Big Ideas Math: Green

Parent Newsletter

BIG IDEAS LEARNING®

Standards

Common Core:

6.RP.1: Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.

6.RP.2: Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship.

6.RP.3: Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

Students will...

Understand the concept of a ratio.

Use ratios to describe the relationship between two quantities.

Use ratio tables to find equivalent ratios.

Understand the concepts of rates and unit rates.

Write unit rates.

Compare ratios.

Compare unit rates.

Graph ordered pairs to compare ratios and rates.

Write percents as fractions with denominators of 100.

Write fractions as percents.

Find percents of numbers.

Find the whole given the part and the percent.

Use conversion factors (rates) to convert units of measurement.

Solve real-life problems.

Key Ideas

Ratio

- Ratios can be part-to-part, part-to-whole, or whole-to-part comparisons.
- The ratio of a to b can be written as $a : b$.

Rate and Unit Rate

- Rate: a units : b units
- Unit rate: $\frac{a}{b}$ units : 1 unit

Writing Percents as Fractions

- A percent can be written as a fraction with a denominator of 100.
- $n\% = \frac{n}{100}$

Writing Fractions as Percents

- Write an equivalent fraction with a denominator of 100. Then write the numerator with the percent symbol.

Finding the Percent of a Number

- Write the percent as a fraction. Then multiply by the whole.
- The percent times the whole equals the part.

Finding the Whole

- Write the percent as a fraction. Then divide the part by the fraction.
- The part divided by the percent equals the whole.

Key Terms

A *ratio* is a comparison of two quantities.

Two ratios that describe the same relationship are *equivalent ratios*.

A table used to find and organize equivalent ratios is called a *ratio table*.

A *rate* is a ratio of two quantities using different units.

A *unit rate* compares a quantity to one unit of another quantity.

Equivalent rates have the same unit rate.

A *percent* is a part-to-whole ratio where the whole is 100.

The *U.S. customary system* is a system of measurement that contains units for length, capacity, and weight.

The *metric system* is a decimal system of measurement, based on powers of 10, that contains units for length, capacity, and mass.

A *conversion factor* is a rate that equals 1.

Unit analysis is a process used to decide which conversion factor will produce the appropriate units.

Good to know.

Reference Tools

Ratio: a comparison of two quantities. Ratios can be part-to-part, part-to-whole, or whole-to-part comparisons.

Example
4 to 5

Example
2 : 5

Example
teachers : students

A **Definition and Example Chart** can be used to organize information about a concept. Fill in the top rectangle with a term and its definition or description. Fill in the rectangles that follow with examples to illustrate the term. Each sample answer shows 3 examples, but your student can show more or fewer examples. Definition and example charts are useful for concepts that can be illustrated with more than one type of example.

Games

- I Have…, Who Has…?
- Match Them Up
- Order Matters
- How Close Can You Get?
- It's National Metric Week

These are available online in the *Game Closet* at www.bigideasmath.com.

Essential Questions

How can you represent a relationship between two quantities?

How can you find two ratios that describe the same relationship?

How can you use rates to describe changes in real-life problems?

How can you compare two ratios?

What is the connection between ratios, fractions, and percents?

How can you use mental math to find the percent of a number?

How can you compare lengths between the customary and metric systems?

Quick Review

- When writing rates it is very important to write the related units. The units tell the context for the rate.

- Ratios should be written as a to b or $a : b$.

- When a ratio is a part-to-whole comparison, it is equivalent to the fractional representation.

- $60\% = 60$ out of $100 = \dfrac{60}{100}$

  part
  per
  one hundred (whole)
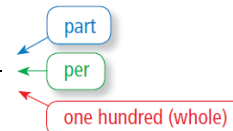
- Equivalent fractions are fractions that represent the same amount. For example, $\frac{2}{5}$ and $\frac{4}{10}$ are equivalent fractions.

- <u>U.S. Customary to Metric Conversions</u>
  1 inch = 2.54 centimeters   1 foot ≈ 0.3 meter
  1 mile ≈ 1.61 kilometers   1 quart ≈ 0.95 liter
  1 gallon ≈ 3.79 liters   1 cup ≈ 237 milliliters
  1 pound ≈ 0.45 kilogram   1 ounce ≈ 28.3 grams
  1 gallon ≈ 3785 cubic centimeters
  *More conversions are available on page B1 of the textbook.

What's the Point?

The ability to use ratios and rates is very useful in real life for events like cooking with recipes. Have your student figure out how to make a dinner for 6 people based on a recipe that serves 4 people. How much of each ingredient will he or she need?

The STEM Videos available online show ways to use mathematics in real-life situations.
The Chapter 5: Human Circulatory System STEM Video is available online at www.bigideasmath.com.