# TABLES AND TAPE DIAGRAMS

We will use ratios, tables, and tape diagrams to solve problems.

## GETTING STARTED

1. According to the directions on a can of frozen orange juice concentrate, 3 cans of water are to be mixed with 1 can of concentrate to make orange juice.

   Draw a picture to illustrate this mixture.

2. Complete the table.

| | Draw a picture to illustrate this mixture. | Will this mixture be "more orangey" than, "less orangey" than, or "the same" as recommended in the directions? |
|---|---|---|
| Maria adds 4 cans of water to one can of concentrate. | | |
| Gustave adds 2 cans of water to one can of concentrate. | | |

# PAINT MIXTURES

Your teacher will give you cards that indicate different ways to mix red paint (shaded) with white paint (un-shaded) to form shades of pink. Discuss with your partners and record your thinking.

1. Arrange the mixture cards from lightest pink to darkest pink and draw the results here.

| Mixture Card: | Mixture Card: | Mixture Card: | Mixture Card: |
|---|---|---|---|
| | | | |

Critique the reasoning of each student.

2. Jody said, “Mixture B and mixture C will be the same because they both have the same number of parts of red.

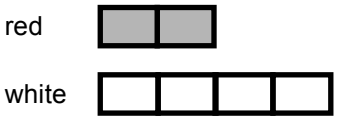
3. Ed said, “Mixture A and mixture D will be the same because mixture A has one more cup of white than red, and mixture D has one more cup of white than red.”

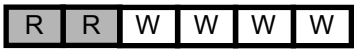
4. Choose a different pair of mixture cards than the ones discussed in 2 and 3 above and explain how you know which mixture represents the darker pink.

# TAPE DIAGRAMS

1. On this page we will work with tape diagrams. Find the definition and examples in section 1.5, discuss them with your teacher and the class, and record in My Word Bank.

Here are two ways to draw a tape diagram to represent the mixture card B.




Draw tape diagrams to represent each paint mixture.

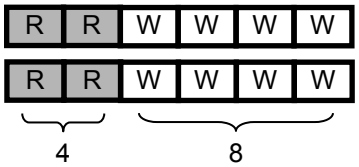
2. Mixture A:

3. Mixture C:

4. Mixture D:

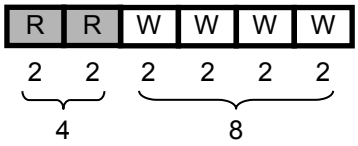
Alex and Lily were asked how many gallons of red paint and white paint were needed to make 12 gallons of paint that is the same shade as the mixture on card B.

5a. Explain Alex's method:




5b. Use Alex's method to find the amount of each ingredient needed to make 9 quarts of mixture C.

6a. Explain Lily's method:




6b. Use Lily's method to find the amount of each ingredient needed to make 72 ounces of mixture D.

# PRACTICE 1

Use tape diagrams to solve these problems.

Zachary likes to make fruit soda when he has friends over to his house. He uses 4 parts juice for every 3 parts sparkling water.

1. Make a tape diagram to illustrate this mixture.

2. How much juice and how much sparkling water will he need if he wants to make 14 cups of fruit soda?

3. How much sparkling water should he use if he has 12 cups of juice?

4. How much juice should he use if he wants to make 70 cups of fruit soda?

Jane likes to make fruit soda too. Her recipe uses 2 parts juice and 1 part sparkling water.

5. Who makes a fruitier soda, Zachary or Jane? Explain how you know.

# RATIOS AND TABLES

1. On this page we will work with ratios. Find the definition and examples in section 1.5, discuss them with your teacher and the class, and record in My Word Bank.

2. Use mixture cards A, B, C, and D. Write the ratios for each of the mixtures.

| | **Mixture A** | **Mixture B** | **Mixture C** | **Mixture D** |
|---|---|---|---|---|
| **Red to White** | | | | |
| **White to Red** | | | | |
| **Red to Total** | | | | |

3. Complete each table below based on mixtures cards B and D.

| **Mixture B** | | | | | |
|---|---|---|---|---|---|
| **cups red** | 2 | 1 | 10 | | |
| **cups white** | | | | 1 | 7 |

| **Mixture D** | | | | | |
|---|---|---|---|---|---|
| **cups red** | 4 | 2 | | 8 | |
| **cups white** | | | 20 | 10 | 1 |

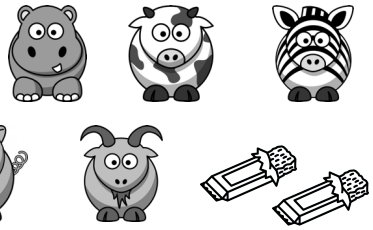
4. Use the entries in the table above to explain which is a darker pink: mixture B or mixture D?

5. Circle all the representations of paint mixtures that make sense to you.

pictures of mixtures tape diagrams ratios tables

# PRACTICE 2

Blakely is making "goodie bags" to give out at her younger brother Graham's birthday party. She wants to put 5 stickers and 2 granola bars in each one.



1. Describe ratios in different ways by completing each statement.

   For every 5 stickers, there will be _____ granola bars.

   The ratio of stickers to granola bars is _____:_____.

   The ratio of granola bars to total items in the bags is _____ to _____.

2. Complete the table below based on the given ratio of stickers to granola bars in the goodie bags. Leave the last column blank for problem 3 below.

| # of stickers | 5 | | 20 | | 50 | |
|---|---|---|---|---|---|---|
| # of granola bars | 2 | | | | | |
| # of goodie bags | | 2 | | 8 | | |

3. Blakely uses 60 stickers to fill bags.

   Enter this quantity in your table in the last column.

   Explain how the table can be used to help you determine how many granola bars she will need.

   How many bags does she plan to fill? _____ How many granola bars will she need? _____

4. Suppose there were 20 people coming to Graham's party. How many stickers and granola bars would be needed? Show or explain how you know.

# PRACTICE 3

1. A purple paint is made with 2 parts blue and 6 parts red.

   a. Make a tape diagram to illustrate this relationship.

   b. Express three or more different ratios that could be represented based on the tape diagram above. Try to use symbols for some and words for others.

2. Antonia makes tie-dyed shirts. Her most frequently used colors are orange and green.

   a. For the orange dye, she uses red and yellow in a ratio of 3 : 2. How many scoops of red and yellow dye will she need if she wants to make 80 scoops of orange dye? Use a tape diagram.

   b. For the green dye, she uses blue and yellow in a ratio of 5 : 2. How many scoops of yellow dye will she need if she is using 40 scoops of blue dye? Use a table.