

Name \_\_\_\_\_

# Maps, Grids, and Geometric Figures

## Lines and Letters

### STEP 1 Drawing Lines to Make Letters

Draw two letters that have only straight lines.

First Letter \_\_\_\_\_

Second Letter \_\_\_\_\_

### STEP 2 Describing Lines

How many lines did you use in your first letter? \_\_\_\_\_

Describe which direction the lines go.

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How many lines did you use in your second letter? \_\_\_\_\_

Describe which direction the lines go.

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### STEP 3 Drawing More Letters

Draw other letters that have only straight lines.  
Draw as many as you can.

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# School-Home Connection

## Dear Family,

Today we started Chapter 10 of *Think Math!* In this chapter, I will learn to give and follow directions on a map, to draw and recognize congruent figures, and to identify and compare two- and three-dimensional figures. There are NOTES on some of my 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 understand maps, grids, and geometric figures.

Love,

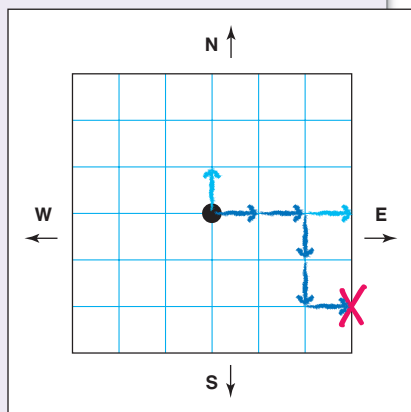
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## Family Fun

### Grid Treasure Hunt

Play this game with your child.

- You and your child each need a 6-by-6 grid with one-inch boxes. Draw a large dot in the middle of each grid. The grids will be used as maps.
- Hide a “treasure” by secretly making an X somewhere on your map.
- Your child tries to find the location of the treasure by drawing an arrow one box long from the center dot on his or her map. If your child is getting farther away from the treasure, say “colder.” If your child is getting closer, say “warmer.”
- Your child continues to draw arrows until the location of the treasure is found.



### Shape Search

Work with your child to identify familiar three-dimensional figures in your environment.

- On a piece of paper, make a chart with rows for each of the following figures: sphere (ball), cylinder (can), rectangular prism (box), and cone.
- Work with your child to find a few examples of each figure in your home and record the names of the objects in the chart.

Figure	Object
sphere	
cylinder	
rectangular prism	
cone	

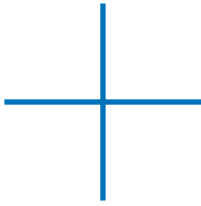
- Discuss the figures you found. Which were easiest to find? Which were hardest to find? Which was the largest example of each figure? Which was the smallest?

# Exploring Lines and Intersections

NCTM Standards 1, 3, 6, 8, 9, 10

Do the lines intersect?

1.



yes  no

2.



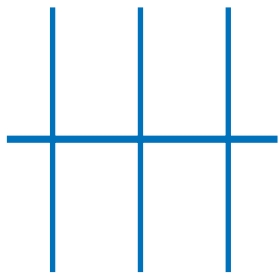
yes  no

3.



yes  no

4.



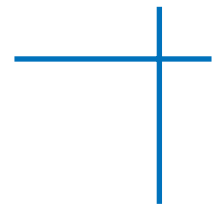
yes  no

5.



yes  no

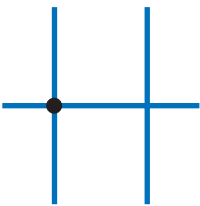
6.



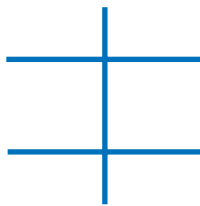
yes  no

Draw dots to show where the lines intersect.

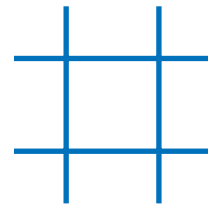
7.



8.



9.



**NOTE:** Your child is learning to identify horizontal and vertical lines. Ask your child to identify which lines are horizontal, which are vertical, and where they intersect.



Complete each table.

10.



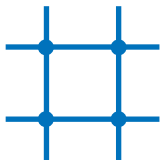
—	3
	⋮

11.



—	

12.



—	

13.



—	

## Challenge

14. Draw lines that intersect to match the table.

—	2
	3

# Drawing Lines and Intersections

NCTM Standards 1, 3, 6, 8, 9, 10

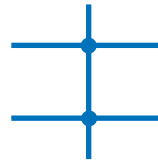
Where do the lines intersect?  
Complete each table.

1.



—	
	2
+	2

2.



—	
+	



3.



—	
	0
+	

4.



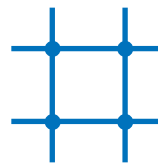
—	0
+	

5.



—	
+	

6.



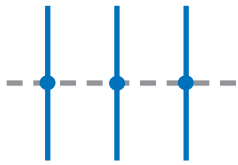
—	
+	



**NOTE:** Your child is recording information about horizontal and vertical lines, and the number of places they intersect. Ask your child to explain how to complete each table.

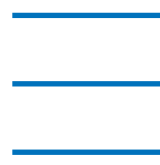
Complete each map. Write the missing numbers.

7.



—	1
+	

8.



—	
	2
+	

9.

—	3
	3
+	

10.

—	2
	3
+	

11.



—	2
+	4

12.



—	
	1
+	3

## Challenge

13. Draw the map and write the numbers.

—	
+	7

# Exploring Direction on a Map

NCTM Standards 3, 6, 7, 8, 9, 10

Find two paths from A to B on each map.

North ↑

1.

2.

West ←

East →

3.

4.

South ↓

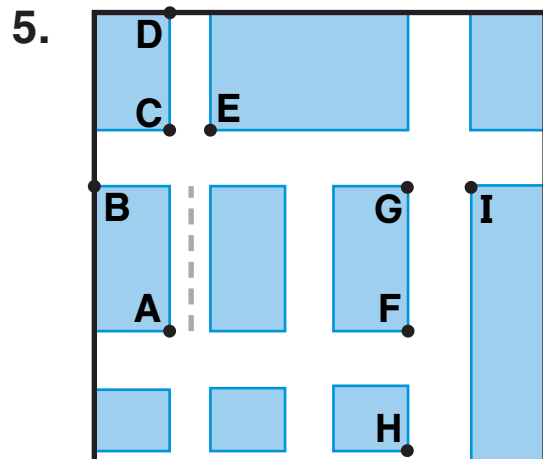
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**NOTE:** Your child is learning to give and follow directions. Ask your child to explain the directions for each path on this page.

Follow the directions.

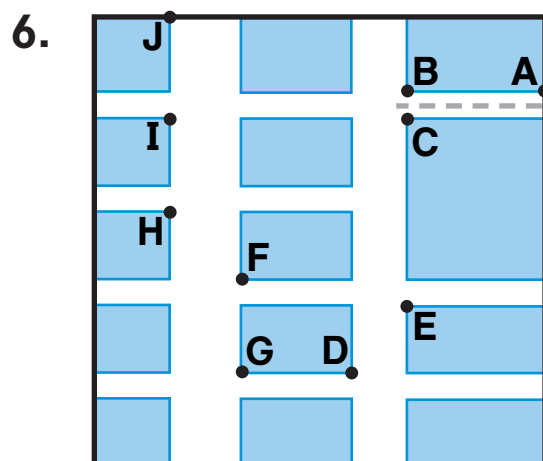
North ↑



- ① Start at **A**.
- ② Go 1 block north.
- ③ Go 2 blocks east.
- ④ Go 2 blocks south.
- ⑤ Where are you now?

West ←

East →



- ① Start at **A**.
- ② Go 2 blocks west.
- ③ Go 3 blocks south.
- ④ Go 1 block east.
- ⑤ Where are you now?

South ↓

## Problem Solving

7. How would you get from **J** to **E** in Problem 6?

1 Go \_\_\_\_\_ blocks \_\_\_\_\_.      2 Go \_\_\_\_\_ block \_\_\_\_\_.

Is there another way? Explain: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

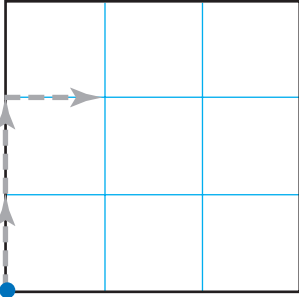


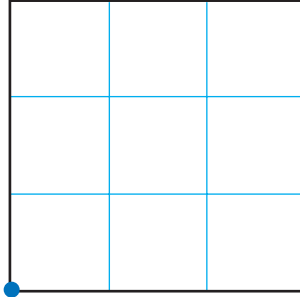


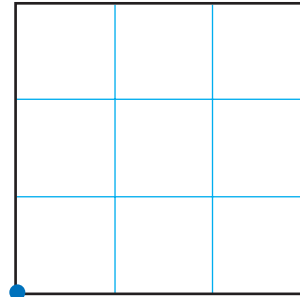
# Finding and Following Paths on a Grid

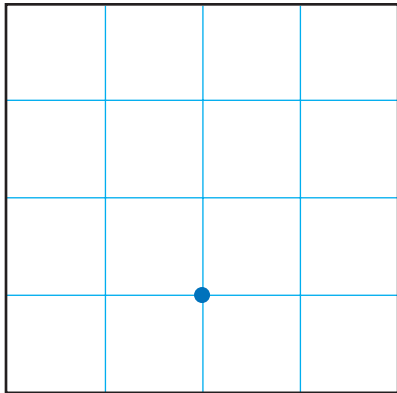
NCTM Standards 3, 6, 9, 10

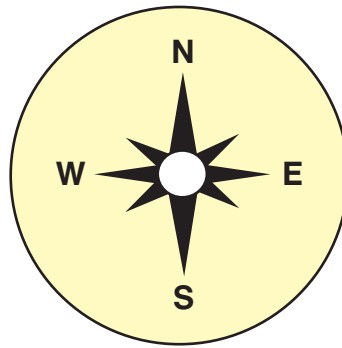
Start at the dot. Draw each path.

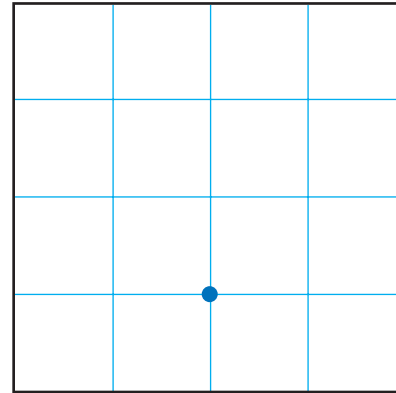
1.   
N N E

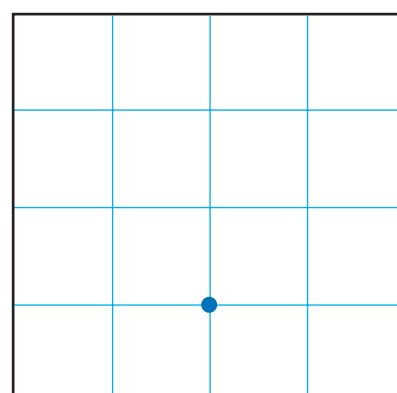
2.   
E N E

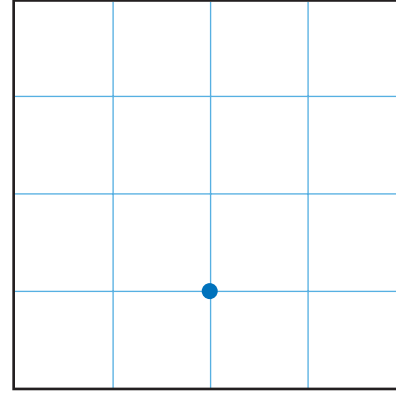
3.   
E N W

4.   
E S W W



5.   
N N E N

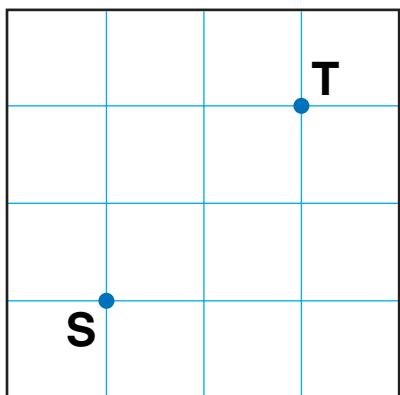
6.   
W W N E

7.   
S E E N

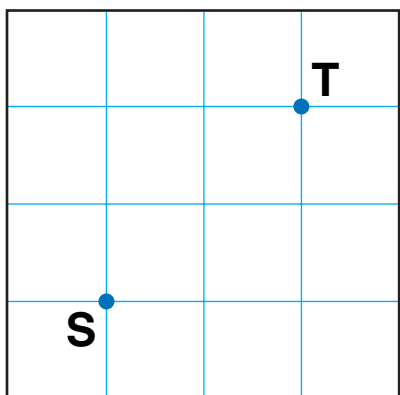


**NOTE:** Your child is learning to give and follow directions on a map. Ask your child to trace each path and say the directions.

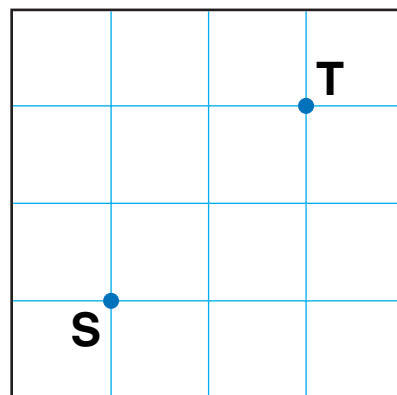
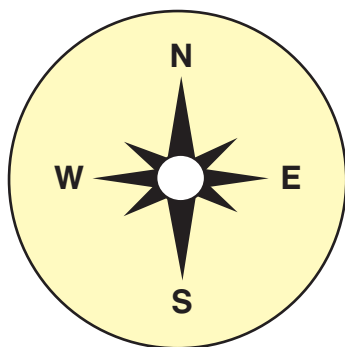
8. Find different paths from **S** to **T**.



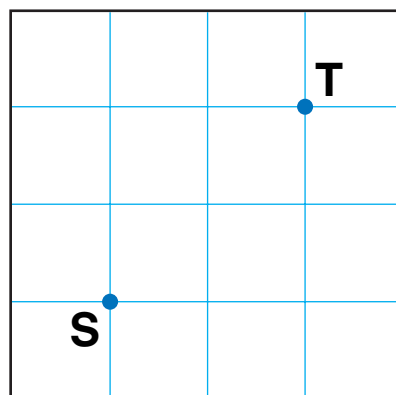
N N E E



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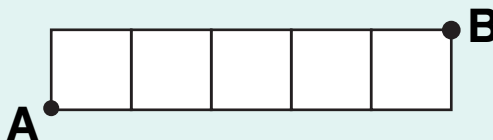
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### Challenge

9. Find the shortest paths from **A** to **B**.



N E E E E E

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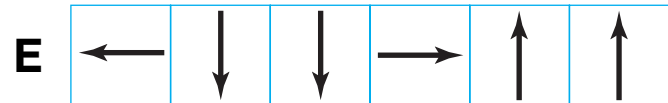
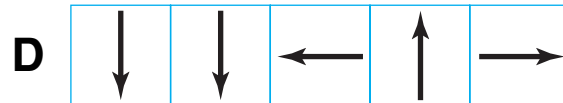
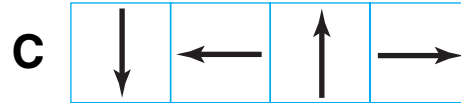
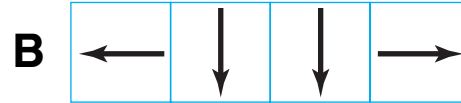
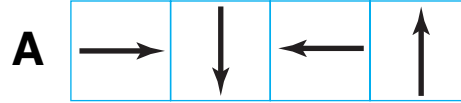
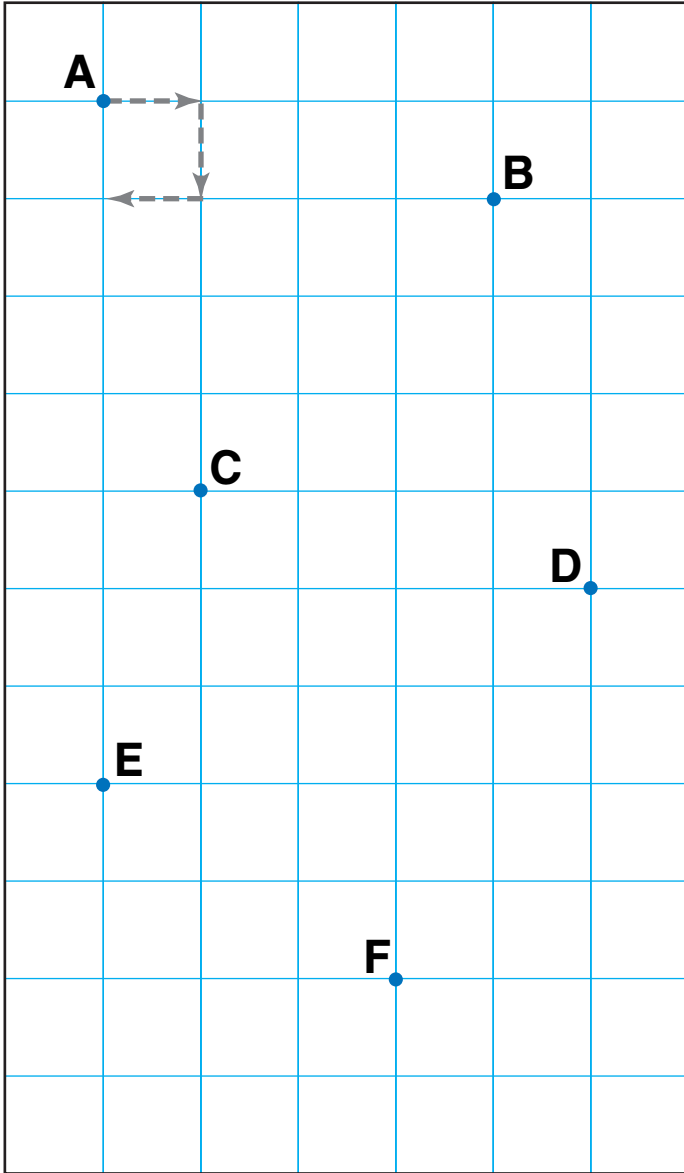
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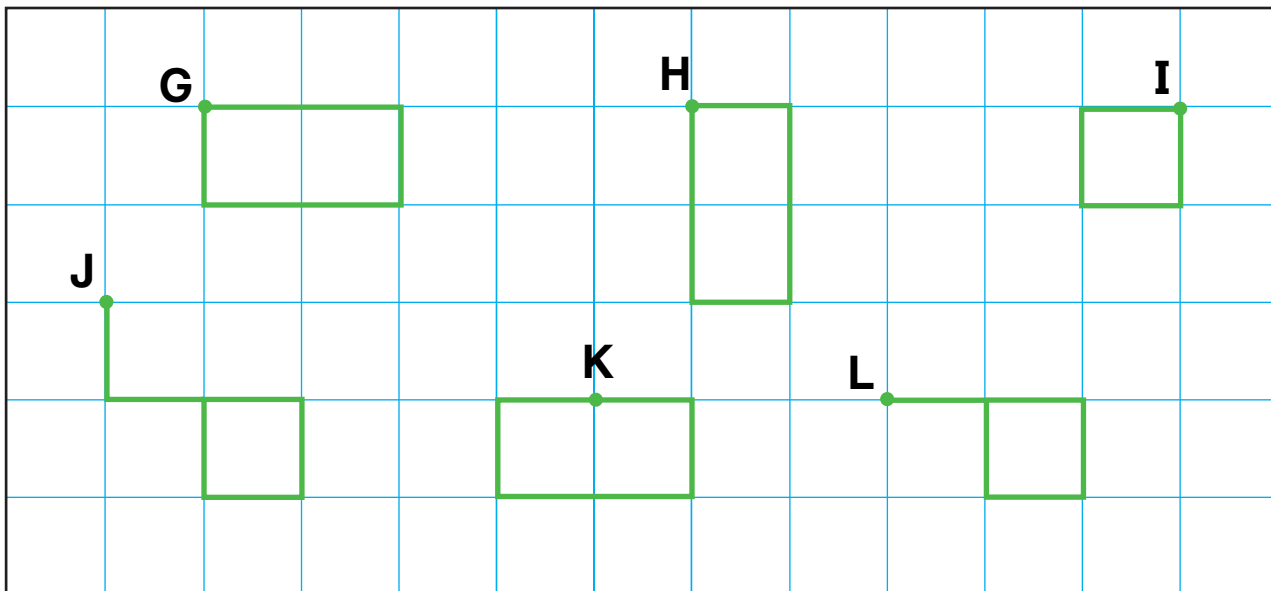
# Paths and Figures on a Grid

NCTM Standards 3, 6, 9, 10

I. Start at the dot. Draw each path.



**NOTE:** Your child is learning to give and follow directions on a grid. Ask your child to tell you which paths on this page start and end at the same point.



2. Write the directions for making each figure.

**G**

---	---	↓			
-----	-----	---	--	--	--

**H**

--	--	--	--	--	--

**I**

--	--	--	--

**J**

--	--	--	--	--	--

**K**

--	--	--	--	--	--

**L**

--	--	--	--	--

## Challenge

Look at the paths you drew on this page and on page 193.

3. Which paths start and end at the same point?

\_\_\_\_\_

4. Draw  $\uparrow$ ,  $\downarrow$ ,  $\rightarrow$ , or  $\leftarrow$  to complete each sentence.

These paths use the same number of \_\_\_\_\_ as \_\_\_\_\_.

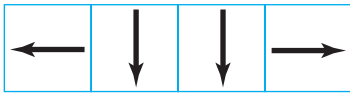
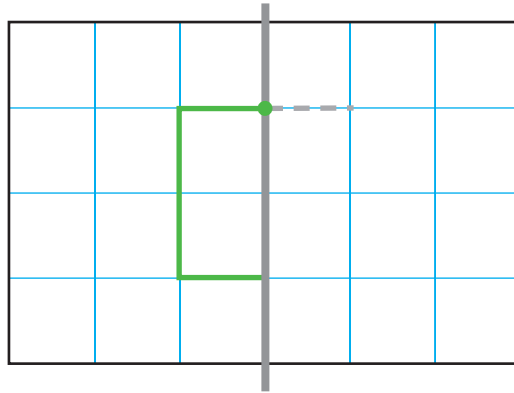
These paths use the same number of \_\_\_\_\_ as \_\_\_\_\_.

# Exploring Symmetry

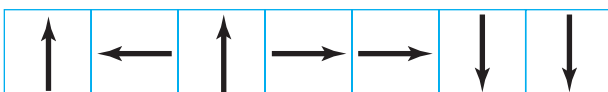
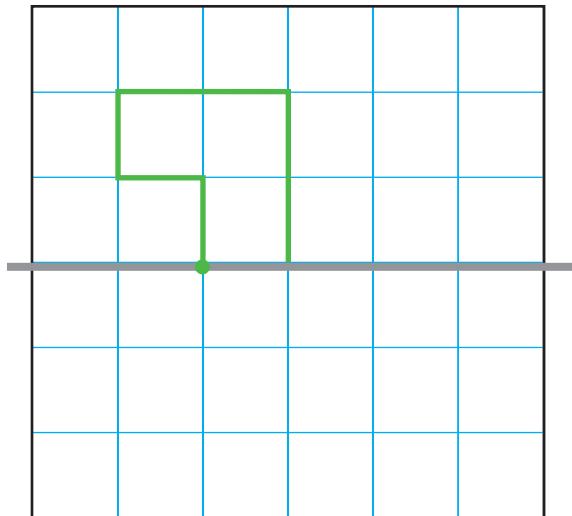
NCTM Standards 3, 6, 8, 9, 10

Start at the dot. Draw the mirror image.  
Record the arrow directions.

1.



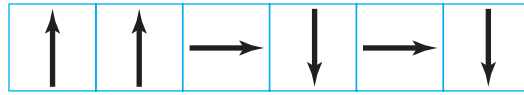
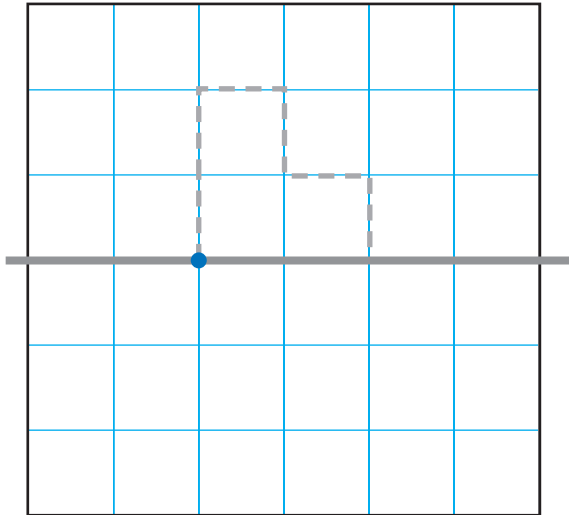
2.



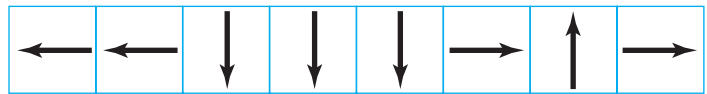
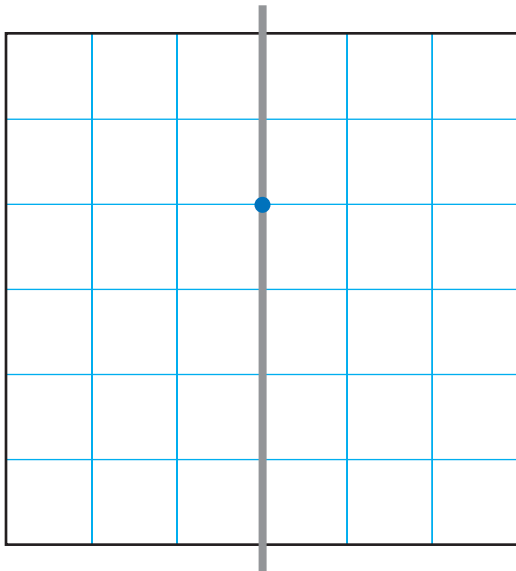
**NOTE:** Your child is learning to recognize and draw symmetric figures. Have your child trace each figure and tell the directions to move on the grid.

Start at the dot. Draw the figure.  
Then draw the mirror image. Write the directions.

3.



4.



### Challenge

5. Place a mirror along the gray line.  
Circle the letters that show half in the mirror.



# Connecting Points to Make Figures

NCTM Standards 3, 6, 9, 10



D

C

I. Draw lines to connect the points.

A and B

C and D

A and C

B and C

D and A

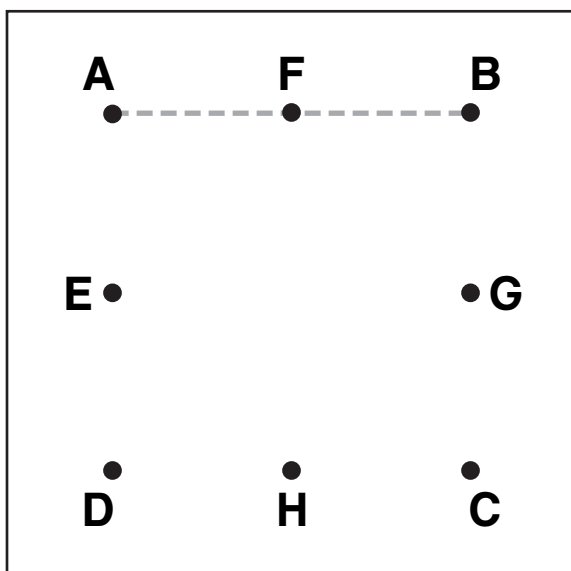
B and D



**NOTE:** Your child is learning to draw lines to connect points. Ask your child to identify the shapes of the figures that the lines make.

Draw lines to connect the points.

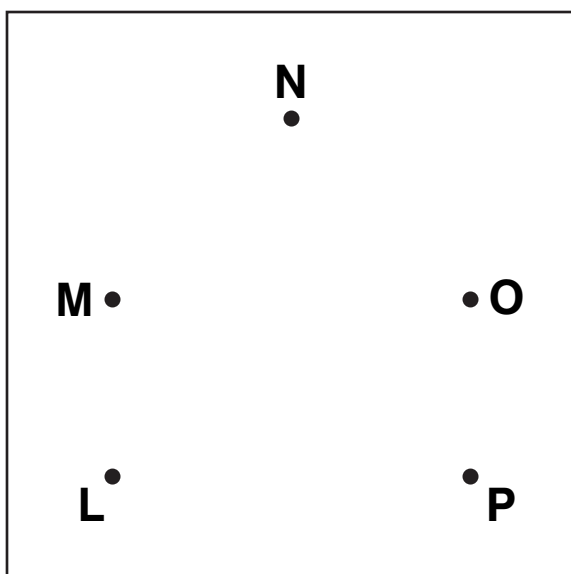
2.



A and B      B and C  
 C and D      D and A  
 E and G      F and H  
 How many squares are there?

\_\_\_\_\_ squares

3.



M and N      L and M  
 N and O      M and O  
 O and P      L and O  
 L and P  
 How many triangles are there?

\_\_\_\_\_ triangles

## Problem Solving

4. Which 3 points can you connect to make a triangle?

Q      U      R

X      V

S      W      T

\_\_\_\_\_

\_\_\_\_\_

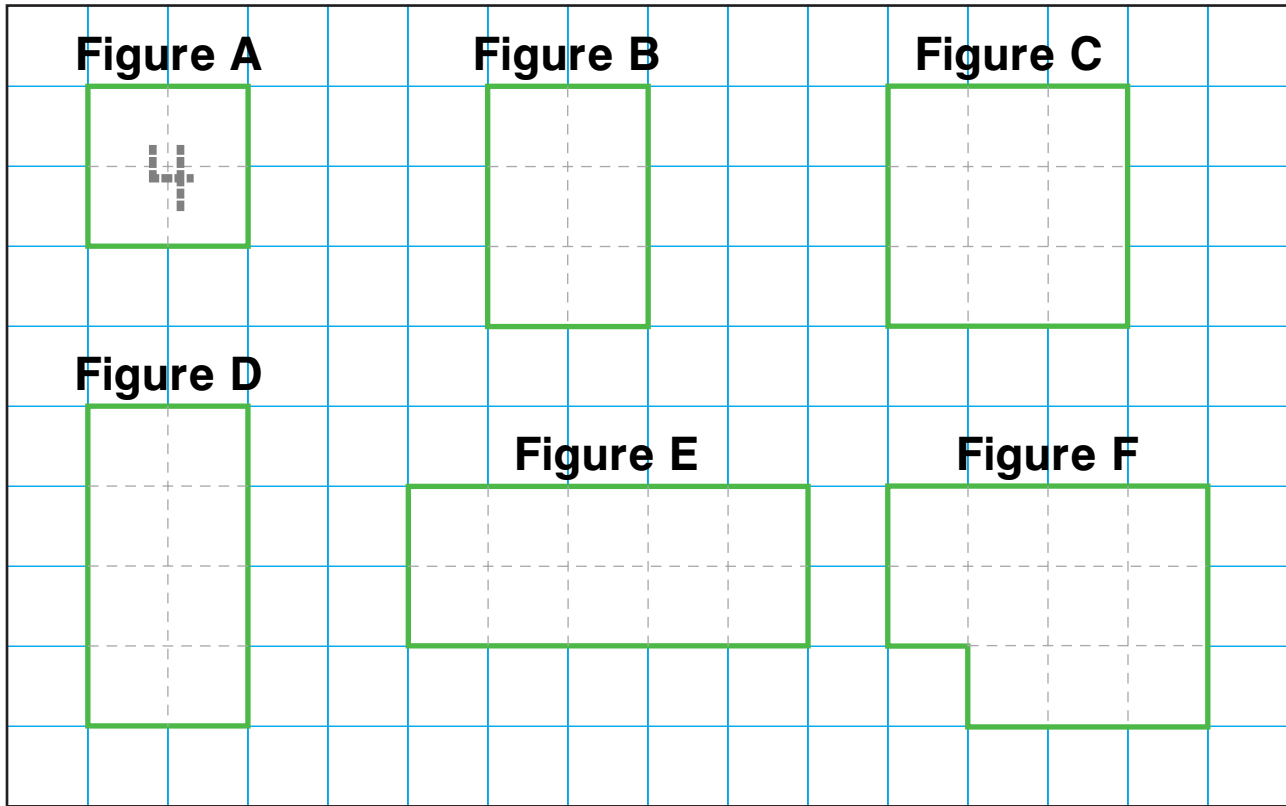
\_\_\_\_\_




# Investigating Rectangles

NCTM Standards 1, 3, 4, 6, 7, 8, 9, 10

1. How many  are in each figure?



2. Use the figures above to complete the table.

Figure	A	B	C	D	E	F
Number of 	4					

 3. Is Figure F a rectangle? Explain.

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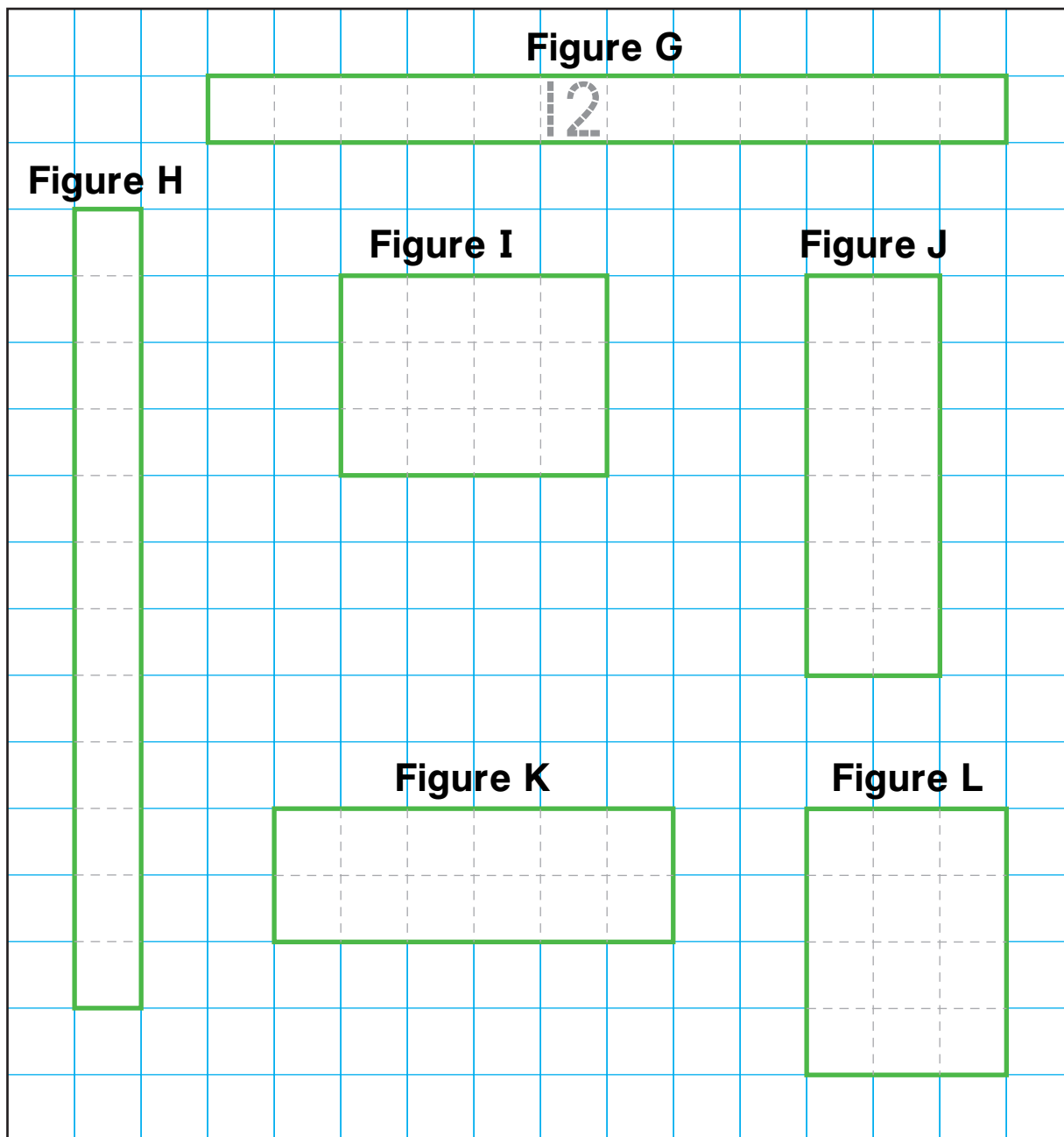


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**NOTE:** Your child is learning to identify and compare rectangles. Have your child tell you the number of grid squares in each of the rows and in each of the columns of the rectangles on this page.

4. How many  are in each figure?



5. Use the figures above to complete the table.

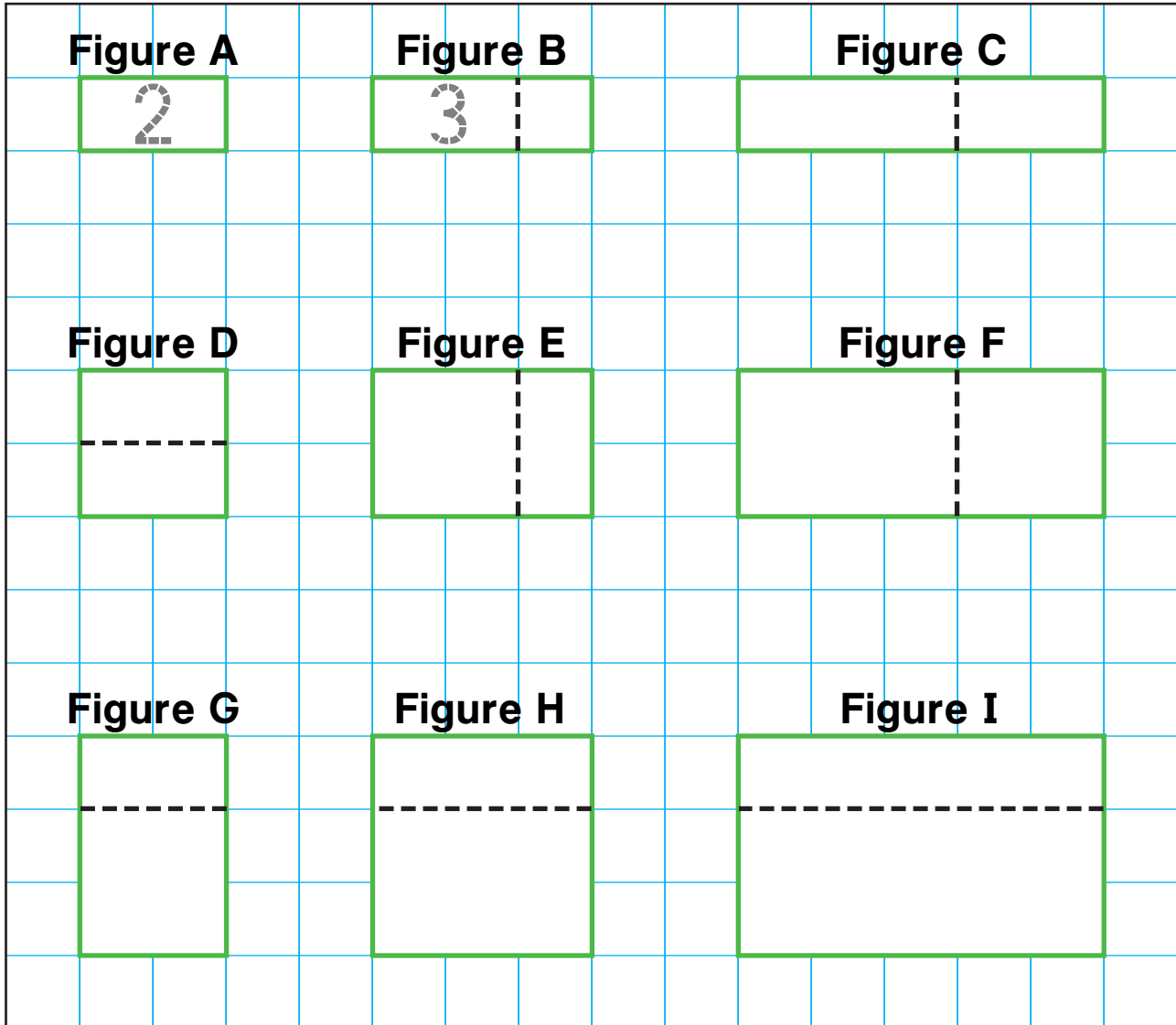
Figure	G	H	I	J	K	L
Rows	2					
Columns	8					
Number of 	16					




# Recording and Graphing Rectangles

NCTM Standards 1, 3, 4, 6, 9, 10

1. How many  are in each figure?



2. Use the figures above to complete the table.

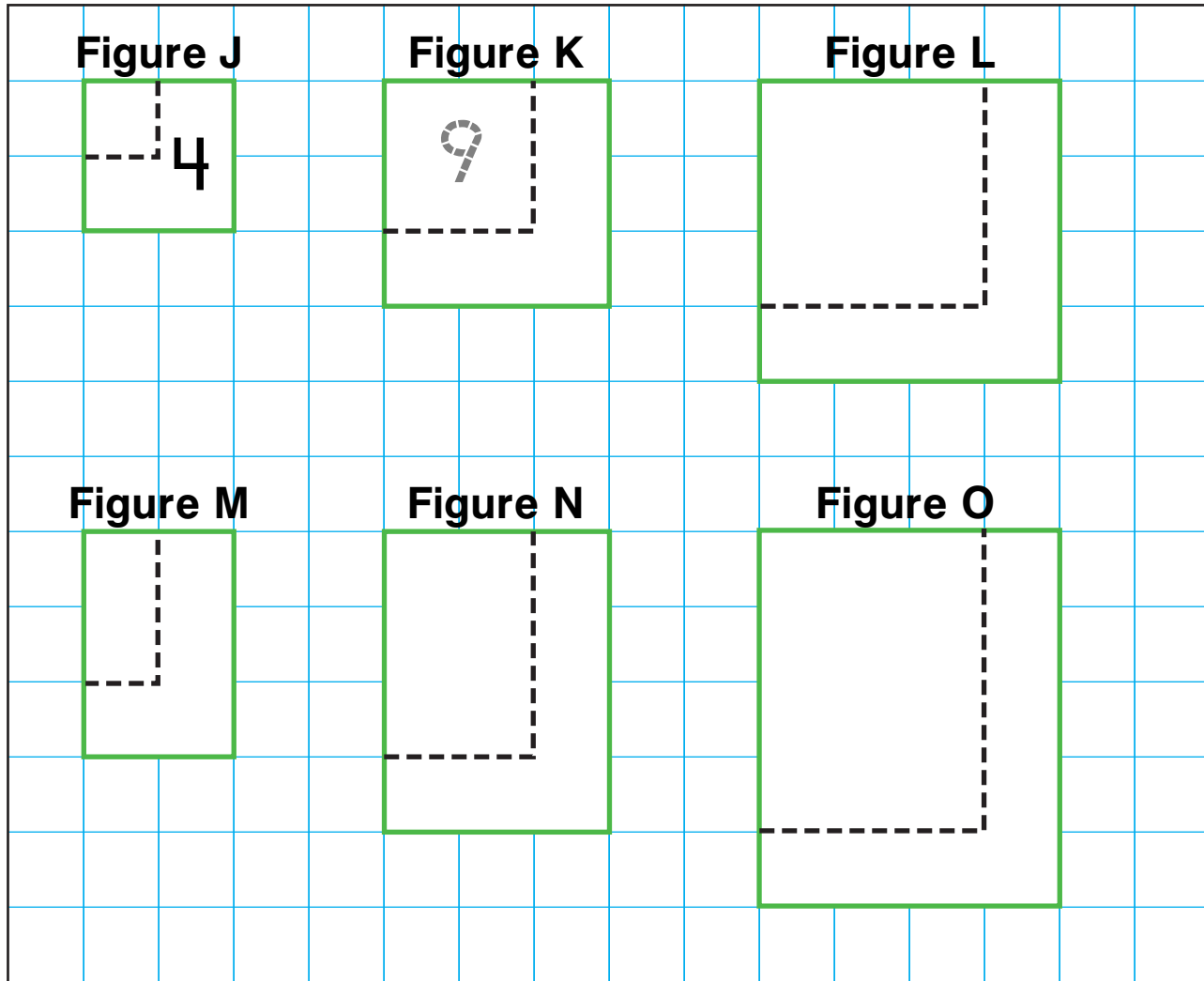
Figure	A	B	C	D	E	F	G	H	I
Number of 	2	3							

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**NOTE:** Your child counted the number of grid squares in each rectangle and recorded the information in a table.

3. How many  are in each figure?



4. Use the figures above to complete the table.

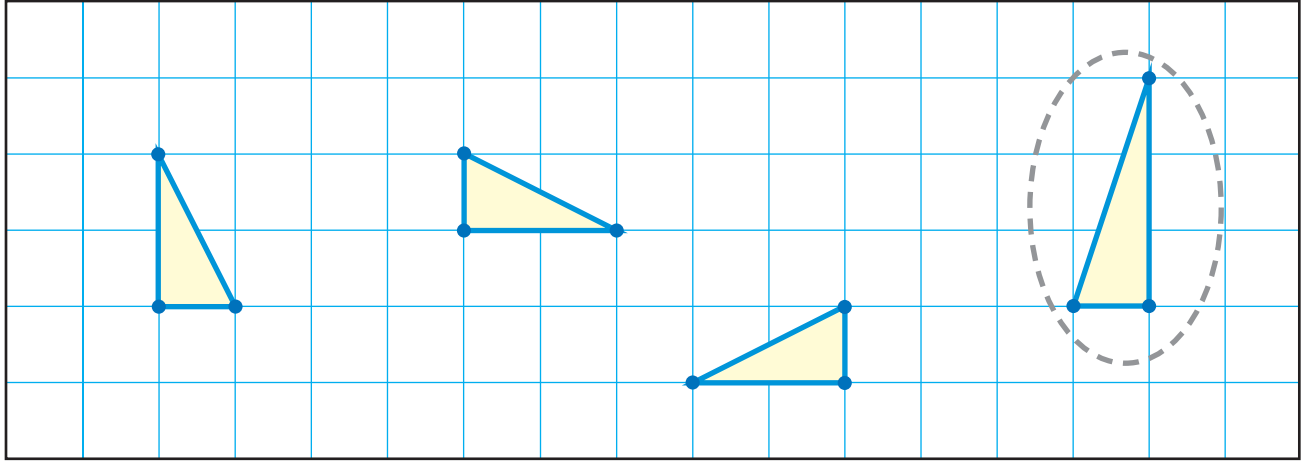
Figure	J	K	L	M	N	O
Rows	2					
Columns	2					
Number of 						

# Finding Congruent Figures

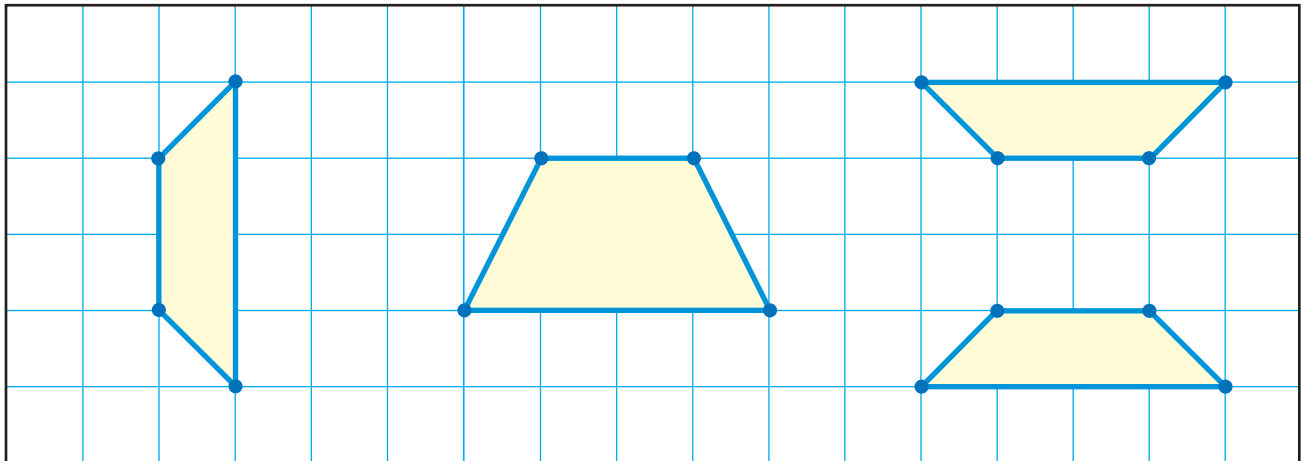
NCTM Standards 3, 4, 6, 8, 9, 10

Which figure does not have the same size and shape?

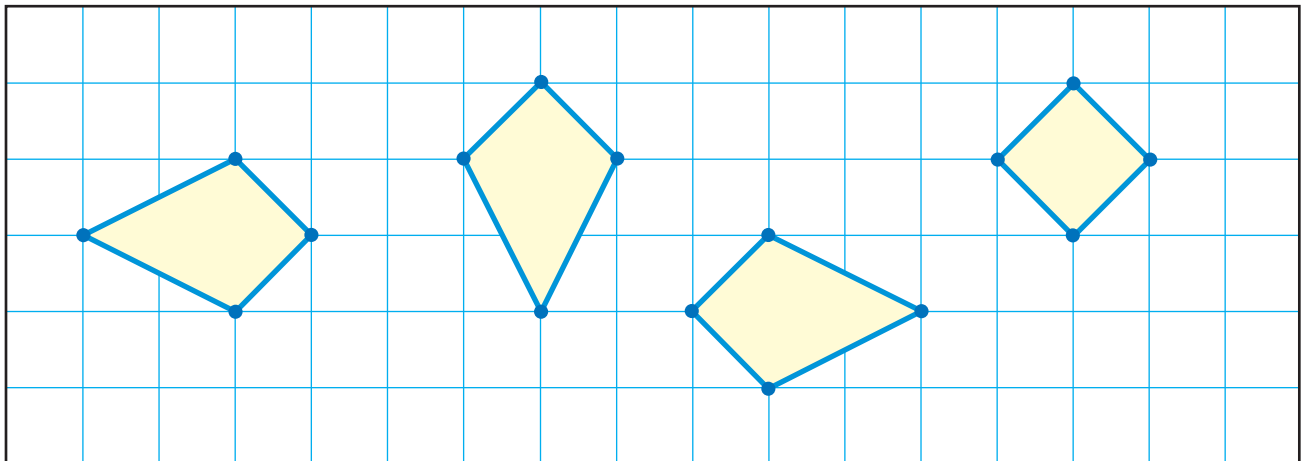
1.



2.



3.

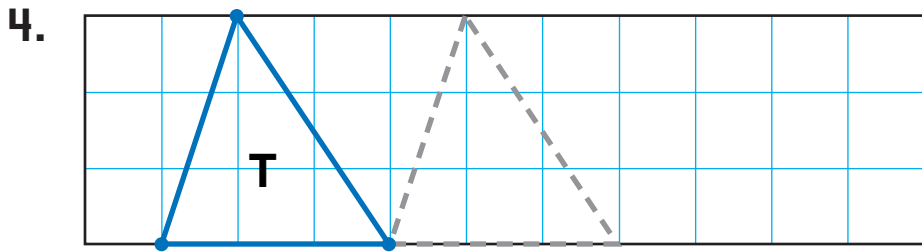


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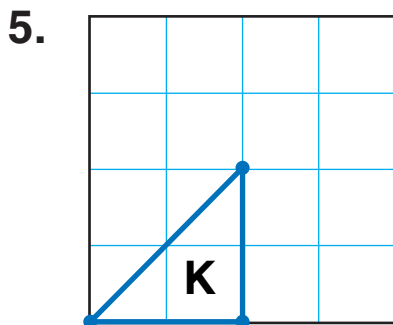
**NOTE:** Your child is learning about congruent figures. Have your child identify which figures have the same shape and size.

Slide the triangle to make figures that are the same. Draw the figures.



Slide  3 spaces right. Repeat.

How many triangles like  do you see? \_\_\_\_\_



Slide  2 spaces right.

From there slide  2 spaces up.

From there slide  2 spaces left.

How many triangles like  do you see? \_\_\_\_\_



### Problem Solving

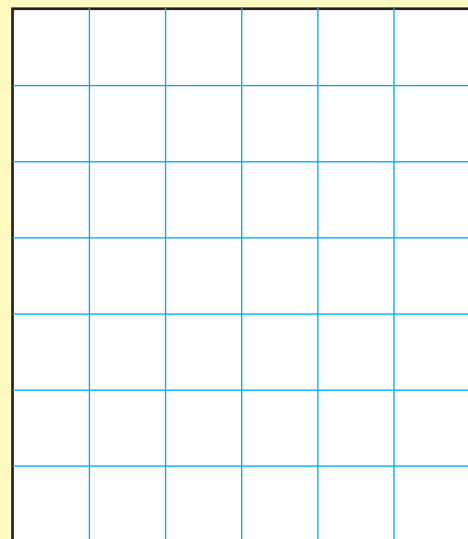
6. Draw two figures that have the same size and shape. Tell how you know.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

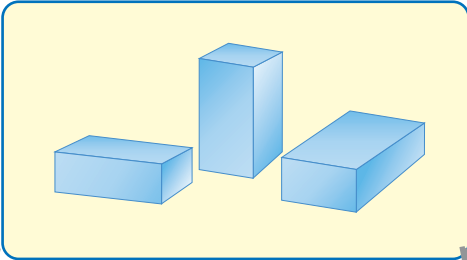
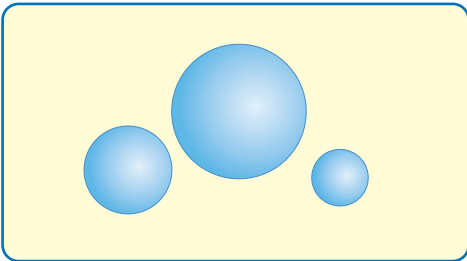
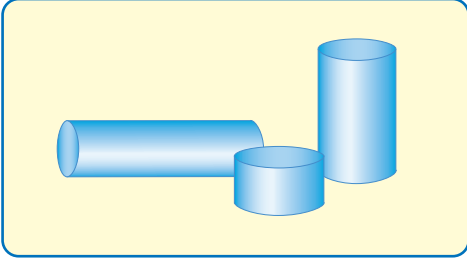
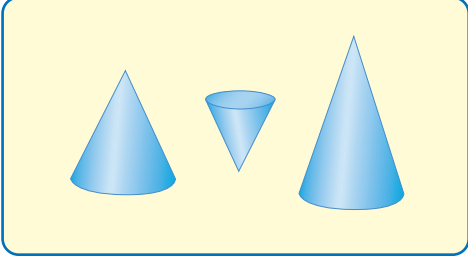
\_\_\_\_\_



# Exploring Three-Dimensional Figures

NCTM Standards 3, 6, 7, 8, 9, 10

I. Match the figures to their names and to words that describe them.

cones ●		● have circles
cylinders ●		● have rectangles
rectangular prisms ●		● have pointy corners
spheres ●		● have all flat sides
		● have a curved side

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**NOTE:** Your child is learning to identify and compare three-dimensional figures. Ask your child to find examples of each of these figures in your home.

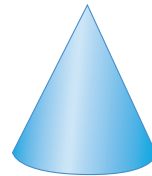
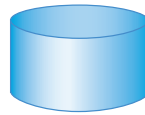
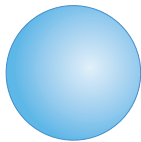
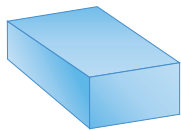
 2. How are a cone and a cylinder different?

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3. Circle the figures that have a flat side.



4. Give an example of something from the grocery store that has about the same shape.

sphere \_\_\_\_\_

cone \_\_\_\_\_

rectangular prism \_\_\_\_\_

cylinder \_\_\_\_\_

5. How many square faces does a cube have? \_\_\_\_\_

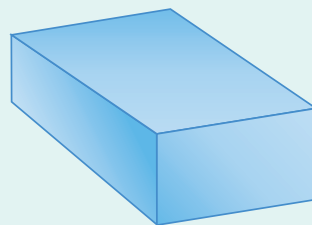
### Challenge

6. How many faces are hidden?

\_\_\_\_\_ faces

7. How many corners are hidden?

\_\_\_\_\_ corner

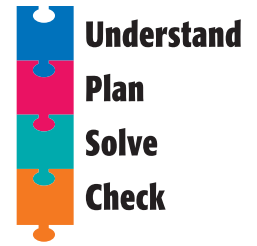




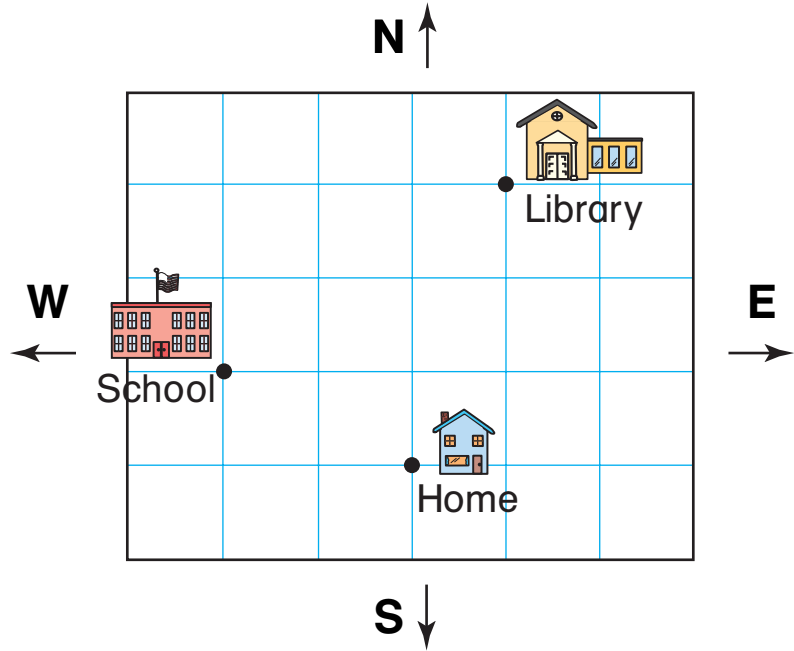
# Problem Solving Strategy

## Draw a Picture

NCTM Standards 1, 2, 3, 5, 6, 7, 8, 9, 10



- How can you go from school to home?  
Draw the path.  
Write the directions.



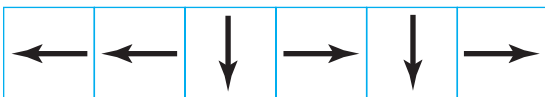

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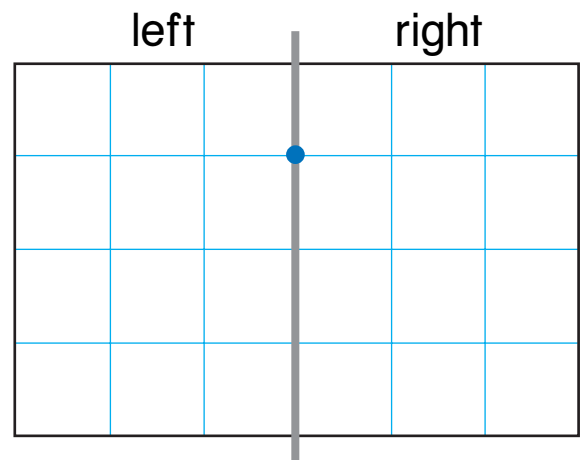
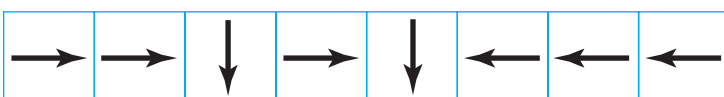
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- Use the arrows.  
Will the figure show mirror images across the line? \_\_\_\_\_

left side



right side



**NOTE:** Your child is exploring different ways to solve problems. Sometimes drawing a picture is an efficient way to solve a problem.

# Problem Solving Test Prep

1. There are 7 apples in a basket. 3 are red. The rest are green. Which number sentence tells how many green apples there are in the basket?

(A)  $7 + 3 = 10$

(B)  $7 - 3 = 4$

(C)  $10 - 3 = 7$

(D)  $10 + 7 = 17$

2. Eddie collects marbles. He buys 10 marbles every week. How many will he buy in 4 weeks?

(A) 4 marbles

(B) 8 marbles

(C) 10 marbles

(D) 40 marbles

## Show What You Know

3. How many more children chose bananas than apples? \_\_\_\_\_ children

Our Favorite Kinds of Fruit								
								
								

Key: Each  stands for 1 child's choice.

Explain. \_\_\_\_\_

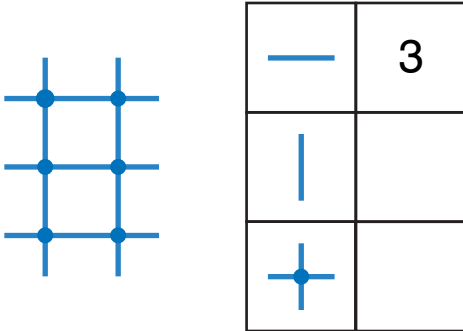
\_\_\_\_\_

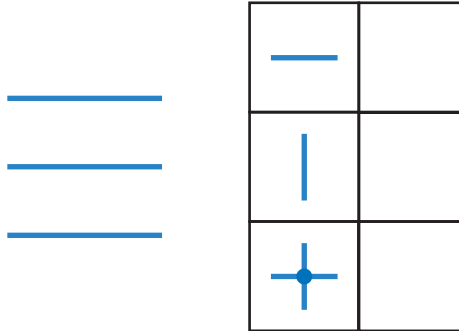
4. I have 5 apples. I have 3 fewer pears. I have 2 more bananas than apples. How many pieces of fruit do I have? \_\_\_\_\_ pieces of fruit

Explain. \_\_\_\_\_

\_\_\_\_\_

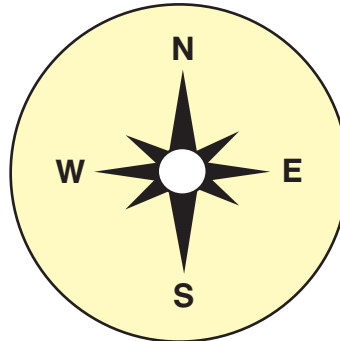
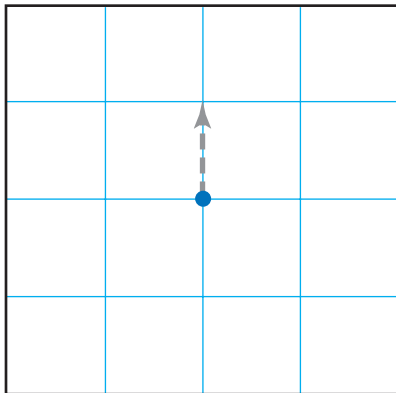
**Write the missing numbers.** Lessons 1, 2

1. 

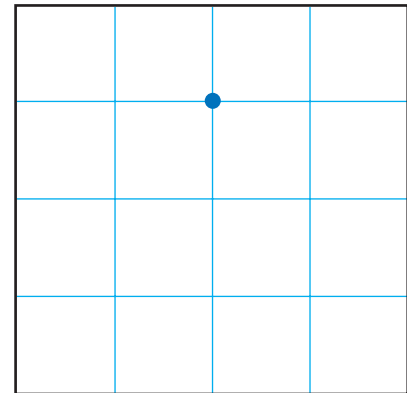
2. 

**Follow the directions to draw each path.**  
Start at the dot. Lessons 3, 4

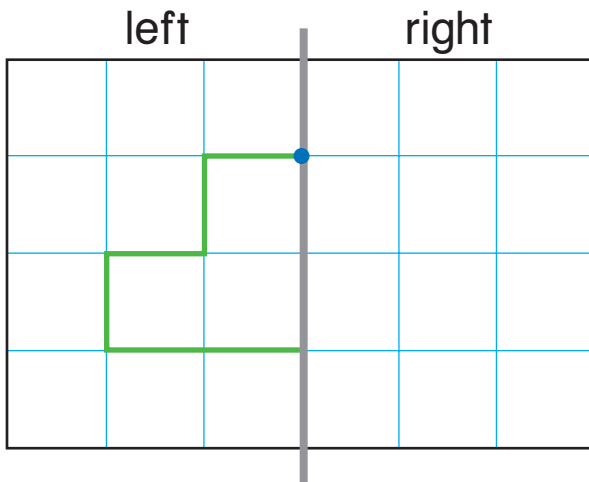
3. **NESSWN**



4. **WSWSE**



5. Start at the dot. Draw the mirror image.  
Record the directions. Lessons 5, 6



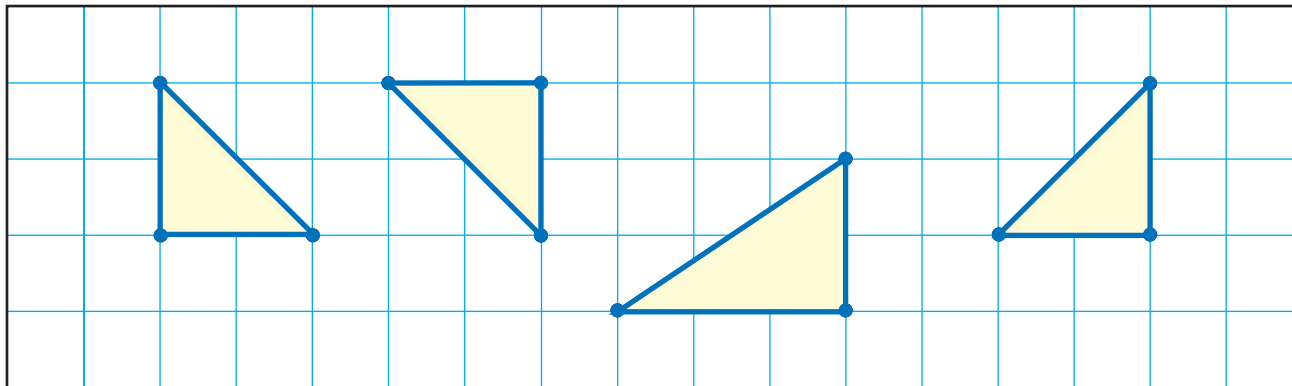
left side



right side



6. Circle the figure that does not have the same size and shape. Lesson 10



7. Match the figure to its name. Lesson 11



cylinder



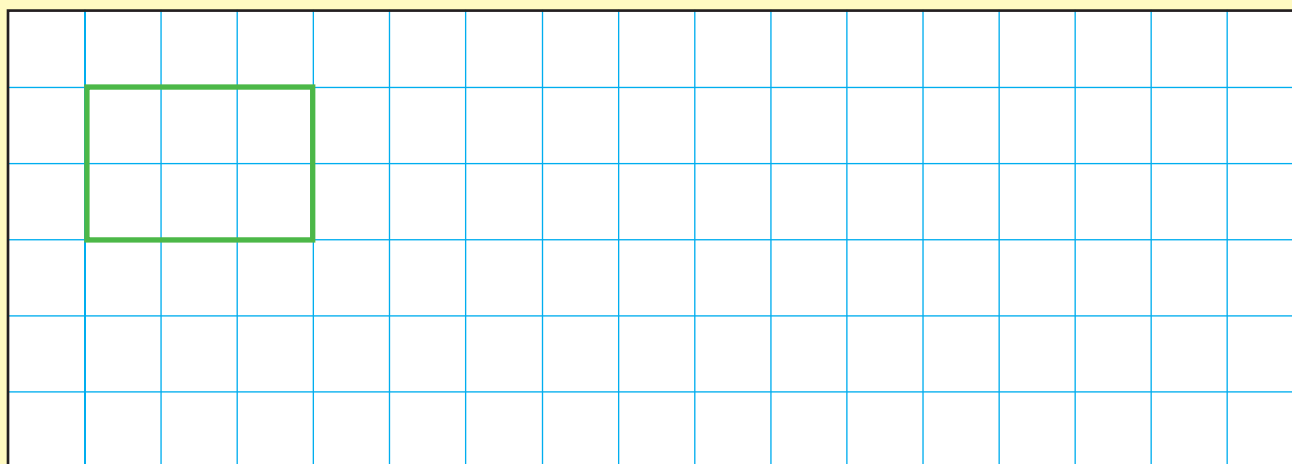
rectangle



rectangular prism

### Problem Solving Lessons 8, 9, 12

8. How many different rectangles cover 6  ?



\_\_\_\_\_ rectangles

