Lesson 1: An Experience in Relationships as Measuring Rate

Classwork

Example 1: How fast is our class?

Record the results from the paper-passing exercise in the table below.

Trial	Number of Papers Passed	Time (in seconds)	Ratio of Number of Papers Passed to Time	Rate	Unit Rate
1	24	12	24:12 or 24 to 12 $\frac{24}{12}$	2 papers per second	2
2	24	11	24:11 or 24 to 11 $\frac{24}{11}$	2.18 papers per sec.	2.18
3	24	10	24:10 or 24 to 10 $\frac{24}{10}$	2.4 papers per sec.	2.4
4	24	8	24:8 $\frac{24}{8}$	3 papers per sec	3

Key Terms from Grade 6 Ratios and Unit Rates

A **ratio** is an ordered pair of non-negative numbers, which are not both zero. The ratio is denoted $A:B$ to indicate the order of the numbers: the number A is first and the number B is second.

Two ratios $A:B$ and $C:D$ are **equivalent ratios** if there is a positive number, c, such that $C = cA$ and $D = cB$.

A ratio of two quantities, such as 5 miles per 2 hours, can be written as another quantity called a **rate**.

The numerical part of the rate is called the **unit rate** and is simply the value of the ratio, in this case 2.5. This means that in 1 hour the car travels 2.5 miles. The **unit** for the rate is miles/hour, read miles per hour.

Example 2: Our Class by Gender

	Number of boys	Number of girls	Ratio of boys to girls
Class 1			
Class 2			
Whole 7th Grade			

Create a pair of equivalent ratios by making a comparison of quantities discussed in this Example.

Exercise 1: Which is the Better Buy?

~~Value-Mart is advertising~~ a Back-to-School sale on pencils. A pack of 30 sells for $7.97, whereas a 12-pack of the same brand cost for $4.77. Which is the better buy? How do you know?

	30 pack of pencils	12-pack
Relationship	$7.97 for 30 pencils	$4.77 for 12
ratio	7.97 : 30 $\frac{7.97}{30}$	4.77 : 12 $\frac{4.77}{12}$
rate	$0.27 per pencil	$0.40 per pencil
unit rate	0.27	0.40