5.4

Comparing and Graphing Ratios

Activity 1

- **You make purple frosting by adding 1 drop of red food coloring for every 3 drops of blue food coloring.**

- **Your teacher makes purple frosting by adding 3 drops of red food coloring for every 5 drops of blue food coloring.**

a. Complete the ratio table for each frosting mixture.

Your Frosting	
Drops of Red	Drops of Blue
1	
2	
3	
4	
5	

Your Teacher's Frosting	
Drops of Red	Drops of Blue
3	
6	
9	
12	
15	

b. Whose frosting is bluer? Whose frosting is redder? Justify your answers.

Activity 2

Work with a partner.

a. Explain how you can use the values from the ratio table for your frosting to create a graph in the coordinate plane.

b. Use the values in the table to plot the points. Then connect the points and describe the graph. What do you notice?


c. What does the line represent?
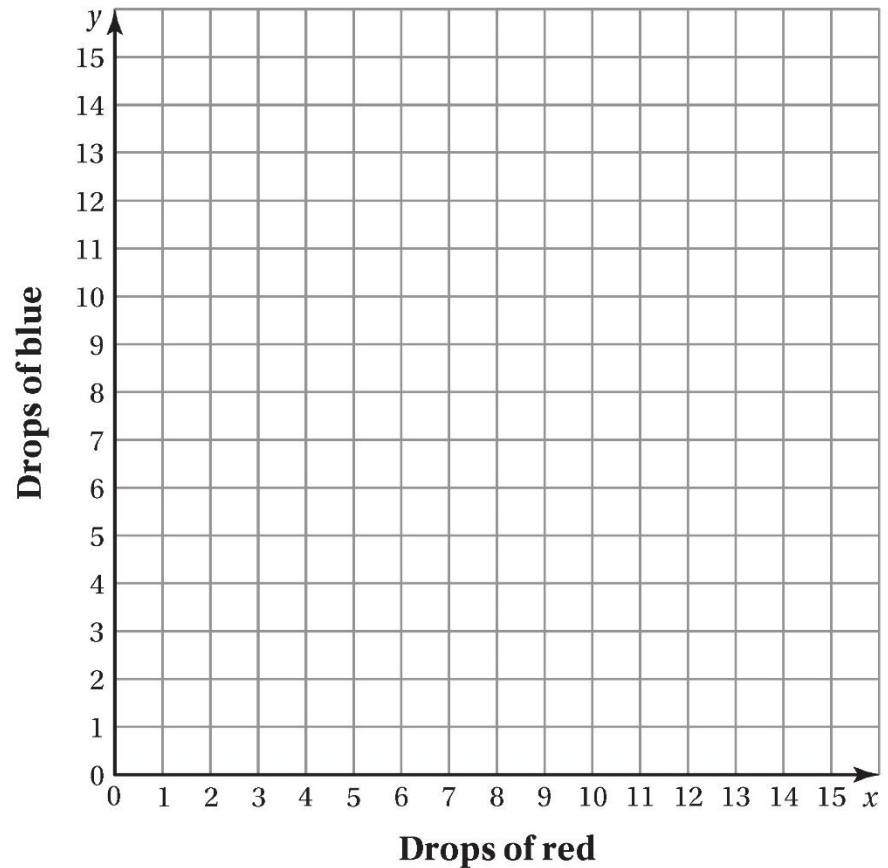
Activity 3

Work with a partner. The graph on the next page shows the values from the ratio table for your teacher's frosting.

a. Complete the table and the graph on the next page.

b. Explain the relationship between the entries in the ratio table and the points on the graph.

Your Teacher's Frosting	
Drops of Red	**Drops of Blue**
3	
6	
9	
12	
15	

Activity 3

c. How is this graph similar to the graph in Activity 2? How is it different?

d. How can you use the graphs to determine whose frosting has more red or blue in it? Explain.
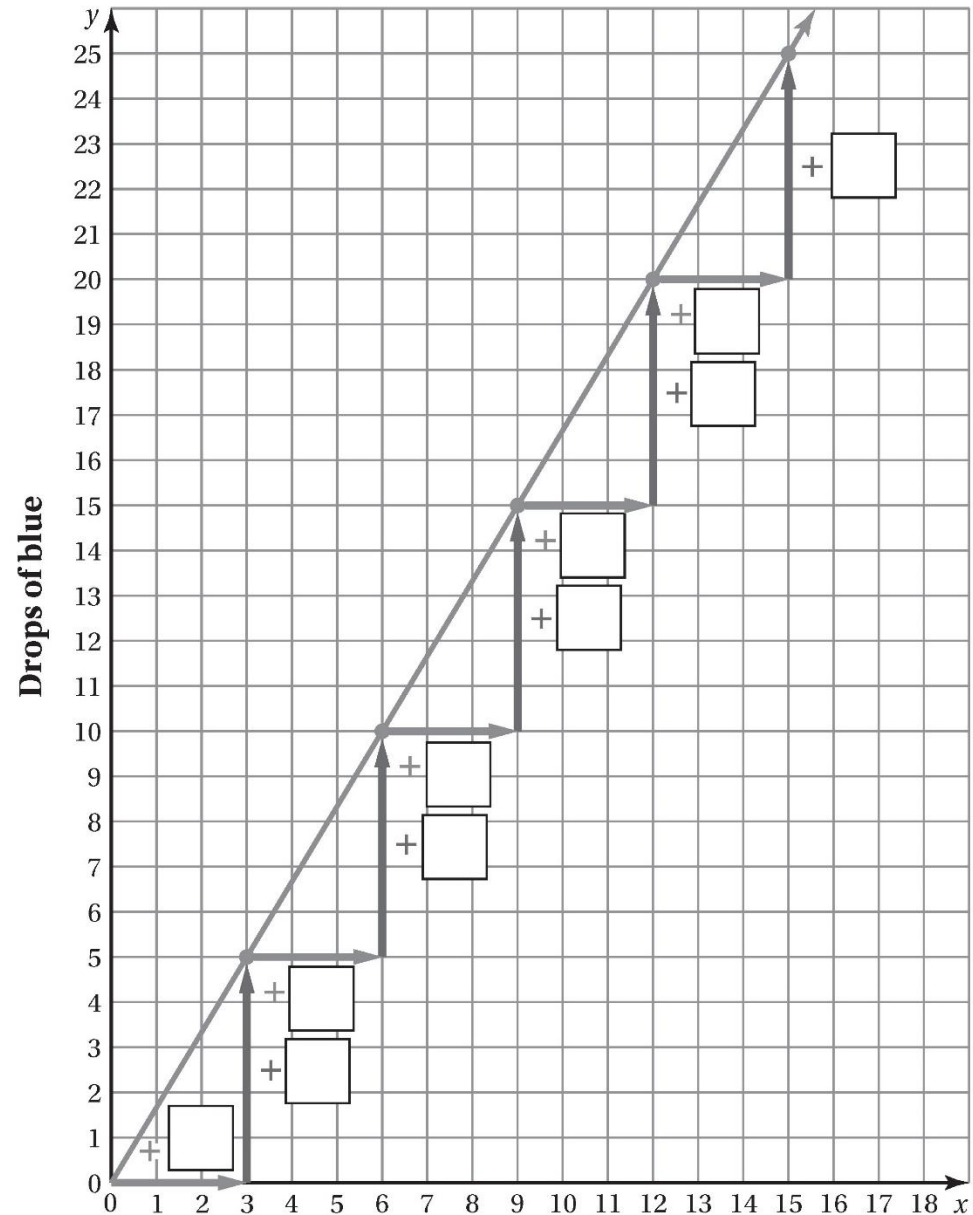
Analyzing

4. **IN YOUR OWN WORDS** How can you compare two ratios?

5. **PRECISION** Your teacher's frosting mixture has 7 drops of red in it. How can you use the graph to find how many drops of blue are needed to make the purple frosting? Is your answer exact? Explain.

Example 1

You mix 8 tablespoons of hot sauce and 3 cups of salsa in a green bowl. You mix 12 tablespoons of hot sauce and 4 cups of salsa in an orange bowl. Which mixture is hotter?

Green Bowl

Hot Sauce (tablespoons)	8	
Salsa (cups)	3	

Orange Bowl

Hot Sauce (tablespoons)	12	
Salsa (cups)	4	

Example 2

20 lb $17.20

30 lb $25.20

Which bag of dog food is the better buy?

20-Pound Bag

Cost (dollars)		
Food (pounds)		

30-Pound Bag

Cost (dollars)		
Food (pounds)		

A hot-air balloon rises 9 meters every 3 seconds. A blimp rises 7 meters every 2 seconds.

a. Complete the ratio table for each aircraft. Which rises faster?

Balloon	
Time (seconds)	Height (meters)

Blimp	
Time (seconds)	Height (meters)

Rises 9 meters every 3 seconds.