Name _____

Round to the Nearest Ten or Hundred

Essential Question How can you round numbers?

COMMON CORE STANDARD **CC.3.NBT.1**

Use place value understanding and properties of operations to perform multi-digit arithmetic.

UNLOCK the Problem REAL WORLD

When you **round** a number, you find a number that tells you *about* how much or *about* how many.

Mia's baseball bat is 32 inches long. What is its length rounded to the nearest ten inches?

Name _____

Mental Math Strategies for Addition

Essential Question What mental math strategies can you use to find sums?

COMMON CORE STANDARD CC.3.NBT.2
Use place value understanding and properties of operations to perform multi-digit arithmetic.

UNLOCK the Problem REAL WORLD

The table shows how many musicians are in each section of a symphony orchestra. How many musicians play either string or woodwind instruments?

Orchestra Musicians

Section	Number
Brass	12
Percussion	13
String	57
Woodwind	15

Try This! **Find 43 + 28. Draw jumps and label the number line to show your thinking.**

So, 43 + 28 = _____.

Name _____

Estimate Differences

Essential Question How can you use compatible numbers and rounding to estimate differences?

COMMON CORE STANDARD CC.3.NBT.1
Use place value understanding and properties of operations to perform multi-digit arithmetic.

UNLOCK the Problem REAL WORLD

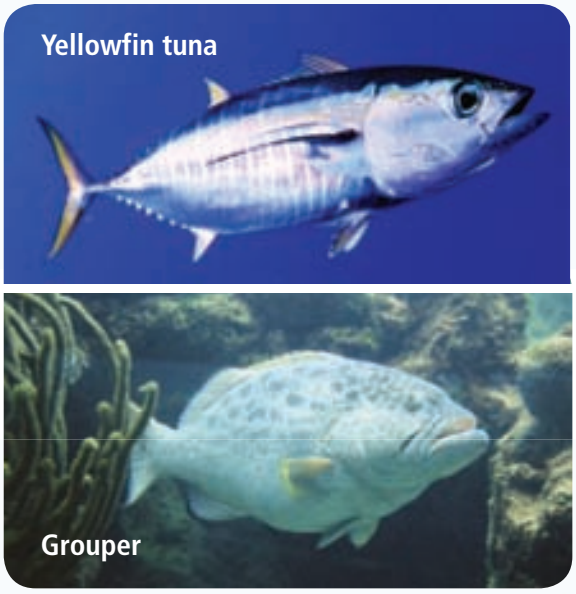
The largest yellowfin tuna caught by fishers weighed 387 pounds. The largest grouper caught weighed 436 pounds. About how much more did the grouper weigh than the yellowfin tuna?

- Does the question ask for an exact answer? How do you know?

_____

_____

- Circle the numbers you need to use.



- What other compatible numbers could you have used?

_____

Try This! **Estimate. Use compatible numbers.**

A

$$\begin{array}{rcl} 73 & \rightarrow & 75 \\ -\,22 & \rightarrow & -\,\square \\ \hline & & \square \end{array}$$

B

$$\begin{array}{rcl} 376 & \rightarrow & \square \\ -\,148 & \rightarrow & -\,150 \\ \hline & & \square \end{array}$$

Name _____

Mental Math Strategies for Subtraction

Essential Question What mental math strategies can you use to find differences?

COMMON CORE STANDARD **CC.3.NBT.2**
Use place value understanding and properties of operations to perform multi-digit arithmetic.

UNLOCK the Problem REAL WORLD

A sunflower can grow to be very tall. Dylan is 39 inches tall. She watered a sunflower that grew to be 62 inches tall. How many inches shorter was Dylan than the sunflower?

Name _____

Problem Solving • Model Addition and Subtraction

Essential Question How can you use the strategy *draw a diagram* to solve one- and two-step addition and subtraction problems?

COMMON CORE STANDARD **CC.3.OA.8**
Solve problems involving the four operations, and identify and explain patterns in arithmetic.

UNLOCK the Problem REAL WORLD

Sami scored 84 points in the first round of a new computer game. He scored 21 more points in the second round than in the first round. What was Sami's total score?

Read the Problem

What do I need to find?	What information do I need to use?	How will I use the information?

Solve the Problem

1. How many points did Sami score in the second round? _____

2. What was Sami's total score? _____

Name _____

Problem Solving • Organize Data

Essential Question How can you use the strategy *make a table* to organize data and solve problems?

COMMON CORE STANDARD **CC.3.MD.3**
Represent and interpret data.

UNLOCK the Problem REAL WORLD

The students in Alicia's class voted for their favorite ice cream flavor. They organized the data in this tally table. How many more students chose chocolate than strawberry?

Another way to show the data is in a frequency table. A **frequency table** uses numbers to record data.

Favorite Ice Cream Flavor

Flavor	Tally
Vanilla	𝍸 ||
Chocolate	𝍸 |||
Strawberry	||||

Read the Problem	Solve the Problem
What do I need to find?	
What information do I need to use?	
How will I use the information?	

Name _____

Use Picture Graphs

COMMON CORE STANDARD CC.3.MD.3
Represent and interpret data.

Essential Question How can you read and interpret data in a picture graph?

UNLOCK the Problem REAL WORLD

A **picture graph** uses small pictures or symbols to show and compare information.

Nick has a picture graph that shows how some students get to school. How many students ride the bus?

- Underline the words that tell you where to find the information to answer the question.
- How many ☺ are shown for bus?

_____

Each row has a label that names one way students get to school.

How We Get to School

Walk	☺ ☺ ☺
Bike	☺ ☺ ☺ ☺
Bus	☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺
Car	☺ ☺ ☺ ☺ ☺ ☺

Key: Each ☺ = 10 students.

The title says that the picture graph is about how some students get to school.

The **key** tells that each picture or symbol stands for the way 10 students get to school.

1. How many fewer students walk than ride the bus? _____

2. How many students were surveyed? _____

3. **What if** the symbol stands for 5 students? How many symbols will you need to show the number of students who walk to school? _____

Name _____

Solve Problems Using Data

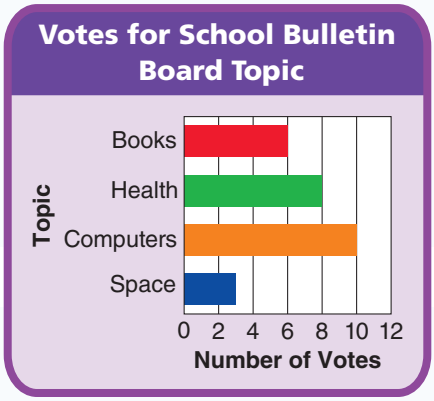
Essential Question How can you solve problems using data represented in bar graphs?

COMMON CORE STANDARD CC.3.MD.3
Represent and interpret data.

UNLOCK the Problem REAL WORLD

CONNECT Answering questions about data helps you better understand the information.

Derek's class voted on a topic for the school bulletin board. The bar graph shows the results. How many more votes did computers receive than space?



Name _____

Relate Addition and Multiplication

Essential Question How is multiplication like addition? How is it different?

COMMON CORE STANDARD **CC.3.OA.1**
Represent and solve problems involving multiplication and division.

UNLOCK the Problem REAL WORLD

Tomeka needs 3 apples to make one apple cake. Each cake has the same number of apples. How many apples does Tomeka need to make 4 cakes?

- How many cakes is Tomeka making?
- How many apples are in each cake?
- How can you solve the problem?

Name _____

Skip Count on a Number Line

Essential Question How can you use a number line to skip count and find how many in all?

COMMON CORE STANDARD CC.3.OA.3
Represent and solve problems involving multiplication and division.

UNLOCK the Problem REAL WORLD

Caleb wants to make 3 balls of yarn for his cat to play with. He uses 6 feet of yarn to make each ball. How many feet of yarn does Caleb need in all?

- How many equal groups of yarn will Caleb make?

_____

- How many feet of yarn will be in each group?

_____

- What do you need to find?

_____

Name _____

Problem Solving • Model Multiplication

Essential Question How can you use the strategy *draw a diagram* to solve one- and two-step problems?

COMMON CORE STANDARD **CC.3.OA.8**

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

UNLOCK the Problem REAL WORLD

Three groups of students are taking drum lessons. There are 8 students in each group. How many students are taking lessons in all?

Read the Problem	Solve the Problem
What do I need to find?	
What information do I need to use?	
How will I use the information?	

Name _____

Lesson 3.5

Model with Arrays

Essential Question How can you use arrays to model multiplication and find factors?

COMMON CORE STANDARD **CC.3.OA.3**

Represent and solve problems involving multiplication and division.

UNLOCK the Problem REAL WORLD

Many people grow tomatoes in their gardens. Lee plants 3 rows of tomato plants with 6 plants in each row. How many tomato plants are there?

▲ **Tomatoes are a great source of vitamins.**

Materials ■ square tiles ■ MathBoard

- You make an **array** by placing the same number of tiles in each row.

Name _____

Multiply with 2 and 4

Essential Question How can you multiply with 2 and 4?

COMMON CORE STANDARD CC.3.OA.3
Represent and solve problems involving multiplication and division.

UNLOCK the Problem REAL WORLD

Two students are in a play. Each of the students has 3 costumes. How many costumes do they have in all?

- What does the word "each" tell you?

_____

- How can you find the number of costumes the 2 students have?

_____

Try This!

$2 \times 1 = 1 + 1 = 2$

$2 \times 2 = 2 + 2 = 4$

$2 \times \_\_\_\_ = 3 + \_\_\_\_ = 6$

$2 \times \_\_\_\_ = 4 + \_\_\_\_ = 8$

$2 \times \_\_\_\_ = 5 + \_\_\_\_ = \_\_\_\_$

$2 \times \_\_\_\_ = 6 + \_\_\_\_ = \_\_\_\_$

$2 \times \_\_\_\_ = 7 + \_\_\_\_ = \_\_\_\_$

$2 \times \_\_\_\_ = 8 + \_\_\_\_ = \_\_\_\_$

$2 \times \_\_\_\_ = 9 + \_\_\_\_ = \_\_\_\_$

Name _____

Distributive Property

Essential Question How can you use the Distributive Property to find products?

COMMON CORE STANDARD CC.3.OA.5

Understand properties of multiplication and the relationship between multiplication and division.

UNLOCK the Problem REAL WORLD

Mark bought 6 new fish for his aquarium. He paid $7 for each fish. How much did he spend in all?

- Describe the groups in this problem.

- Circle the numbers you will use to solve the problem.

You can use the Distributive Property to solve the problem.

The **Distributive Property** states that multiplying a sum by a number is the same as multiplying each addend by the number and then adding the products.

Remember

sum—the answer to an addition problem

addends—the numbers being added

Materials ■ square tiles

Name _____

Associative Property of Multiplication

Essential Question How can you use the Associative Property of Multiplication to find products?

COMMON CORE STANDARD CC.3.OA.5
Understand properties of multiplication and the relationship between multiplication and division.

Math Idea
Always multiply the numbers inside the parentheses first.

CONNECT You have learned the Associative Property of Addition. When the grouping of the addends is changed, the sum stays the same.

$$(2 + 3) + 4 = 2 + (3 + 4)$$

The **Associative Property of Multiplication** states that when the grouping of the factors is changed, the product is the same. It is also called the Grouping Property of Multiplication.

UNLOCK the Problem REAL WORLD

Each car on the roller coaster has 2 rows of seats. Each row has 2 seats. There are 3 cars in each train. How many seats are on each train?

- Underline what you need to find.
- Describe the grouping of the seats.

_____

Name _____

Problem Solving • Multiplication

Essential Question How can you use the strategy *make a table* to solve multiplication problems?

COMMON CORE STANDARD **CC.3.OA.8**

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

UNLOCK the Problem REAL WORLD

Scott has a stamp album. Some pages have 1 stamp on them, and other pages have 2 stamps on them. If Scott has 18 stamps, show how many different ways he could put them in the album. Use the graphic organizer below to solve the problem.

Read the Problem	Solve the Problem
What do I need to find?	
What information do I need to use?	
How will I use the information?	

- What number patterns do you see in the table?

_____

_____

Name _____

Describe Patterns

Essential Question What are some ways you can describe a pattern in a table?

ALGEBRA
Lesson 5.1

COMMON CORE STANDARD CC.3.OA.9

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

UNLOCK the Problem REAL WORLD

The outdoor club is planning a camping trip. Each camper will need a flashlight. One flashlight uses 4 batteries. How many batteries are needed for 8 flashlights?

Flashlights	1	2	3	4	5	6	7	8
Batteries	4	8	12	16	20	24	28	■

ERROR Alert

Check that your pattern will work for all the numbers in the table.

Name _____

Find Unknown Factors

Essential Question How can you use an array or a multiplication table to find an unknown factor?

COMMON CORE STANDARD **CC.3.OA.4**
Represent and solve problems involving multiplication and division.

UNLOCK the Problem REAL WORLD

Tanisha plans to invite 24 people to a picnic. The invitations come in packs of 8. How many packs of invitations does Tanisha need to buy?

An **equation** is a number sentence that uses the equal sign to show that two amounts are equal.

A symbol or letter can stand for an unknown factor.

- How many people is Tanisha inviting? _____
- How many invitations are in 1 pack? _____

Name _____

Problem Solving • Use the Distributive Property

Essential Question How can you use the strategy *draw a diagram* to multiply with multiples of 10?

COMMON CORE STANDARD **CC.3.NBT.3**
Use place value understanding and properties of operations to perform multi-digit arithmetic.

UNLOCK the Problem REAL WORLD

The school assembly room has 5 rows of chairs with 20 chairs in each row. If the third-grade classes fill 3 rows of chairs, how many third graders are at the assembly?

Read the Problem	Solve the Problem
What do I need to find?	
What information do I need to use?	
How will I use the information?	

Name _____

Multiplication Strategies with Multiples of 10

COMMON CORE STANDARD **CC.3.NBT.3**
Use place value understanding and properties of operations to perform multi-digit arithmetic.

Essential Question What strategies can you use to multiply with multiples of 10?

UNLOCK the Problem REAL WORLD

You can use models and place value to multiply with multiples of 10.

- What is a product of 10 and the counting numbers 1, 2, 3, and so on?

_____

Activity

Materials ■ base-ten blocks

What are the first nine multiples of 10?

Best Care Veterinary Clinic offered free pet care classes for 5 days. Erin attended the pet care class for 30 minutes each day. How many minutes did Erin attend the class?

Name _____

Problem Solving • Model Division

Essential Question How can you use the strategy *act it out* to solve problems with equal groups?

COMMON CORE STANDARD **CC.3.OA.3**

Represent and solve problems involving multiplication and division.

UNLOCK the Problem REAL WORLD

Stacy has 16 flowers. She puts an equal number of flowers in each of 4 vases. How many flowers does Stacy put in each vase?

Use the graphic organizer below to solve the problem.

Read the Problem	Solve the Problem
What do I need to find?	
What information do I need to use?	
How will I use the information?	

Name _____

Number of Equal Groups

Essential Question How can you model a division problem to find how many equal groups?

COMMON CORE STANDARD CC.3.OA.2
Represent and solve problems involving multiplication and division.

CONNECT You have learned how to divide to find the number in each group. Now you will learn how to divide to find the number of equal groups.

UNLOCK the Problem REAL WORLD

William has 12 shells and some boxes. He wants to put his shells in groups of 3. How many boxes does he need for his shells?

- Underline what you need to find.
- How many shells does William want in each group? _____

▲ The horse conch can grow to a length of 24 inches!

Name _____

Relate Subtraction and Division

Essential Question How is division related to subtraction?

COMMON CORE STANDARD **CC.3.OA.3**
Represent and solve problems involving multiplication and division.

UNLOCK the Problem REAL WORLD

Serena and Mandy brought a total of 12 newspapers to school for the recycling program. Each girl brought in one newspaper each day. For how many days did the girls bring in newspapers?

- How many newspapers were brought in altogether?

- How many newspapers did the two girls bring in altogether each day?

ERROR Alert

Be sure to keep subtracting 2 until you are unable to subtract 2 anymore.

Name _____

Relate Multiplication and Division

Essential Question How can you use multiplication to divide?

COMMON CORE STANDARD CC.3.OA.6

Understand properties of multiplication and the relationship between multiplication and division.

UNLOCK the Problem REAL WORLD

Pam went to the fair. She went on the same ride 6 times and used the same number of tickets each time. She used 18 tickets. How many tickets did she use each time she went on the ride?

- What do you need to find?

_____

_____

- Circle the numbers you need to use.

What if the problem said Pam went on the ride 6 times and used 3 tickets each time? How many tickets did Pam use in all?

Multiplication and division are opposite operations, or **inverse operations**.

Name _____

Write Related Facts

Essential Question How can you write a set of related multiplication and division facts?

COMMON CORE STANDARD **CC.3.OA.7**
Multiply and divide within 100.

UNLOCK the Problem

Related facts are a set of related multiplication and division equations. What related facts can you write for 2, 4, and 8?

- What model can you use to show how multiplication and division are related?

_____

Materials ■ square tiles

Name _____

Divide by 2

Essential Question What does dividing by 2 mean?

COMMON CORE STANDARD CC.3.OA.3
Represent and solve problems involving multiplication and division.

UNLOCK the Problem REAL WORLD

There are 10 hummingbirds and 2 feeders in Marissa's backyard. If there are an equal number of birds at each feeder, how many birds are at each one?

- What do you need to find?

_____

- Circle the numbers you need to use.
- What can you use to help solve the problem? _____

Materials ■ counters ■ MathBoard

A hummingbird can fly right, left, up, down, forward, backward, and even upside down!

Name _____

Divide by 10

Essential Question What strategies can you use to divide by 10?

COMMON CORE STANDARD CC.3.OA.7
Multiply and divide within 100.

UNLOCK the Problem REAL WORLD

There are 50 students going on a field trip to the Philadelphia Zoo. The students are separated into equal groups of 10 students each. How many groups of students are there?

- What do you need to find?

- Circle the numbers you need to use.

Name _____

Divide by 4

Essential Question What strategies can you use to divide by 4?

COMMON CORE STANDARD CC.3.OA.7
Multiply and divide within 100.

UNLOCK the Problem REAL WORLD

A tree farmer plants 12 red maple trees in 4 equal rows. How many trees are in each row?

- What strategy could you use to solve the problem?

Name _____

Divide by 6

Essential Question What strategies can you use to divide by 6?

COMMON CORE STANDARD CC.3.OA.7
Multiply and divide within 100.

UNLOCK the Problem REAL WORLD

Ms. Sing needs to buy 24 juice boxes for the class picnic. Juice boxes come in packs of 6. How many packs does Ms. Sing need to buy?

- Circle the number that tells you how many juice boxes come in a pack.
- How can you use the information to solve the problem?

_____

_____

_____

Name _____

Divide by 9

Essential Question What strategies can you use to divide by 9?

COMMON CORE STANDARD CC.3.OA.7
Multiply and divide within 100.

UNLOCK the Problem REAL WORLD

Becket's class goes to the aquarium. The 27 students from the class are separated into 9 equal groups. How many students are in each group?

- Do you need to find the number of equal groups or the number in each group?

- What label will your answer have?

Name _____

Problem Solving • Two-Step Problems

Essential Question How can you use the strategy *act it out* to solve two-step problems?

COMMON CORE STANDARD **CC.3.OA.8**

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

UNLOCK the Problem REAL WORLD

Madilyn bought 2 packs of pens and a notebook for $11. The notebook cost $3. Each pack of pens cost the same amount. What is the price of 1 pack of pens?

Read the Problem	Solve the Problem
What do I need to find?	**Describe how to act out the problem.**
What information do I need to use?	
How will I use the information?	

Name _____

Equal Shares

Essential Question Why do you need to know how to make equal shares?

COMMON CORE STANDARD CC.3.NF.1
Develop understanding of fractions as numbers.

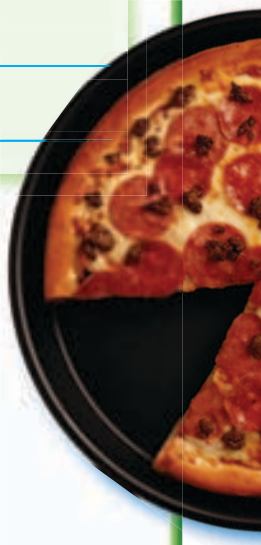
UNLOCK the Problem REAL WORLD

Four friends share 2 small pizzas equally. What are two ways the pizza could be divided equally? How much pizza will each friend get?

- How might the two ways be different?

_____

_____



Try This! Four girls share 3 oranges equally. Draw a quick picture to find out how much each girl gets.

Name _____

Fractions on a Number Line

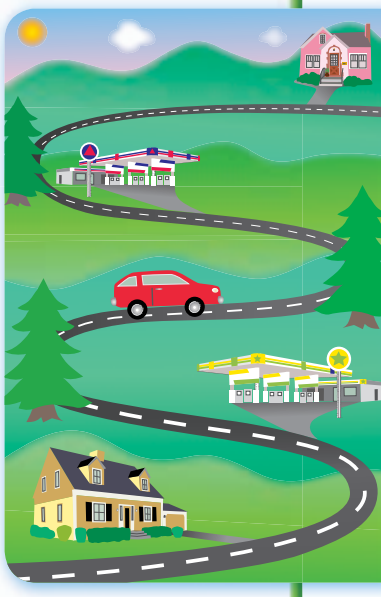
Essential Question How can you represent and locate fractions on a number line?

COMMON CORE STANDARDS **CC.3.NF.2a, CC.3.NF.2b**
Develop understanding of fractions as numbers.

UNLOCK the Problem REAL WORLD

Billy's family is traveling from his house to his grandma's house. They stop at gas stations when they are $\frac{1}{4}$ and $\frac{3}{4}$ of the way there. How can he represent those distances on a number line?

You can use a number line to show fractions. The length from one whole number to the next whole number represents one whole. The line can be divided into any number of equal parts, or lengths.



Materials ■ fraction strips

Name _____

Relate Fractions and Whole Numbers

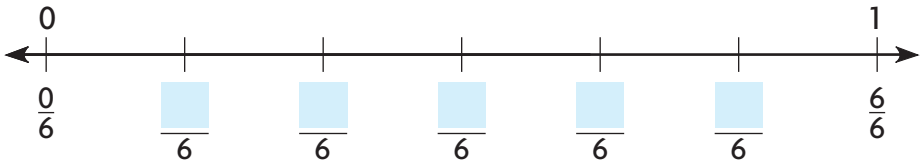
Essential Question When might you use a fraction greater than 1 or a whole number?

COMMON CORE STANDARD CC.3.NF.3c
Develop understanding of fractions as numbers.

UNLOCK the Problem REAL WORLD

Steve ran 1 mile and Jenna ran $\frac{4}{4}$ of a mile.
Did Steve and Jenna run the same distance?

Try This! Complete the number line. Locate and draw points at $\frac{3}{6}$, $\frac{6}{6}$, and 1.



A Are $\frac{3}{6}$ and 1 equal? **Explain.**

So, $\frac{3}{6}$ and 1 are _____.

B Are $\frac{6}{6}$ and 1 equal? **Explain.**

So, $\frac{6}{6}$ and 1 are _____.

Name _____

Find Part of a Group Using Unit Fractions

Essential Question How can a fraction tell how many are in part of a group?

COMMON CORE STANDARD CC.3.NF.1
Develop understanding of fractions as numbers.

UNLOCK the Problem REAL WORLD

Audrey buys a bouquet of 12 flowers. One third of them are red. How many of the flowers are red?

Materials ■ two-color counters ■ MathBoard

- How many flowers does Audrey buy in all? _____
- What fraction of the flowers are red? _____

- **What if** Audrey buys a bouquet of 9 flowers and one third of them are yellow?

_____

Name _____

Problem Solving • Find the Whole Group Using Unit Fractions

COMMON CORE STANDARD **CC.3.NF.1**
Develop understanding of fractions as numbers.

Essential Question How can you use the strategy *draw a diagram* to solve fraction problems?

UNLOCK the Problem REAL WORLD

Cameron has 4 clown fish in his fish tank. One third of the fish in the tank are clown fish. How many fish does Cameron have in his tank?

Use the graphic organizer to help you solve the problem.

Read the Problem	Solve the Problem
What do I need to find?	**Describe how to draw a diagram to solve.**
What information do I need to use?	
How will I use the information?	

Name _____

Problem Solving • Compare Fractions

Essential Question How can you use the strategy *act it out* to solve comparison problems?

COMMON CORE STANDARD **CC.3.NF.3d**
Develop understanding of fractions as numbers.

UNLOCK the Problem REAL WORLD

Mary and Vincent climbed up a rock wall at the park. Mary climbed $\frac{3}{4}$ of the way up the wall. Vincent climbed $\frac{3}{8}$ of the way up the wall. Who climbed higher?

Remember

$<$ is less than

$>$ is greater than

$=$ is equal to

Read the Problem	Solve the Problem
What do I need to find?	
What information do I need to use?	
How will I use the information?	

Name _____

Compare Fractions with the Same Numerator

COMMON CORE STANDARD CC.3.NF.3d
Develop understanding of fractions as numbers.

Essential Question How can you compare fractions with the same numerator?

UNLOCK the Problem REAL WORLD

Josh is at Enzo's Pizza Palace. He can sit at a table with 5 of his friends or at a different table with 7 of his friends. The same-size pizza is shared equally among the people at each table. At which table should Josh sit to get more pizza?

- Including Josh, how many friends will be sharing pizza at each table?

_____

- What will you compare?

_____

_____

1. Which pizza has more pieces? _____
The *more* pieces a whole is divided into,

the _____ the pieces are.

2. Which pizza has fewer pieces? _____
The *fewer* pieces a whole is divided into,

the _____ the pieces are.

Name _____

Compare and Order Fractions

Essential Question How can you compare and order fractions?

COMMON CORE STANDARD CC.3.NF.3d
Develop understanding of fractions as numbers.

UNLOCK the Problem REAL WORLD

Harrison, Tad, and Dale ride their bikes to school. Harrison rides $\frac{3}{4}$ mile, Tad rides $\frac{3}{8}$ mile, and Dale rides $\frac{3}{6}$ mile. Compare and order the distances the boys ride from least to greatest.

- Circle the fractions you need to use.
- Underline the sentence that tells you what you need to do.

Materials ■ color pencil

Remember

- The *more* pieces a whole is divided into, the smaller the pieces are.
- The *fewer* pieces a whole is divided into, the larger the pieces are.

Name _____

Equivalent Fractions

Essential Question How can you use models to name equivalent fractions?

COMMON CORE STANDARD **CC.3.NF.3b**
Develop understanding of fractions as numbers.

UNLOCK the Problem REAL WORLD

Cole brought a submarine sandwich to the picnic. He shared the sandwich equally with 3 friends. The sandwich was cut into eighths. What are two ways to describe the part of the sandwich each friend ate?

- How many people shared the sandwich?

_____

Try This! Circle equal groups. Write an equivalent fraction for the shaded part of the whole.

$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$

$\frac{4}{8} = \_\_\_\_$

Name _____

Measure Time Intervals

Essential Question How can you measure elapsed time in minutes?

COMMON CORE STANDARD **CC.3.MD.1**
Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

UNLOCK the Problem REAL WORLD

Alicia and her family visited the Kennedy Space Center. They watched a movie that began at 4:10 P.M. and ended at 4:53 P.M. How long did the movie last?

To find **elapsed time**, find the amount of time that passes from the start of an activity to the end of the activity.

- What time did the movie begin?

_____

- What time did the movie end?

_____

- Underline the question.

Name _____

Use Time Intervals

Essential Question How can you find a starting time or an ending time when you know the elapsed time?

COMMON CORE STANDARD **CC.3.MD.1**
Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

UNLOCK the Problem REAL WORLD

Al begins working on his oceans project at 1:30 P.M. He spends 42 minutes painting a model of Earth and labeling the oceans. At what time does Al finish working on his project?

- What time is given?

_____

_____

- What time do you need to find?

_____

_____

Name _____

Problem Solving • Time Intervals

Essential Question How can you use the strategy *draw a diagram* to solve problems about time?

COMMON CORE STANDARD **CC.3.MD.1**
Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

UNLOCK the Problem REAL WORLD

Zach and his family are going to New York City. Their airplane leaves at 9:15 A.M. They need to arrive at the airport 60 minutes before their flight. It takes 15 minutes to get to the airport. The family needs 30 minutes to get ready to leave. At what time should Zach's family start getting ready?

Read the Problem

What do I need to find?	What information do I need to use?	How will I use the information?

Solve the Problem

Name _____

Estimate and Measure Mass

Essential Question How can you estimate and measure mass in metric units?

COMMON CORE STANDARD CC.3.MD.2
Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

UNLOCK the Problem REAL WORLD

Peter has a dollar bill in his pocket. Should Peter measure the mass of the dollar bill in grams or kilograms?

The **gram (g)** is the basic metric unit for measuring **mass**, or the amount of matter in an object. Mass can also be measured by using the metric unit **kilogram (kg)**.

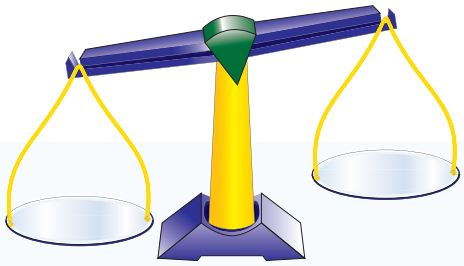
A small paper clip has a mass of about 1 gram.

A box of 1,000 paper clips has a mass of about 1 kilogram.

Materials ■ pan balance ■ gram and kilogram masses

You can use a pan balance to measure mass.

Do 10 grams have the same mass as 1 kilogram?



Name _____

Solve Problems About Liquid Volume and Mass

Essential Question How can you use models to solve liquid volume and mass problems?

COMMON CORE STANDARD CC.3.MD.2
Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

UNLOCK the Problem REAL WORLD

A restaurant serves iced tea from a large container that can hold 24 liters. Sadie will fill the container with the pitchers of tea shown below. Will Sadie have tea left over after filling the container?

_____ L _____ L _____ L _____ L

Try This!

Raul's fish tank contains 32 liters of water. He empties it with a bucket that holds 4 liters of water. How many times will Raul have to fill the bucket?

Name _____

Find Perimeter

Essential Question How can you measure perimeter?

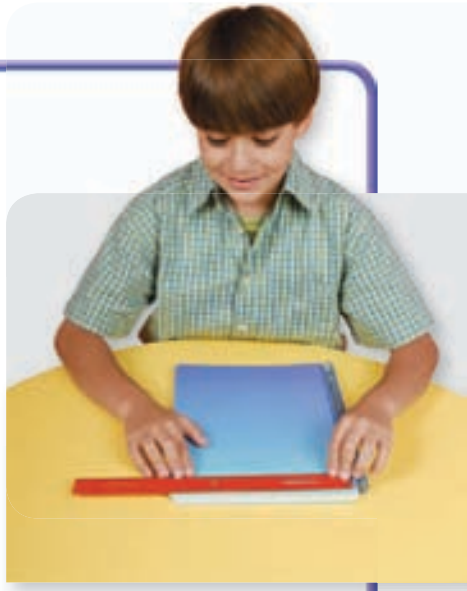
COMMON CORE STANDARD **CC.3.MD.8**

Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

You can estimate and measure perimeter in standard units, such as inches and centimeters.

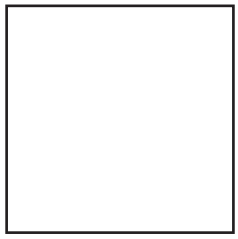
UNLOCK the Problem REAL WORLD

Find the perimeter of the cover of a notebook.



Try This! **Find the perimeter.**

The perimeter is _____ inches.



The perimeter is _____ centimeters.

Name _____

Problem Solving • Area of Rectangles

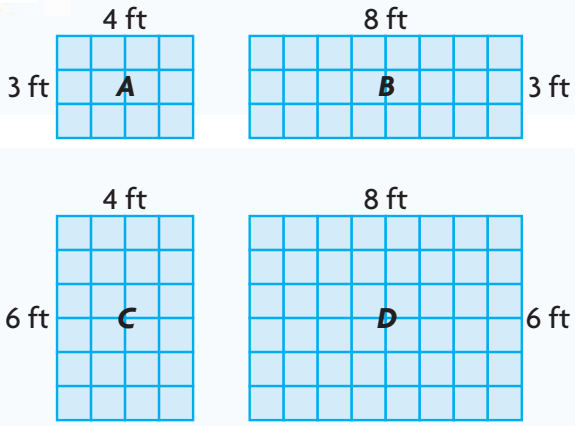
Essential Question How can you use the strategy *find a pattern* to solve area problems?

COMMON CORE STANDARD **CC.3.MD.7b**
Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

UNLOCK the Problem REAL WORLD

Mr. Koi wants to build storage buildings, so he drew plans for the buildings. He wants to know how the areas of the buildings are related. How will the areas of Buildings *A* and *B* change? How will the areas of Buildings *C* and *D* change?

Use the graphic organizer to help you solve the problem.



Read the Problem

What do I need to find?	What information do I need to use?	How will I use the information?

Solve the Problem

Name _____

Area of Combined Rectangles

Essential Question How can you break apart a shape to find the area?

COMMON CORE STANDARDS **CC.3.MD.7c, CC.3.MD.7d**
Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

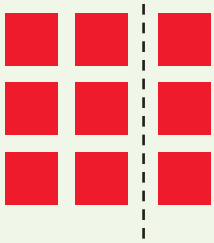
UNLOCK the Problem REAL WORLD

Anna's rug has side lengths of 4 feet and 9 feet. What is the area of Anna's rug?

Materials ■ square tiles

Remember

You can use the Distributive Property to break apart an array.



$3 \times 3 = 3 \times (2 + 1)$

Name _____

Same Perimeter, Different Areas

Essential Question How can you use area to compare rectangles with the same perimeter?

COMMON CORE STANDARD CC.3.MD.8

Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

UNLOCK the Problem REAL WORLD

Toby has 12 feet of boards to put around a rectangular sandbox. How long should he make each side so that the area of the sandbox is as large as possible?

- What is the greatest perimeter Toby can make for his sandbox?

_____

Materials ■ square tiles

Name _____

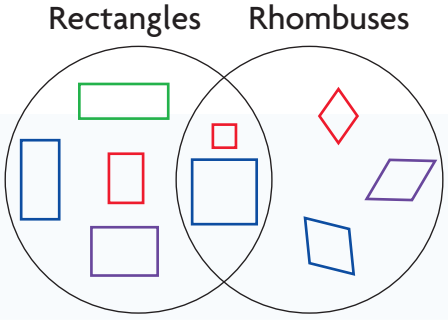
Problem Solving • Classify Plane Shapes

Essential Question How can you use the strategy *draw a diagram* to classify plane shapes?

COMMON CORE STANDARD CC.3.G.1
Reason with shapes and their attributes.

UNLOCK the Problem REAL WORLD

A **Venn diagram** shows how sets of things are related. In the Venn diagram at the right, one circle has shapes that are rectangles. Shapes that are rhombuses are in the other circle. The shapes in the section where the circles overlap are both rectangles and rhombuses.



What type of quadrilateral is in both circles?

Read the Problem	Solve the Problem
What do I need to find?	
What information do I need to use?	
How will I use the information?	