math mark

math activities that reach kids

GRADE 5
Ready, Prep, Go!

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Ready, Prep, Go!

Supporting **STAAR** Fun Readiness in Grade **5**

READINESS STANDARDS

	Standard	Page
(5.2) **Number and operations**. The student applies mathematical process standards to represent, compare, and order positive rational numbers and understand relationships as related to place value. The student is expected to:		
5.2B	compare and order two decimals to thousandths and represent comparisons using the symbols >, <, or =.	7, 17, 77
(5.3) **Number and operations**. The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. The student is expected to:		
5.3E	solve for products of decimals to the hundredths, including situations involving money, using strategies based on place-value understandings, properties of operations, and the relationship to the multiplication of whole numbers.	7, 12, 36, 77
5.3G	solve for quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using strategies and algorithms, including the standard algorithm.	7, 12, 36, 77
5.3K	add and subtract positive rational numbers fluently.	7, 12, 20, 26, 36, 40, 45, 71, 77
5.3L	divide whole numbers by unit fractions and unit fractions by whole numbers.	20, 26
(5.4) **Algebraic reasoning**. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:		
5.4B	represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity.	36, 40, 67
5.4C	generate a numerical pattern when given a rule in the form $y = ax$ or $y = x + a$ and graph.	45
5.4F	simplify numerical expressions that do not involve exponents, including up to two levels of grouping.	40, 62, 71
5.4H	represent and solve problems related to perimeter and/or area and related to volume.	26, 36, 71
(5.5) **Geometry and measurement**. The student applies mathematical process standards to classify two-dimensional figures by attributes and properties. The student is expected to:		
5.5A	classify two-dimensional figures in a hierarchy of sets and subsets using graphic organizers based on their attributes and properties.	84
(5.8) **Geometry and measurement**. The student applies mathematical process standards to identify locations on a coordinate plane. The student is expected to:		
5.8C	graph in the first quadrant of the coordinate plane ordered pairs of numbers arising from mathematical and real-world problems, including those generated by number patterns or found in an input-output table.	45
(5.9) **Data analysis**. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. The student is expected to:		
5.9C	solve one- and two-step problems using data from a frequency table, dot plot, bar graph, stem-and-leaf plot, or scatterplot.	67

TABLE OF STANDARDS

SUPPORTING

	Standard		Page
SUPPORTING STANDARDS	(5.3) **Number and operations**. The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. The student is expected to:		
	5.3A	estimate to determine solutions to mathematical and real-world problems involving addition, subtraction, multiplication, or division.	7, 12, 67
	5.3B	multiply with fluency a three-digit number by a two-digit number using the standard algorithm.	7, 26, 71
	5.3C	solve with proficiency for quotients of up to a four-digit dividend by a two-digit divisor using strategies and the standard algorithm.	7, 12, 26
	5.3D	represent multiplication of decimals with products to the hundredths using objects and pictorial models, including area models.	7, 12
	5.3H	represent and solve addition and subtraction of fractions with unequal denominators referring to the same whole using objects and pictorial models and properties of operations.	20, 26, 71
	5.3I	represent and solve multiplication of a whole number and a fraction that refers to the same whole using objects and pictorial models, including area models.	20, 26, 71
	5.3J	represent division of a unit fraction by a whole number and the division of a whole number by a unit fraction such as 1/3 ÷ 7 and 7 ÷ 1/3 using objects and pictorial models, including area models.	45
	(5.4) **Algebraic reasoning**. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:		
	5.4E	describe the meaning of parentheses and brackets in a numeric expression.	40
	(5.6) **Geometry and measurement**. The student applies mathematical process standards to understand, recognize, and quantify volume. The student is expected to:		
	5.6B	determine the volume of a rectangular prism with whole number side lengths in problems related to the number of layers times the number of unit cubes in the area of the base.	36
	(5.7) **Geometry and measurement**. The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving measurement. The student is expected to:		
	5.7A	solve problems by calculating conversions within a measurement system, customary or metric.	77
	(5.9) **Data analysis**. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. The student is expected to:		
	5.9B	represent discrete paired data on a scatterplot.	67, 77

HEY—READ THIS!

What's in this book?

The activities in this book address every Readiness Standard in 5th grade, as well as most of the Supporting Standards which make the Readiness Standards work.

We've mixed the standards up (just like STAAR does) so that your students get practice in reading a problem, discerning what the problem is asking them to do, and figuring out how to solve it.

How do you use the activities?

Here are some ideas.

- Use them for STAAR prep instead of using only multiple choice problems.
- Let your students work in small groups on one of these activities while you tutor using a different mathmark activity.
- The great thing is that the story problems are written on a 5th-grade reading level. Not only are your students practicing math, but they are also making inferences, one of the ELAR skills that many students have trouble with. Work with your ELAR or ESL partner teacher to share the reading load.
- Use these activities as a spiral review. Be sure that all of the skills on the page have been taught prior to using the activity. You can see which skills are included in each activity by reading the Topics on the Teacher Notes pages or by checking the Table of Standards of PG. 4.

Topics: Multiplication & Division of Decimals, Money Math, Estimation, Models

- Use the funny and interesting activities in this book to inject some fun into summer school learning, and teaching.
- Pair these activities with the STAAR released problems that assess the same skills.
- Use these activities as evidence that students can solve problems at the level expected by the end of the year.

BIG TURTLE CHOCOLATE COMPANY

TEKS RS: 5.2B, 5.3E, 5.3G, 5.3K
SS: 5.3A, 5.3B, 5.3C, 5.3D

Topics: Multiplication & Division of Decimals; Money Math; Estimation; Models

WHAT IT'S ALL ABOUT!

This activity is designed around comparing, ordering, multiplying, and decimals. To do that, we're using a little money math, which is not only included in the TEKS (5.3E), but it's also a handy life skill! In the first half of the activity, students will estimate before they solve. In the second half, they will draw a picture to help them model the math.

ANSWER KEY

1. $0.30
2. 11 boxes
3. $125
4. $312
5. 146 Baby Chocolate Shells
6. $1.01, $0.11, $0.10, $0.01
7. $49
8. He sold 2,650 of each kind.

IT'S A SETUP!

- ☐ Make 1 copy of **Big Turtle Chocolate Company**.
- ☐ Other materials: Money manipulatives (optional)

Students work in pairs to solve each problem.

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BIG TURTLE CHOCOLATE COMPANY (PG. 1 OF 4)

Name: _____

Directions: For Problems #1–#4, estimate the answer, then solve the problem. Be sure to label your answer.

1 Maria Seabass is selling chocolate for the Big Turtle Chocolate Company. Their bestselling product is the box of Chocolate Turtle Drops. Each box costs $6.00 and has 20 Turtle Drops inside. How much does the customer pay for each Turtle Drop?

Estimate: _____

Solution: _____

2 Maria's newest customer wants to spend up to $68.50 on boxes of Chocolate Turtle Drops, but not a penny more! How many boxes can she buy?

Estimate: _____

Solution: _____

Name: _____

3 Chocolate Turtle Drops are packaged in boxes of 20. Each box costs $6. Maria sold a total of 500 drops. How much money did she make selling Chocolate Turtle Drops?

Estimate: _____

Solution: _____

4 In 3 months, Maria sold $936 worth of chocolate. How much did she sell each month?

Estimate: _____

Solution: _____

Name: _____

Directions: For Problems #5–#8, draw a picture to model the problem, then solve.

5 Maria's brother Carlos sells chocolate for the smaller and less successful Tiny Tortoise Chocolate Company. Their bestselling product is the Baby Chocolate Shell, which costs $0.50. Carlos wants to make $73. How many Baby Chocolate Shells would he have to sell?

Solution: _____

6 Carlos spent 3 days selling nothing but Penny Shells, tiny chocolates that cost only $0.01. The table below shows how much he made one week.

Day of the Week	Amount Earned ($)
Monday	$0.10
Tuesday	$0.01
Thursday	$0.11

On Friday, he decided he needed to make more money! Arrange the amounts he made from GREATEST to LEAST.

Name: _____

7 One day, Carlos set up his Chocolate Booth at the school carnival. He made a lot of money that day! He sold 68 Baby Chocolate Shells for $0.50 each, 100 Penny Shells for $0.01 each, and 7 Giant Shells for $2 each. How much money did he make that day?

Solution: _____

8 Over the whole year, Carlos made $26.50 selling Penny Shells and $1,325 selling Baby Chocolate Shells. Which chocolate did he sell more of? Explain your thinking.

SPICKY SPIDER

TEKS RS: 5.3E, 5.3G, 5.3K
SS: 5.3A, 5.3C, 5.3D

Topics: Multiplication & Division of Decimals; Money Math; Estimation; Models

WHAT IT'S ALL ABOUT!

Like the previous activity, this activity is designed around the multiplication and division of decimals using money. We'll use the same methods here, such as estimation and modeling on paper.

HEY—LOOK HERE!

This activity requires creative problem solving. For students who are ready, on Problems #1 and #3, they may try to divide by decimals. Yay for them! You might suggest that they check their division by solving the problem a different way.

IT'S A SETUP!

- ☐ Make 1 copy of **Spicky Spider** for each student.
- ☐ Other materials: Money manipulatives (optional)

Students work in pairs to solve each problem.

ANSWER KEY

1. 57 pennies

2. $2.90

3. 15 x $2.02 = $30.30

4. $8.00 ÷ $.05 = 160 nickels

5. $3.60

6. $5.83

7. $8.75

8. $1.24

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SPICKY SPIDER (PG. 1 OF 4)

Name: _____

Directions: For Problems #1–#2, draw a picture to model the problem, then solve.

1 Spicky is a very clever spider that searches for all the loose change that gets lost in couches. In 3 days, he found $1.87. Ten of the coins he found were dimes and 6 were nickels, but the rest were pennies. How many pennies did he find?

Solution: _____

2 Spicky has a special room in his spider den for all his spare change.

- He keeps his nickels and dimes in stacks of 4.
- He keeps his quarters in stacks of 3.
- His pennies are in stacks of 10.

If Spicky has 2 stacks each of nickels, dimes, quarters, and pennies, how much money does he have in his spider den?

Solution: _____

Name: _____

Directions: For Problems #3–#8, estimate the answer, then solve the problem.

3 Over the course of 15 weeks, Spicky gathered an average of $2.02 per week. How much money did Spicky gather in all 15 weeks combined?

Estimate: _____

Solution: _____

4 After those 15 weeks, Spicky started collecting ONLY NICKELS. After 2 weeks, he had found $8.00. How many nickels had Spicky found?

Estimate: _____

Solution: _____

Name: _____

5 Spicky asked his friend Mickey to help gather coins. They searched for coins together, and then they split everything they found equally. Mickey walked away at the end of the day with 12 dimes and 12 nickels. How much money did the two of them find together?

Estimate: _____

Solution: _____

6 When Spicky got too sick to go look for coins, Mickey decided to help. Mickey searched for 5 days and found $29.15. Oddly enough, he found the same amount of money each day! He gave all the money to Spicky. How much money did Mickey find for each day he searched?

Estimate: _____

Solution: _____

Name: _____

7 Spicky found a secret pile of quarters hidden behind the refrigerator! He counted 35 quarters in total. How much were the quarters worth in all?

Estimate: _____

Solution: _____

8 Before he goes to sleep each night, Spicky puts his lucky penny behind his pillow and makes a wish for more money. One morning, he woke up and found out that his wish came true! His lucky penny was gone, and in its place were 25 nickels. How much more money did he have that morning than when he went to sleep?

Estimate: _____

Solution: _____

DON'T BE PUNNY!

TEKS | **RS:** 5.2B

Topic: Comparing Decimals

WHAT IT'S ALL ABOUT!

This activity requires that students compare decimals. Each correct answer will give students a letter to fill in a blank. Once all the blanks are filled in, the answer to a corny joke will be revealed.

IT'S A SETUP!

- ☐ Make 1 copy of **Don't be Punny!** for each student.

Students solve each problem and put the correct letter in the blank.

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DON'T BE PUNNY! ANSWER KEY

Directions: Use >, <, or = to compare the decimals. Then write the letter for each correct answer above the problem number to solve the puzzle.

Why did the golfer bring two pairs of pants?

I	n		c	a	s	e		s	h	e		g	o	t		a
4	7		5	10	1	11		1	3	11		9	2	8		10

h	o	l	e		i	n		o	n	e	!
3	2	6	11		4	7		2	7	11	

		>	<	=
1	0.999 > 0.99	S	L	Q
2	2.02 = 2.020	W	X	O
3	8.80 > 8.08	H	T	V
4	2.2 > 2.02	I	U	B
5	5.001 < 5.01	R	C	G
6	1.11 > 1.101	L	D	H
7	3.14 < 3.17	S	N	E
8	3.1 = 3.100	Y	A	T
9	7.36 < 7.366	M	G	W
10	4.202 < 4.22	F	A	K
11	2.41 > 2.041	E	D	P

DON'T BE PUNNY!

Name: _____

Directions: Use >, <, or = to compare the decimals. Then write the letter for each correct answer above the problem number to solve the puzzle.

Why did the golfer bring two pairs of pants?

___	___		___	___	___	___		___	___	___		___	___	___	___
4	7		5	10	1	11		1	3	11		9	2	8	10

___	___	___	___		___	___		___	___	___	___
3	2	6	11		4	7		2	7	11	

		>	<	=
1	0.999 ◯ 0.99	S	L	Q
2	2.02 ◯ 2.020	W	X	O
3	8.80 ◯ 8.08	H	T	V
4	2.2 ◯ 2.02	I	U	B
5	5.001 ◯ 5.01	R	C	G
6	1.11 ◯ 1.101	L	D	H
7	3.14 ◯ 3.17	S	N	E
8	3.1 ◯ 3.100	Y	A	T
9	7.36 ◯ 7.366	M	G	W
10	4.202 ◯ 4.22	F	A	K
11	2.41 ◯ 2.041	E	D	P

PATTERN PLAY

TEKS RS: 5.3K, 5.3L SS: 5.3H, 5.3I

Topics: Multiplication of Whole Numbers & Unit Fractions; Division of Whole Numbers & Unit Fractions

WHAT IT'S ALL ABOUT!

This activity involves the multiplication and division of whole numbers with unit fractions. The numbers have been organized to form a sort of fact family, just like your students may have encountered in earlier grades using basic arithmetic. Recognizing patterns in the relationships between numbers, whether they are whole numbers or the denominators of unit fractions, helps students build fluency across the operations. This fluency has a big payoff in Algebra 1.

Some of these questions might appear a little complicated. If your students get stuck, help them focus on the pattern so they can build their intuitive number sense, which is a bedrock for understanding math.

HEY—LOOK HERE!

- ☐ There are two sets of problems. You can do both sets in one day or spread them out over two days.
- ☐ Because this activity contains so much repetition of multiplication facts, we chose facts that students struggle with in order to help build fluency.
- ☐ On **Pattern Play Journal – Round 2**, the second question leans towards 6th grade TEKS. However, it is reasonable for 5th graders to *think* about and *predict* why this might be true from a pattern perspective.

IT'S A SETUP!

- ☐ Make 1 copy of **Pattern Play (3 & 7 Family)** and/or **Pattern Play (8 & 9 Family)** for each pair of students.
- ☐ Copy **Pattern Play Journal** (PG. 25) for each pair of students and cut in half. Use **Pattern Play Journal – Round 1** after the first set of problems. Use **Pattern Play Journal – Round 2** after the second set of problems.
- ☐ Other materials: Scratch paper

1. Remind students of these multiplication facts: 3×7 and/or 8×9. Have students work together to solve each problem.
2. Discuss the patterns that they see.

   Guiding Questions for Discussion:
   - Which facts have the same answers? Why?
   - Which facts have an answer of 1? Why?
3. Hand out **Pattern Play Journal** to each pair. Have them work together to solve the problems.

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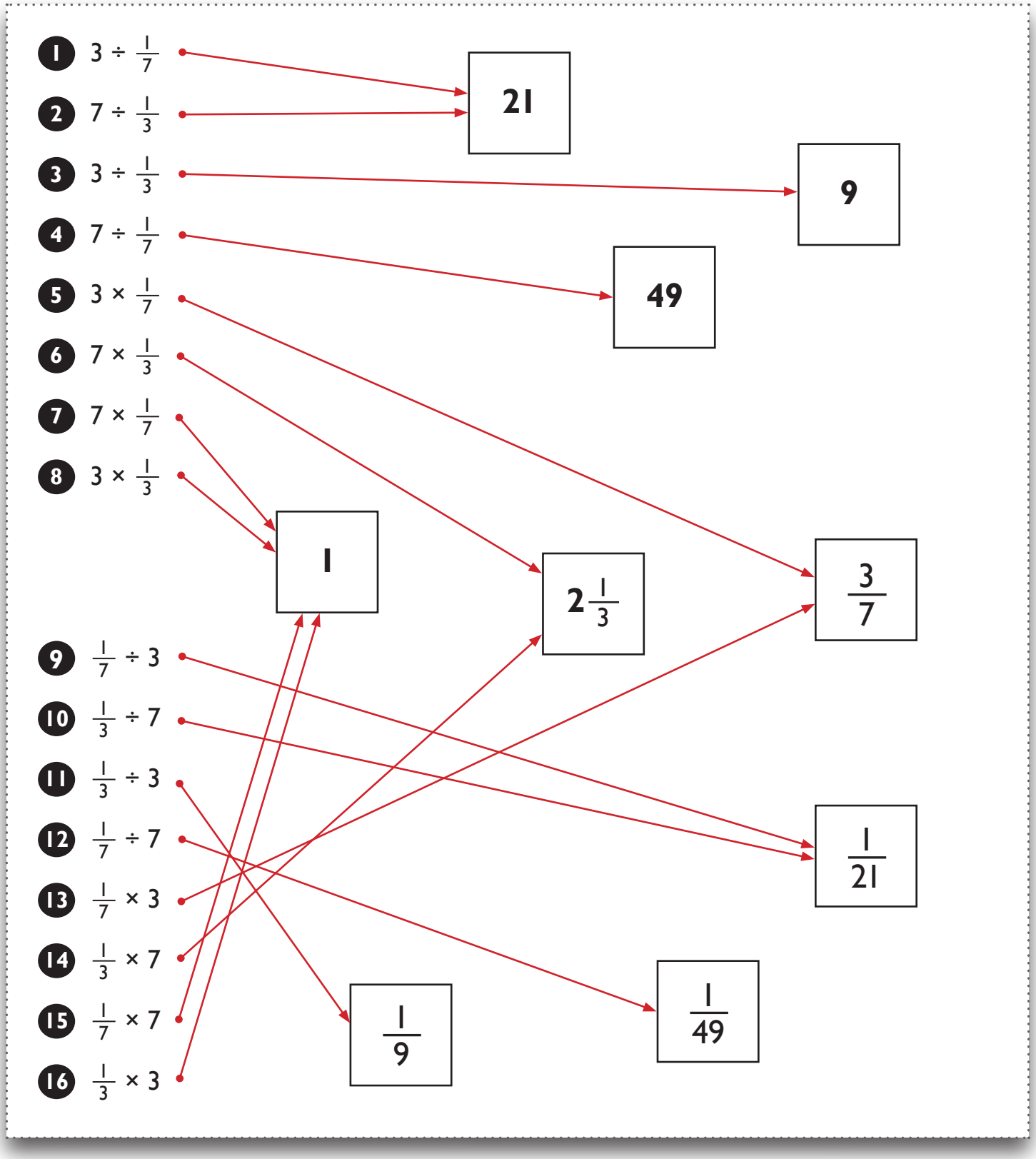
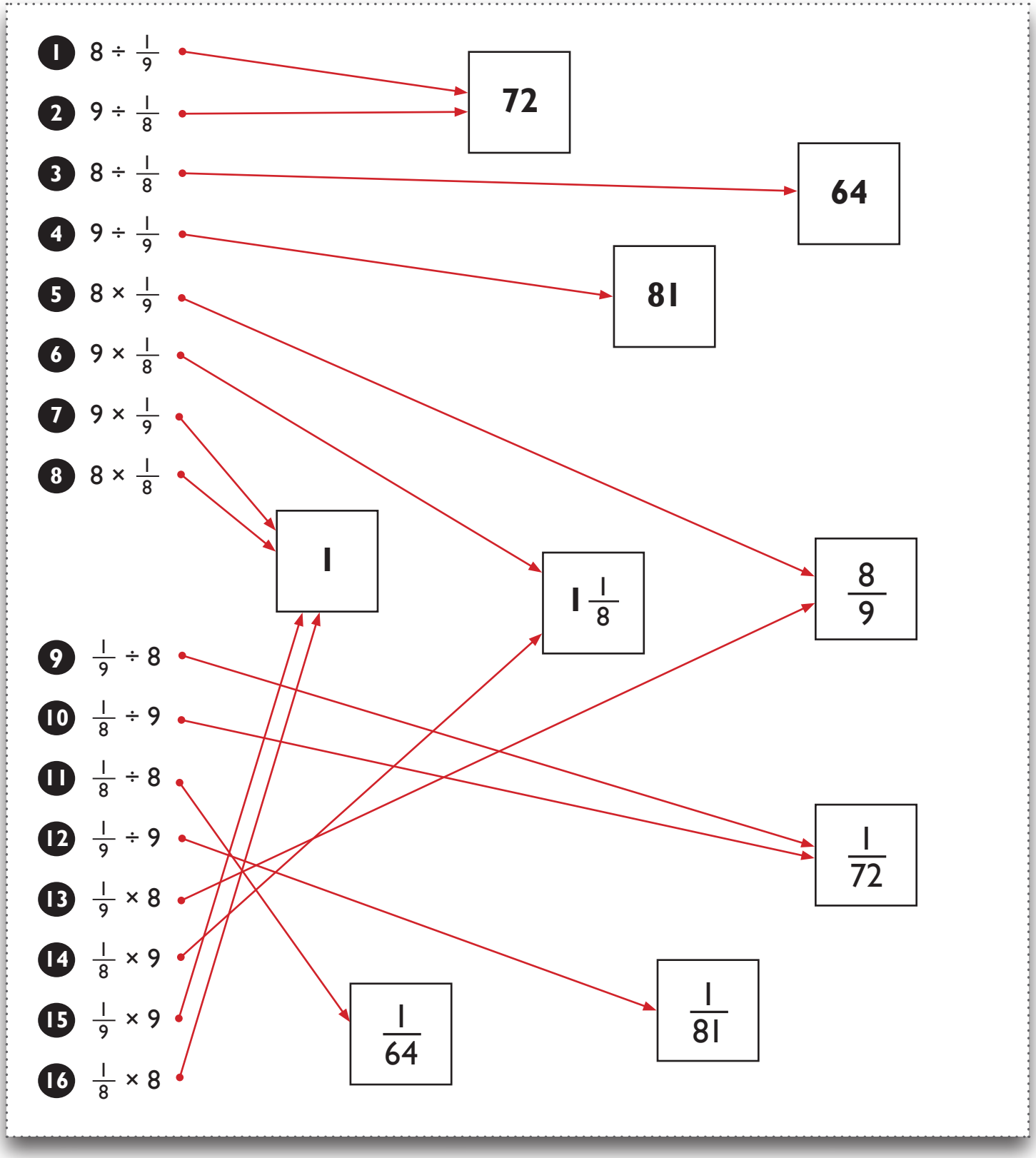
PATTERN PLAY (3 & 7 FAMILY) ANSWER KEY

Directions: Use mental math to solve each problem. Draw a line to the correct answer.



PATTERN PLAY (8 & 9 FAMILY) ANSWER KEY

Directions: Use mental math to solve each problem. Draw a line to the correct answer.

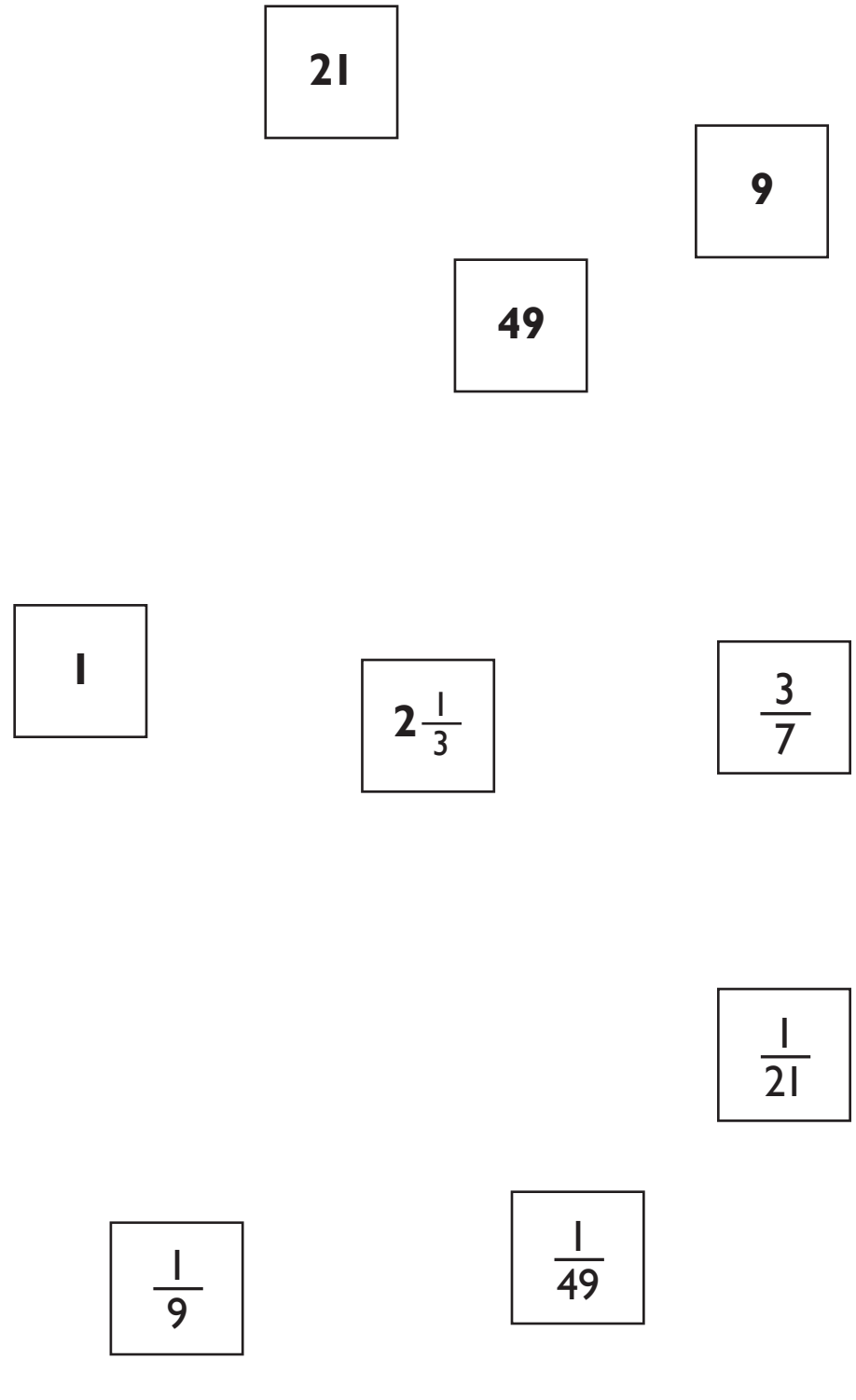


PATTERN PLAY (3 & 7 FAMILY)

Name: _____

Directions: Use mental math to solve each problem. Draw a line to the correct answer.

1. $3 \div \frac{1}{7}$
2. $7 \div \frac{1}{3}$
3. $3 \div \frac{1}{3}$
4. $7 \div \frac{1}{7}$
5. $3 \times \frac{1}{7}$
6. $7 \times \frac{1}{3}$
7. $7 \times \frac{1}{7}$
8. $3 \times \frac{1}{3}$
9. $\frac{1}{7} \div 3$
10. $\frac{1}{3} \div 7$
11. $\frac{1}{3} \div 3$
12. $\frac{1}{7} \div 7$
13. $\frac{1}{7} \times 3$
14. $\frac{1}{3} \times 7$
15. $\frac{1}{7} \times 7$
16. $\frac{1}{3} \times 3$



PATTERN PLAY (8 & 9 FAMILY)

Name: _____

Directions: Use mental math to solve each problem. Draw a line to the correct answer.

1. $8 \div \frac{1}{9}$
2. $9 \div \frac{1}{8}$
3. $8 \div \frac{1}{8}$
4. $9 \div \frac{1}{9}$
5. $8 \times \frac{1}{9}$
6. $9 \times \frac{1}{8}$
7. $9 \times \frac{1}{9}$
8. $8 \times \frac{1}{8}$

9. $\frac{1}{9} \div 8$
10. $\frac{1}{8} \div 9$
11. $\frac{1}{8} \div 8$
12. $\frac{1}{9} \div 9$
13. $\frac{1}{9} \times 8$
14. $\frac{1}{8} \times 9$
15. $\frac{1}{9} \times 9$
16. $\frac{1}{8} \times 8$

72

64

81

1

$1\frac{1}{8}$

$\frac{8}{9}$

$\frac{1}{72}$

$\frac{1}{64}$

$\frac{1}{81}$

Name: _____

Pattern Play Journal – Round 1

What patterns did you notice? Explain why you think those patterns work.

Pattern Play Journal – Round 2

The answer to each of these problems is 1.

$8 \times \frac{1}{8}$ $9 \times \frac{1}{9}$ $8 \div 8$ $9 \div 9$

How can this be true?

Bonus Question: $\frac{1}{8} \div \frac{1}{8}$ and $\frac{1}{9} \div \frac{1}{9}$ also equal 1. How can THIS be true?

BAD BILLY'S BUTTON BOXES

TEKS RS: 5.3K, 5.3L, 5.4H
SS: 5.3H, 5.3I, 5.3B, 5.3C

Topics: Perimeter, Area, Volume, Operations with Whole Numbers, Operations with Fractions

WHAT IT'S ALL ABOUT!

In this activity, students will use all four operations with whole numbers and fractions in order to calculate perimeter, area, and volume.

Problems #1–#4 will ask students to draw and label a picture to accompany their work.

Problems #5–#8 explore the same concepts, but the answers are all INCORRECT! The students should identify the mistake and then solve the problem correctly.

IT'S A SETUP!

☐ Make 1 copy of **Bad Billy's Button Boxes** for each student.

Hand out **Bad Billy's Button Boxes**. Students should then work in groups solve the problems. If your students seem unsure of how to begin, feel free to work the first problem on the board.

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BAD BILLY'S BUTTON BOXES (PG. 1 OF 4)

ANSWER KEY

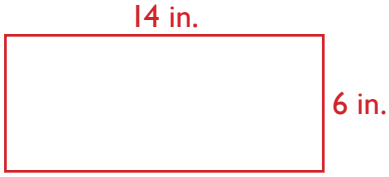
Directions: For Problems #1–#2, draw and label a picture to illustrate the problem. Then solve. Be sure to label your answer.

1 Bad Billy has a shop where he sells his famous Button Boxes. The first Button Box he ever made was 14 inches wide and 6 inches long.

What is the area of the bottom of his first box?

What is its perimeter?

Draw It!



Area Formula: L × W = A

Fill it in: 6 × 14 = A

Solve It!

84 square inches

Perimeter Formula: L + L + W + W = P

Fill it in: 14 + 14 + 6 + 6

Solve It!

40 inches

2 Bad Billy's Button Boxes were designed to hold small rectangular buttons. Each button is $\frac{1}{2}$ inch long and 2 inches wide.

What is the area of a square button?

What is the perimeter?

Draw It!

Area Formula: L × W = A

Fill it in: $\frac{1}{2} \times 2$

Solve It!

1 square inch

Perimeter Formula: L + L + W + W = P

Fill it in: $\frac{1}{2} + \frac{1}{2} + 2 + 2$

Solve It!

5 inches

BAD BILLY'S BUTTON BOXES (PG. 2 OF 4)

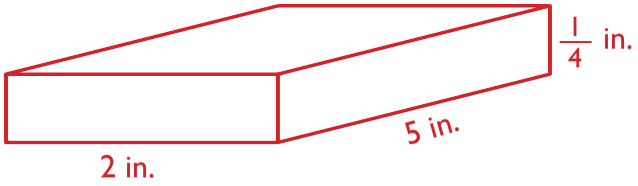
ANSWER KEY

Directions: For Problems #3–#4, draw and label a picture to illustrate the problem. Then solve. Be sure to label your answer.

3 Everyone loves Bad Billy's bestselling Blue Button Boxes! Each one is 5 inches long, 2 inches wide, and $\frac{1}{4}$ inches tall.

What is the volume of a Blue Button Box?

Draw It!



Formula: L × W × H = V

Fill it in: $5 \times 2 \times \frac{1}{4}$

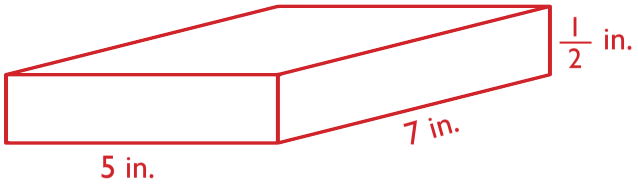
Solve It!

$\frac{10}{4} = 2\frac{1}{2}$ cubic inches

4 The Orange Button Boxes are not as popular (maybe because they don't start with a B!). An orange Button Box is 5 inches long, 7 inches wide, and $\frac{1}{2}$ inch tall.

What is the volume of an Orange Button Box?

Draw It!



Formula: L × W × H = V

Fill it in: $5 \times 7 \times \frac{1}{2}$

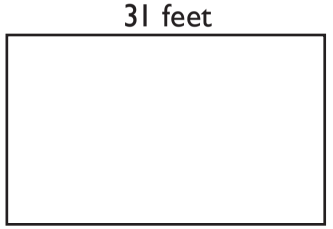
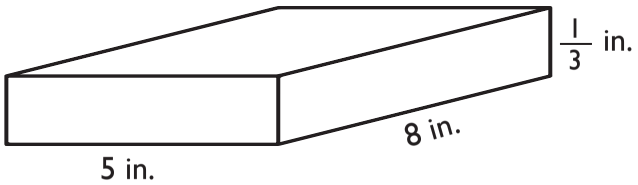
Solve It!

$\frac{35}{2} = 17\frac{1}{2}$ cubic inches

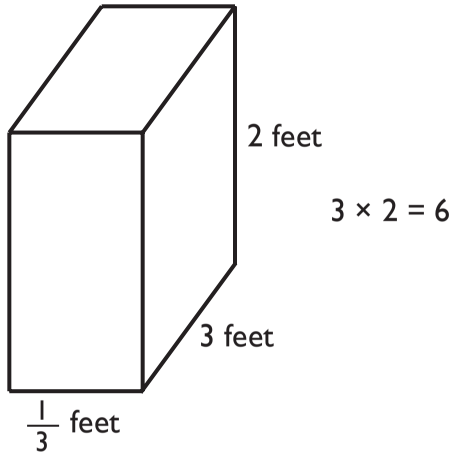
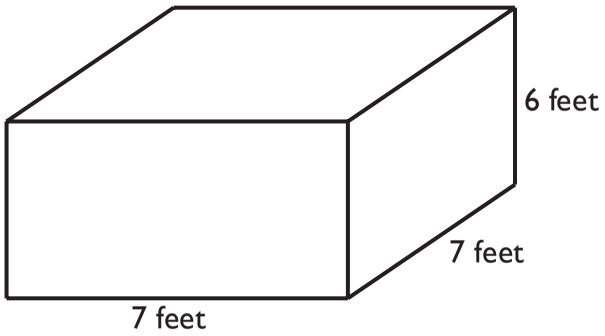
BAD BILLY'S BUTTON BOXES (PG. 3 OF 4)

ANSWER KEY

Directions: For Problems #5–#8, each problem is already solved. But all the solutions are WRONG! For each problem, identify the mistake, then solve the problem correctly.

	Problem Worked Wrong!	Correction
5 Behind Bad Billy's Button Box shop is a small warehouse. It's where Bad Billy keeps all the buttons that go in his Button Boxes, and also where he works to build the newest and greatest Button Boxes for his customers. The warehouse is 31 feet long and 25 feet wide. What is its perimeter?	 31 × 25 155 + 620 775 The perimeter is 775 feet.	What is the mistake? *Calculated area instead of perimeter.* Correct Answer: 112 feet
6 Bad Billy sat in his workshop, which is in the back of the warehouse, working on his new project, the Beta Blue Button Box. The Beta Blue Button Box would be able to hold only flat buttons. The version he was working on was 8 inches long, 5 inches wide, and $\frac{1}{3}$ inch tall. What is the volume of this Beta Blue Button Box?	 $8 \times 5 \times \frac{1}{3} = \frac{40}{3}$ The volume is 13 cubic inches.	What is the mistake? *Changed the improper fraction to mixed number incorrectly.* Correct Answer: $13\frac{1}{3}$ cubic inches

BAD BILLY'S BUTTON BOXES (PG. 4 OF 4) ANSWER KEY

	Problem Worked Wrong!	Correction
7 The Beta Blue Button Box was full of tiny springs and gears. It even had a little motor that made its tiny shelf go up and down. But the shelf was stuck in the up position and wouldn't go back down! Bad Billy decided to take the Button Box apart to fix it. He went to his toolbox to find the tiniest screwdriver he could. His toolbox was a rectangular prism, 3 ft wide, $\frac{1}{3}$ ft long, and 2 ft tall. What was the area of its base?	 $3 \times 2 = 6$ The area is 6 square feet.	What is the mistake? *Multiplied the wrong dimensions.* Correct Answer: 1 square foot
8 With a few quick turns of the screwdriver, Bad Billy removed the motor from the Beta Blue Button Box and examined it to see what was wrong. He was surprised to find that it was full of tiny scratches and bite marks. A mouse had chewed up the motor! There was no fixing it. Bad Billy's Beta Blue Button Box was broken. He walked out around back and threw it in the dumpster. The dumpster was 7 feet long, 7 feet wide, and 6 feet tall. What was its volume?	 $7 \times 2 = 14$ $6 \times 2 = 12$ $14 + 12 = 26$ The volume is 26 cubic feet.	What is the mistake? *Used process for finding a perimeter, not volume.* Correct Answer: 294 cubic feet

BAD BILLY'S BUTTON BOXES (PG. 1 OF 5)

Name: _____

Directions: For Problems #1–#2, draw and label a picture to illustrate the problem. Then solve. Be sure to label your answer.

1 Bad Billy has a shop where he sells his famous Button Boxes. The first Button Box he ever made was 14 inches wide and 6 inches long.

What is the area of the bottom of his first box?

What is its perimeter?

Draw It!

Area Formula: _____

Fill it in: _____

Solve It!

Perimeter Formula: _____

Fill it in: _____

Solve It!

BAD BILLY'S BUTTON BOXES (PG. 2 OF 5)

Name: _____

2 Bad Billy's Button Boxes were designed to hold small rectangular buttons. Each button is $\frac{1}{2}$ inch long and 2 inches wide.

What is the area of a square button?

What is the perimeter?

Draw It!

Area Formula: _____

Fill it in: _____

Solve It!

Perimeter Formula: _____

Fill it in: _____

Solve It!

BAD BILLY'S BUTTON BOXES (PG. 3 OF 5)

Name: _____

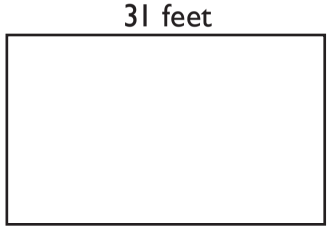
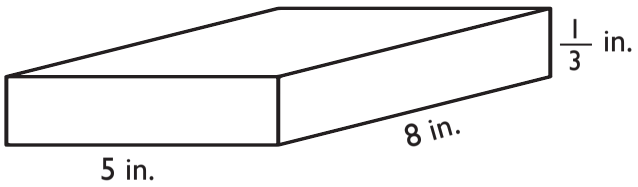
Directions: For Problems #3–#4, draw and label a picture to illustrate the problem. Then solve. Be sure to label your answer.

3 Everyone loves Bad Billy's bestselling Blue Button Boxes! Each one is 5 inches long, 2 inches wide, and $\frac{1}{4}$ inches tall. What is the volume of a Blue Button Box?	**Draw It!**	**Formula:** _____ **Fill it in:** _____ **Solve It!**
4 The Orange Button Boxes are not as popular (maybe because they don't start with a B!). An orange Button Box is 5 inches long, 7 inches wide, and $\frac{1}{2}$ inch tall. What is the volume of an Orange Button Box?	**Draw It!**	**Formula:** _____ **Fill it in:** _____ **Solve It!**

BAD BILLY'S BUTTON BOXES (PG. 4 OF 5)

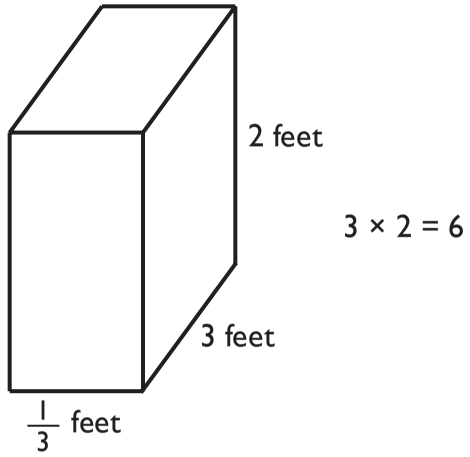
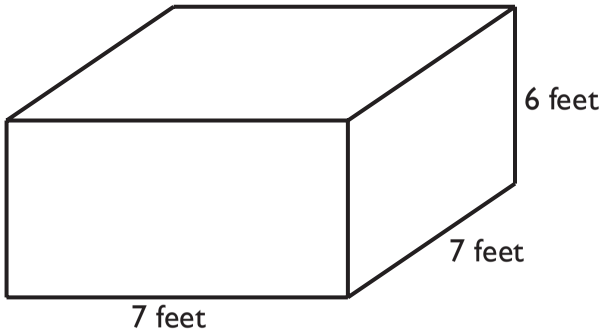
Name: _____

Directions: For Problems #5–#8, each problem is already solved. But all the solutions are WRONG! For each problem, identify the mistake, then solve the problem correctly.

	Problem Worked Wrong!	Correction
5 Behind Bad Billy's Button Box shop is a small warehouse. It's where Bad Billy keeps all the buttons that go in his Button Boxes, and also where he works to build the newest and greatest Button Boxes for his customers. The warehouse is 31 feet long and 25 feet wide. What is its perimeter?	 31 × 25 155 + 620 775 The perimeter is 775 feet.	What is the mistake? Correct Answer: _____
6 Bad Billy sat in his workshop, which is in the back of the warehouse, working on his new project, the Beta Blue Button Box. The Beta Blue Button Box would be able to hold only flat buttons. The version he was working on was 8 inches long, 5 inches wide, and $\frac{1}{3}$ inch tall. What is the volume of this Beta Blue Button Box?	 $8 \times 5 \times \frac{1}{3} = \frac{40}{3}$ The volume is 13 cubic inches.	What is the mistake? Correct Answer: _____

BAD BILLY'S BUTTON BOXES (PG. 5 OF 5)

Name: _____

	Problem Worked Wrong!	Correction
7 The Beta Blue Button Box was full of tiny springs and gears. It even had a little motor that made its tiny shelf go up and down. But the shelf was stuck in the up position and wouldn't go back down! Bad Billy decided to take the Button Box apart to fix it. He went to his toolbox to find the tiniest screwdriver he could. His toolbox was a rectangular prism, 3 ft wide, $\frac{1}{3}$ ft long, and 2 ft tall. What was the area of its base?	 $3 \times 2 = 6$ The area is 6 square feet.	What is the mistake? Correct Answer: _____
8 With a few quick turns of the screwdriver, Bad Billy removed the motor from the Beta Blue Button Box and examined it to see what was wrong. He was surprised to find that it was full of tiny scratches and bite marks. A mouse had chewed up the motor! There was no fixing it. Bad Billy's Beta Blue Button Box was broken. He walked out around back and threw it in the dumpster. The dumpster was 7 feet long, 7 feet wide, and 6 feet tall. What was its volume?	 $7 \times 2 = 14$ $6 \times 2 = 12$ $14 + 12 = 26$ The volume is 26 cubic feet.	What is the mistake? Correct Answer: _____

GARDEN MATCH UP

TEKS RS: 5.3E, 5.3G, 5.3K, 5.4B, 5.4H
SS: 5.6B

Topics: Area, Perimeter, Volume, Writing Equations, Operations with Decimals & Fractions

WHAT IT'S ALL ABOUT!

This activity involves matching cards to answer questions about perimeter, area, and volume. Cards involving the formulas for perimeter, area, and volume are included with a variable standing for the answer, but the word problems themselves do not use those words. After sorting the cards, students will answer a set of challenging follow-up questions to test their mathematical fluency.

ANSWER KEY

The cards (PG. 38) are also the Answer Key.

IT'S A SETUP!

- ☐ Make 1 copy of **Garden Match Up** (PG. 3) for every 3–4 students. Cut the cards apart and place them in baggies.
- ☐ Make 1 copy of **Garden Match Up Journal** (PG. 4) for every student.
- ☐ Other materials: Scratch paper

Students will work in groups to make a complete set for each problem. A complete set includes: problem situation and question, equation (with formula), and solution (with units removed). After that, have students work individually to solve the questions on **Garden Match Up Journal**.

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GARDEN MATCH UP JOURNAL

ANSWER KEY

Directions: Answer each question. Be sure to show all your work.

Note: The equations for Problem #2 and Problem #4 are very sophisticated. You may not want to count the equations right or wrong. You'll DEFINITELY want to discuss them.

Problem	Draw It!	Write an Equation & Solve It!
1 Fernando and Electra love tomatoes so they planted another tomato garden. This garden was only $\frac{1}{2}$ as long as the original garden. What is the area of the new garden?	Pictures will vary.	*Equations may vary.* 6.5 × 16.5 = A 107.25 square meters
2 Emma's brother has a dump truck that is the same width as Emma's. But it's 3 meters longer. How many cubic meters of soil would fit in their trucks combined?	Pictures will vary.	*Equations may vary.* (7.8 × 3 × 2.6) + (4.8 × 3 × 2.6) = V 98.28 cubic meters
3 If Riley's garden were 0.5 meters longer and 0.5 meters wider, what would the area of the new garden be?	Pictures will vary.	*Equations may vary.* 13.5 × 17 = A 229.5 square meters
4 Cole decided to mark his mud patch by putting a picket fence all the way around it. He wanted the sides of the pickets to touch. Each picket is 4 inches wide. How many pickets would he need to use?	Pictures will vary.	*Equations may vary.* $\frac{(4.8 \times 2) + (3.2 \times 2)}{4}$ 4 pickets

GARDEN MATCH UP

The rows below are the answer key for the card matches.

Fernando and Electra planted a tomato garden in their backyard and built a fence around it. The tomato garden is 13 meters long and 16.5 meters wide. How many meters of fence do they need?	$P = (13 \times 2) + (16.5 \times 2)$	59
Emma delivers truckloads of soil to farmers in her dump truck. The back of the truck is 4.8 meters long and 2.6 meters wide. She can layer 3 meters of soil in it. How many cubic meters of soil fit in the back of her dump truck?	$V = 4.8 \times 2.6 \times 3$	37.44
Riley grows rows of rosebushes in her backyard. Each rosebush takes up 1 square meter of soil. If her garden is 13 meters long and 16.5 meters wide, exactly how many rosebushes can she put there?	$A = 13 \times 16.5$	214
There's a mud patch in the middle of Cole's lawn, so he's decided to plant pads of grass on top. Each pad covers 1 square meter. The mud patch is 4.8 meters wide and 3.2 meters long. How many pads does he need to buy to cover the whole mud patch? (Note: He can only buy whole pads of grass.)	$A = 4.8 \times 3.2$	16

GARDEN MATCH UP JOURNAL

Name: _____

Directions: Answer each question. Be sure to show all your work.

Problem	Draw It!	Write an Equation & Solve It!
1 Fernando and Electra love tomatoes so they planted another tomato garden. This garden was only $\frac{1}{2}$ as long as the original garden. What is the area of the new garden?		
2 Emma's brother has a dump truck that is the same width as Emma's. But it's 3 meters longer. How many cubic meters of soil would fit in their trucks combined?		
3 If Riley's garden were 0.5 meters longer and 0.5 meters wider, what would the area of the new garden be?		
4 Cole decided to mark his mud patch by putting a picket fence all the way around it. He wanted the sides of the pickets to touch. Each picket is 2 meters wide. How many pickets would he need to use?		

ANDRE'S ANIMAL ENCLOSURE (PG. 1 OF 2)

TEKS RS: 5.4B, 5.4F SS: 5.3K, 5.4E

Topics: Problems & Equations; Solve Multi-Step Problems; Order of Operations; Operations Fluency

WHAT IT'S ALL ABOUT!

In this activity, students work in groups to match problems with equations and then solve them. The equations are broken up into "phrases" to increase the rigor. While this may look like algebra (and therefore a little advanced), it isn't much different than solving multi-step word problems, and your students have had plenty of experience with that. The difference is that all the operations are written in the same numerical expressions. Starting students with variables early will help ease the transition into more advanced areas of algebraic reasoning.

HEY—LOOK HERE!

- ☐ If your students are scared by the *x* in the equation, have them replace it with a word from the question. For example, if the problem is asking for weight, have them replace the *x* with the word *weight*.
- ☐ One way students might check their work on their matches is to label each number in the equation and see where it matches the word problem.
- ☐ Take some time to have students compare their correct equations. Can the equations be written in more than one way and still be correct?
- ☐ Another option is to copy the cards on cardstock. Stick magnetic strips to the back and place them on a cookie sheet. Use the cookie sheet and magnets for a portable center.

IT'S A SETUP!

- ☐ Make 1 copy **Andre's Animal Enclosure** for every 2–3 students. Cut the cards apart and bag them. If you wish, you can have your students cut the cards and glue their matches on construction paper.
- ☐ Other materials:
  - Scratch paper
  - (Optional) Scissors
  - (Optional) Glue
  - (Optional) Construction paper

Place students in groups of 2–3. Have them work together to match the word problem with the equation and solution. A matching set includes a word problem, an equation (with a letter variable), and the solution (with the units removed—no hints!).

Back to the Table of **Contents** Table of **Standards**

Andre's Animal Enclosure has an otter exhibit. 3 of the otters weigh 14 pounds each, while the other 2 otters weigh 20 pounds each. How much do the otters weigh combined?	$(3 \times 14) + (2 \times 20) = x$	82
36 people per day came to watch the otters last week. All except for Sunday, when 6 fewer people came. How many people came to watch the otters last week?	$(36 \times 6) + (36 - 6) = x$	246
36 sea otters live in the saltwater tank. Next week 6 more will arrive. The week after that, half of the otters will be released back into the ocean. How many otters will live in the saltwater tank after that?	$(36 + 6) \div 2 = x$	21
Andre's Animal Enclosure has 5 black bears, 2 males and 3 females. The males weigh 550 pounds each. The females weigh 370 pounds each. How much more do the females weigh than the males?	$(3 \times 370) - (2 \times 550) = x$	10
The lemur exhibit at Andre's Animal Enclosure has 14 ring-tailed lemurs, all the same size. From the bottom of their body to the top of their head, each one is 20 inches long. Their tails are all 23 inches long, though! How much longer is the combined length of their tails than the combined length of their bodies?	$(23 \times 14) - (20 \times 14) = x$	42
One of the aquatic mammal exhibits at Andre's Animal Enclosure holds 3 capybaras, 6 muskrats, and 2 swamp rabbits. If a capybara has 20 teeth, a swamp rabbit has 28, and a muskrat has 36, how many teeth are in the exhibit in all?	$(3 \times 20) + (2 \times 28) + (6 \times 36) = x$	332
Andre's Animal Enclosure used to have 36 goats. One week, 6 of them were sent to another enclosure. The next week, 2 more were sent away. The following week, half of the remaining goats were sent somewhere else. How many goats were left at Andre's?	$(36 - 6 - 2) \div 2 = x$	14
Out of the 28 horses at Andre's Animal Enclosure, $\frac{1}{4}$ were brown and $\frac{1}{2}$ were black. The rest were neither brown nor black. How many more black horses did they have than horses that were neither brown nor black?	$28 - (28 \div 2) - (28 \div 4) = x$	7

ANDRE'S ANIMAL ENCLOSURE (PG. 1 OF 3)

Directions: Cut apart and place in baggies.

Andre's Animal Enclosure has an otter exhibit. 3 of the otters weigh 14 pounds each, while the other 2 otters weigh 20 pounds each. How much do the otters weigh combined?

The lemur exhibit at Andre's Animal Enclosure has 14 ring-tailed lemurs, all the same size. From the bottom of their body to the top of their head, each one is 20 inches long. Their tails are all 23 inches long, though! How much longer is the combined length of their tails than the combined length of their bodies?

36 people per day came to watch the otters last week. All except for Sunday, when 6 fewer people came. How many people came to watch the otters last week?

One of the aquatic mammal exhibits at Andre's Animal Enclosure holds 3 capybaras, 6 muskrats, and 2 swamp rabbits. If a capybara has 20 teeth, a swamp rabbit has 28, and a muskrat has 36, how many teeth are in the exhibit in all?

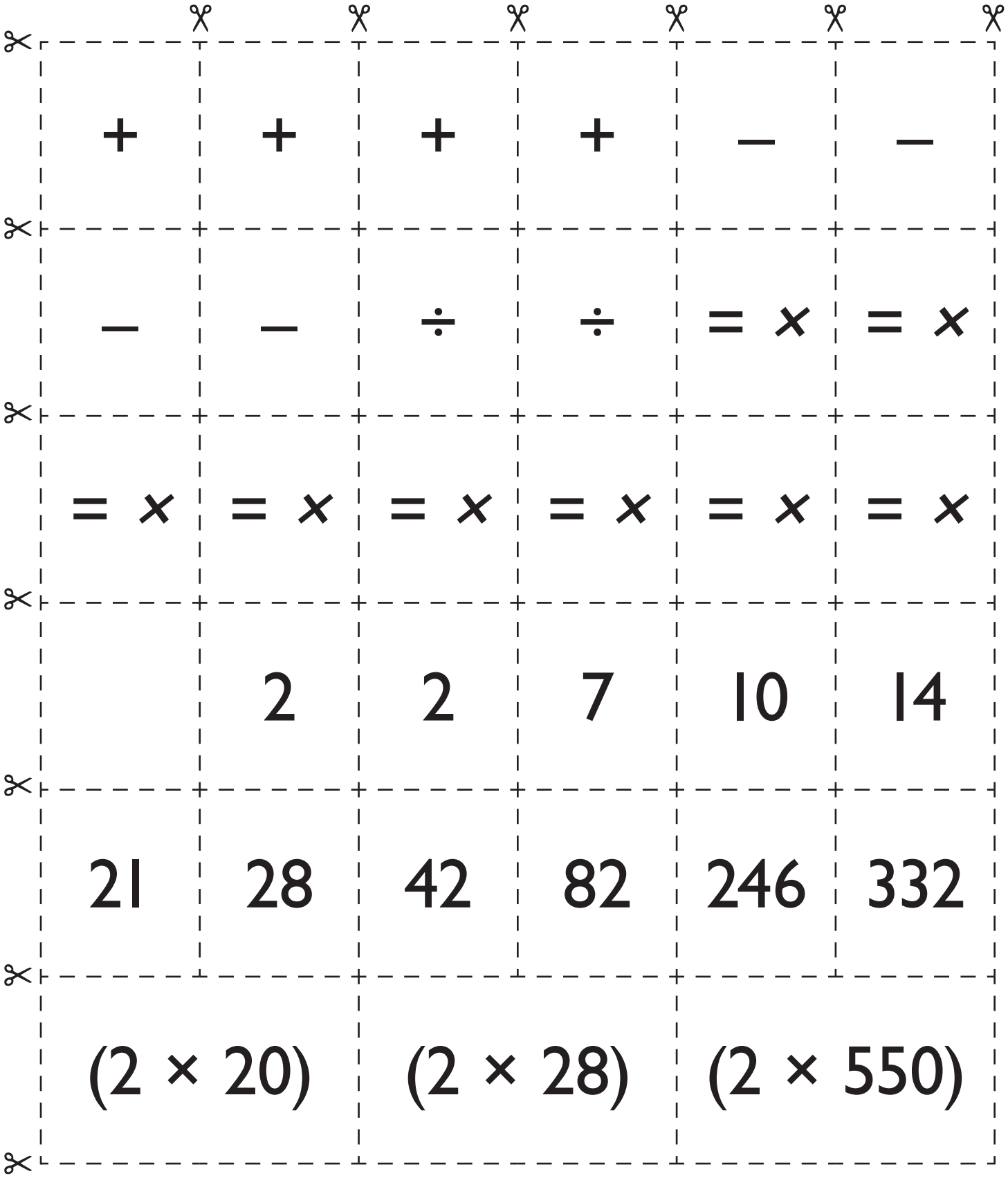
36 sea otters live in the saltwater tank. Next week 6 more will arrive. The week after that, half of the otters will be released back into the ocean. How many otters will live in the saltwater tank after that?

Andre's Animal Enclosure used to have 36 goats. One week, 6 of them were sent to another enclosure. The next week, 2 more were sent away. The following week, half of the remaining goats were sent somewhere else. How many goats were left at Andre's?

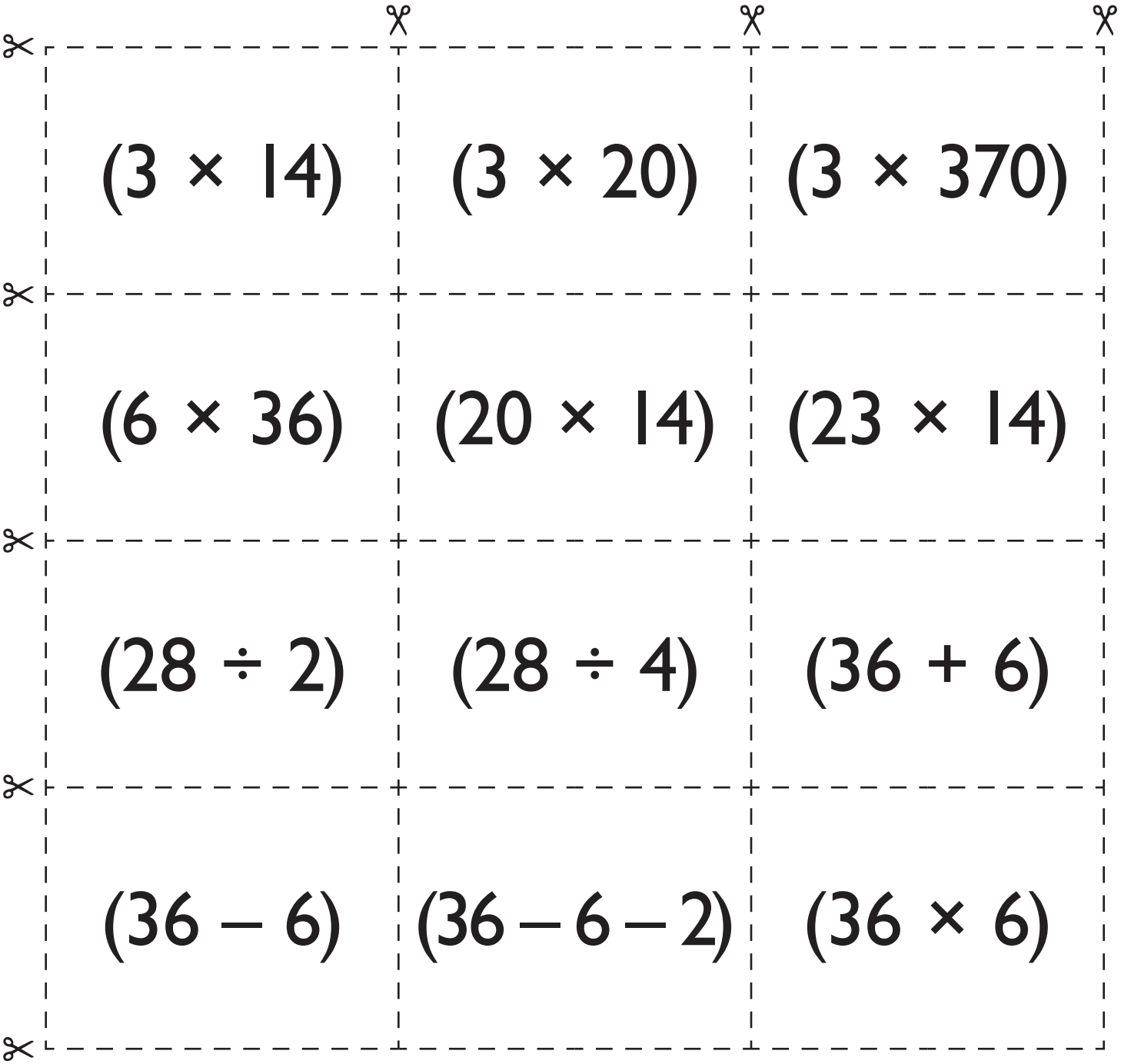
Andre's Animal Enclosure has 5 black bears, 2 males and 3 females. The males weigh 550 pounds each. The females weigh 370 pounds each. How much more do the females weigh than the males?

Out of the 28 horses at Andre's Animal Enclosure, $\frac{1}{4}$ were brown and $\frac{1}{2}$ were black. The rest were neither brown nor black. How many more black horses did they have than horses that were neither brown nor black?

ANDRE'S ANIMAL ENCLOSURE (PG. 2 OF 3)



ANDRE'S ANIMAL ENCLOSURE (PG. 3 OF 3)



REPRESENTING LINEAR DATA

TEKS RS: 5.4C, 5.8C, 5.3K
SS: 5.3J

Topics: Number Patterns, Tables, Graphs

WHAT IT'S ALL ABOUT!

This activity involves graphing in the first quadrant of a coordinate plane. Students will use counters to model an everyday situation. Then they will fill in a table, tell whether the situation is additive or multiplicative, graph it, and answer a few questions. The equation, table, and graph are all different ways of representing the same data. Working on each one will reinforce student understanding of all the others. (Note: Problem #6 is a challenge problem.)

HEY—LOOK HERE!

Each one of the problems requires a lot of thinking. You may want to break the problems up over several days or place some of them in centers.

IT'S A SETUP!

- ☐ Make 1 copy of **Representing Linear Data** for each student.
- ☐ Other materials: Counters or cm cubes

Place students in groups of 2–3. Have them work together to understand the problem, make a table, graph the data, and then analyze the situation. You may wish to work through Problem #1 to get them started.

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ANSWER KEY

Directions: Fill in each part of the graphic organizer and answer the questions.

1 Paul is a runner. Each day, he runs 3 miles.

UNDERSTAND THE PROBLEM

SAY ALOUD: *In this problem, we are comparing the number of days that Paul has run with the total number of miles.*

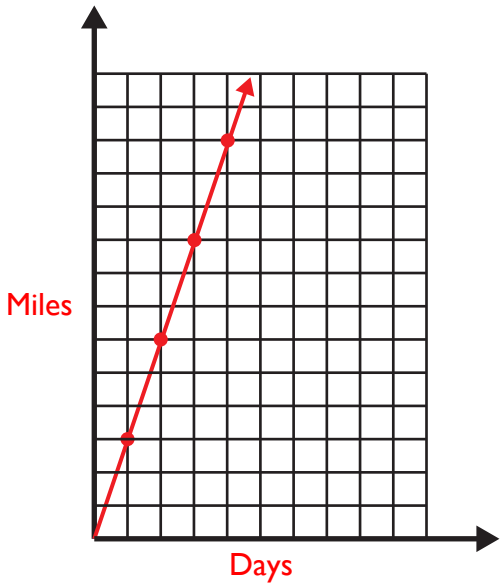
MODEL AND DISCUSS WITH YOUR TEAM.

- How many miles does Paul run each day? 3 miles
- After he finishes Day 1, how many miles will he have run? 3 miles
- After he finishes Day 2, how many TOTAL miles will he have run? 6 miles

FILL IN THE TABLE

Days	Process	Miles	Ordered Pairs
0	0 × 3	0	(0,0)
1	1 × 3	3	(1, 3)
2	2 × 3	6	(2, 6)
3	3 × 3	9	(3, 9)
4	4 × 3	12	(4, 12)

GRAPH THE TABLE



ANALYZE THE INFORMATION

- How many total miles would Paul have run after 7 days? 21
- On what day would Paul have run 24 miles? Day 8
- On Day 5, would Paul have run more or less than 16 miles? Less
- Why do you multiply the days by 3 to get the number of miles? Each day he runs 3 miles. 3 + 3 + 3, etc.

ANSWER KEY

2 Paul's friend Charlotte is also a runner. She lives one block from Paul. She runs one block to his house and then they run together.

UNDERSTAND THE PROBLEM

SAY ALOUD: *In this problem, we are comparing the number of blocks that Charlotte runs with the number of blocks that Paul runs.*

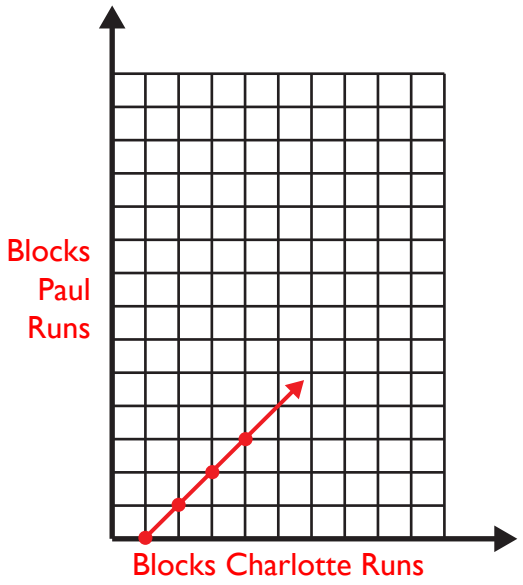
MODEL AND DISCUSS WITH YOUR TEAM. (Choose one color counter for Charlotte and a different color for Paul.)

- How many blocks does Charlotte run to get to Paul's house? 1
- When Charlotte gets to Paul's house, how many blocks has Paul run? 0
- When Charlotte and Paul have run 1 block together, how far has Charlotte run in all? 2
- How far has Paul run? 1
- How many fewer blocks has Paul run than Charlotte? 1

FILL IN THE TABLE

Blocks Charlotte Has Run	Process	Blocks Paul Has Run	Ordered Pairs
1	1 – 1	0	(1, 0)
2	2 – 1	1	(2, 1)
3	3 – 1	2	(3, 2)
4	4 – 1	3	(4, 3)

GRAPH THE TABLE



ANALYZE THE INFORMATION

- Each day that Paul and Charlotte run together, how many more blocks does Charlotte run than Paul? 1
- Each day that Paul and Charlotte run together, how many fewer blocks does Paul run than Charlotte? 1
- If Charlotte has run 6 blocks, how far has Paul run? 5
- If Charlotte and Paul have run a total of 9 blocks, how many blocks have each of them run? Charlotte has run 5 blocks; Paul has run 4.

ANSWER KEY

3 For each hour that Paul runs, he can run 4 miles.

UNDERSTAND THE PROBLEM

SAY ALOUD: *In this problem, we are comparing the number of hours that Paul runs with the total number of miles he has run.*

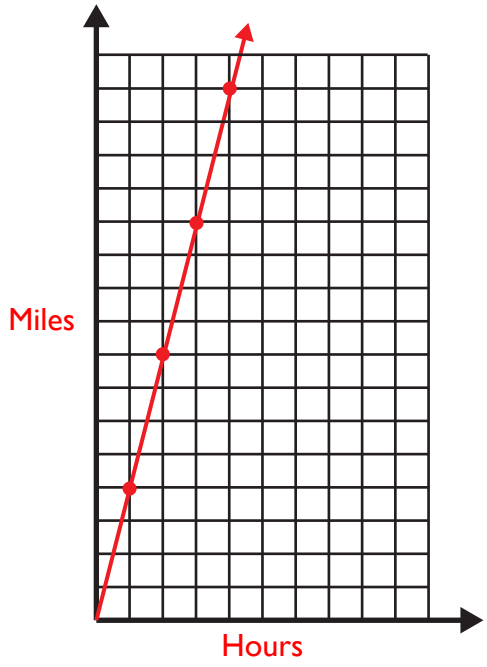
MODEL AND DISCUSS WITH YOUR TEAM. (Choose one color counter for Paul and another color for the miles.)

- How many miles can Paul run each hour? 4 miles
- How many total miles has he run after 1 hour? 4 miles
- How many total miles has he run after 2 hours? 8 miles

FILL IN THE TABLE

Hours	Process	Miles	Ordered Pairs
0	0 × 4	0	(0, 0)
1	1 × 4	4	(1, 4)
2	2 × 4	8	(2, 8)
3	3 × 4	12	(3, 12)
4	4 × 4	16	(4, 16)

GRAPH THE TABLE



ANALYZE THE INFORMATION

- If Paul runs for 6 hours, how many miles will he have run? 24 miles
- How many hours will it take for Paul to run 20 miles? 5 hours
- About how long would it take Paul to run a marathon if he could run 4 miles each hour? (A marathon is 26.2 miles.) About 6.5 hours

ANSWER KEY

4 Charlotte runs 6 miles each day.

UNDERSTAND THE PROBLEM

SAY ALOUD: *In this problem, we are comparing the number of days that Charlotte runs with the total number of miles she has run.*

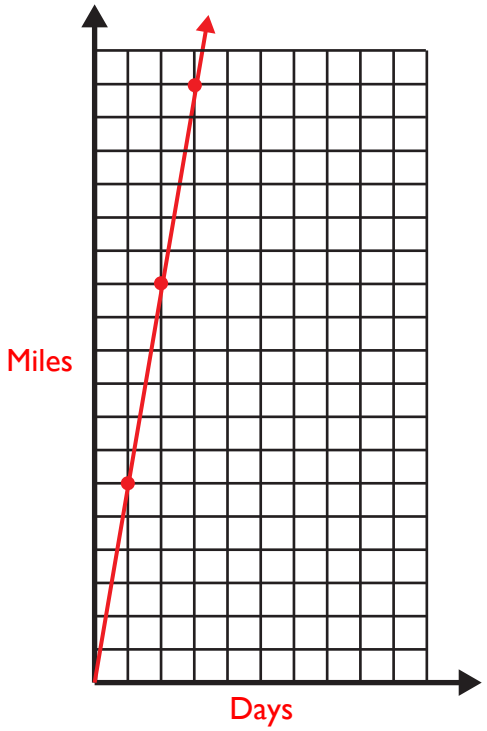
MODEL AND DISCUSS WITH YOUR TEAM. (Choose one color counter for the number of days and another color for the miles.)

- How many miles does Charlotte run each day? 6 miles
- How many total miles has she run after 1 day? 6 miles
- How many total miles has she run after 2 days? 12 miles

FILL IN THE TABLE

Days	Process	Miles	Ordered Pairs
0	0 × 6	0	(0, 0)
1	1 × 6	6	(1, 6)
2	2 × 6	12	(2, 12)
3	3 × 6	18	(3, 18)
4	4 × 6	24	(4, 24)

GRAPH THE TABLE



ANALYZE THE INFORMATION

- If Charlotte runs for 6 days, how many total miles will she have run? 36 miles
- How many days will it take for Charlotte to run 42 miles? 7 days
- The distance from Dallas to Fort Worth is about 33 miles. About how many days would it take Charlotte to run 33 miles? About 5.5 days

ANSWER KEY

5 Every Saturday, Charlotte spends $5 on candy.

UNDERSTAND THE PROBLEM

SAY ALOUD: *In this problem, we are comparing the number of Saturdays with the total amount of money that Charlotte has spent on candy.*

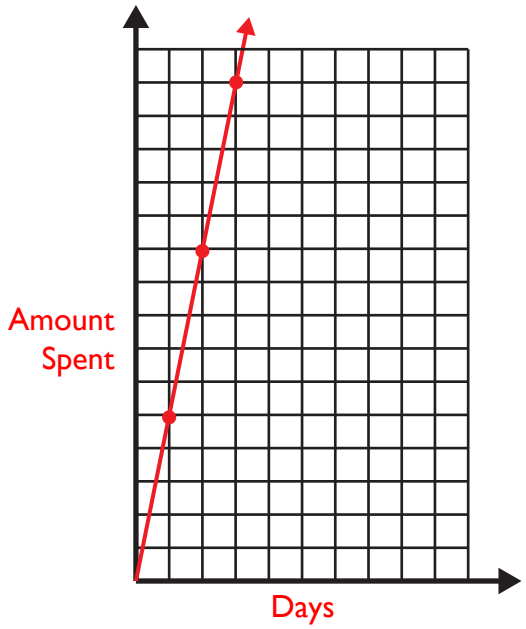
MODEL AND DISCUSS WITH YOUR TEAM. (Choose one color counter for the number of days and another color for the cost of the candy.)

- How much money does Charlotte spend on candy each Saturday? $5
- What is the total amount of money that Charlotte has spent on candy after 1 Saturday? $5
- What is the total amount of money that Charlotte has spent on candy after 2 Saturdays? $10

FILL IN THE TABLE

Days	Process	Amount Spent ($)	Ordered Pairs
0	0 × 5	0	(0, 0)
1	1 × 5	5	(1, 5)
2	2 × 5	10	(2, 10)
3	3 × 5	15	(3, 15)
4	4 × 5	20	(4, 20)

GRAPH THE TABLE



ANALYZE THE INFORMATION

- If Charlotte buys candy on 6 Saturdays, how much money will she have spent on candy? $30
- How many Saturdays would it take for Charlotte to spend $25 on candy? 5 Saturdays
- Charlotte wants to buy a bike that costs $102. Her parents say that she needs to use her candy money to buy the bike. About how many weeks will it take for Charlotte to save enough money to buy the bike? About 21 weeks

ANSWER KEY

6 No matter how much money Paul earns, he always saves $3 and spends the rest on candy. (Note: He only buys candy if he has $3 or more.)

UNDERSTAND THE PROBLEM

SAY ALOUD: *In this problem, we are comparing the amount of money Paul earns with the amount he spends on candy.*

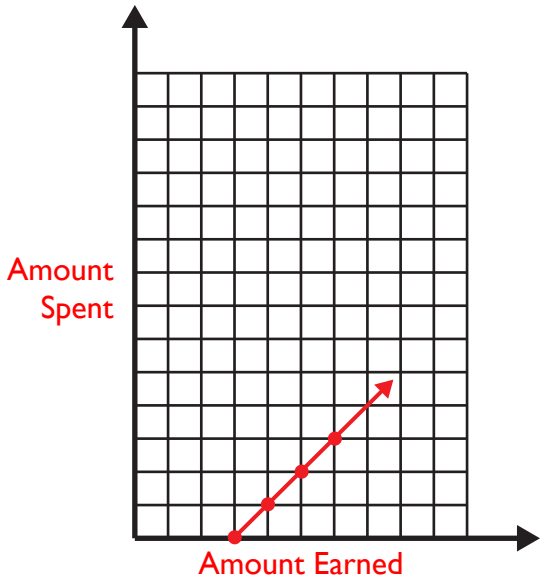
MODEL AND DISCUSS WITH YOUR TEAM. (Choose one color counter for the amount Paul earns and another color for the amount he spends on candy.)

- If Paul earns $3, how much money does he spend on candy? $0
- If Paul earns $4, how much money does he spend on candy? $1
- What operation do we typically think of when we think of spending money? Subtraction

FILL IN THE TABLE

Amount Earned ($)	Process	Amount Spent ($)	Ordered Pairs
3	3 – 3	0	(3, 0)
4	4 – 3	1	(4, 1)
5	5 – 3	2	(5, 2)
6	6 – 3	3	(6, 3)

GRAPH THE TABLE



ANALYZE THE INFORMATION

- If Paul earns $8, how much does he spend on candy? $5
- If Paul spends $6 on candy, how much has he earned? $9
- Paul wants to buy a $10 used video game and he also wants to buy $3 worth of candy. How much does he need to earn? $16

ANSWER KEY

7 Charlotte saves all of her earnings in her piggy bank. Every time she deposits money in her bank, Charlotte's parents give her an extra $2 to deposit. Sometimes they give her $2 even when she doesn't earn any money.

UNDERSTAND THE PROBLEM

SAY ALOUD: *In this problem, we are comparing the amount of money Charlotte earns with the amount she saves in her piggy bank.*

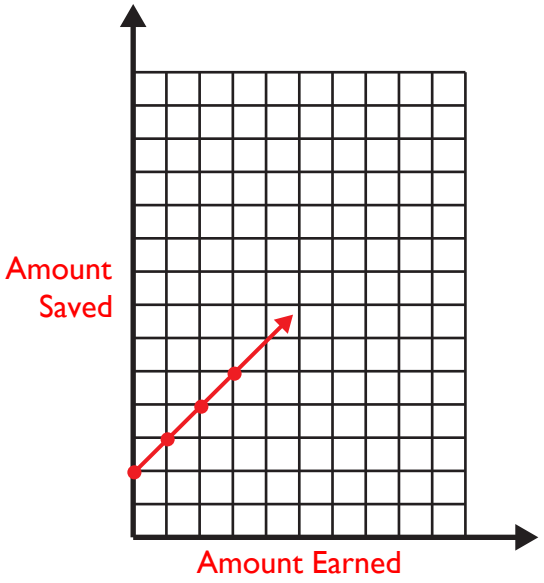
MODEL AND DISCUSS WITH YOUR TEAM. (Choose one color counter for the amount Charlotte earns and another color for the amount she saves.)

- How much money do Charlotte's parents give her when she earns money? $2
- If Charlotte earns $1, how much money does she save? $3
- If Charlotte earns $2, how much money does she save? $4

FILL IN THE TABLE

Amount Earned ($)	Process	Amount Saved ($)	Ordered Pairs
0	0 + 2	2	(0, 2)
1	1 + 2	3	(1, 3)
2	2 + 2	4	(2, 4)
3	3 + 2	5	(3, 5)

GRAPH THE TABLE



ANALYZE THE INFORMATION

- If Charlotte earns $6, how much does she save? $8
- If Charlotte saves $12, how much does she earn? $10
- Charlotte wants to save $20 this week. She has already earned $10. How much more does she need to earn so that she puts $20 in her piggy bank? $8

ANSWER KEY

8 Charlotte always has $4 more in her piggy bank than Paul does.

UNDERSTAND THE PROBLEM

SAY ALOUD: *In this problem, we are comparing the amount of money in Charlotte's piggy bank and the amount of money in Paul's piggy bank.*

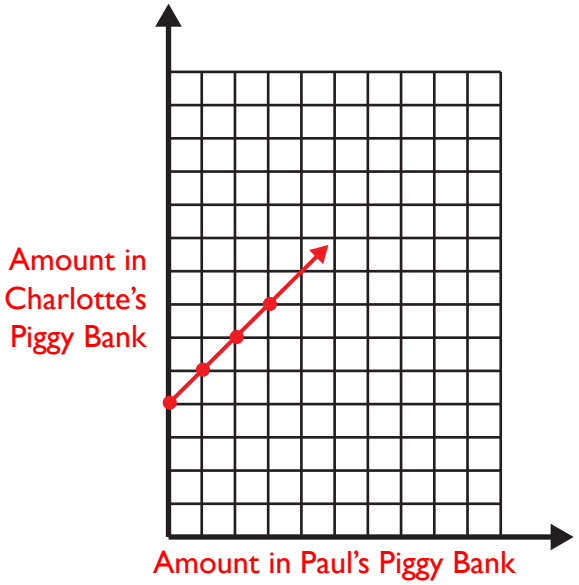
MODEL AND DISCUSS WITH YOUR TEAM. (Choose one color counter for Charlotte and a different color for Paul.)

- How many more dollars are in Charlotte's piggy bank than are in Paul's? $4
- If Paul has $0 in his piggy bank, how much does Charlotte have in her piggy bank? $4
- If Paul has $1 in his piggy bank, how much does Charlotte have in her piggy bank? $5

FILL IN THE TABLE

Amount in Paul's Piggy Bank ($)	Process	Amount in Charlotte's Piggy Bank ($)	Ordered Pairs
0	0 + 4	4	(0, 4)
1	1 + 4	5	(1, 5)
2	2 + 4	6	(2, 6)
3	3 + 4	7	(3, 7)

GRAPH THE TABLE



ANALYZE THE INFORMATION

- If Paul has $5 in his piggy bank, how much money does Charlotte have in hers? $9
- If Charlotte has $10 in her piggy bank, how much money does Paul have in his? $6
- Paul and Charlotte have decided to pool the money from their piggy banks to buy a lot of candy. Between the two of them, they have $20. How much came from Charlotte's piggy bank and how much came from Paul's piggy bank? Charlotte has $12; Paul has $8.

REPRESENTING LINEAR DATA (PG. 1 OF 8)

Name: _____

Directions: Fill in each part of the graphic organizer and answer the questions.

1 Paul is a runner. Each day, he runs 3 miles.

UNDERSTAND THE PROBLEM

SAY ALOUD: *In this problem, we are comparing the number of days that Paul has run with the total number of miles.*

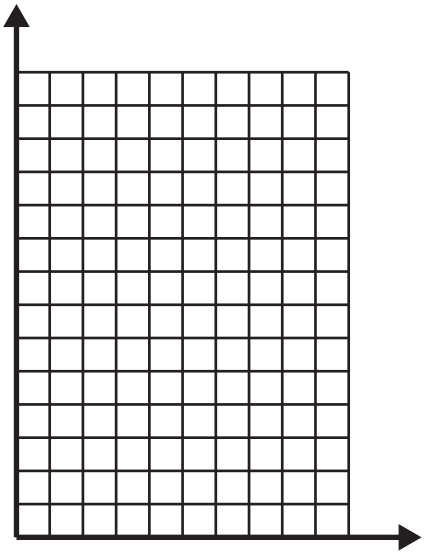
MODEL AND DISCUSS WITH YOUR TEAM.

- How many miles does Paul run each day?
- After he finishes Day 1, how many miles will he have run?
- After he finishes Day 2, how many TOTAL miles will he have run?

FILL IN THE TABLE

Days	Process	Miles	Ordered Pairs
0			_____
1			_____
2			_____
3			_____
4			_____

GRAPH THE TABLE



ANALYZE THE INFORMATION

- How many total miles would Paul have run after 7 days? _____

_____

- On what day would Paul have run 24 miles? _____

_____

- On Day 5, would Paul have run more or less than 16 miles? _____

_____

- Why do you multiply the days by 3 to get the number of miles? _____

_____

Name: _____

2 Paul's friend Charlotte is also a runner. She lives one block from Paul. She runs one block to his house and then they run together.

UNDERSTAND THE PROBLEM

SAY ALOUD: *In this problem, we are comparing the number of blocks that Charlotte runs with the number of blocks that Paul runs.*

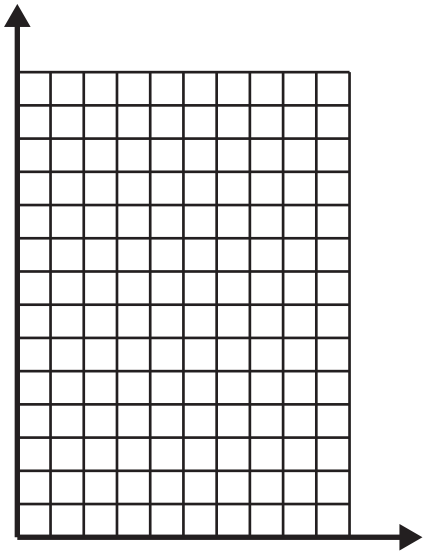
MODEL AND DISCUSS WITH YOUR TEAM. (Choose one color counter for Charlotte and a different color for Paul.)

- How many blocks does Charlotte run to get to Paul's house?
- When Charlotte gets to Paul's house, how many blocks has Paul run?
- When Charlotte and Paul have run 1 block together, how far has Charlotte run in all?
- How far has Paul run?
- How many fewer blocks has Paul run than Charlotte?

FILL IN THE TABLE

Blocks Charlotte Has Run	Process	Blocks Paul Has Run	Ordered Pairs
1			
2			
3			
4			

GRAPH THE TABLE



ANALYZE THE INFORMATION

- Each day that Paul and Charlotte run together, how many more blocks does Charlotte run than Paul? __

_____

- Each day that Paul and Charlotte run together, how many fewer blocks does Paul run than Charlotte? __

_____

- If Charlotte has run 6 blocks, how far has Paul run? _____

_____

- If Charlotte and Paul have run a total of 9 blocks, how many blocks have each of them run? _____

_____

Name: _____

3 For each hour that Paul runs, he can run 4 miles.

UNDERSTAND THE PROBLEM

SAY ALOUD: *In this problem, we are comparing the number of hours that Paul runs with the total number of miles he has run.*

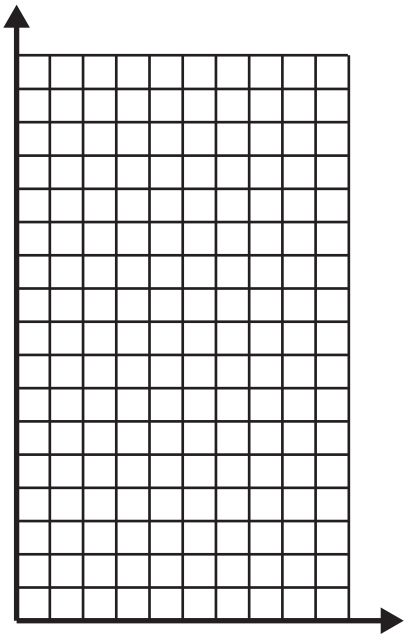
MODEL AND DISCUSS WITH YOUR TEAM. (Choose one color counter for Paul and another color for the miles.)

- How many miles can Paul run each hour?
- How many total miles has he run after 1 hour?
- How many total miles has he run after 2 hours?

FILL IN THE TABLE

Hours	Process	Miles	Ordered Pairs
0			
1			
2			
3			
4			

GRAPH THE TABLE



ANALYZE THE INFORMATION

- If Paul runs for 6 hours, how many miles will he have run? _____

_____

- How many hours will it take for Paul to run 20 miles? _____

_____

- About how long would it take Paul to run a marathon if he could run 4 miles each hour? (A marathon is 26.2 miles.) _____

Name: _____

4 Charlotte runs 6 miles each day.

UNDERSTAND THE PROBLEM

SAY ALOUD: In this problem, we are comparing the number of days that Charlotte runs with the total number of miles she has run.

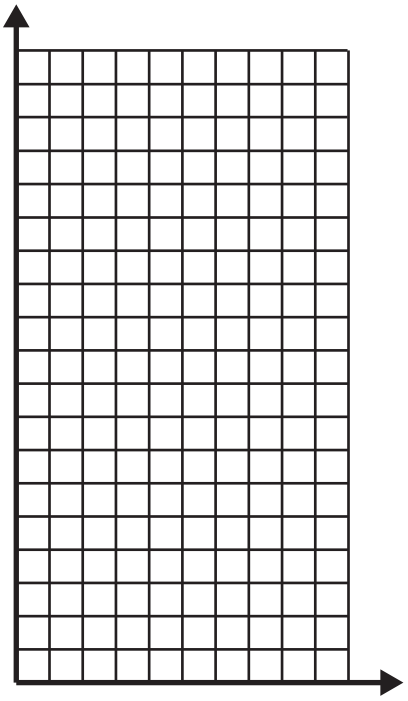
MODEL AND DISCUSS WITH YOUR TEAM. (Choose one color counter for the number of days and another color for the miles.)

- How many miles does Charlotte run each day?
- How many total miles has she run after 1 day?
- How many total miles has she run after 2 days?

FILL IN THE TABLE

Days	Process	Miles	Ordered Pairs
0			
1			
2			
3			
4			

GRAPH THE TABLE



ANALYZE THE INFORMATION

- If Charlotte runs for 6 days, how many total miles will she have run? _____

_____

- How many days will it take for Charlotte to run 42 miles? _____

_____

- The distance from Dallas to Fort Worth is about 33 miles. About how many days would it take Charlotte to run 33 miles? _____

_____

Name: _____

5 Every Saturday, Charlotte spends $5 on candy.

UNDERSTAND THE PROBLEM

SAY ALOUD: *In this problem, we are comparing the number of Saturdays with the total amount of money that Charlotte has spent on candy.*

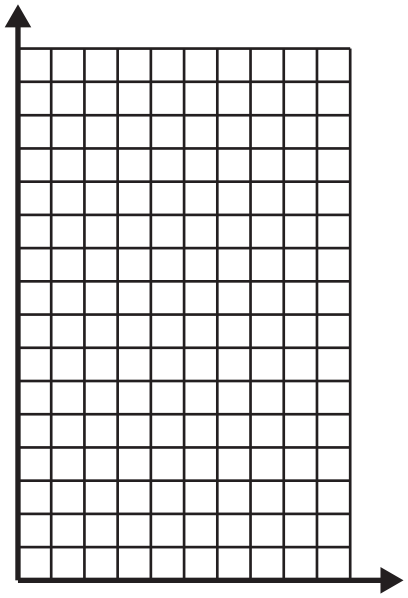
MODEL AND DISCUSS WITH YOUR TEAM. (Choose one color counter for the number of days and another color for the cost of the candy.)

- How much money does Charlotte spend on candy each Saturday?
- What is the total amount of money that Charlotte has spent on candy after 1 Saturday?
- What is the total amount of money that Charlotte has spent on candy after 2 Saturdays?

FILL IN THE TABLE

Days	Process	Amount Spent ($)	Ordered Pairs
0			
1			
2			
3			
4			

GRAPH THE TABLE



ANALYZE THE INFORMATION

- If Charlotte buys candy on 6 Saturdays, how much money will she have spent on candy? _____

_____

- How many Saturdays would it take for Charlotte to spend $25 on candy? _____

_____

- Charlotte wants to buy a bike that costs $102. Her parents say that she needs to use her candy money to buy the bike. About how many weeks will it take for Charlotte to save enough money to buy the bike? _____

_____

Name: _____

6 No matter how much money Paul earns, he always saves $3 and spends the rest on candy. (Note: He only buys candy if he has $3 or more.)

UNDERSTAND THE PROBLEM

SAY ALOUD: *In this problem, we are comparing the amount of money Paul earns with the amount he spends on candy.*

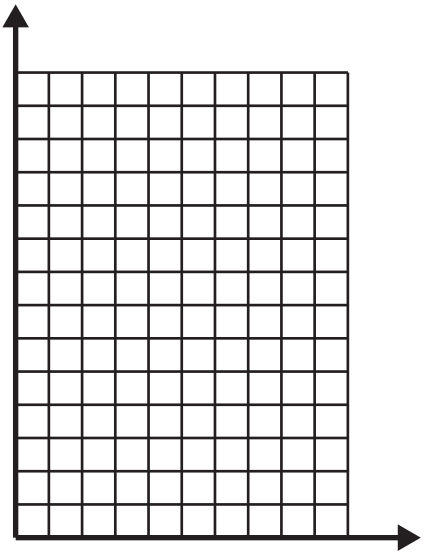
MODEL AND DISCUSS WITH YOUR TEAM. (Choose one color counter for the amount Paul earns and another color for the amount he spends on candy.)

- If Paul earns $3, how much money does he spend on candy?
- If Paul earns $4, how much money does he spend on candy?
- What operation do we typically think of when we think of spending money?

FILL IN THE TABLE

Amount Earned ($)	Process	Amount Spent ($)	Ordered Pairs
3			
4			
5			
6			

GRAPH THE TABLE



ANALYZE THE INFORMATION

- If Paul earns $8, how much does he spend on candy? _____

_____

- If Paul spends $6 on candy, how much has he earned? _____

_____

- Paul wants to buy a $10 used video game and he also wants to buy $3 worth of candy. How much does he need to earn? _____

_____

Name: _____

7 Charlotte saves all of her earnings in her piggy bank. Every time she deposits money in her bank, Charlotte's parents give her an extra $2 to deposit. Sometimes they give her $2 even when she doesn't earn any money.

UNDERSTAND THE PROBLEM

SAY ALOUD: *In this problem, we are comparing the amount of money Charlotte earns with the amount she saves in her piggy bank.*

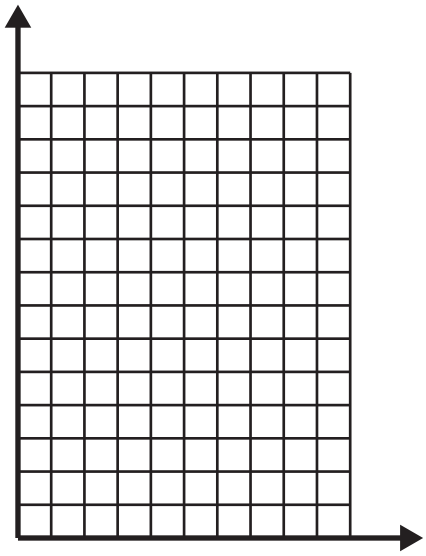
MODEL AND DISCUSS WITH YOUR TEAM. (Choose one color counter for the amount Charlotte earns and another color for the amount she saves.)

- How much money do Charlotte's parents give her when she earns money?
- If Charlotte earns $1, how much money does she save?
- If Charlotte earns $2, how much money does she save?

FILL IN THE TABLE

Amount Earned ($)	Process	Amount Saved ($)	Ordered Pairs
0			
1			
2			
3			

GRAPH THE TABLE



ANALYZE THE INFORMATION

- If Charlotte earns $6, how much does she save? _____

_____

- If Charlotte saves $12, how much does she earn? _____

_____

- Charlotte wants to save $20 this week. She has already earned $10. How much more does she need to earn so that she puts $20 in her piggy bank? _____

_____

Name: _____

8 Charlotte always has $4 more in her piggy bank than Paul does.

UNDERSTAND THE PROBLEM

SAY ALOUD: *In this problem, we are comparing the amount of money in Charlotte's piggy bank and the amount of money in Paul's piggy bank.*

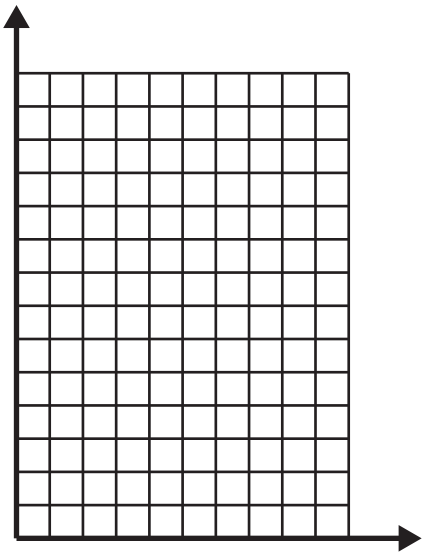
MODEL AND DISCUSS WITH YOUR TEAM. (Choose one color counter for Charlotte and a different color for Paul.)

- How many more dollars are in Charlotte's piggy bank than are in Paul's?
- If Paul has $0 in his piggy bank, how much does Charlotte have in her piggy bank?
- If Paul has $1 in his piggy bank, how much does Charlotte have in her piggy bank?

FILL IN THE TABLE

Amount in Paul's Piggy Bank ($)	Process	Amount in Charlotte's Piggy Bank ($)	Ordered Pairs
0			
1			
2			
3			

GRAPH THE TABLE



ANALYZE THE INFORMATION

- If Paul has $5 in his piggy bank, how much money does Charlotte have in hers? _____

_____

- If Charlotte has $10 in her piggy bank, how much money does Paul have in his? _____

_____

- Paul and Charlotte have decided to pool the money from their piggy banks to buy a lot of candy. Between the two of them, they have $20. How much came from Charlotte's piggy bank and how much came from Paul's piggy bank? _____

_____

RIGHT OR WRONG? YOU MAKE THE CALL! (PG. 1 OF 3)

TEKS | **RS:** 5.4F

Topics: Order of Operations

WHAT IT'S ALL ABOUT!

Students will simplify numeric expressions using order of operations in this activity. No exponents are used, and there are no solutions to be found. Being able to simplify an expression is part of being able to read an equation. It's a critical skill for all math going forward, especially algebra.

In this activity, students work in groups to analyze each solution. Is the problem solved correctly or is there a mistake? This requires students to have confidence in their thinking. It helps them learn to read carefully. Finally, since the mistakes made here are common ones, it helps them recognize their own mistakes in order of operations.

IT'S A SETUP!

- ☐ Make 1 copy of **Right or Wrong? You Make the Call!** so it can be projected using your classroom technology.
- ☐ Make 1 copy of **Right or Wrong? You Make the Call!** for each pair of students.
- ☐ Other materials: White boards and markers

1. Place students in pairs and hand out materials. Designate one side of the room as Right and the other as Wrong.
2. Project Problem #1. Have students work together to decide if the solution is right or wrong.
3. 1–2–3, Move! Each pair moves to the Right side or the Wrong side. Each side of the room discusses why *they* are right and the *other side* of the room is wrong and prepares a team response. Let the justification begin!
4. After everyone agrees, have the class move back to their seats. Project Problem #2 and repeat the process.
5. When you have discussed all the problems, have the pairs work together to solve each problem correctly.

Back to the Table of **Contents** Table of **Standards**

RIGHT OR WRONG? YOU MAKE THE CALL! (PG. 2 OF 3) ANSWER KEY

Directions: These expressions have all been simplified, but some of them are wrong!

1. Examine each solution.
2. Underline the mistake if there is one.
3. Circle RIGHT or WRONG.
4. If the problem is wrong, solve it correctly.

Examine the Solution	Right or Wrong? You Decide!	Correct Solution
1 $5(2 + 3) - 7$ $\underline{10} + 3 - 7$ $13 - 7$ 6	RIGHT or (WRONG) ?	Correct answer is 18.
2 $11(1 + 1) \times (5 - 4)$ $11 \times 2 \times (5 - 4)$ $11 \times 2 \times 1$ 22×1 22	(RIGHT) or WRONG ?	CORRECT
3 $4(17 + 7 - 2) + 8$ $4(24 - 2) + 8$ $4(22 + \underline{8})$ $4(30)$ 120	RIGHT or (WRONG) ?	Correct answer is 96.
4 $21 - (3 + 1) \div (2 + 0)$ $21 - 4 \div 2$ $\underline{17} \div 2$ 8.5	RIGHT or (WRONG) ?	Correct answer is 19.

RIGHT OR WRONG? YOU MAKE THE CALL! (PG. 3 OF 3) ANSWER KEY

Examine the Solution	Right or Wrong? You Decide!	Correct Solution
5 $\frac{1}{4}(9-1)+2(10-4)$ $\frac{1}{4}\times 8+2(10-4)$ $\frac{1}{4}\times 8+2\times 6$ $2+2\times 6$ 4×6 24	RIGHT or WRONG ?	Correct answer is 14.
6 $2+(7-4)+3(2\div 1)$ $2+3+3(2\div 1)$ $5+3(2\div 1)$ $8\ (2\div 1)$ 8×2 16	RIGHT or WRONG ?	Correct answer is 11.
7 $25-[7+4(1+1)]$ $25-[7+4(2)]$ $25-(7+8)$ $25-15$ 10	RIGHT or WRONG ?	CORRECT
8 $2+4\times 13-1$ $6\times 13-1$ $78-1$ 77	RIGHT or WRONG ?	Correct answer is 53.

RIGHT OR WRONG? YOU MAKE THE CALL! (PG. 1 OF 2)

Name: _____

Directions: These expressions have all been simplified, but some of them are wrong!

1. Examine each solution.
2. Underline the mistake if there is one.
3. Circle RIGHT or WRONG.
4. If the problem is wrong, solve it correctly.

Examine the Solution	Right or Wrong? You Decide!	Correct Solution
1 $5(2 + 3) - 7$ $10 + 3 - 7$ $13 - 7$ 6	RIGHT or WRONG ?	
2 $11(1 + 1) \times (5 - 4)$ $11 \times 2 \times (5 - 4)$ $11 \times 2 \times 1$ 22×1 22	RIGHT or WRONG ?	
3 $4(17 + 7 - 2) + 8$ $4(24 - 2) + 8$ $4(22 + 8)$ $4(30)$ 120	RIGHT or WRONG ?	
4 $21 - (3 + 1) \div (2 + 0)$ $21 - 4 \div 2$ $17 \div 2$ 8.5	RIGHT or WRONG ?	

RIGHT OR WRONG? YOU MAKE THE CALL! (PG. 2 OF 2)

Name: _____

Examine the Solution	Right or Wrong? You Decide!	Correct Solution
5 $\frac{1}{4}(9-1)+2(10-4)$ $\frac{1}{4}\times 8+2(10-4)$ $\frac{1}{4}\times 8+2\times 6$ $2+2\times 6$ 4×6 24	RIGHT or WRONG ?	
6 $2+(7-4)+3(2\div 1)$ $2+3+3(2\div 1)$ $5+3(2\div 1)$ $8(2\div 1)$ 8×2 16	RIGHT or WRONG ?	
7 $25-[7+4(1+1)]$ $25-[7+4(2)]$ $25-(7+8)$ $25-15$ 10	RIGHT or WRONG ?	
8 $2+4\times 13-1$ $6\times 13-1$ $78-1$ 77	RIGHT or WRONG ?	

SHOOP SHOES DATA

TEKS RS: 5.4B, 5.9C SS: 5.3A, 5.9B

Topics: Data Representations & Analysis

WHAT IT'S ALL ABOUT!

This activity involves the use of 5 different visual data representations: scatterplots, dot plots, stem-and-leaf plots, bar graphs, and frequency tables. Students will work together in centers to use the available data to answer the given questions.

IT'S A SETUP!

- ☐ Make single-side copies of **Shoop Shoes Data** (PG. 68) for every pair of students.
- ☐ Copy **Shoop Shoes Analysis** (PG. 69) for every student.

Put students in pairs and hand out materials. Pairs should work together to analyze the data and answer the questions.

HEY—LOOK HERE!

- ☐ The tables of data and questions are very specific about *pairs* of shoes vs. *number* of shoes. This is not intended to be a "gotcha". It is intended to make students pay attention to what they are calculating.
- ☐ Problem #4 cannot be answered with the information given. We planned it this way. You might want to warn the students that one of the questions cannot be answered with the information given. We will let you decide whether you warn them or not.

ANSWER KEY

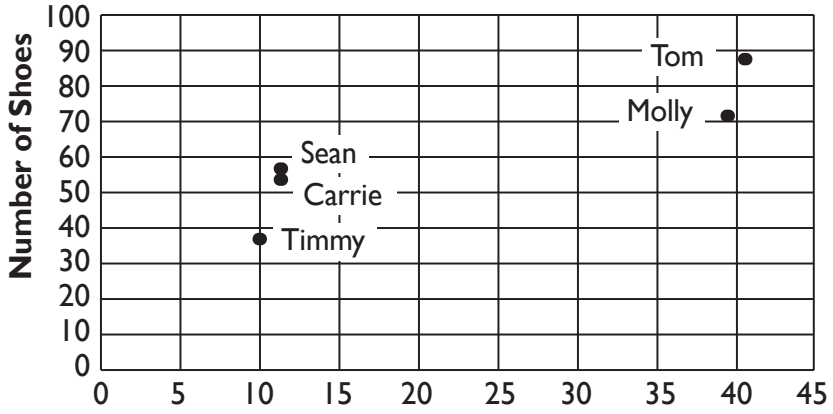
1. Carrie Shoop
2. 39 pairs of white shoes; Timmy
3. Timmy; explanations may vary.
4. Cannot be answered
5. $(3 \times 0) + (3 \times 31) + (3 \times 61) + (4 \times 91) + (3 \times 121) + (4 \times 151) = x$; parentheses are optional
6. 18 pairs
7. Answers will vary; approximately 56 shoes
8. 45 years

Back to the Table of **Contents** Table of **Standards**

SHOOP SHOES DATA

Directions: Use the charts to answer the questions. Be careful! Some of the charts are written using *pairs* of shoes and some are written using the *number* of shoes.

Number of Shoes Owned by the Shoop Family in 2015



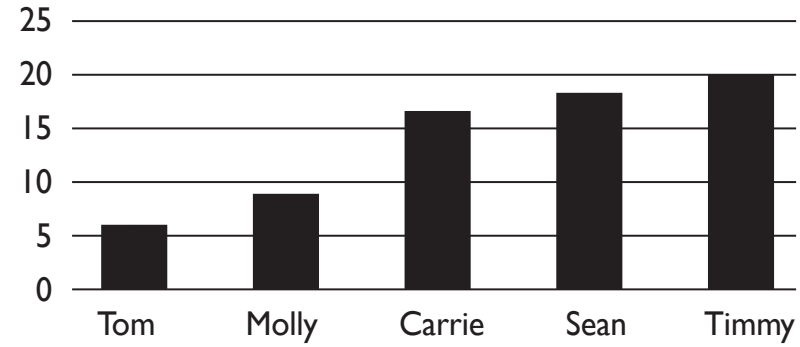
Money Spent on *Pairs* of Shoes Last Year by Each Student in Carrie and Sean's Class

$0–$30	I
$31–$60	III
$61–$90	III
$91–$120	IIII
$121–$150	III
$151+	IIII

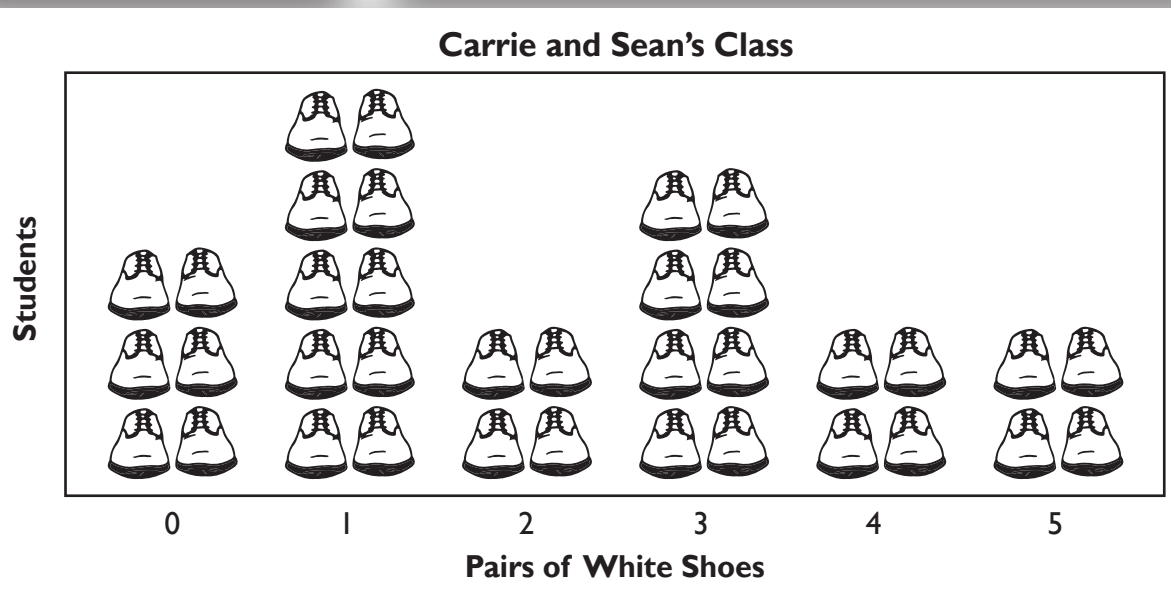
Number of Shoes Owned by Each Student in Carrie and Sean Shoop's Class

Stem	Leaf
1	0, 0, 0, 0, 2, 2, 4, 8
2	0, 2, 4, 6, 8
3	0, 2, 6, 6
4	6

Pairs of Shoes Purchased by the Shoop Family in 2016



Carrie and Sean's Class



SHOOP SHOES ANALYSIS (PG. 1 OF 2)

Name: _____

Directions: Use **Shoop Shoes Data** to answer each question below. Be sure to show your thinking.

1 Who owns more shoes, Carrie Shoop or the 5 students in her class with the fewest shoes combined?

2 How many pairs of white shoes do the students in Carrie's and Sean's class have combined?

Which member of the Shoop family has about the same number of shoes? Show your reasoning.

3 At the end of 2015, Tom had a lot of shoes. So, he didn't buy as many shoes in 2016. He bought the same number of pairs shoes in 2017 as he did in 2016.

In 2015, Timmy didn't have many shoes and he decided to step it up! He bought a lot of pairs of shoes in 2016 and the same number in 2017.

At the end of 2017, who owned more pairs of shoes – Tom or Timmy? Explain your thinking.

4 How much money did Carrie and Sean spend combined on shoes last year?

SHOOP SHOES ANALYSIS (PG. 2 OF 2)

Name: _____

5 The students in Sean and Carrie's class spent differing amounts of money on shoes last year. Some students spent almost no money on shoes and some spent more than $100. What equation can be used to find the least amount of money the class spent on shoes?

6 The pairs of shoes owned by the students in Carrie and Sean's class varies a lot! How many more pairs of shoes does the person with most own than the person with the least?

7 How many more shoes do the Shoop men own than the Shoop women?

8 What is the difference between the combined ages of the Shoop adults than the combined ages of Shoop children?

EMILIO HONEYSUCKLE & THE DISAPPEARING RUINS OF ALINCORK – PART 1

TEKS RS: 5.3K, 5.4F, 5.4H
SS: 5.3B, 5.3H, 5.3I

Topics: Multiplication of Fractions & Whole Numbers; Area; Order of Operations

WHAT IT'S ALL ABOUT!

This is a creative story where the answers determine the fate of the main character! Student groups will read part of a story, solve the problem, then check their answer with you. If they answer correctly, you will give them the next problem and allow them to continue the story. If their answer is incorrect, they receive a sheet that describes the unfortunate consequences that befall the main character. Students who answer all four problems correctly will see the story through to the end. The skills in these problems range across the standards for 5th grade math.

HEY—LOOK HERE!

This activity is the first part of a two-part story. See **Part 2** (PG. 77) for the exciting conclusion.

IT'S A SETUP!

- ☐ Make 1 copy of **Emilio Honeysuckle and the Disappearing Ruins of Alincork, Part 1** (PG. 72) for every 2–3 students.
- ☐ Cut apart the story. Be sure to keep the story parts in order. (You might consider putting each part in an envelope.) When you give each card to the students, make sure they can't see whether they are right or wrong. You want them to read the entire card!
- ☐ Copy 1 set of **Group Role Cards** for every 2–3 students. Cut them apart.

Place students in groups of 2–3. Give **The Beginning** and one set of **Group Roles** cards to each group of students. Explain how the activity works.

1. Reader reads the story aloud.
2. Decoder explains the story in their own words.
3. All 3 students work together to solve the problem. The Recorder writes down their thinking and brings the solution to the teacher.
4. Check the answer against the table below. DON'T tell the runner if the answer is right or wrong. Give the Runner the part of the story listed in the chart below.
5. Runner brings back the new story part and the students switch roles.

Back to the Table of **Contents** Table of **Standards**

The Beginning

Correct answer: 20 days
Give the  story part.

Incorrect answer:
Give the  story part.

 **Story Part**

Correct answer: 568 steps
Give the  story part.

Incorrect answer:
Give the  story part.

 **Story Part**

Correct answer: 20 steps
Give the  story part.

Incorrect answer:
Give the  story part.

 **Story Part**

Correct answer: 50 seconds
Give the **Epilogue**.

Incorrect answer:
Give the  story part.

GROUP ROLE CARDS

Reader

Decoder

Recorder

EMILIO HONEYSUCKLE & THE DISAPPEARING RUINS OF ALINCORK PART 1 (PG. 1 OF 3)

Directions: Cut the table apart into rows.

The Beginning

The fierce explorer Emilio Honeysuckle hiked through the jungle in search of the Disappearing Ruins of Alincork, which held the treasure of a lost people who spoke only in math. Emilio had a secret map of the ruins, but it would be useless until he got there.

He set out with 10 rations of food, but he didn't have much left. If Emilio ate $\frac{1}{2}$ of a ration each day, how many days could he look before running out of food?

Emilio was lost. Hopelessly lost. He wandered for over a week before finding that he had gone in a giant circle and ended up where he had started. Soon after, he was out of food, and he wasn't any closer to finding the ruins. They had probably already disappeared. He had no choice but to radio his sister Amelia and wait for a rescue. His adventure was over before it began.

TRY AGAIN!

Emilio had calculated his food down to the crumb, but he didn't need all of it. He arrived outside the Disappearing Ruins of Alincork with a few days to spare. There were two buildings, one large and one small. The map showed that the small building held the lever that would open the larger one. Emilio's sister Amelia, an expert in languages, had the map, and it warned of all the traps he might find. One of the traps was the Alincorks' love of math challenges. Ugh! Emilio took a deep breath and read the map.

For each square foot in area, take one step forward.

The building was 50 feet long and $\frac{1}{5}$ as wide as it was long. There was also an extra room in the back with an area of 68 square feet. How many steps forward did he need to go?

Emilio heard a creak in the stone. Had he counted wrong? Did he misunderstand? He wasn't sure, but he knew that something was wrong. The rock floor under his right foot slid and then dropped, and his leg fell through. Emilio was now pinned in the rock. It was too tight to pull his leg out. He tried to yell, but there was no one there to help. He tried to radio, but no one could hear his signal through the rock. He didn't know what to do but wait. He was stuck.

TRY AGAIN!

He stood in sight of the lever he needed to pull, but Emilio knew it wasn't over yet. The map read:

64 steps reach the lever, only if you stop at the precise distances.

Otherwise, the traps will GET YOU!

Stop the first time after $\frac{5}{8}$ of the way there.

Stop the second time at $\frac{1}{4}$ of the distance left.

How many steps would remain when he stopped the second time?

Emilio had definitely miscounted the steps. He didn't know where he went wrong, but he could hear the clicking and ticking of something dangerous echo through the rock. He froze, hoping that maybe the danger would pass him by, but it only got louder. Through the cracks in the rock, Emilio saw little bugs crawling. First a few, then a hundred, then thousands of swarming insects poured out of the walls. Emilio screamed and tried to run, but the door had closed behind him. There was no way out.

TRY AGAIN!

Counting and waiting perfectly, Emilio slipped through to the back of the chamber. He was right by the lever! He knew he was supposed to grab ahold of the lever and then wait until the right time to pull, but he wasn't sure how long to wait. Looking at his map, he realized that his sweat had rubbed off some of the ink. He could only make out a few words. It was something about waiting the same number of seconds as there are golden bricks in the wall. Luckily, in the margin, he saw his sister had written a note:

$$55 - \frac{1}{4}\,[12 + (29 - 21)] = x$$

He realized that x was the number of golden bricks in the wall. If he could solve it, then he would know how many seconds to wait! Unfortunately, he didn't really understand what Amelia had written. He knew he had to simplify the expression to figure it out. How should he simplify it? How long did he have to wait?

The time had started ticking down as soon as Emilio grabbed the lever. He had no idea what Amelia had meant with her note. His hands were getting sweaty as he tried to think about it, but the answer wasn't coming. Without knowing how long to wait, all he could do was guess. He closed his eyes and yanked the lever. The earth began to rumble and shake, and then the rocks started cracking. In no time, the ceiling started to cave, and he realized that the building was falling apart. He ran to the corner to escape the falling rock, but he knew deep down that it wouldn't work.

TRY AGAIN!

Epilogue

Emilio waited just long enough before pulling the lever, and he was surprised that it slid like it was new. He heard a creak from outside and realized that he had done it. He had opened the door to the larger building. He walked outside and looked at the open door, prepared to enter the Disappearing Ruins, and definitely prepared for all the treasure that was waiting for him.

THE END!

EMILIO HONEYSUCKLE & THE DISAPPEARING RUINS OF ALINCORK PART 2

TEKS RS: 5.2B, 5.3E, 5.3G, 5.3K SS: 5.7A, 5.9B

Topics: Operations with Decimals, Comparing Decimals, Conversion

WHAT IT'S ALL ABOUT!

This activity continues the saga of Emilio Honeysuckle from the previous activity. Students will solve problems one at a time, then check their answer with you. If they answer correctly, you will give them the next problem and allow them to continue the story. If their answer is incorrect, they receive a sheet that describes the unfortunate consequences that befall the main character. Students who answer all four problems correctly will see the story through to the end. The topics in these problems range across the standards for 5th grade math.

HEY—LOOK HERE!

This activity is the second part of a two-part story. Do **Part 1** (PG. 71) first.

IT'S A SETUP!

- ☐ Copy **Emilio Honeysuckle and the Disappearing Ruins of Alincork, Part 2** (PG. 78) for every 2–3 students.
- ☐ Cut apart the story. Be sure to keep the story parts in order. (You might consider putting each part in an envelope.) When you give each card to the students, make sure they can't see if they are right or wrong. You want them to read the entire card!
- ☐ Gather the **Group Role Cards** you prepared for the previous activity (PG. 73).

Place students in groups of 2–3. Give **The Beginning** to each group of students and one set of **Group Roles** cards. Explain how the activity works.

1. Reader reads the story aloud.
2. Decoder explains the story in their own words.
3. All 3 students work together to solve the problem. The Recorder writes down their thinking and brings the solution to the teacher.
4. Check the answer against the table below. DON'T TELL THE RUNNER IF THE ANSWER IS RIGHT OR WRONG. Give the Runner the part of the story listed in the chart below.
5. Runner brings back the new story part and the students switch roles.

Back to the Table of **Contents** Table of **Standards**

EMILIO HONEYSUCKLE & THE DISAPPEARING RUINS OF ALINCORK PART 2

The Beginning

Correct answer: left

Give them  story part.

Incorrect answer:

Give the  story part.

 **Story Part**

Correct answer: 12.92 meters

Give the  story part.

Incorrect answer:

Give the  story part.

 **Story Part**

Correct answer: 24

Give the  story part.

Incorrect answer:

Give the  story part.

 **Story Part**

Correct answer: 456 feet

Give the **Epilogue**.

Incorrect answer:

Give the  story part.

EMILIO HONEYSUCKLE & THE DISAPPEARING RUINS OF ALINCORK PART 2 (PG. 1 OF 5)

Directions: Cut the table apart into rows.

The Beginning

Deep inside the Disappearing Ruins of Alincork, the explorer Emilio Honeysuckle searched for treasure. His sister Amelia had translated the ancient secret map, but the directions were still hard to understand. There were traps everywhere, so he had to be careful. Emilio came to a fork in the path and read the map.

Which way to go?

To go right, take 5 steps that are 0.18 meters each.

To go left, take 4 steps that are 0.23 meters each.

Whichever is further is the correct path.

Which path should Emilio take?

Torch in hand, Emilio turned right and walked forward slowly. He had only made it a few steps into the hall when the walls began to shake. Then the floor fell out. The explorer tumbled several feet through a hole and landed in a small room under the hallway. The torch fell out of his hand and landed on the ground. It was still lit, but it was getting dimmer. There was another rumble in the walls. In the low light Emilio could see the rock moving. The walls were getting closer! He ran back and forth from one end of the room to the other, but there was no way out. He had fallen too far to climb out the way he came. The walls were even closer, and he had no idea how to stop them. Then the torch went out. Emilio was left in the dark.

TRY AGAIN!

Emilio turned left and a took a few slow steps forward. Nothing bad had happened yet. As he walked through the hallway, he heard a creak in the walls. Straight ahead it looked like a dead end. Just as he was about to turn back, the wall began to lift up. It was an opening! He walked forward into the next room and looked at his map. He had entered the Poison Room.

Emilio knew from the map that he had to stand in a safe spot and wait. There was only one safe spot in the room. If he picked wrong, the way would be lost. Emilio read the map carefully.

Paces of 0.85 meters, you shall walk.

15.2 is the exact number.

Stop.

What could that mean? Amelia to the rescue! She had written a note on the side of the page:

$$0.85 \times 15.2 = x$$

x is the number of meters.

How many meters from the door should Emilio walk?

The explorer measured his steps carefully and stood in the place that (he thought) was perfect. But it wasn't. The door that had opened for him suddenly fell with a BANG! There was no way forward and, now, no way to go back. Sharp-looking darts slid out of the wall, and Emilio realized why it was called the Poison Room.

One by one the darts started shooting out of the wall. He didn't know how it was happening, but he didn't have time to think about it. Emilio ran forward to the far corner of the room to hide from them. He had gotten about five steps when one of the darts hit his ankle and stuck there. It stung and surprised him so much that he stopped. That was a mistake. A second dart hit his left arm, and a third one hit his right. His vision was starting to get fuzzy. Then his eyes went black, and he fainted.

TRY AGAIN!

Emilio knew he was getting closer. Step by step he paced toward the correct spot. Then he stopped and waited. A sound rang out behind him as poison darts shot across the room, but every single one missed. Emilio looked at his map.

Count the unlit torches and multiply by 0.25.

Count aloud no higher than that number, then light the nearest torch to find the true path.

He looked around the room and spotted 96 unlit torches along the walls. How high should Emilio count?

He started counting aloud, almost certain that he had the correct number. But *almost* wasn't good enough. As soon as the last number left his mouth, a strange wind blew into the room and blew his own torch out. Now in hopeless darkness, Emilio could hear the weird cries of some kind of monster. The cries echoed through the chambers and seemed to be getting closer. There was nowhere to run.

TRY AGAIN!

After counting for what felt like an eternity, Emilio hit on the right number. Then he lit the nearest torch. As if by magic, the ceiling began to rumble. In the corner of the room, some rock fell, revealing a shiny metal mirror. The mirror reflected the light from the torch and lit up the whole room! In another far corner, Emilio could see a small door. After going through it, he ended up in a giant room that was lit by glowing moss. It was the treasure room. Emilio read the map.

To seek the treasure, walk 6 feet forward.

Then walk 0.3 yards for every brick in the ceiling.

Stop there and grasp the treasure.

It took Emilio several minutes and a few tries to count the bricks, but he final counted 500. He started to walk forward. How many feet from the door did he have to walk?

Emilio walked forward, but he couldn't see the treasure. Something shiny caught the corner of his eye, but then it vanished. He walked slowly and carefully, trying not to miss anything. There didn't seem to be anything in the room at all. After a few minutes of grasping, his hands touched something solid and invisible. As soon as he felt it, it disappeared. A rumble went through the rock. He could hear the growling of some kind of monster. It made a sound he had never heard before, and it was getting closer. He shook with fear. The growling got louder. He could hear the thing's footsteps. It was in the chamber with him! Emilio couldn't see it, but he knew that his day was about to get a lot worse.

TRY AGAIN!

Epilogue

Counting and pacing his steps perfectly, Emilio inched toward the treasure. He couldn't see it, but it had to be there. The map wouldn't lie. It had been translated and re-written by his sister, who was an expert on the ruins. As he stepped closer, a red gleam came into view. It seemed to like he could see straight through it, but it became more and more solid as he got closer. Finally, Emilio reached the place where he was supposed to stop. In front of him was a ruby, the largest he had ever seen. He put his hand straight out and grabbed it. Nothing happened. No traps, no rumbles. Emilio had done everything just right, and now the treasure was his. He knew without looking at the map that he could walk right out the way he came. Nothing would bother him. His adventure was complete.

THE END!

FIND A FIGURE

TEKS | **RS:** 5.5A

Topics: Attributes of Two-Dimensional Figures

WHAT IT'S ALL ABOUT!

This activity gives students practice in finding the attributes of geometric figures. In Part 1, students practice naming the figures. In Part 2, the teacher calls out an attribute or attributes, and the students find all the figures that have the attribute(s). In Part 3, students pair up according to the attributes of their favorite geometric figures.

IT'S A SETUP!

- ☐ Copy 1 set of **Find a Figure** shapes for every pair of students.
- ☐ Other materials: scissors

Place students in pairs and have them cut out the shapes in **Find a Figure Shapes** (PGS. 86–87).

Part 1

Practice naming the figures. Teacher calls out the name of a shape and students hold it up.

Part 2

1. Teacher calls out an attribute(s). Then students search through their figures to find all the ones with the attributes. Students may need to fold their figures to find congruent sides or congruent angles.
2. 1, 2, 3, Show! Partners hold up their figures and the class discusses which figures have the attribute(s) and how they know the others don't.

See **Find a Figure Attributes Key** on PG. 85.

Part 3

Have each student pick their favorite figure.

Round 1: Students stand up and find someone whose figure shares a common attribute. Students discuss. Do the figures have more than one attribute in common? If so, discuss.

Round 2: Students take 5 steps and trade figures with someone, and then find someone whose figure shares a common attribute. Do the figures have any other attributes in common?

Round 3: Students take 5 steps and trade figures with someone, and then find someone new whose figure shares 2 attributes. Do the figures share any other attributes?

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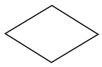
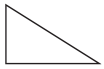
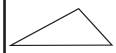
FIND A FIGURE ATTRIBUTES KEY

Attributes to Call Out										
3 sides only							×	×	×	×
4 sides only	×	×	×	×	×	×				
At least 3 sides	×	×	×	×	×	×	×	×	×	×
3 angles only							×	×	×	×
4 angles only	×	×	×	×	×	×				
At least 4 angles	×	×	×	×	×	×				
At least 3 angles	×	×	×	×	×	×	×	×	×	×
2 pairs of parallel sides		×		×	×	×				
At least 1 right angle				×		×	×			
All acute angles								×	×	
Some acute & some obtuse angles	×	×	×		×					×
Exactly 1 pair of parallel sides			×							
2 pairs of parallel sides & 4 right angles				×		×				
2 pairs of congruent sides		×		×	×	×				
1 pair of = sides								×	×	
At least 2 sides congruent		×		×	×	×		×	×	
All sides congruent					×	×		×		
All right angles				×		×