brainstorm ways to improve their designs based on test results and feedback. Refer students back to their *Collaborative Design* activity sheets. Ask them to sketch their improved designs and explain any changes. Have students submit improved designs for approval before building.
3. Have teams gather materials to improve their designs. Then, have them retest their gliders. Remind students that a successful glider will travel at least 4 meters (13 feet).
4. Have students complete numbers 3 and 4 on *Think about It* from page 20 in the *Student Guided Practice Book*.

SUMMER
Scholars
Mathematics

Student Guided Practice Book

Rising 4th Grade



Name: _____ Date: _____

Toy Soldiers

Day 3

Directions: Use counters to model the problem. Write an equation to show your solution.

- 1 27 shared equally into 3 groups.

Equation: _____

Directions: Solve the word problem.

- 2 Zeke has 30 toy soldiers. He put them into 5 groups equally. How many soldiers did he put in each group?

Picture



Equation

Solution

-  **Explain your thinking.**

Name: _____ Date: _____

Birthday Party



Day 3

Directions: Solve the word problems.

- 1 Shanna is having a birthday party. Her mom baked 36 mini cupcakes. With Shanna, there are 9 kids at the party. They share the cupcakes equally. How many cupcakes does each kid get?

Picture

Equation

Solution

- 2 Shanna had 24 small toys. She made 8 party favor bags. She shared the toys equally among the 8 bags. How many toys went in each bag?

Picture

Equation

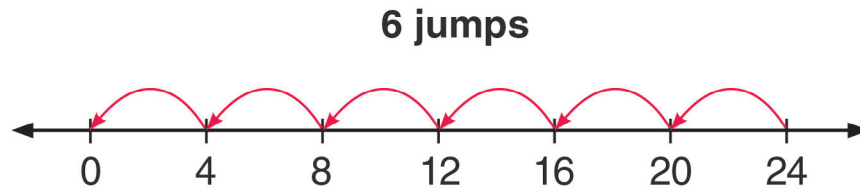
Solution

Name: _____ Date: _____



Division with José

José says that he can show division on a number line. He shows $24 \div 4 = 6$:



Use a different tool to show the quotient of $24 \div 4$. You may choose Cuisenaire rods or tally marks. You may choose counters. You may use diagrams or pictures.



Create a story where you would need to find $24 \div 4$.

Use a different tool to show $28 \div \underline{\quad} = 7$. Write an explanation for your choice.

Name: _____ Date: _____

Think about It

Day 3

1. It was (hard/easy) to create one team design because _____

2. I helped my team by _____

3. Our design (failed/passed) the test because _____

To improve our design, we _____

4. Our improved design (worked/did not work). I know this because _____

5. During the challenge, I learned _____

I liked _____

It was hard when _____

Name: _____ Date: _____

Friendly Feedback

Directions: Feedback can help people improve their work. Use these sentence stems to give feedback to your peers.

Day 3

Clarify

Can you explain _____ ?

Why did you choose to _____ ?

How did you _____ ?

Warm Feedback

I like _____ because _____ .

It is interesting that _____ .

_____ is a good idea because _____ .

Cool Feedback

Have you thought about _____ ?

I wonder if _____ .

You might want to try _____ .

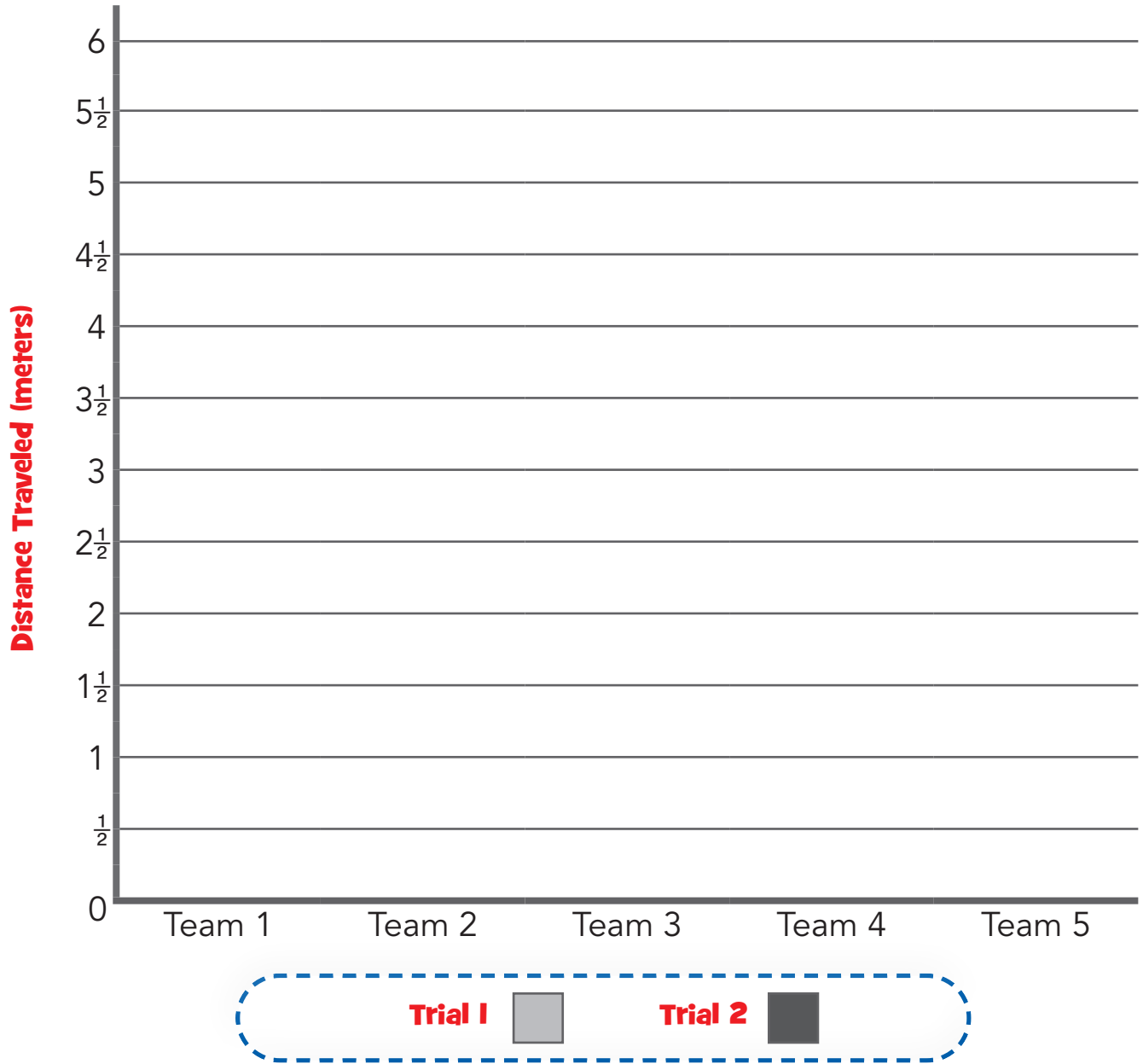
Name: _____ Date: _____

Paper Glider Test Results

Day 3

Directions: Make bars above each team to show the test results.

Paper Gliders Bar Graph



How did the placement of the paperclips affect the success of each design?

Quick Check

Directions: Choose the correct quotient.

1 $24 \div 8 = \square$

- A 3
- B 6
- C 8
- D 24

2 $21 \div 3 = \square$

- A 3
- B 8
- C 7
- D 10

Directions: Solve the word problem.

- 3 4 friends picked 20 apples. They want to share them equally. How many apples should each person get?

Equation

Solution

Explain your thinking.

Name: _____ Date: _____

Refocus

Day 4

Directions: Solve the word problems.

- 1 Tre has 8 pencils. He gets 2 boxes to store all his pencils. How many pencils should Tre put in each box so that each box has the same amount?



Solution: _____

- 2 Antonio has 28 pencils. He gets 4 boxes to store all his pencils. How many pencils should Antonio put in each box so that each box has the same amount?

Solution: _____

Name: _____ Date: _____

Extend Learning Task

Directions: Create your own sharing division problem. Use a total of 21 shared among 3 groups. Find the solution to your problem by drawing a picture to solve.

Day 4

$$21 \div 3 = \underline{\quad}$$

Problem

Picture

Solution: _____

Independent Practice

Directions: Solve the word problems. Draw a picture to help you solve.

- 1 Carrie has 48 beads. She uses all the beads to make 6 bracelets. Each bracelet uses the same number of beads. How many beads go on each bracelet?



Picture

Equation

Solution

- 2 Jon has 27 baseball cards. He gives the cards to 3 friends. If each friend gets the same amount, how many baseball cards does each friend get?



Picture

Equation

Solution





Bouncy Balls

Day 4





Colleen had 54 bouncy balls. She gave an equal amount to 6 friends. Marla had 64 bouncy balls. She gave an equal amount to 8 friends. Whose friends got more bouncy balls, Colleen's friends or Marla's friends?

 **Unpack the Problem**



 **Make a Plan**

 **Solution**

 **Look Back and Explain**