

Making and Breaking Numbers

How Many Ways?

You need

- 10 to 20 connecting cubes

STEP 1 Counting

Use cubes to make a train.
How many cubes are in your train?



STEP 2 Adding

Break your train into 2 trains. Find as many different ways as you can. Write a number sentence for each way.

How many ways did you find? _____ ways

STEP 3 Comparing

Share what you did with your classmates.
What do you notice?





School-Home Connection

Dear Family,

Today we started Chapter 13 in *Think Math!* In this chapter, I will learn about even and odd numbers. I will learn how to break apart numbers to find sums to 20. There are NOTES on the Lesson Activity Book pages to explain what I am learning every day.

Here are some activities for us to do together at home. These activities will help me learn to create reasonable story problems and to make change.

Love,

Family Fun

Even or Odd?

Your child will be familiar with this game from Lesson 13.1.

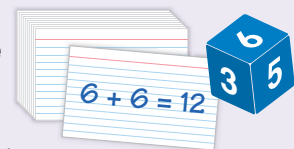
- You will need a copy of Activity Master 79: Even or Odd.
- Each player chooses *even* or *odd*.
- Both you and your child say a number aloud at the same time. Write your number and whether it is even or odd in the left box. Write your child's number and whether it is even or odd in the middle box. Then, have your child record whether the sum will be even or odd in the right box.
- If the sum is even, the *even* player gets a point. If the sum is odd, the *odd* player gets a point. Continue play until one of you earns 3 points.

6	+	5	=	
E		O		O

What's the Addend?

Work with your child to practice finding sums to 20.

- Gather 11 index cards or slips of paper to make a deck of sum cards. Write the numbers 10 to 20 (one number per card) on the cards. Shuffle the cards and turn them facedown in a pile.
- One player chooses a sum card and reads the number aloud. The other player tosses a number cube and says the number aloud.
- Work with your child to find the number that needs to be added to the number tossed to make the sum on the card.
- Switch roles and repeat. As your child becomes more comfortable with the game, pick up the speed and ask your child to call out the missing number as quickly as possible.

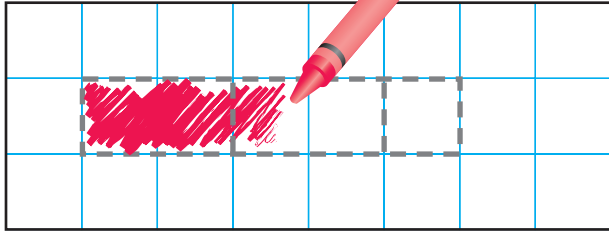


Making Even and Odd Numbers

NCTM Standards 1, 2, 6, 7, 8, 9, 10

Draw rods to show the sum.
Is the sum even or odd?

1. $2 + 3$ even odd

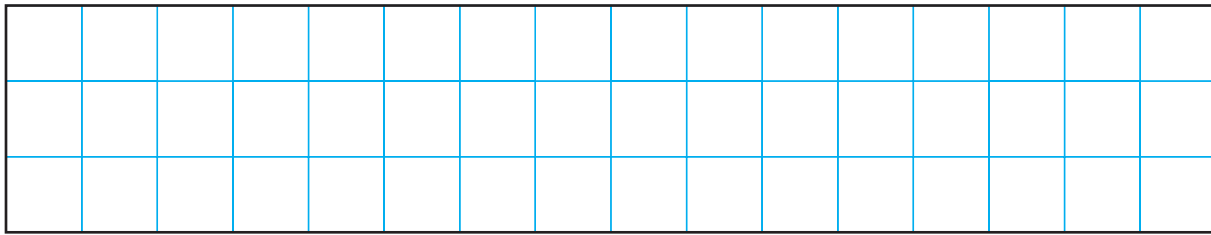


Color to show
the red rods.

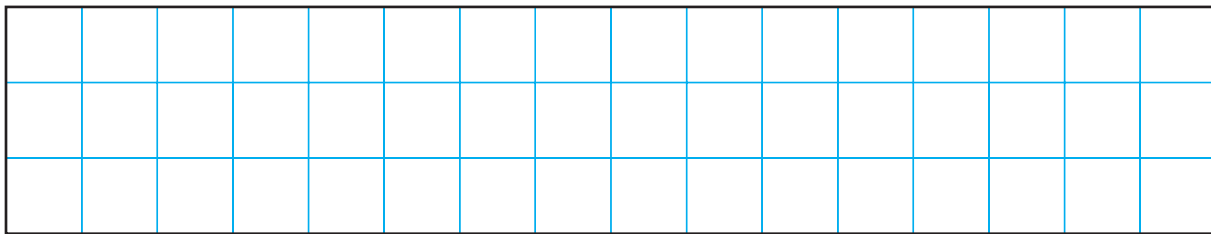
stands for 2.
 stands for 1.



2. $5 + 5$ even odd



3. $6 + 8$ even odd



4. Is $4 + 7$ even or odd? Explain.



NOTE: Your child is learning to add even and odd numbers.

Ask your child to explain why the sum of 2 and 3 is an odd number.

**Draw a picture for each number sentence.
Is the sum even or odd?**

5. even + even = _____

6. odd + odd = _____

7. even + odd = _____

Challenge

**Draw a picture for each.
Is the sum even or odd?**

8. odd - even = _____

9. even - odd = _____

Making Numbers as Sums of 1, 2, 4, and 8

NCTM Standards 1, 2, 6, 7, 8, 9, 10

What number does each rod show?

1.



2.



3.



4.



What number sentence does each train show?

5.



$$\underline{2} + \underline{4} = \underline{\quad}$$

6.



$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

7.



$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

8.



$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$



NOTE: Your child is learning to combine the numbers 1, 2, 4, and 8 to make larger numbers. Ask your child to find a way to make 5 using these numbers.

What number sentence does each train show?



_____ + _____ + _____ = _____




_____ + _____ + _____ = _____



_____ + _____ + _____ = _____



_____ + _____ + _____ + _____ = _____

 13. What other number can you make with 3 rods? Explain.

Challenge

Use the numbers 1, 2, 4, 8, and 16 to complete the number sentences.

14. _____ + _____ = 17

15. _____ + _____ = 18

16. _____ + _____ + _____ = 19

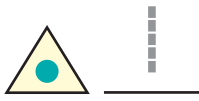
17. _____ + _____ = 20

Combining Triangular Numbers

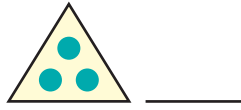
NCTM Standards 1, 2, 6, 7, 8, 9, 10

How many dots are in each triangle?

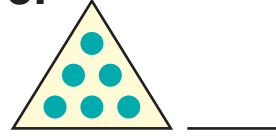
1.



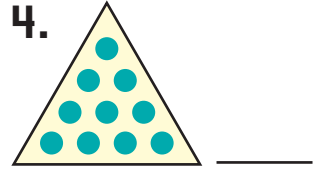
2.



3.

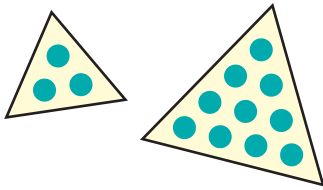


4.



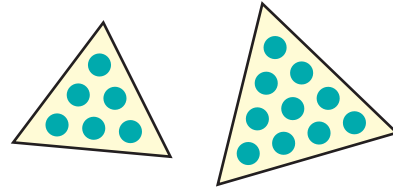
What is the fact family?

5.



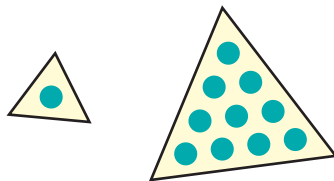
$$\begin{array}{r} 3 + 10 = 13 \\ \hline 10 + 3 = 13 \\ \hline 13 - 3 = 10 \\ \hline 13 - 10 = 3 \end{array}$$

6.



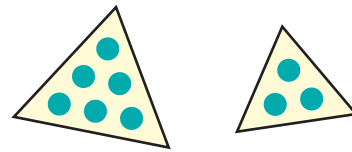
$$\begin{array}{r} + = \\ \hline + = \\ \hline - = \\ \hline - = \end{array}$$

7.



$$\begin{array}{r} + = \\ \hline + = \\ \hline - = \\ \hline - = \end{array}$$

8.



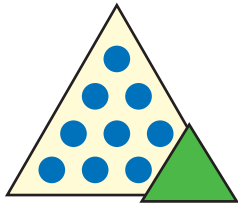
$$\begin{array}{r} + = \\ \hline + = \\ \hline - = \\ \hline - = \end{array}$$



NOTE: Your child is learning to combine triangular numbers such as 1, 3, 6, and 10. Ask your child to use two of these numbers to make a fact family.

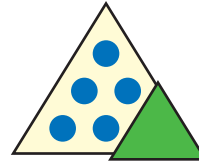
Write a number sentence.

9.



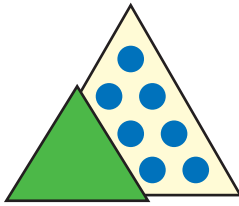
$$\boxed{10} - \boxed{1} = \boxed{9}$$

10.



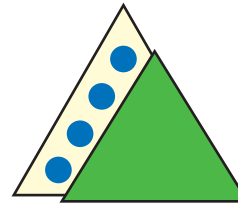
$$\boxed{} - \boxed{} = \boxed{}$$

11.



$$\boxed{} - \boxed{} = \boxed{}$$

12.



$$\boxed{} - \boxed{} = \boxed{}$$

Challenge

13. What is the next triangular number? 1, 3, 6, 10, 15, 21, _____

14. Complete the number sentences with triangular numbers. Use + or -.

$$16 = \underline{\hspace{4cm}}$$

$$16 = \underline{\hspace{4cm}}$$

Making Sums of 60

NCTM Standards 1, 2, 6, 7, 8, 9, 10

Only use the numbers 0, 10, 20, 30, 40, 50, and 60.



Complete each Cross Number Puzzle.
Use multiples of 10.

1.

30		
		60

2.

	0	
		60

3.

20		
		60

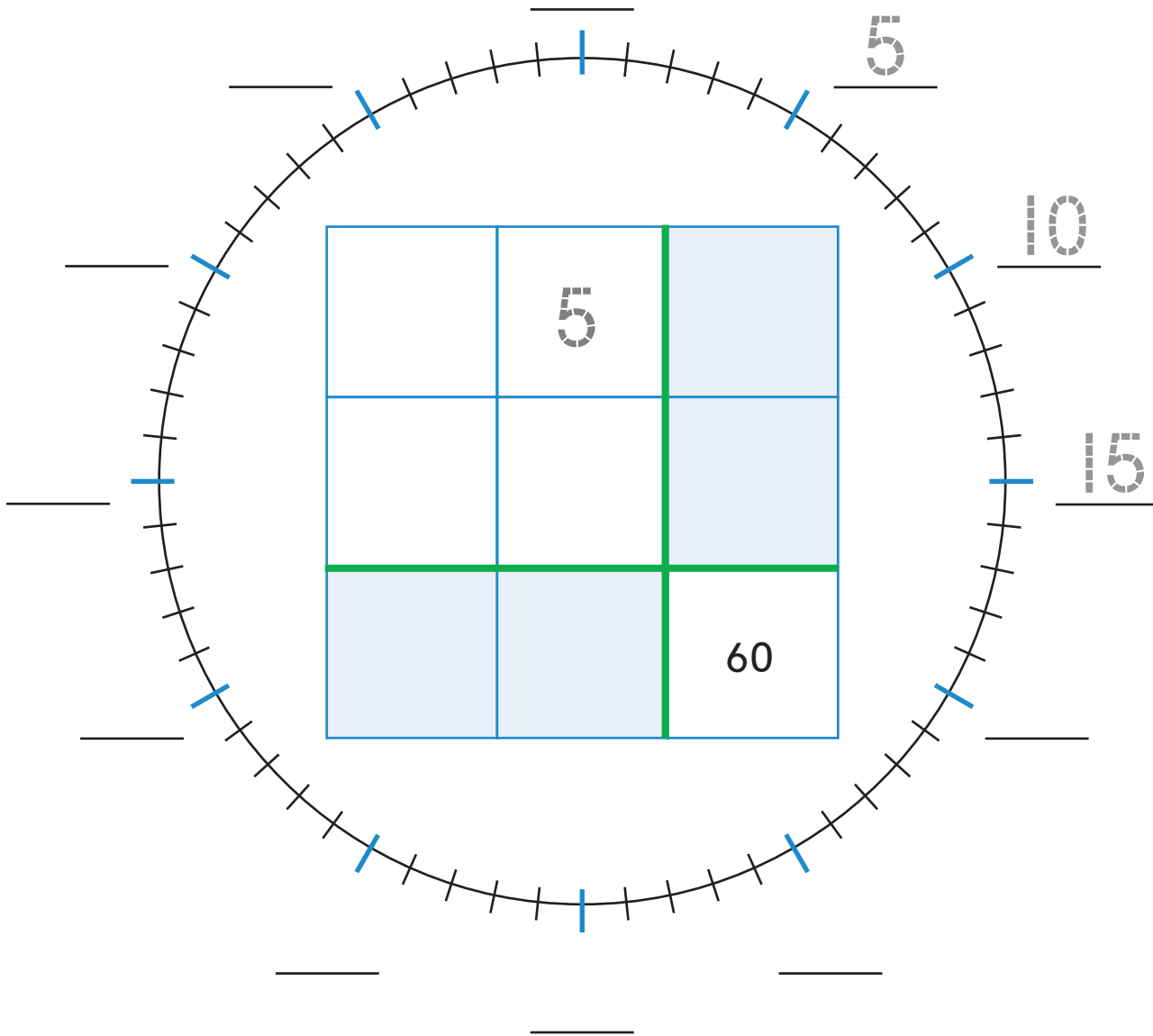
4.

	10	
		60



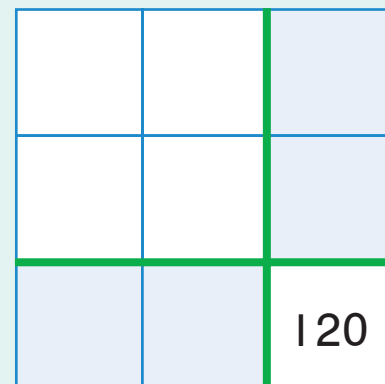
NOTE: Your child is learning to add multiples of ten.
You may wish to ask your child to find a different way
to solve Problem 4.

5. Continue the pattern. Use these numbers to complete the Cross Number Puzzle.



Challenge

6. Use multiples of 5 or 10 to complete this Cross Number Puzzle.

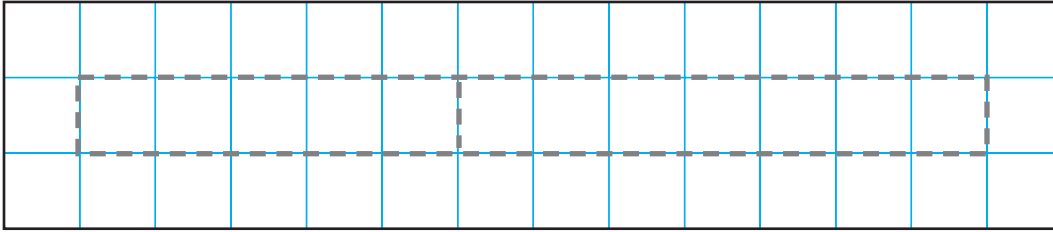


Sums to 12

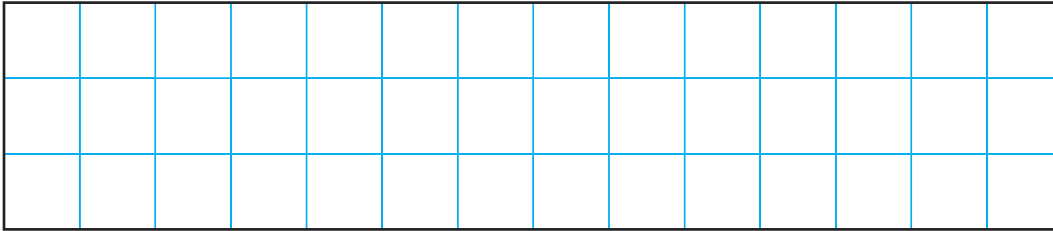
NCTM Standards 1, 2, 6, 7, 8, 9, 10

Draw rods to show each sum.
What is the sum?

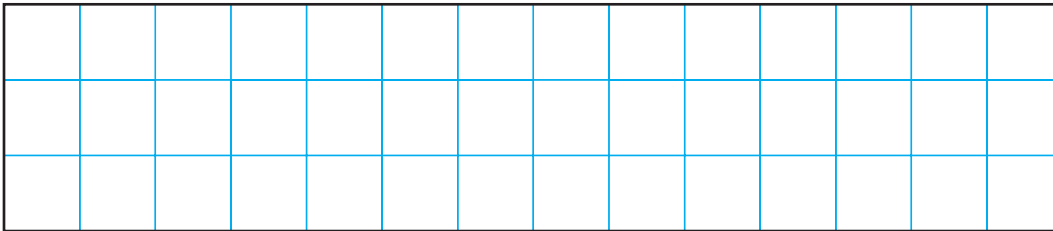
1. $5 + 7 = \underline{\quad 12 \quad}$



2. $8 + 3 = \underline{\quad \quad}$



3. $4 + 8 = \underline{\quad \quad}$



 4. How can Problem 1 help you find $5 + 8$?



NOTE: Your child is learning to find pairs of numbers with a sum of 12. You may ask your child to list a few pairs of numbers with a sum of 12.

What number sentence does each train show?



$4 + 7 = 11$



Problem Solving

9. Dante had 6 pairs of socks.

How many socks did he have? _____ socks

Explain how you can use rods to solve this problem.



Sums to 15

NCTM Standards 1, 2, 6, 7, 8, 9, 10

What number sentence does each train show?

1.



$$4 + 9 = 13$$

2.



3.



4.



5. Draw rods to show 13, 14, or 15.

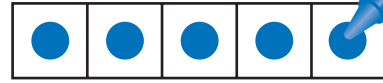
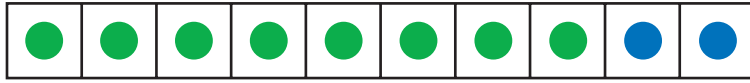
Write a number sentence.



NOTE: Your child is learning to break apart numbers to make them easier to add. Ask your child to explain how to find $8 + 6$ by making a group of ten.

Draw dots to show each addend.
Write the missing numbers.

6. $8 + 7$

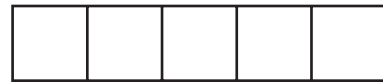


10

+

=

7. $5 + 9$



10

+

=

8. $7 + 6$



10

+

=

Problem Solving

9. Jenna has 8 toy animals in a case on her wall. She has 6 more on her bed. How many animals does she have? Explain how you know.

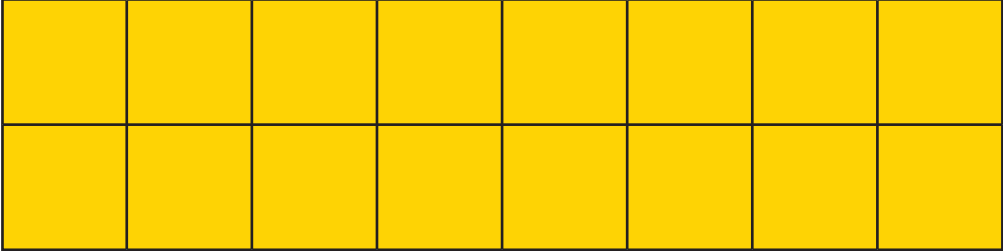


_____ animals

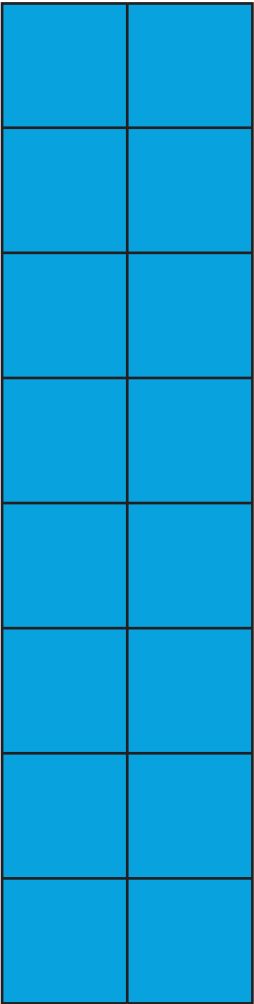
Sums to 16

NCTM Standards 1, 2, 6, 7, 8, 9, 10

Write the missing numbers.

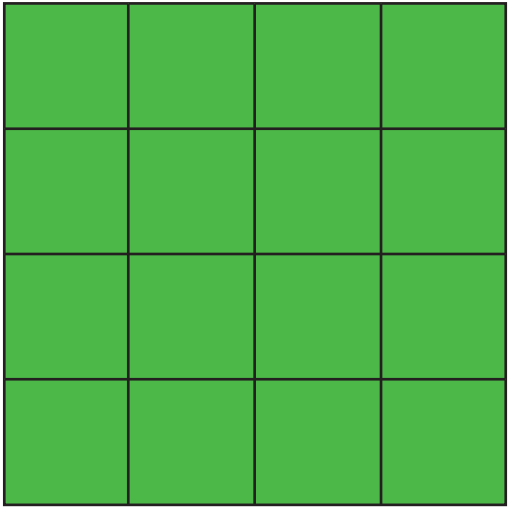
1.  $\begin{array}{r} \boxed{8} \\ + \square \\ \hline \square \end{array}$

$\underline{2 + 2 + 2 + \quad + \quad + \quad + \quad +}$ $= \square$

2.  $\begin{array}{r} \square \\ \square \\ \square \\ \square \\ \square \\ \square \\ \square \\ \square \\ \square \end{array}$

$\square + \square = \square$

$\square + \square = \square$

3.  $\begin{array}{r} \square \\ \square \\ \square \\ \square \\ \square \end{array}$

$\square + \square + \square = \square$

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NOTE: Your child is finding different ways to make 16. You may wish to ask your child to use pennies to show different ways.

Complete each Cross Number Puzzle.

4.

		5
	4	
12		16

5.

3		
	4	
	9	15

6.

	3	8
2		
	9	

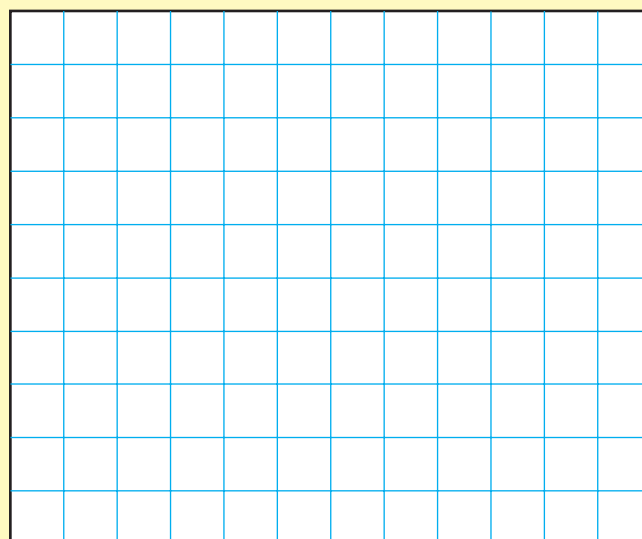
7.

	4	
	5	7
5		

Problem Solving

8. Karyn has 8 square tiles. She wants to make a tray. How many different rectangles can she make?

Draw them on the grid.



Sums to 18

NCTM Standards 1, 2, 6, 7, 8, 9, 10

Write the missing numbers.

1.

										9
2										
+	+	+	+	+	+	+	+	+	+	

2.

+							
+	+	+	+	+	+	+	





NOTE: Your child is learning to make sums of 18 and to use doubles facts to find near doubles. Ask your child what doubles fact can be used to find $9 + 8$.



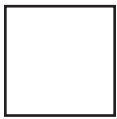

What doubles facts can you use to find the sum?

3. $6 + 7 = \underline{\hspace{2cm}}$

The sum is 1 more than

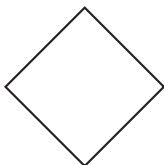
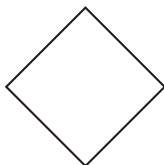
 +  = .

The sum is 1 less than

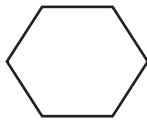
 +  = .

4. $7 + 8 = \underline{\hspace{2cm}}$

The sum is 1 more than

 +  = .

The sum is 1 less than

 +  = .

 5. How would you use a doubles fact to find $9 + 8$?

Challenge

6. How many rectangles can you draw that show 18?

 rectangles

Use words, numbers, or pictures to explain your answer.

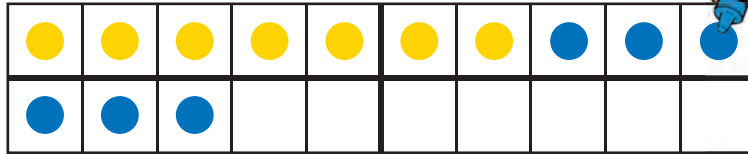
Sums to 20

NCTM Standards 1, 2, 6, 7, 8, 9, 10

You may use
counters to help.

Draw dots to show each number.
Then find the sum.

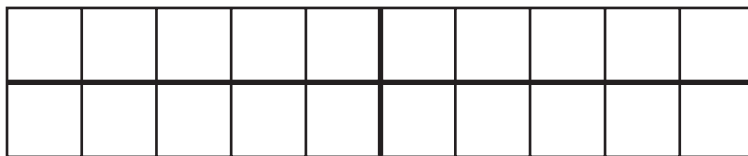
1. $7 + 6 = \underline{\quad 13 \quad}$



2. $8 + 7 = \underline{\quad \quad \quad}$



3. $9 + 9 = \underline{\quad \quad \quad}$



4. $10 + 10 = \underline{\quad \quad \quad}$



NOTE: Your child is continuing to make groups of five and ten to make adding easier. Ask your child to explain how he or she solved Problem 2.

What is the sum?

5. $6 + 8 =$ _____

6. $5 + 9 =$ _____

7. $9 + 10 =$ _____

8. $7 + 5 =$ _____

9. $6 + 6 =$ _____

10. $8 + 8 =$ _____

11. $4 + 9 =$ _____

12. $7 + 7 =$ _____

13. $6 + 9 =$ _____



14. Explain how you solved Problem 13.

Challenge

15. What rectangles can you make with 20 tiles?

_____ rows of _____

_____ rows of _____

_____ rows of _____

_____ rows of _____

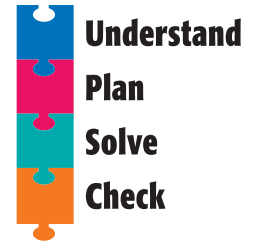
_____ rows of _____

_____ rows of _____

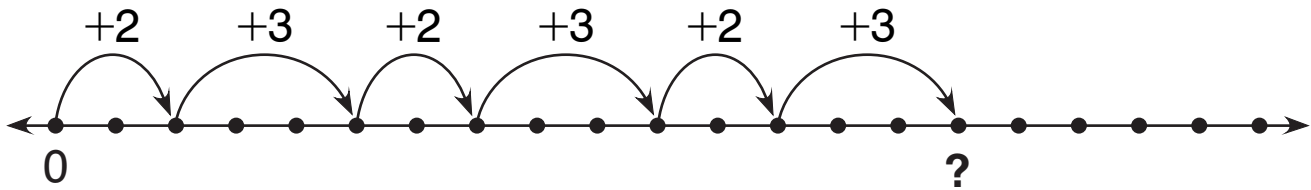
Problem Solving Strategy

Solve a Simpler Problem

NCTM Standards 1, 2, 4, 6, 7, 8, 9, 10



1. Kendall traced jumps on a number line. She jumped in a pattern.

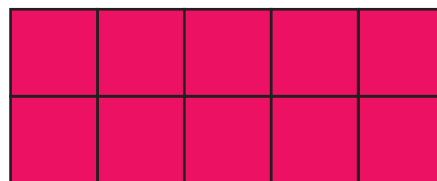


If she started at 0, where did she land?

2. Jack baked 2 batches of muffins. He baked 6 muffins in a small tin and 9 muffins in a large tin for each batch. How many muffins did Jack bake in all?

_____ muffins

3. Billie used 10 tiles to make this rectangle.



She wants to make a rectangle with 20 tiles. How many rows and columns could her rectangle have?

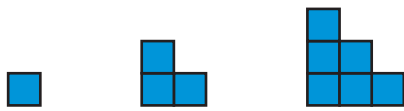
_____ rows and _____ columns



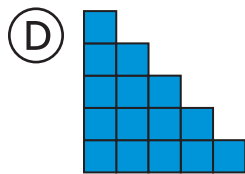
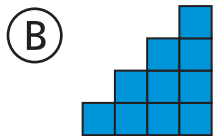
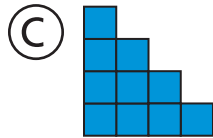
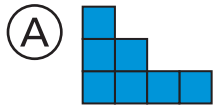
NOTE: Your child is using the strategy, *solve a simpler problem*, to solve problems. Ask your child to explain how he or she solved the problems on this page.

Problem Solving Test Prep

1. Mary made a design with tiles.



Which figure is next?



2. Josh had 12 marbles. He lost some of them. Now he has 6 marbles left. How many marbles did Josh lose?

(A) 6

(B) 12

(C) 18

(D) 24



Show What You Know

3. Kari, Rico, and Jordan ran a race. Jordan beat Rico. Kari beat Jordan. Who won the race?

Explain how you know your answer is correct.

4. There are 20 children in Mrs. Park's class. There are 4 more boys than girls. How many boys and girls are in the class?

_____ boys _____ girls

Explain how you solved the problem.

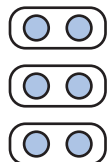


Chapter 13

Review/Assessment

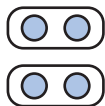
NCTM Standards 1, 2, 6, 7, 8, 9, 10

1. Write even or odd. Lesson 1



even

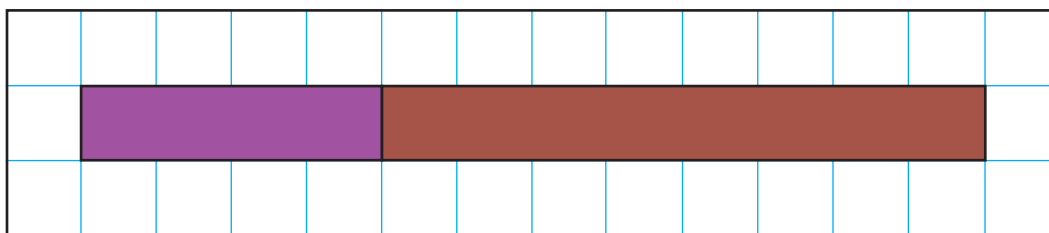
+



even

=

2. What number sentence does this train show? Lesson 2

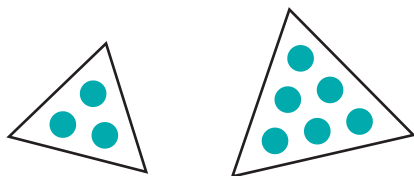


+

=

What is the fact family? Lesson 3

3.



+

=

+

=

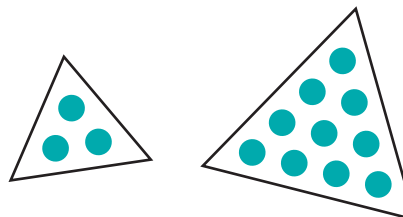
-

=

-

=

4.



+

=

+

=

-

=

-

=

Complete each Cross Number Puzzle.
Use multiples of 10. Lesson 4

5.

30		
	10	
		60

6.

20		
	0	
		60

7. Draw rods to show a sum of 12. Lessons 5 and 6

What is the sum? Lessons 5–9

8. $9 + 8 = \underline{\hspace{2cm}}$

9. $8 + 8 = \underline{\hspace{2cm}}$

10. $7 + 9 = \underline{\hspace{2cm}}$

Problem Solving Lesson 10

11. Nikki thought of the number pattern.

The first five numbers are 2, 4, 6, 8, 10.

What will the tenth number in her pattern be?