GRADE 5 VOLUME 1

enVision® Mathematics

SAVVAS

Hi, we're here to help you.
Let's have a great year!
I'm Carlos.
I'm Emily.
I'm Daniel.
I'm Zeke.
I'm Alex.
I'm Jada.
I'm Jackson.
I'm Marta.

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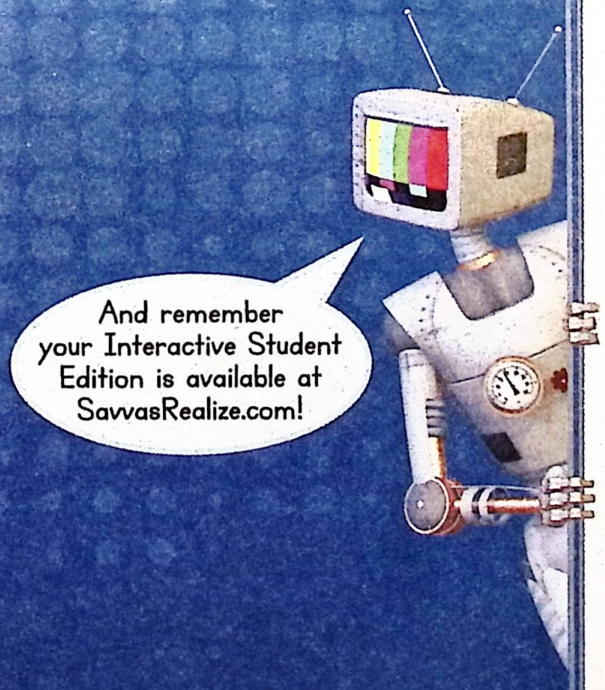
Digital Resources at SavvasRealize.com



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1. Understand Place Value
2. Use Models and Strategies to Add and Subtract Decimals
3. Fluently Multiply Multi-Digit Whole Numbers
4. Use Models and Strategies to Multiply Decimals
5. Use Models and Strategies to Divide Whole Numbers
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11. Understand Volume Concepts
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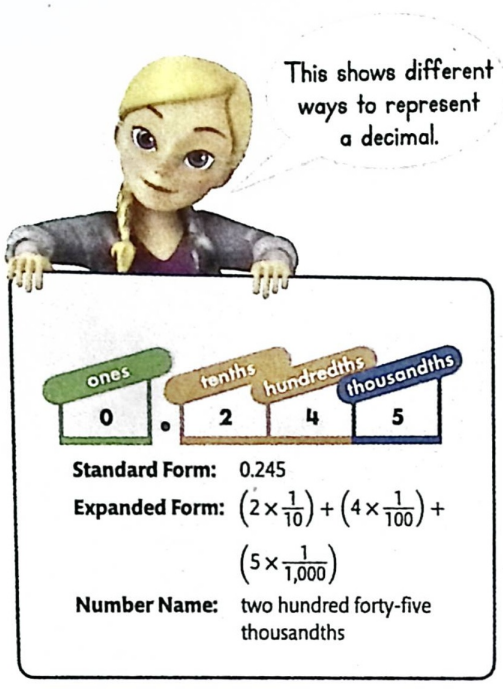

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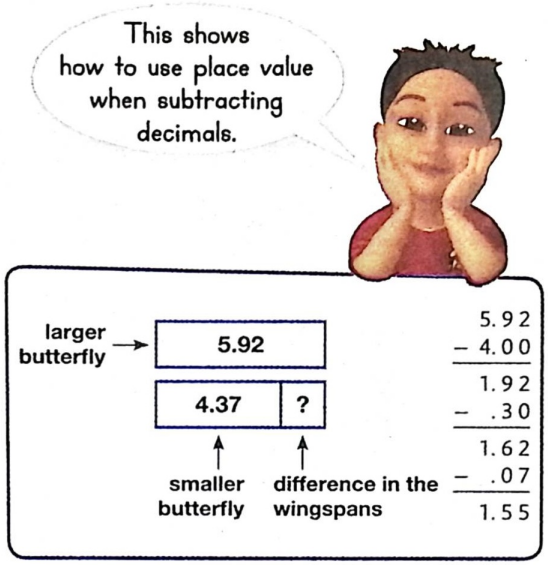

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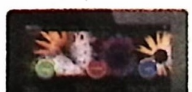
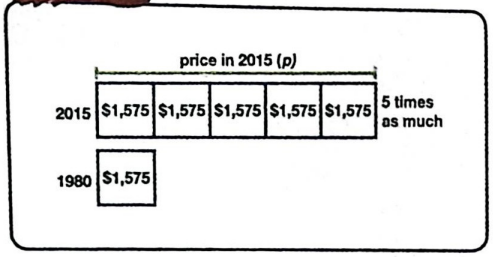


You can use bar diagrams to model multiplication problems.



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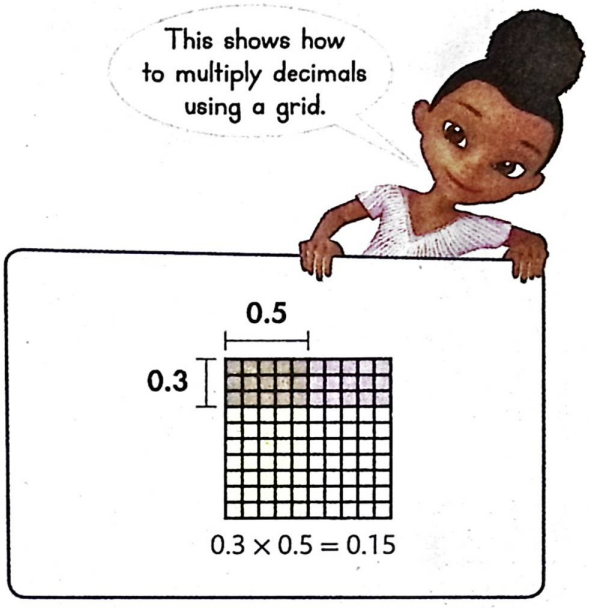

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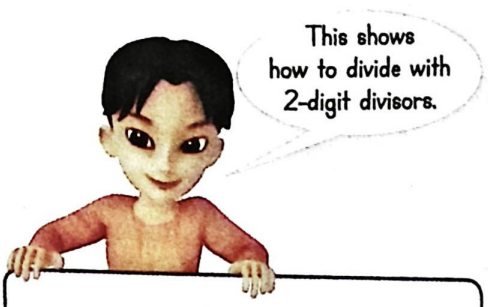


```
   5
  20
15)375   How many 15s are in 375? Try 20.
- 300   20 groups of 15 = 300
  75    How many 15s are in 75? Try 5.
- 75    5 groups of 15 = 75
   0
```

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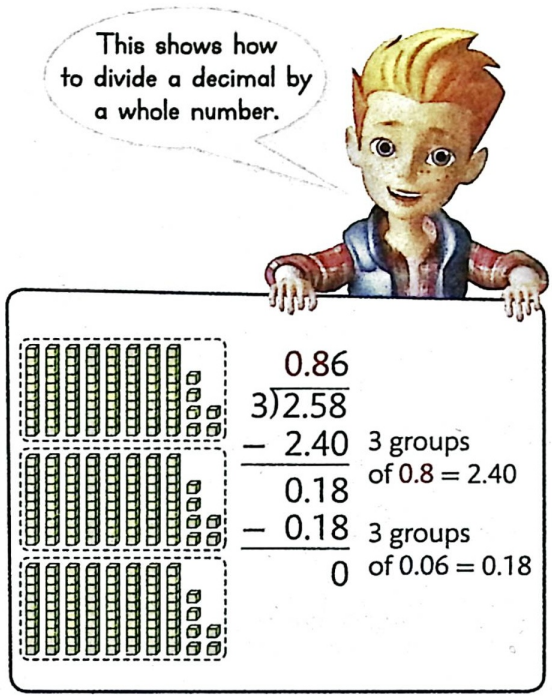

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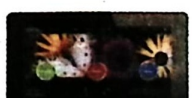

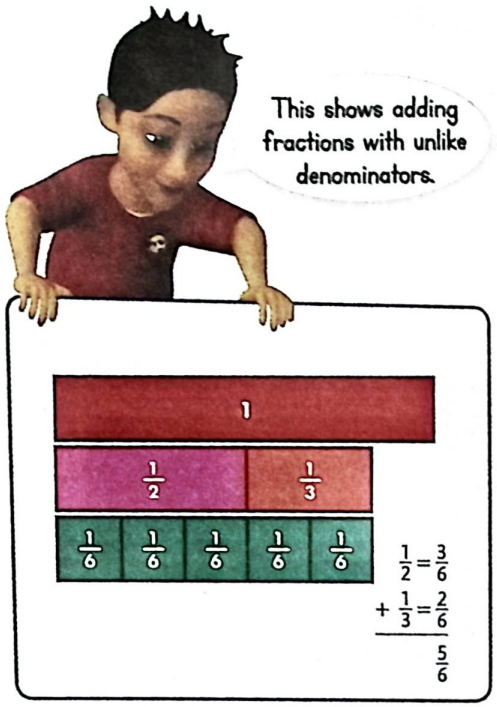

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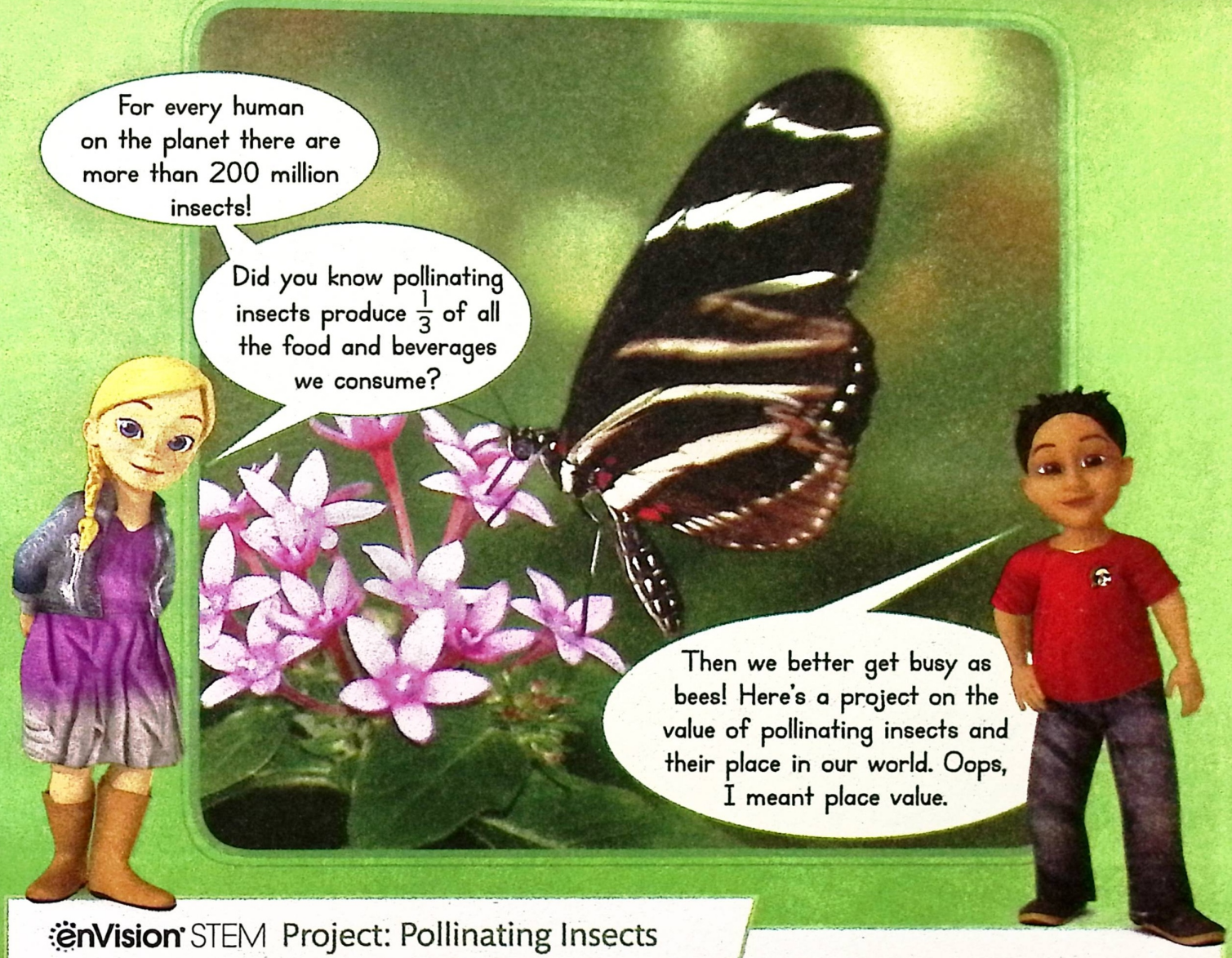
TOPIC 1

Understand Place Value

Essential Question: How are whole numbers and decimals written, compared, and ordered?

Digital Resources

Interactive Student Edition · Activity · Visual Learning · Video · Practice · Assessment · Games · Tools · Glossary



enVision STEM Project: Pollinating Insects

Do Research Use the Internet or other sources to find out more about pollinating insects in the United States. What types of insects are they? How many are there of each type? How many crops and flowering plants depend on pollinating insects in order to produce the foods we eat?

Journal: Write a Report Include what you found. Also in your report:

- Choose two of the pollinating insects. Estimate how many crop plants each type of insect pollinates.
- Estimate how many of your favorite foods and beverages come from pollinated plants.
- Make up and solve ways to compare and order your data.

Name _____

Review What You Know

Vocabulary

Choose the best term from the box. Write it on the blank.

- digits
- place value
- period
- whole numbers

1. _____ are the symbols used to show numbers.
2. A group of 3 digits in a number is a _____.
3. _____ is the position of a digit in a number that is used to determine the value of the digit.

Comparing

Compare. Use <, >, or = for each ◯.

4. 869 ◯ 912
5. 9,033 ◯ 9,133
6. 1,338 ◯ 1,388
7. 417,986 ◯ 417,986
8. 0.25 ◯ 0.3
9. 0.5 ◯ 0.50
10. Kamal has 7,325 songs on his computer. Benito has 7,321 songs on his computer. Who has more songs?

Adding Whole Numbers

Find each sum.

11. 10,000 + 2,000 + 60 +1
12. 20,000 + 5,000 + 400 + 3
13. 900,000 + 8,000 + 200 + 70 + 6
14. 7,000,000 + 50,000 + 900 + 4

Place Value

15. The largest playing card structure was made of 218,792 cards. What is the value of the digit 8 in 218,792?

Ⓐ 80 Ⓑ 800 Ⓒ 8,000 Ⓓ 80,000

16. **Construct Arguments** In the number 767, does the first 7 have the same value as the final 7? Why or why not?

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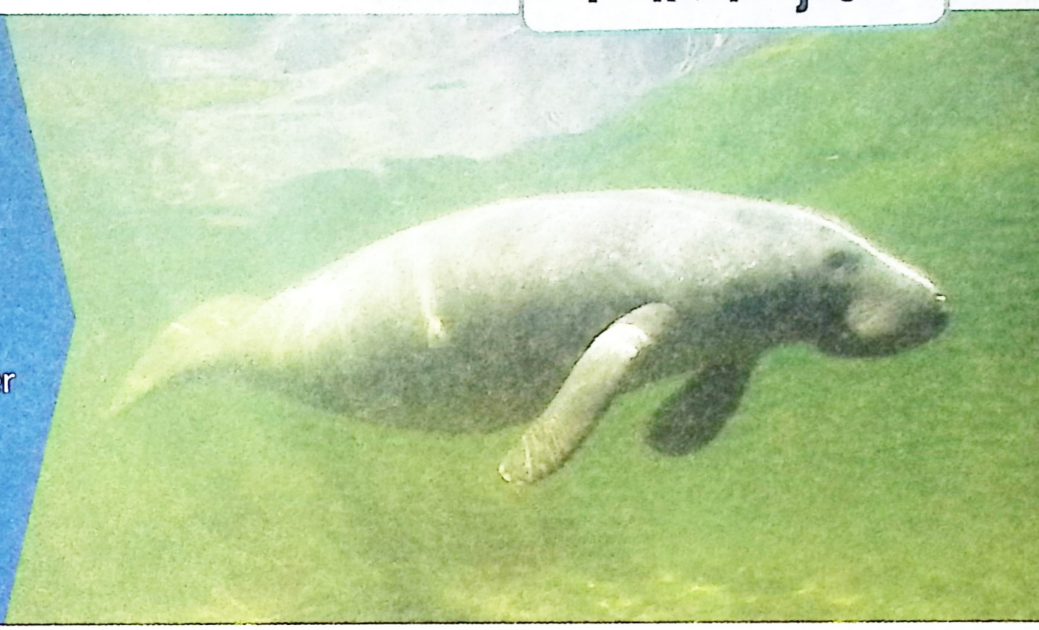
Name _____

Pick a Project

PROJECT 1A

Manatees or sea cows?

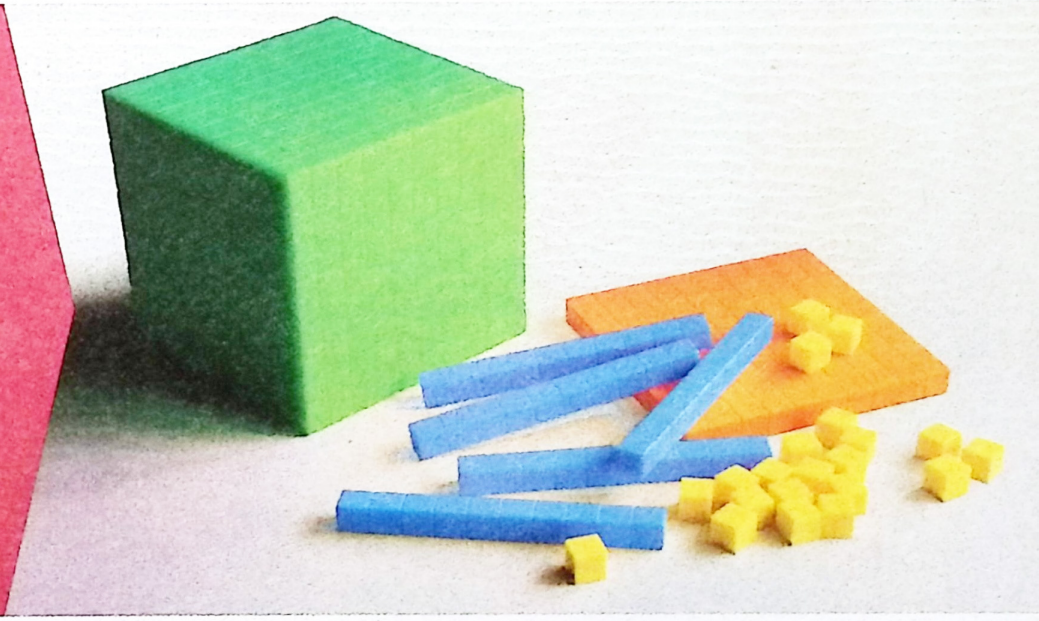
Project: Create a Manatee Poster



PROJECT 1B

What makes a game fun?

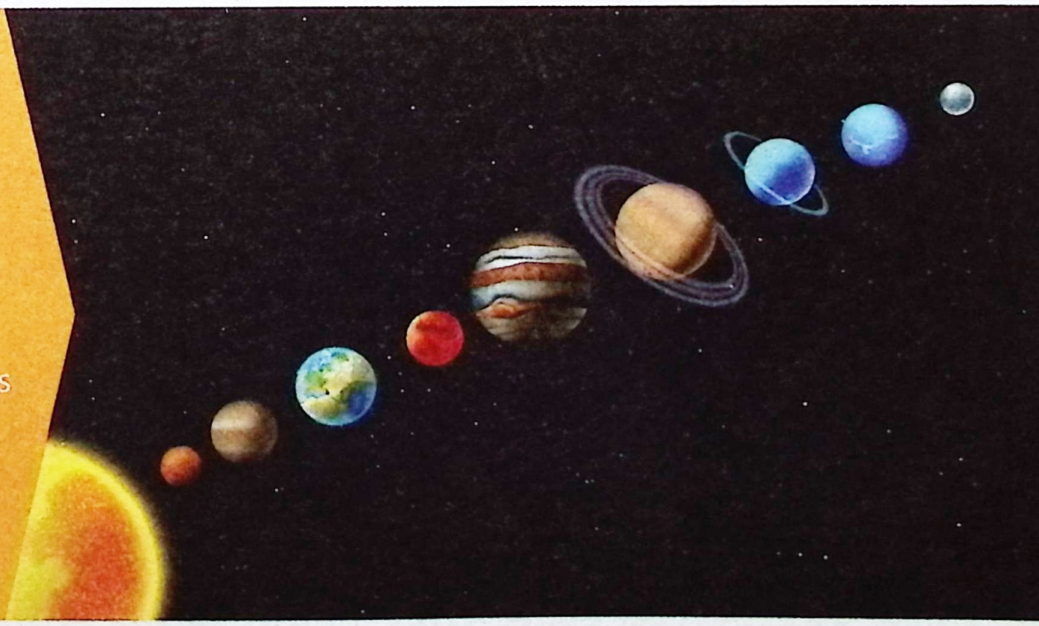
Project: Design a Game with Place-Value Blocks



PROJECT 1C

How far are we from the sun?

Project: Research Measurements in Our Solar System



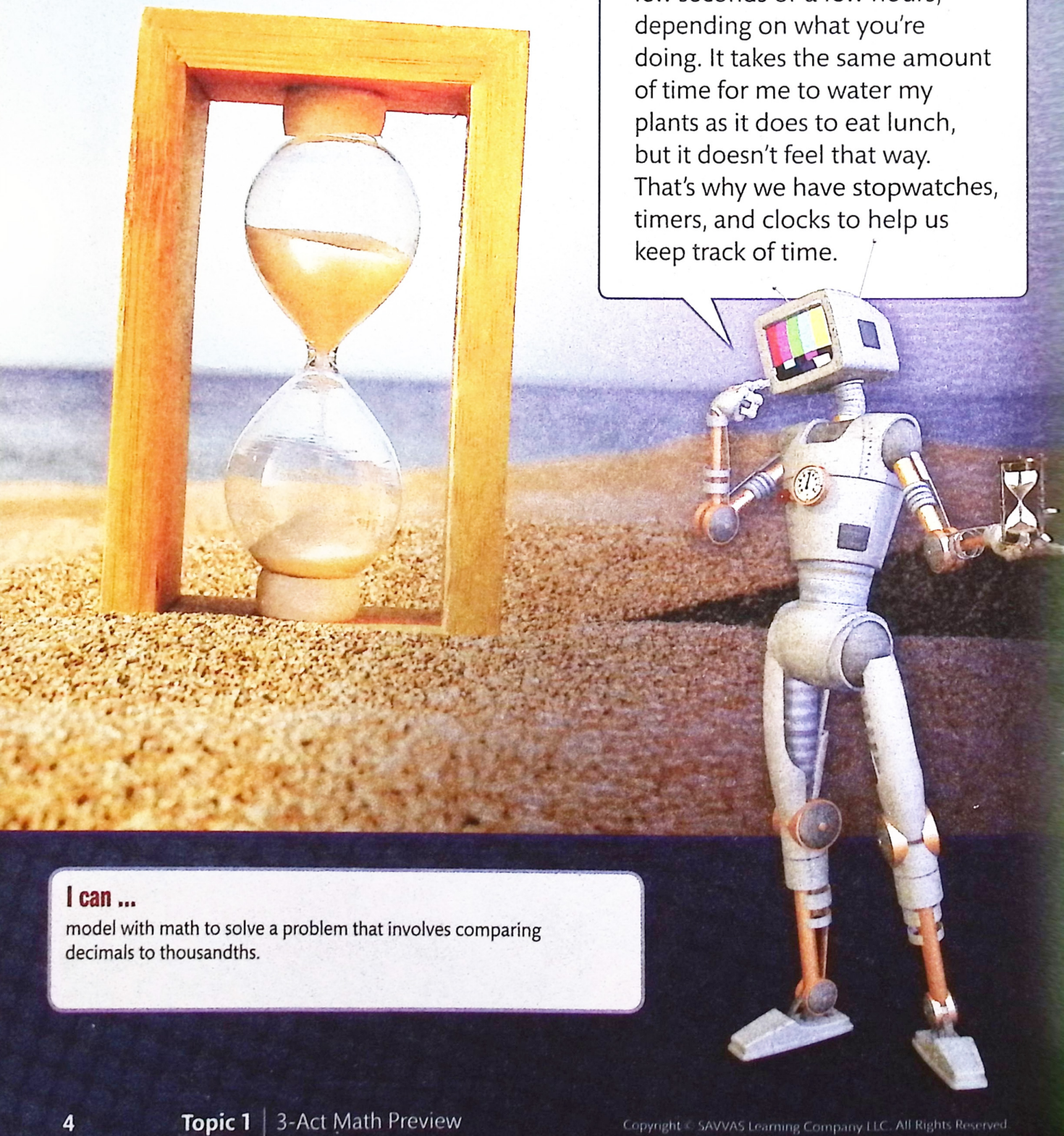
3-ACT MATH PREVIEW

Math Modeling

Buzz In

Before watching the video, think:

A minute can seem like a few seconds or a few hours, depending on what you're doing. It takes the same amount of time for me to water my plants as it does to eat lunch, but it doesn't feel that way. That's why we have stopwatches, timers, and clocks to help us keep track of time.



I can ...

model with math to solve a problem that involves comparing decimals to thousandths.

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Name _____ Activity

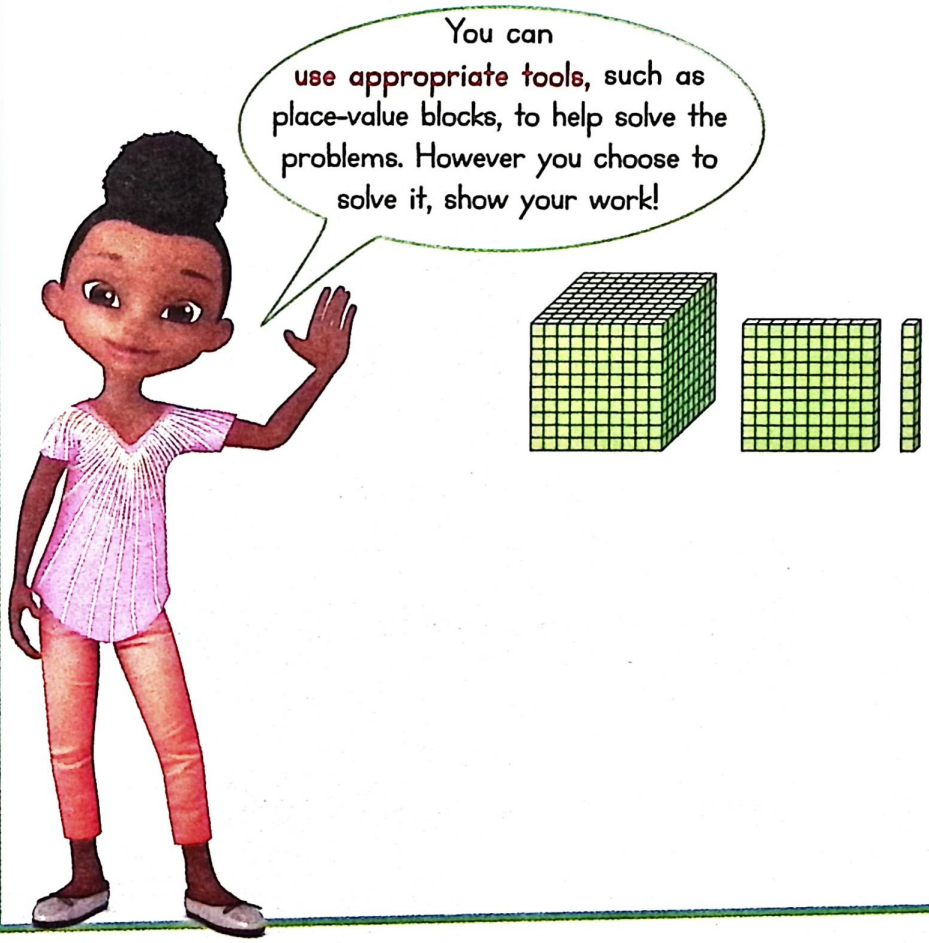
Lesson 1-1
Patterns with Exponents and Powers of 10

I can ...
write numbers using exponents.

I can also look for patterns to solve problems.

Solve & Share

A store sells AA batteries in packages of 10 batteries. They also sell boxes of 10 packages, cases of 10 boxes, and cartons of 10 cases. How many AA batteries are in one case? One carton? 10 cartons? ***Solve these problems any way you choose.***



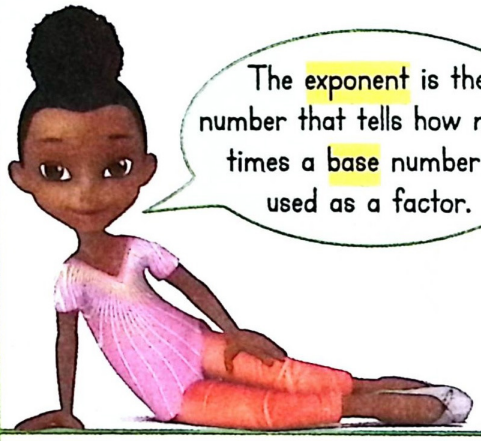
Look Back! How many 10s are in 100? How many 10s are in 1,000? Write equations to show your work.

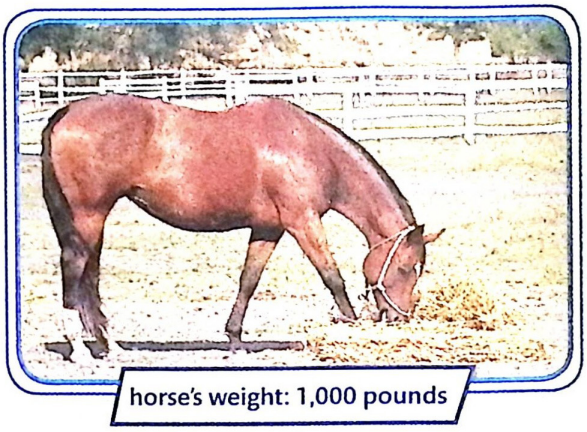
Essential Question

How Can You Explain Patterns in the Number of Zeros in a Product?

A

Tamara's new horse weighs about 1,000 pounds. How can you show 1,000 as a power of 10 using an exponent?





horse's weight: 1,000 pounds

B Write 1,000 as a product using 10 as a factor.

factors exponent

$1{,}000 = 10 \times 10 \times 10 = 10^3$

base

The exponent, 3, shows that the base number, 10, is multiplied 3 times.

So, 1,000 is written as 10^3 using exponents.

C Tamara estimates that her horse will eat about 5,000 pounds of hay each year. How can you write 5,000 using exponents?

$5 \times 10^1 = 5 \times 10 = 50$

$5 \times 10^2 = 5 \times 10 \times 10 = 500$

$5 \times 10^3 = 5 \times 10 \times 10 \times 10 = 5{,}000$

The number of zeros in the product is the same as the exponent.

So, 5,000 is written as 5×10^3 using exponents.

Convince Me! **Look for Relationships** What pattern do you notice in the number of zeros in the products in Box C above?

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Name _____

Guided Practice

Do You Understand?

1. Why are there three zeros in the product of 6×10^3?

2. Susan said that 10^5 is 50. What mistake did Susan make? What is the correct answer?

Do You Know How?

In **3** and **4**, complete the pattern.

3. $10^1 =$
   $10^2 =$
   $10^3 =$
   $10^4 =$

4. $= 7 \times 10^1$
   $= 7 \times 10^2$
   $= 7 \times 10^3$
   $= 7 \times 10^4$

Independent Practice

In **5–15**, find each product. Use patterns to help.

5. $3 \times 10^1 =$
   $3 \times 10^2 =$
   $3 \times 10^3 =$
   $3 \times 10^4 =$

6. $2 \times 10 =$
   $2 \times 100 =$
   $2 \times 1{,}000 =$
   $2 \times 10{,}000 =$

7. $= 9 \times 10^1$
   $= 9 \times 10^2$
   $= 9 \times 10^3$
   $= 9 \times 10^4$

8. 8×10^4

9. $4 \times 1{,}000$

10. 5×10^2

11. $6 \times 10{,}000$

12. 4×10^1

13. 100×9

14. $10^3 \times 6$

15. 8×10^5

16. Write $10 \times 10 \times 10 \times 10 \times 10 \times 10$ with an exponent. Explain how you decided what exponent to write.

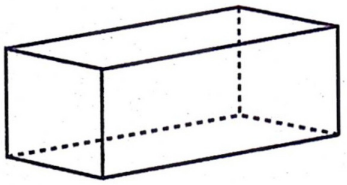
Problem Solving

17. One box of printer paper has 3×10^2 sheets of paper. Another box has 10^3 sheets of paper. What is the total number of sheets in both boxes?

18. A post is put every 6 feet along a fence around a rectangular field that is 42 ft long and 36 ft wide. How many posts are needed?

19. Number Sense A company had 9×10^6 dollars in sales last year. Explain how to find the product 9×10^6.

20. An aquarium has the same shape as the solid figure shown below. What is the name of this solid figure?



21. Model with Math Isaac takes 5 minutes to ride his bike down the hill to school and 10 minutes to ride up the hill from school. He attends school Monday through Friday. How many minutes does he spend biking to and from school in two weeks? Write an equation to model your work.

22. Higher Order Thinking Santiago hopes to buy a 4-horse trailer for about $12,000. Describe all the numbers that when rounded to the nearest hundred are 12,000.

Assessment Practice

23. Choose all the equations that are true.

- ☐ $10 \times 10 \times 10 \times 10 = 40$
- ☐ $10 \times 10 \times 10 \times 10 = 10^4$
- ☐ $10 \times 10 \times 10 \times 10 = 1{,}000$
- ☐ $10 \times 10 \times 10 \times 10 = 10{,}000$
- ☐ $10 \times 10 \times 10 \times 10 = 4 \times 10^4$

24. Choose all the equations that are true.

- ☐ $6 \times 10^5 = 6 \times 100{,}000$
- ☐ $6 \times 10^5 = 6 \times 10{,}000$
- ☐ $6 \times 10^5 = 600{,}000$
- ☐ $6 \times 10^5 = 60{,}000$
- ☐ $6 \times 10^5 = 650{,}000$

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Name _____ Activity

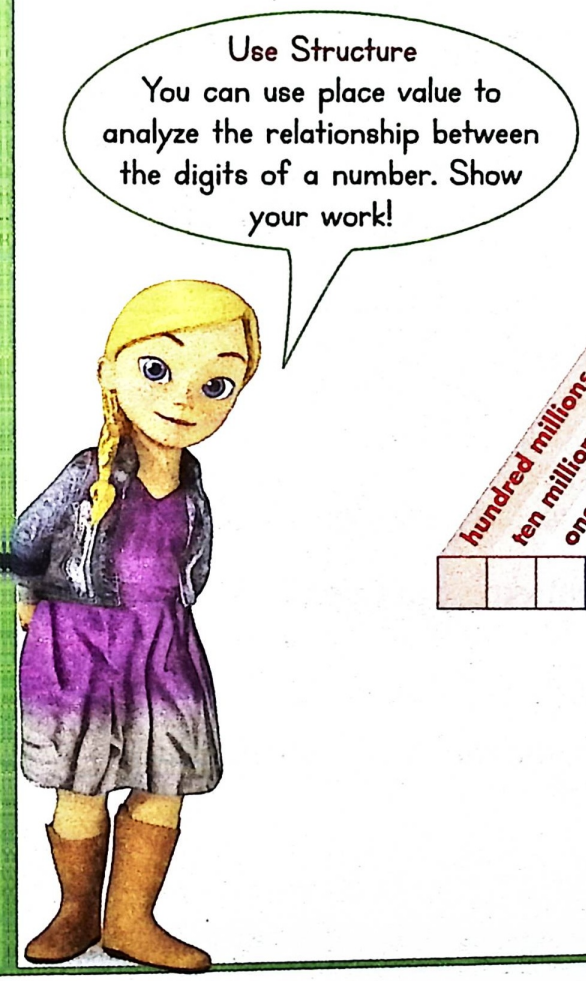
Lesson 1-2
Understand Whole-Number Place Value

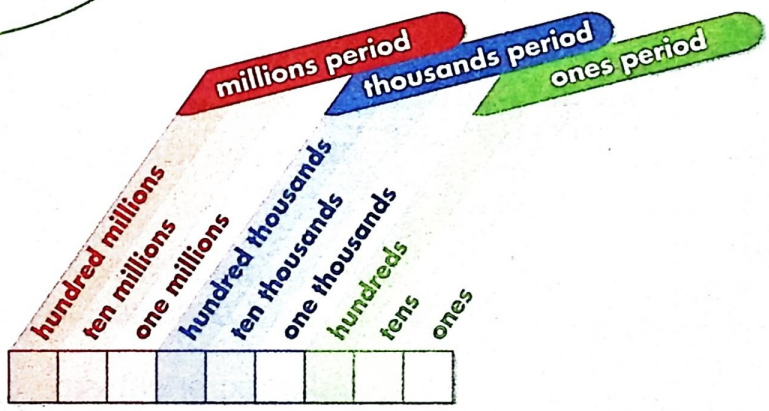
I can ...
understand place-value relationships.

I can also look for patterns to solve problems.

Solve & Share

The population of a city is 1,880,000. What is the value of each of the two 8s in this number? How are the two values related? ***Use tools like this place-value chart to help solve the problem.***





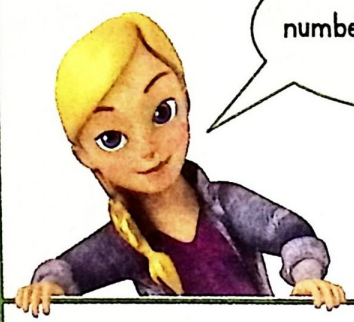
Look Back! Is the relationship between the value of the two 8s in 1,088,000 the same as the relationship between the value of the two 8s in the problem above? Explain.

Essential Question

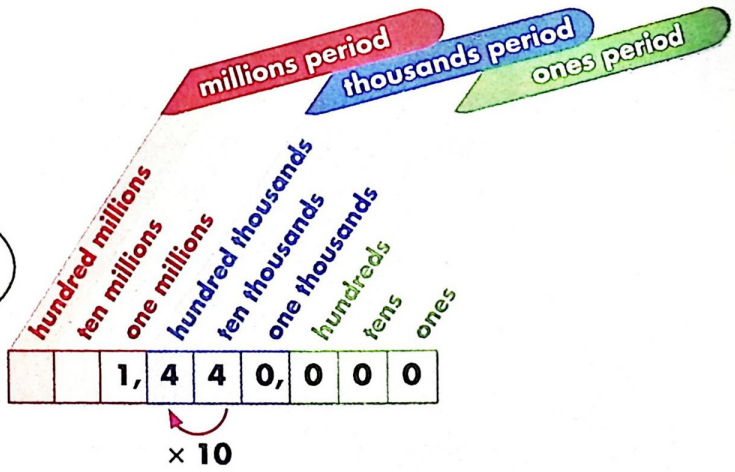
How Are Place-Value Positions Related?

A

According to the 2010 U.S. Census, the population of Phoenix, Arizona is about 1,440,000. What is the relationship between the value of the two 4s in this number?



Writing the number in expanded form can help.



B Look at the expanded form of 1,440,000. The value of the 4 in the hundred thousands place is 400,000. The value of the 4 in the ten thousands place is 40,000.

400,000 is 10 times as great as 40,000. 40,000 is $\frac{1}{10}$ of 400,000.

Sometimes *word form* is used instead of *number name*.

Standard form:
1,440,000

Expanded form:
$1 \times 1{,}000{,}000 + 4 \times 100{,}000 + 4 \times 10{,}000$

Using exponents, this can be written as:
$(1 \times 10^6) + (4 \times 10^5) + (4 \times 10^4)$

Number name:
one million, four hundred forty thousand

Convince Me! Construct Arguments Is the value of the 1 in 1,440,000 10 times as great as the value of the 4 in the hundred thousands place? Explain.

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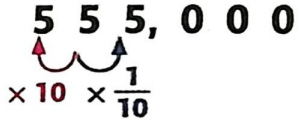
Name _____

Practice Tools Assessment

Another Example

When two digits next to each other in a number are the same, the digit on the left has 10 times the value of the digit to its right.

When two digits next to each other are the same, the digit on the right has $\frac{1}{10}$ the value of the digit to its left.



Guided Practice

Do You Understand?

1. In 9,290, is the value of the first 9 ten times as great as the value of the second 9? Explain.

Do You Know How?

2. Write 4,050 in expanded form.

In **3** and **4**, write the values of the given digits.

3. the 7s in 7,700

4. the 2s in 522

Independent Practice

In **5–7**, write each number in standard form.

5. $8{,}000{,}000 + 300 + 9$

6. $(4 \times 10^4) + (6 \times 10^2)$

7. $10{,}000 + 20 + 3$

In **8–10**, write each number in expanded form.

8. 5,360

9. 102,200

10. 85,000,011

In **11–13**, write the values of the given digits.

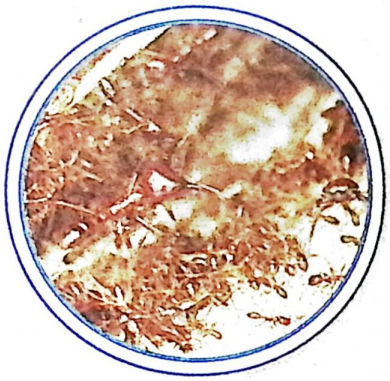
11. the 7s in 6,778

12. the 9s in 990,250

13. the 1s in 2,011,168

Problem Solving

14. Write the number name and expanded form for the number of driver ants that could be in two colonies.



Up to 22,000,000 driver ants can live in a single colony.

15. **enVision®** STEM A queen ant can produce about nine million ants in her lifetime. Write this number in standard form.

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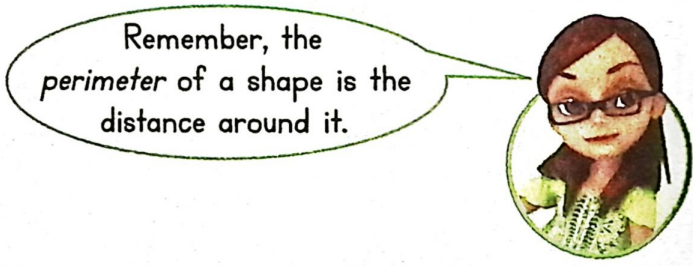
16. **Critique Reasoning** Paul says that in the number 6,367, one 6 is 10 times as great as the other 6. Is he correct? Explain why or why not.

17. Jorge drew a square that had a side length of 8 inches. What is the perimeter of Jorge's square?



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18. **Higher Order Thinking** Dan wrote $(2 \times 10^6) + (3 \times 10^4) + (5 \times 10^3) + 4$ for the expanded form of two million, three hundred fifty thousand, four. What error did he make in the expanded form? What is the standard form of the number?

Assessment Practice

19. Colleen says she is thinking of a 4-digit number in which all the digits are the same. The value of the digit in the hundreds place is 200.

Part A

What is the number? Explain.

Part B

Describe the relationship between the values of the digits in the number.

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Name _____ Activity

Lesson 1-3
Decimals to Thousandths

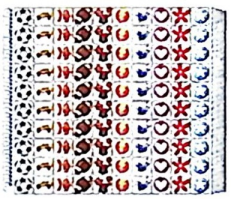
I can ...
read and write decimals to the thousandths.

I can also look for patterns to solve problems.

Solve & Share

At Suzie's Sticker City, customers can buy a book of stickers, a page, a strip, or a single sticker. Provide the missing fractions in the boxes below.

How can you use what you know about powers of 10 to help you fill in the boxes?


1 book of 10 pages

1 page of 10 strips

1 strip of 10 stickers

1 sticker

Fraction of book: ☐

Fraction of book: ☐

Fraction of book: ☐

Look Back! Use Structure Describe any patterns you notice in the fractions.