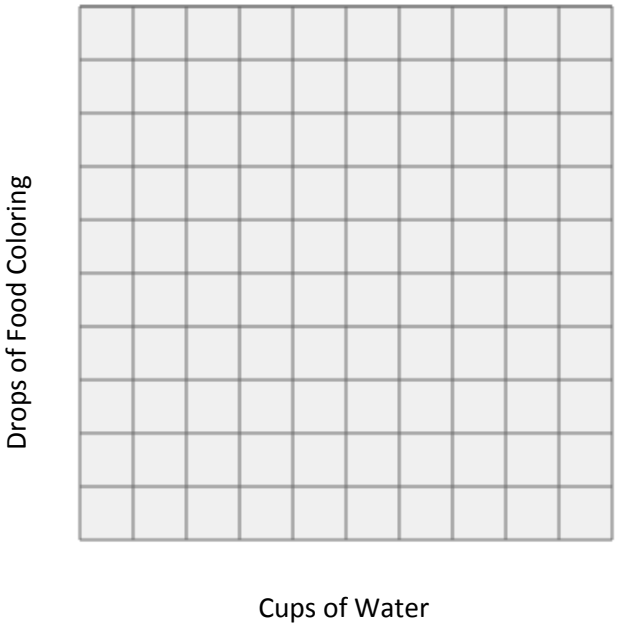
Name _____

Intro to Proportional Reasoning Worksheet

Food Coloring Activity

Cups of Water	Rule	Drops of Food Coloring
2		
1		
1/2		
4		
8		
1/4		



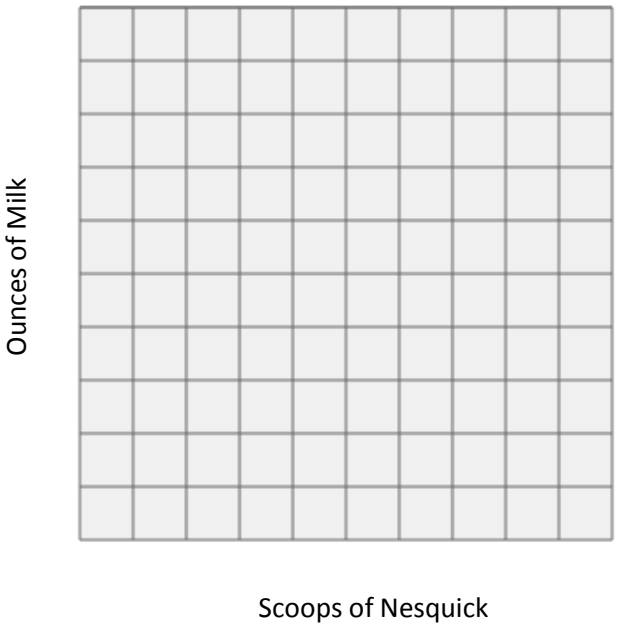
1. Fill in the remaining cells in the “drops of food coloring” column.
2. Plot the points from the table on the coordinate grid. What do you notice about these points? _____
   _____
3. Does this graph pass through the origin (0,0)? Why? _____
   _____
4. How did you decide how many drops for 4 cups of water? _____
   _____
5. How did you decide how many drops for 8 cups of water? _____
   _____
6. How did you decide how many drops for 1/4 cup of water? _____
   _____
7. What “rule” can be applied each time to find the drops of food coloring? Write it over each time in the middle column of the table above. It must be the same rule each time. (Think about multiplication)
8. Complete the following sentences:
   a. We used _____ of food coloring for every 1 cup of water. That means the unit rate is _____drops per cup of water.
9. CHALLENGE PROBLEM---Complete the following sentences:

a. We would need _____ cups of water for 1 drop of food coloring. That means the unit rate is _____ cups of water per drop of food coloring.

b. Show how you figured this problem out:

Chocolate Milk Activity

Scoops of Nesquick	Rule	Ounces of Milk
1		8
0.5		4
0.5		8



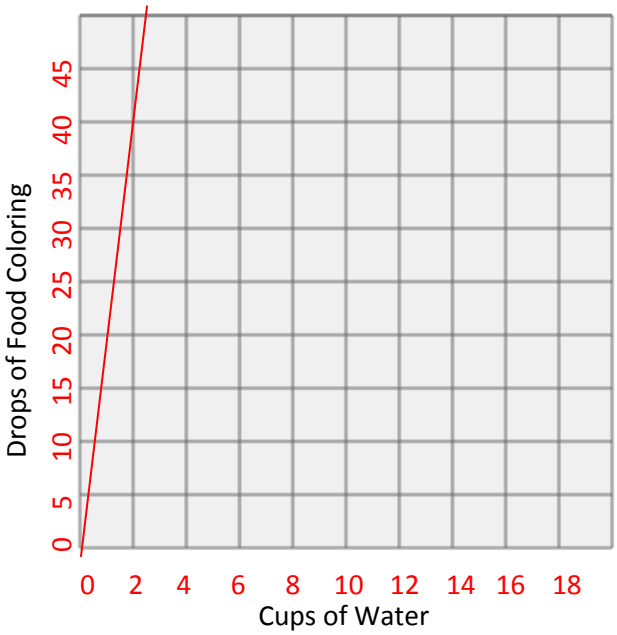
10. Write in the rule for the three given ratios in the table.
11. Cross out the row that has a different rule from the other two.
12. Write 4 more ratios of Nesquick to milk that have the same rule (are in proportion).
13. Plot the points from the table on the coordinate grid. What do you notice about these points? _____ _____
14. Does this graph pass through the origin (0,0)? Why? _____ _____
15. Complete the following sentences:
    a. We added _____ ounces of milk for every 1 scoop of Nesquick. That means the unit rate is _____ ounces per scoop.
16. CHALLENGE PROBLEM---Complete the following sentences:
    a. We would need _____ scoops of Nesquick for 1 ounce of milk. That means the unit rate is _____ scoop per ounce.
    b. Show how you figured this problem out:

Intro to Proportional Reasoning Worksheet

ANSWER KEY

Food Coloring Activity

Cups of Water	Rule	Drops of Food Coloring
2	x 20	40
1	x 20	20
1/2	x 20	10
4	x 20	80
8	x 20	160
1/4	x 20	5



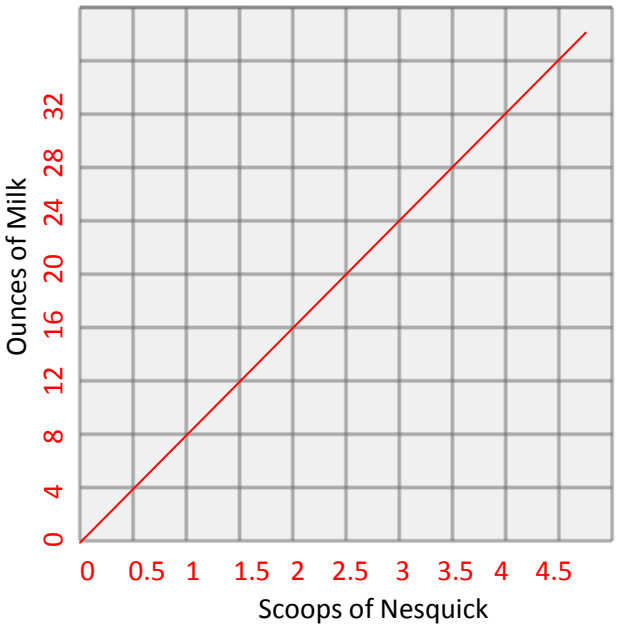
1. Fill in the remaining cells in the "drops of food coloring" column.
2. Plot the points from the table on the coordinate grid. What do you notice about these points? Answers vary. Students should notice that the points form a line.
3. Does this graph pass through the origin (0,0)? Why? Yes, it passes through the origin because when you have 0 cups of water, you will need 0 drops of food coloring.
4. How did you decide how many drops for 4 cups of water? Answers vary. Students may say that they doubled the amount for 2 cups or quadrupled the unit rate.
5. How did you decide how many drops for 8 cups of water? Answers vary. Students may say that they doubled their answer from question 4.
6. How did you decide how many drops for 1/4 cup of water? Answers vary. Students may say that they found half of the drops needed for ½ a cup of water.
7. What "rule" can be applied each time to find the drops of food coloring? Write it over each time in the middle column of the table above. It must be the same rule each time. (Think about multiplication)
8. Complete the following sentences:
    a. We used 20 drops of food coloring for every 1 cup of water. That means the unit rate is 20 drops per cup of water.
9. CHALLENGE PROBLEM---Complete the following sentences:
    a. We would need 1/20 cups of water for 1 drop of food coloring. That means the unit rate is 1/20 cups of water per drop of food coloring.

b. Show how you figured this problem out:

Answers will vary. Students may use equivalent ratios (proportional reasoning) or they may automatically recognize the use of reciprocal information.

Chocolate Milk Activity

Scoops of Nesquick	Rule	Ounces of Milk
1	x 8	8
0.5	x 8	4
~~0.5~~	~~x 16~~	~~8~~
Answers vary	x 8	Answers vary
	x 8	
	x 8	
	x 8	



10. Write in the rule for the three given ratios in the table.
11. Cross out the row that has a different rule from the other two.
12. Write 4 more ratios of Nesquick to milk that have the same rule (are in proportion).
13. Plot the points from the table on the coordinate grid. What do you notice about these points? Answers vary. Students may notice that they form a line.
14. Does this graph pass through the origin (0,0)? Why? Yes, it passes through the origin because when you have 0 scoops of Nesquick, you will need 0 ounces of milk.
15. Complete the following sentences:
    a. We added 8 ounces of milk for every 1 scoop of Nesquick. That means the unit rate is 8 ounces per scoop.
16. CHALLENGE PROBLEM---Complete the following sentences:
    a. We would need 1/8 scoops of Nesquick for 1 ounce of milk. That means the unit rate is 1/8 scoop per ounce.
    b. Show how you figured this problem out:

    Answers will vary. Students may use equivalent ratios (proportional reasoning) or they may automatically recognize the use of reciprocal information.