

May, 2023

Dear Parents/Guardians,

The attached math enrichment packet is meant to provide your child with a review of the skills he learned in Third Grade. Your child is expected to to turn the completed packet in to Mrs. Hamer on the first day of the 2023-2024 school year. Please encourage your child to schedule time throughout the summer to work on the packet; do not wait until the end of summer to begin.

Reminders for your child:

- · Read and follow all directions.
- Show work for ANY/ALL problems in an organized manner and number each problem to receive full credit.

Have a great summer!

Sincerely,

Mrs. Henson

## **Round to the Nearest Ten** or Hundred

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

Use place value to round 76 to the nearest ten.

- Step 1 Look at the digit to the right of the tens place.
  - If the ones digit is 5 or more, the tens digit increases by one.
  - If the ones digit is less than 5, the tens digit stays the same.

Step 2 Write zero for the ones digit.

76 ones place

The digit in the ones place is 6.

6 > 5

So, the digit 7 in the tens place increases to 8.

So, 76 rounded to the nearest ten is 80.

Think: To round to the nearest hundred, look at the tens digit. So, 128 rounded to the nearest hundred is 100.

**128** tens place

#### Round to the nearest ten.

- 1. 24 \_\_\_\_\_
- **2.** 15 \_\_\_\_\_\_ **3.** 47 \_\_\_\_\_
- 4. 42 \_\_\_\_\_
- **5.** 81 \_\_\_\_\_
- **6.** 65 \_\_\_\_\_

#### Round to the nearest hundred.

- **7.** 176 \_\_\_\_\_\_ **8.** 395 \_\_\_\_\_\_
- 9. 431 \_\_\_\_\_
- **10.** 421 \_\_\_\_\_\_ **11.** 692 \_\_\_\_\_ **12.** 470 \_\_\_\_\_

#### **Use Place Value to Add**

You can use place value to add 3-digit numbers.

**Add.** 
$$268 + 195$$
 **Estimate.**  $300 + 200 = 500$ 

**Step 1** Add the ones. If there are 10 or more ones, regroup as tens and ones.

Step 2 Add the tens. Regroup the tens as hundreds and tens.

Step 3 Add the hundreds.

1 hundred + 2 hundreds + 1 hundred = 4 hundreds

So, 
$$268 + 195 = 463$$
.

#### (and) Estimate. Then find the sum.

# **Use Place Value to Subtract**

You can use place value to subtract 3-digit numbers.

**Subtract.** 352 - 167

**Estimate.** 400 - 200 = 200

Step 1 Subtract the ones.

Step 2 Subtract the tens.

14 2 4 12 3 5 2 - 1 6 7	Are there enough tens to subtract 6? There are not enough tens. Regroup 3 hundreds 4 tens as 2 hundreds 14 tens. 14 tens - 6 tens = 8 tens
<del>8</del> 5	

Step 3 Subtract the hundreds.

2 hundreds 
$$-1$$
 hundred  $=1$  h

# (A)3

#### Estimate. Then find the difference.

1. Estimate:	<b>2.</b> Estimate:	<b>3.</b> Estimate:	4. Estimate:
537	268	426	785
<u>-123</u>	<u> – 157                                    </u>	<u>-218</u>	<u>-549</u>

# **Use Picture Graphs**

A picture graph shows information using small pictures or symbols.

A key tells what the symbol stands for.

A symbol can stand for more than 1.

Which state in the picture graph below has 9 national park areas?

The key for the picture graph shows that each \$ = 6 national park areas.

Count the number of \$\mathbb{1}\$ next to each state.

Oregon has one tree picture and half of a tree picture.

Think:

4 = 6 park areas

Natio	nal Park Areas
Michigan	4
Minnesota	1
Missouri	1 1
New York	***
Oregon	0.1

Key: Each 1 = 6 national park areas.

So, Oregon has 9 national park areas.

Use the Favorite Ice Pop Flavor picture graph for 1-4.

- 1. How many people chose orange?
- 2. How many people chose lemon?
- **3.** How many fewer people chose lemon than chose strawberry?
- Favorite Ice Pop Flavor

  Orange

  Lemon

  Blueberry

  Strawberry

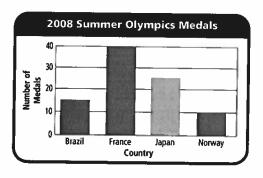
  Key: Each = 2 votes.
- **4.** How many people in all were surveyed?

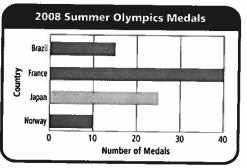
# **Use Bar Graphs**

How many Olympic medals did Norway win in the 2008 Summer Olympics?

- Both bar graphs show the same data about Olympic medals. The top graph is a vertical bar graph. The bottom graph is a horizontal bar graph.
- Find Norway on the vertical bar graph and follow the bar to its end. Then follow the end across to the scale to find the number of medals.
   medals.
- Find Norway on the horizontal bar graph and follow the bar to its end. Then follow the end down to the scale to find the number of medals.
   medals.

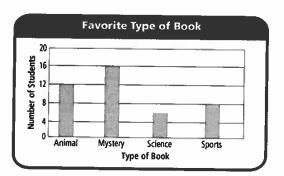
So, Norway won 10 medals.





#### Use the Favorite Type of Book bar graph for 1-4.

- 1. Which type of book did the most students choose?
- 2. Which type of book received 4 fewer votes than mystery?



- **3.** Did more students choose books about mystery or books about science and sports together?
- **4.** How many students in all answered the survey?

# Algebra • Relate Addition and Multiplication

You can add to find how many in all.

You can also multiply to find how many in all when you have equal groups.

 $3 \times 2 = 6$ 

The **factors** are 3 and 2. The **product** is 6.

So, 2 + 2 + 2 = 6 and  $3 \times 2 = 6$ .

Write related addition(and multiplication sentences for the model.

+ \_ + \_ = \_\_\_

\_\_\_+\_\_+\_\_+\_\_=\_\_

\_\_\_×\_\_=\_\_

Draw a quick picture to show the equal groups. Then write related addition and multiplication sentences.

**3.** 4 groups of 3

**4.** 2 groups of 3

\_\_\_+\_\_+ \_\_\_+ \_\_\_= \_\_\_

\_\_\_ + \_\_\_ = \_\_\_

\_\_\_×\_\_\_=\_\_\_

\_\_\_ × \_\_\_ = \_\_\_

# Multiply with 2 and 4

You can skip count to help you find a product.

Find the product.  $4 \times 3$ 

Step 1 Use cubes to model 4 groups of 3.

Step 2 Skip count by 3s four times to find how many in all.









3,

9

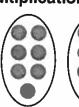
12

4 groups of 3 is equal to 12.

So,  $4 \times 3 = 12$ .

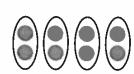
Write a multiplication sentence for the model.

1.





2.



\_\_\_\_× \_\_\_ = \_\_\_\_

# Multiply with 3 and 6

You can use a number line to multiply with 3 or 6.

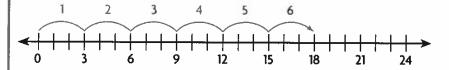
Find the product.  $6 \times 3$ 

The factor 6 tells you to make 6 jumps.

The factor 3 tells you each jump should be 3 spaces.

Step 1 Start at 0.

Make 6 jumps of 3 spaces.



Step 2 The number you land on is the product.

So, 
$$6 \times 3 = 18$$
.

**1.** 
$$3 \times 1 =$$
 **2. 2.**  $= 2 \times 6$  **3.**  $8 \times 3 =$  **4.**  $6 \times 6 =$ 

6. 
$$5 \times 6 =$$
 \_\_\_\_\_

**5.** 
$$3 \times 0 =$$
 \_\_\_\_\_ **6.**  $5 \times 6 =$  \_\_\_\_\_ **7.** \_\_\_\_ =  $3 \times 5$  **8.**  $9 \times 6 =$  \_\_\_\_\_

# Multiply with 7

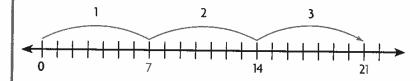
Pablo is making gift bags for his party. He puts 7 pencils in each bag. How many pencils will he need for 3 gift bags?

Find  $3 \times 7$ .

You can use a number line to find the product.

Step 1 Draw a number line.

Step 2 Start at 0. Draw 3 jumps of 7.



 $3 \times 7 = 21$ 

So, Pablo will need \_\_21\_\_ pencils for 3 gift bags.

2. 
$$5 \times 7 =$$
\_\_\_\_

3. 
$$4 \times 7 =$$
\_\_\_\_\_

1. \_\_\_\_ = 
$$0 \times 7$$
 2.  $5 \times 7 =$  \_\_\_ 3.  $4 \times 7 =$  \_\_\_ 4. \_\_ =  $6 \times 7$ 

**5.** 
$$7 \times 7 =$$
 \_\_\_\_\_ **6.** \_\_\_\_ =  $7 \times 9$  **7.**  $1 \times 7 =$  \_\_\_\_ **8.** \_\_\_\_ =  $7 \times 2$ 

# **Multiply with 8**

# You can break apart arrays to multiply with 8.

Candace works at a candle shop. She places candles in a box for display. The box has 7 rows of 8 candles. How many candles are in the box in all?

You can break apart an array to find  $7 \times 8$ .

Step 1 Draw 7 rows of 8 squares.

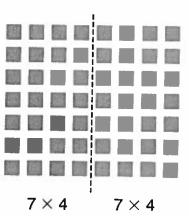
Step 2 Draw a dashed line to break apart the array into two smaller arrays to show facts you know.

$$7\times8=(7\times4)+(7\times4)$$

$$7 \times 8 = 28 + 28$$

$$7 \times 8 = 56$$

So, there are 56 candles in the box.



**1.** 
$$3 \times 8 =$$
 \_\_\_\_\_ =  $0 \times 8$  **3.**  $2 \times 8 =$  \_\_\_\_ **4.**  $4 \times 8 =$  \_\_\_\_

**6.** 
$$5 \times 8 =$$

5. \_\_\_\_ = 
$$9 \times 8$$
 6.  $5 \times 8 =$  \_\_\_ 7.  $8 \times 10 =$  \_\_\_ 8. \_\_ =  $8 \times 8$ 

# **Multiply with 9**

Ana goes to the pet store to buy a fish. The store has 3 fish tanks. Each tank has 9 fish. How many fish in all are in the tanks?

You can use counters to find the product.

Find  $3 \times 9$ .

Step 1 Make 3 groups of 9 counters.



Step 2 Skip count by 9s to find the total number of counters.

9, 18, 27 counters

$$3 \times 9 = 27$$

So, there are 27 fish in all in the tanks.

**1.** 
$$4 \times 9 =$$
 \_\_\_\_\_ **2.**  $6 \times 9 =$  \_\_\_\_ **3.**  $3 \times 9 =$  \_\_\_\_ **4.**  $7 \times 9 =$  \_\_\_\_

**5.** 
$$1 \times 9 =$$
 **6.**  $_{----} = 8 \times 9$  **7.**  $9 \times 5 =$  **8.**  $_{----} = 0 \times 9$ 

# **Algebra • Find Unknown Numbers**

Lily has 20 stuffed animals. She wants to put the same number of stuffed animals on each of 5 shelves. How many stuffed animals will Lily put on each shelf?

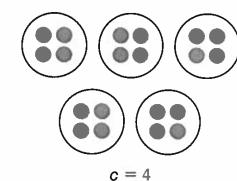
Find the unknown number.  $5 \times c = 20$ 

You can use counters to find the unknown number.

Step 1 Use 20 counters.

- Step 2 Make 5 equal groups. Place 1 counter in each of the groups until you have placed all 20 counters.
- Step 3 Count the number of counters in each group. 4 counters

So, Lily will put 4 stuffed animals on each of the 5 shelves.



$$5 \times 4 = 20$$

#### Find the unknown number.

1. 
$$3 \times b = 24$$

**2.** 
$$n \times 7 = 21$$

**3.** 
$$36 = 4 \times 7$$

**5.** 
$$r \times 5 = 45$$

**7.** 
$$p = 3 \times 4$$

7. 
$$p = 3 \times 4$$
 8.  $m \times 6 = 42$ 

**9.** 
$$6 \times h = 36$$

10. 
$$63 = 7 \times a$$

| 10. 
$$63 = 7 \times d$$
 | 11.  $3 \times y = 6$ 

$$\nu =$$

**12.** 
$$32 = 4 \times A$$

# **Size of Equal Groups**

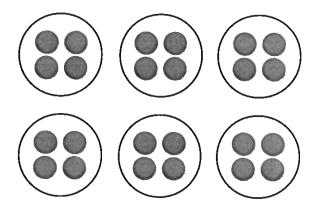
When you divide, you separate into equal groups.

Use counters or draw a quick picture. Make equal groups. Complete the table.

Counters	Number of Equal Groups	Number in Each Group
24	6	

The number in each group is unknown, so divide.

Place 1 counter at a time in each group until all 24 counters are used.



There are 4 counters in each of 6 groups.

Use counters or draw a quick picture. Make equal groups. Complete the table.

	Counters	Number of Equal Groups	Number in Each Group
1.	12	2	
2.	10	5	
3.	16	4	
4.	24	3	
5.	15	5	

Name .

### Algebra • Relate Multiplication and Division

You can use an array to complete  $21 \div 3 =$ \_\_\_\_\_.

Use 21 counters.

Make 3 equal rows.

There are 7 counters in each row.

**3 rows of 7 = 21** 

So,  $21 \div 3 = 7$ 

The 21 tells the total number of counters in the array.

The 3 stands for the number of equal rows.

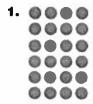
The 7 stands for the number of counters in each row.

You can use a related multiplication fact to check your answer.

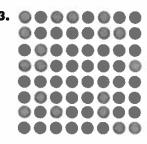
$$21 \div 3 = 7 \quad 3 \times 7 = 21$$

So, 3 rows of 7 represents  $21 \div 3 = 7$  or  $3 \times 7 = 21$ .

#### Complete.







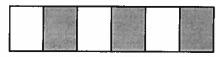
#### Complete the equations.

#### Fractions of a Whole

Some shapes can be cut into equal parts.

A fraction can name more than 1 equal part of a whole.

Write a fraction in words and in numbers to name the shaded part.



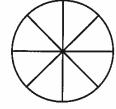
How many equal parts make up the whole shape? 6 equal parts

How many parts are shaded? 3 parts

So, 3 parts out of 6 equal parts are shaded. Read: three sixths. Write:  $\frac{3}{6}$ 

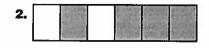
1. Shade three parts out of eight equal parts. Write a fraction in words and in numbers to name the shaded part.

Read: \_\_\_\_\_ eighths

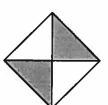


Write:

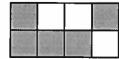
Write the fraction that names each part. Write a fraction in words and in numbers to name the shaded part.



3.



4.



Each part is \_\_\_\_\_.

Each part is \_\_\_\_\_

Each part is \_\_\_\_\_\_.

\_\_\_\_\_ sixths

\_\_\_\_\_ fourths

\_\_\_\_\_ eighths

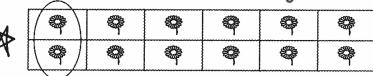
# Find Part of a Group Using Unit Fractions

Lauren bought 12 stamps for postcards. She gave Brianna  $\frac{1}{6}$  of them. How many stamps did Lauren give to Brianna?

		<b>*</b>	
			<b>*</b>

Step 1 Find the total number of stamps. 12 stamps

**Step 2** Since you want to find  $\frac{1}{6}$  of the group, there should be 6 equal groups. Circle one of the groups to show  $\frac{1}{6}$ .



Step 3 Find  $\frac{1}{6}$  of the stamps. How many stamps are in 1 group? 2 stamps So, Lauren gave Brianna 2 stamps.  $\frac{1}{6}$  of 12 = 2

# <u>Circle equal groups</u> to solve. <u>Count the number of shapes</u> in 1 group.

1. 
$$\frac{1}{4}$$
 of 8 = \_\_\_\_\_

**2.** 
$$\frac{1}{3}$$
 of 9 = \_\_\_\_\_

**3.** 
$$\frac{1}{4}$$
 of 16 = \_\_\_\_\_

 $\Diamond \Diamond \Diamond \Diamond \Diamond$ 

**4.** 
$$\frac{1}{6}$$
 of 18 = \_\_\_\_\_

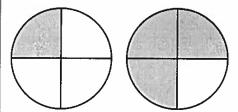
### **Compare Fractions with the Same Denominator**

Pete's Prize Pizzas makes a special pizza. Of the toppings,  $\frac{1}{4}$  is peppers and  $\frac{3}{4}$  is ham. Does the pizza have more peppers or ham?

Compare  $\frac{1}{4}$  and  $\frac{3}{4}$ .

Step 1 The denominators of both fractions are the same, 4. Use fraction circles divided into fourths to model the fractions.

Step 2 Shade 1 part of the first circle to show  $\frac{1}{4}$ . Shade 3 parts of the second circle to show  $\frac{3}{4}$ .

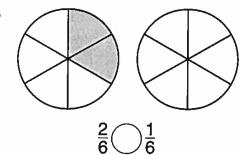


Step 3 Compare. 3 parts is more than 1 part.

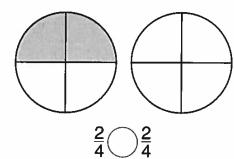
So, the pizza has more ham.

Compare. Write <, >, or =.

1.



2.



3.  $\frac{1}{3}$   $\frac{2}{3}$  4.  $\frac{5}{8}$   $\frac{3}{8}$  5.  $\frac{1}{4}$   $\frac{3}{4}$  6.  $\frac{4}{8}$ 

# **Compare Fractions**

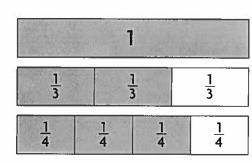
Mrs. Brown's recipe uses  $\frac{2}{3}$  cup of flour. Mrs. Young's recipe uses  $\frac{3}{4}$  cup of flour. Which recipe uses more flour?

- Compare  $\frac{2}{3}$  and  $\frac{3}{4}$ .
- You can compare fractions using fraction strips.

Step 1 Model each fraction.

Step 2 Compare the lengths of the models.

The length of the $\frac{3}{4}$ model is greater
than the length of the $\frac{2}{3}$ model.
$\frac{3}{4}$ $\bigcirc$ $\frac{2}{3}$

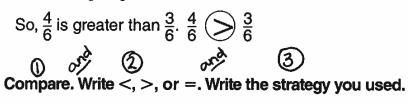


So, Mrs. Young's recipe uses more flour.

Compare  $\frac{3}{6}$  and  $\frac{4}{6}$ . Which is greater?

• The denominators are the same, so compare the numerators.

$$3 < 4$$
, so  $\frac{3}{6} < \frac{4}{6}$ .



1.  $\frac{2}{8}$   $\bigcirc$   $\frac{3}{8}$ 

# **Model Equivalent Fractions**

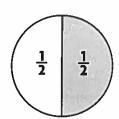
**Equivalent fractions** are two or more fractions that name the same amount.

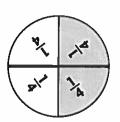
You can use fraction circles to model equivalent fractions.

Find a fraction that is equivalent to  $\frac{1}{2}$ .  $\frac{1}{2} = \frac{\square}{4}$ 

- Step 1 Look at the first circle. It is divided into 2 equal parts. Shade one part to show  $\frac{1}{2}$ .
- Step 2 Draw a line to divide the circle into 4 equal parts because 4 is the denominator in the second fraction.
- **Step 3** Count the number of parts shaded now. There are 2 parts out of 4 parts shaded.

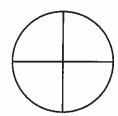
$$\frac{1}{2} = \frac{2}{4}$$
 So,  $\frac{1}{2}$  is equivalent to  $\frac{2}{4}$ .





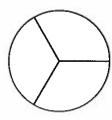
# Shade the model. Then divide the pieces to find the equivalent fraction.

1.



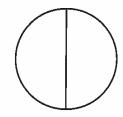
$$\frac{1}{4} = \frac{\boxed{\phantom{0}}}{8}$$

3.



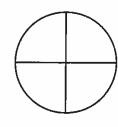
$$\frac{2}{3} = \frac{2}{6}$$

2.



$$\frac{1}{2} = \frac{\boxed{\phantom{0}}}{8}$$

4.



$$\frac{3}{4} = \frac{\boxed{\phantom{0}}}{8}$$

#### **Time to the Minute**

Tommy wants to know what time the clock shows. He also wants to know one way to write the time.

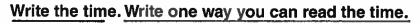
**Step 1** Where is the hour hand pointing? What is the hour? It points just after the 6, so the hour is 6.

**Step 2** Where is the minute hand pointing? It points just after the 3.



Then count on by ones: 16, 17.

So, the time is 6:17, or seventeen minutes after six.



1.



2.



3.



4



Chapter Resources

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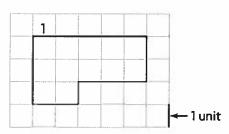
10-5

#### **Model Perimeter**

Perimeter is the distance around a figure.

Find the perimeter of the figure.

Step 1 Choose a unit to begin counting and label it 1.



**Step 2** Count each unit around the figure to find the perimeter.

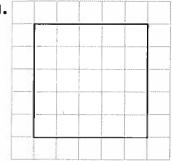
16 units

	1	2	3	4	5	ĺ
16						6
15						7
14			10	9	8	
	13	12	11			T

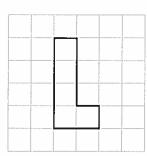
So, the perimeter of the figure is 16 units.

Find the perimeter of the figure. Each unit is 1 centimeter.

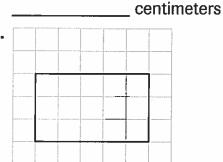
1.



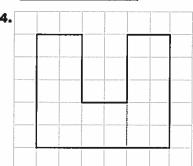
2.



3.



\_\_\_\_\_ centimeters

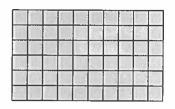


\_\_\_\_\_ centimeters

\_ centimeters

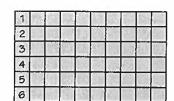
#### **Use Area Models**

Use multiplication to find the area of the figure. Each unit square is 1 square meter.

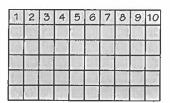


Step 1 Count the number of rows.

There are 6 rows.



Step 2 Count the number of unit squares in each row. There are 10 unit squares.



Step 3 Multiply the number of rows by the number in each row to find the area.

number of rows × number in each row = area

6

X

10

= 60

So, the area of the figure is **60** square meters.

Find the area of the figure.

Each unit square is 1 square meter.

1.



2.



That'S All FOLKS!