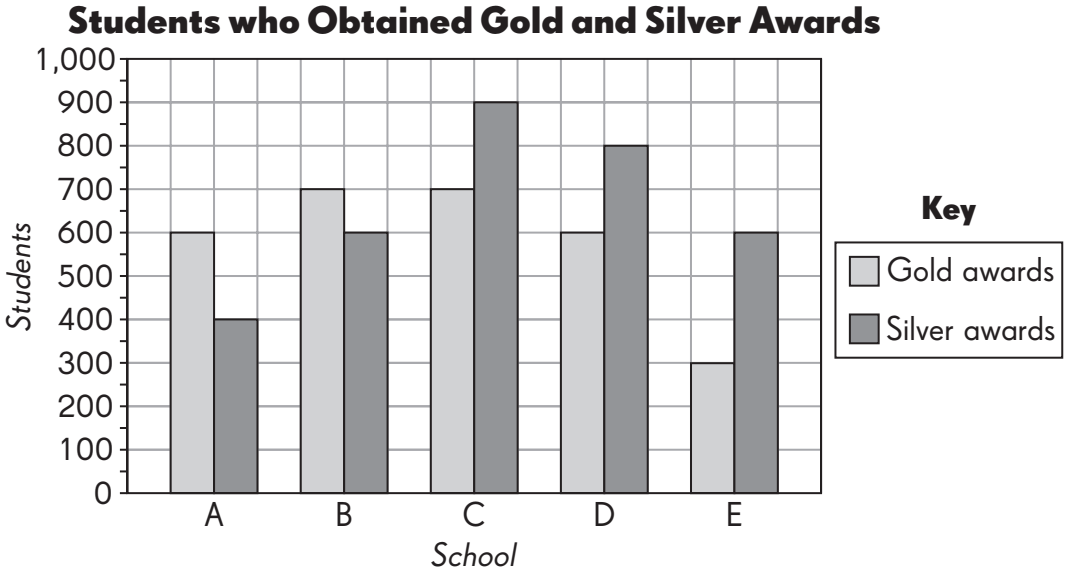
Name: _____ Date: _____

CHAPTER 11 Graphs and Probability

Lesson 11.1 Making and Interpreting Double Bar Graphs

The double bar graph shows the number of students in five schools who obtained the gold and silver awards in a physical fitness test. Use the graph for the following exercises.



1. _____ students participated in the physical fitness test in School B.

2. There are _____ more students who obtained the gold award in School C than in School E.

3. The fraction of the number of students in School E who obtained the gold award out of its total number of students that obtained either gold or silver awards is _____.

4. _____ percent of the students receiving awards in School A obtained the gold award.

5. The ratio of the number of students who obtained the silver award in School A to School B to School D is _____.

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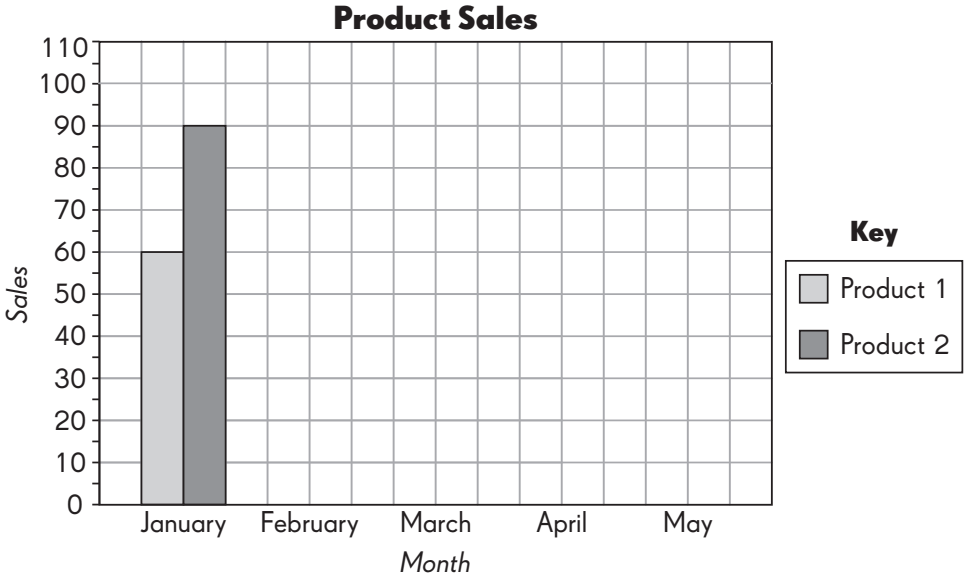
Complete the bar graph using the data in the table. Then use the graph for the following exercises.

6. The table shows the product sales for a company during the first five months of the year.

	January	February	March	April	May
Product 1	60	30	50	70	40
Product 2	90	50	70	110	80



7. The average amount of Product 1 sold during the first five months is _____.

8. The ratio of the amount of Product 1 sold in January to the amount of Product 1 sold in May is _____.

9. The month of _____ shows the greatest decrease in sales of Product 2. The decrease was _____.

10. _____ percent of the total sales for Product 2 was sold in May.

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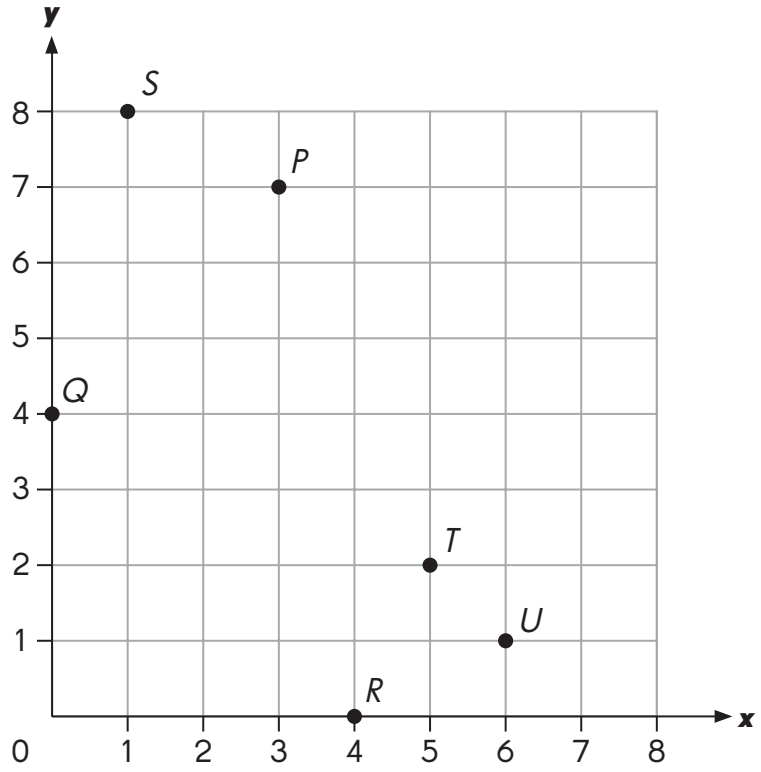
Lesson 11.2 Graphing an Equation

Name the coordinates of the given points.



1. P _____

2. Q _____

3. R _____

4. S _____

5. T _____

6. U _____

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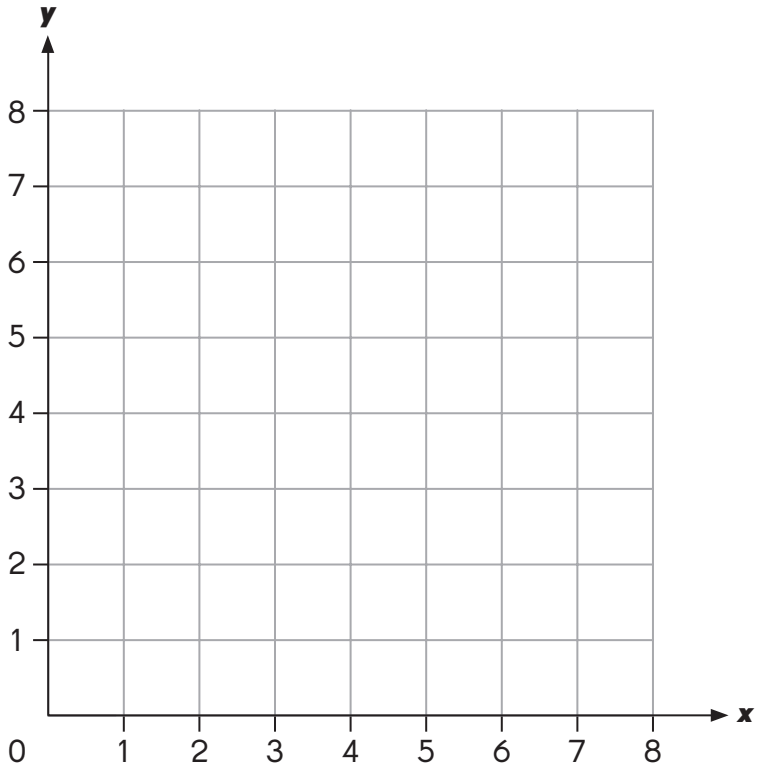
Plot and label each point on the graph.



7. *A* (0, 6)

8. *B* (5, 1)

9. *C* (3, 3)

10. *D* (7, 0)

11. *E* (4, 8)

12. *F* (6, 2)

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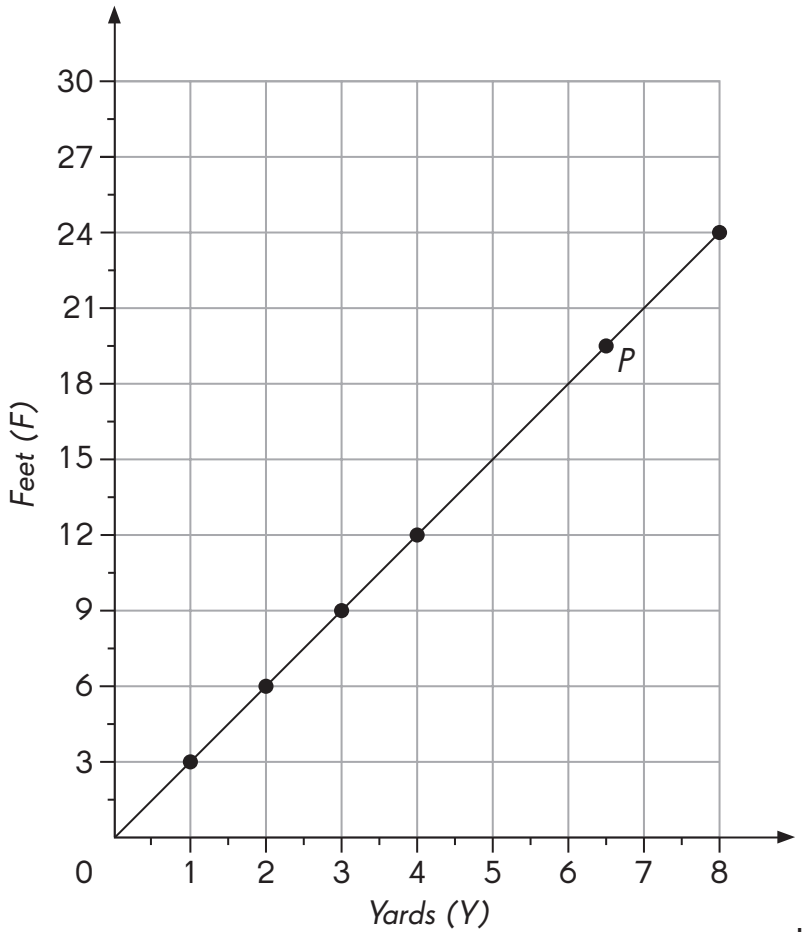
One yard (Y) is 3 times the length of one foot (F). This information can be represented by the graph Y = 3F.

A graph of Y = 3F is drawn.



How many feet are there in:

13. 3 yards = _____

14. $5\frac{1}{2}$ yards = _____

How many yards are there in:

15. 12 feet = _____

16. 21 feet = _____

17. What are the values at the point *P*?

Yards = _____ Feet = _____

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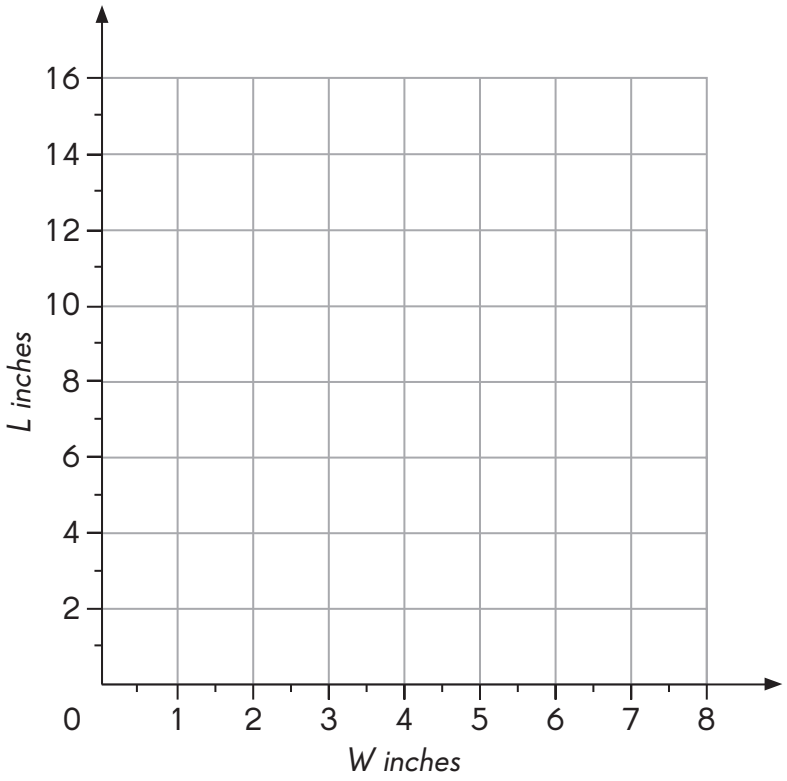
Name: _____ **Date:** _____

The length of a rectangle is twice its width. This information can be represented by the graph L = 2W.

18. Complete the following table.

Width (W) inch	1	2		5		8
Length (L = 2W) inch	2	4	8		12	

Complete the line graph using the data in the table.



Find the length of the rectangle in these exercises:

19. The width of the rectangle is 3 inches. The length is _____ inches.

20. The width of the rectangle is 5.5 inches. The length is _____ inches.

Find the width of the rectangle in these exercises:

21. The length of the rectangle is 6 inches. The width is _____ inches.

22. The length of the rectangle is 14 inches. The width is _____ inches.

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Name: _____ Date: _____

Lesson 11.3 Combinations

Solve. Show your work.

1. Mrs. Johnson bakes some pies in 3 different sizes: small, medium, and large. She uses 4 different kinds of filling: fish, beef, chicken, and mushroom. How many different pies can she bake?

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2. Mr. Samuel has a few options to consider before deciding what type of car to purchase:

2 functions: Manual or automatic.
2 capacities: 1,600 cc or 2,000 cc.
3 colors: Blue, white, or grey.

How many combinations of options does Mr. Samuel need to consider?

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3. Ms. Beckham invites 5 friends to her birthday party. How many handshakes are there if each person at the party shakes hands with every other person at the party?

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4. A restaurant is having a special promotion for a three-course meal. Diners are allowed to choose one dish from each of the three lists below.

Soups	**Main Meals**	**Desserts**
Mixed vegetable (V)	Steak & chips (S)	Mixed fruits (F)
Chicken & Corn (C)	Fish & chips (F)	Apple pie (A)
Mushroom (M)	Lamb chops (L)	Ice cream (I)

How many three-course meal combinations does the restaurant offer? Make a list of all the combinations.

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Lesson 11.4 Theoretical Probability and Experimental Probability

Determine the experimental probability of an outcome.

You need a bag and 4 counters of different colors: red, blue, green, and yellow.

Step 1 Place the counters in the bag. Make a guess about which color counter you will pull out of the bag.

Step 2 Shake the bag and take a counter from the bag without looking.

Step 3 If the counter matches your guess, put a check in the table.

Step 4 If the counter does not match your guess, put an ✗ in the table.

Step 5 Place the counter on the table.

Step 6 Repeat Steps 1 through 5 until you have removed all four counters from the bag.

Step 7 Repeat the experiment 10 times.

Guess			
1st	2nd	3rd	4th

Use the data in the table. Give your answer as a whole number or fraction.

1. What is the experimental probability of being correct on the first guess?

_____

2. What is the experimental probability of being correct on the last guess?

_____

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Name: _____ **Date:** _____

Use the data in the table on page 69. Give your answer as a whole number or fraction.

3. What is the theoretical probability of being correct on the first guess?

_____

4. What is the theoretical probability of being correct on the second guess?

_____

Compare the results of an experiment with the theoretical probability.

You need two number cubes, numbered 1 through 6, for this experiment.

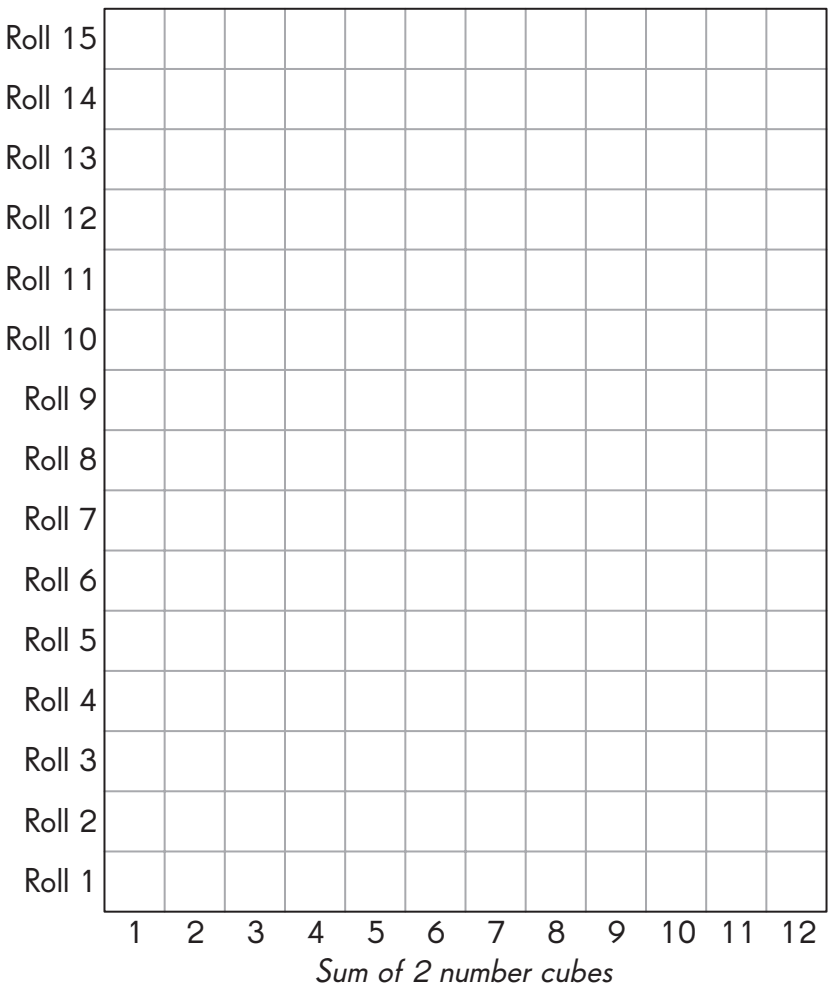
Step 1 Roll both cubes.

Step 2 Add the two numbers.

Step 3 Record the sum in the table by shading the squares in the correct row.

Step 4 Repeat this process 15 times.

Experiment



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Name: _____ **Date:** _____

Fill in the blanks.

5. Which total sum occurred most often? _____

6. What is the experimental probability of rolling the sum that occurred most often? _____

7. Which total score occurred least often? _____

8. What is the experimental probability of rolling the sum that occurred least often? _____

9. What is the experimental probability of rolling a sum of 10? _____

10. Complete the table to show the possible sums when rolling the two number cubes.

1st cube

2nd cube +	**1**	**2**	**3**	**4**	**5**	**6**
1						7
2					7	
3				7		
4			7			
5		7				
6	7					

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Name: _____ **Date:** _____

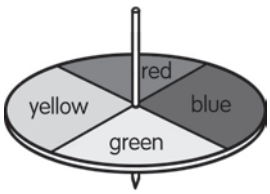
Use the data in the table on page 71. Fill in the blanks.

11. Which sum can occur most often? _____
Is this theoretical probability the same as your experimental probability from Exercise 6? (Yes or No) _____

12. Which sum can occur least often? _____
Is this theoretical probability the same as your experimental probability from Exercise 8? (Yes or No) _____

13. What is the theoretical probability of rolling a sum of 8? _____

A spinner is divided into four equal colored sections: red, yellow, green, and blue. The spinner has a pointer which, when spun, comes to rest in any one of the four sections.



The spinner was spun 80 times and the results were recorded in the table.

Outcome	Red	Yellow	Green	Blue
Number of Times	18	16	24	22

Use the data in the table. Give your answer as a fraction.

14. The experimental probability of landing on red is _____.

15. The experimental probability of landing on yellow is _____.

16. The experimental probability of landing on green is _____.

17. The experimental probability of landing on blue is _____.

18. The theoretical probability of landing on any one of the four colors is _____.

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Name: _____ Date: _____

Put on Your Thinking Cap!

Create a double bar graph.
Follow the steps.
You will need a small ball and a few friends to take part in the experiment.

Step 1 Toss the ball to each friend 8 times. Make sure that your friends use their right hands to catch the ball.

Step 2 Toss the ball to each friend 8 more times. Make sure that your friends use their left hands to catch the ball.

Step 3 Count the number of catches. Record the results in the table below.

Name	Right-hand Catches	Left-hand Catches

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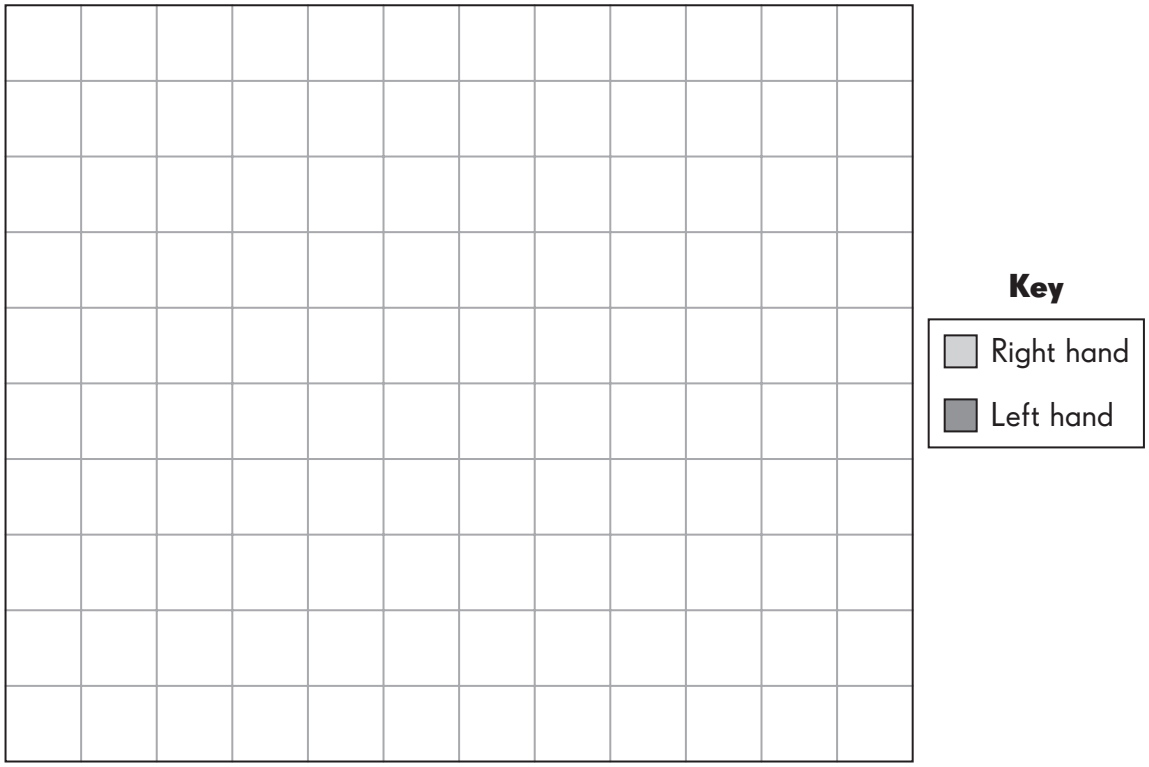
Name: _____ **Date:** _____

Step 4 Draw a double bar graph of the results.



1. Who caught the most balls?

_____

2. Which hand is better suited for catching the ball?
Give a reason for this result.

_____

_____

_____

_____

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