

**Correlation of YouthTouch Activities
to
Common Core Math Standards
Grade 6**

DOMAIN: RATIOS and PROPORTIONAL RELATIONSHIPS

CLUSTER: Understand ratio concepts and use ratio reasoning to solve problems.

STANDARDS:

1. Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
YouthTouch Activity: Ratios: Activity 1

2. Understand the concept of a unit rate a/b associated with $a:b$ with b not equal to 0, and use rate language in the context of a ratio relationship
YouthTouch Activity: Ratios: Activity 1
YouthTouch Activity: Ratios: Extra for Experts

3. Use ratio and rate reasoning to solve real-world and mathematical problems.
 - a. Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot pairs of values on the coordinate plane. Use tables to compare ratios.
YouthTouch Activity: Ratios: Activity 1
YouthTouch Activity: Pattern Recognition: Activity 5
YouthTouch Activity: Graphing Results: Activity 2
YouthTouch Activity: Relative Ratios: Activity 1, Part 3
 - b. Solve unit rate problems including those involving unit pricing and constant speed.
YouthTouch Activity: Relative Ratios: Extra for Experts (note constant speed problem only)
YouthTouch Activity: Relative Ratios: Activity 1, Parts 1, 2 and 3.
YouthTouch Activity: Gears: Activity 2
 - c. Find a percent of a quantity as a rate per 100; solve problems involving finding the whole, given a part and the percent.
YouthTouch Activity: Ratios: Activity 1
 - d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
YouthTouch Activity: Ratios: Extra For Experts
YouthTouch Activity: Friction: Activity 3

DOMAIN: The Number System

CLUSTER: Apply and extend previous understanding of multiplication and division to divide fractions by fractions.

STANDARDS:

1. Interpret and compute quotients of fractions and solve word problems involving division of fractions by fractions.

YouthTouch Activity: Gears: Activity 3

CLUSTER: Compute fluently with multi-digit numbers and find common factors and multiples.

STANDARDS:

2. Fluently divide multi-digit number using the standard algorithm.
3. Fluently add, subtract, multiply and divide multi-digit decimals using the standard algorithm for each operation.
4. Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor. *For example express $36+8$ as $4(9+2)$*

CLUSTER: Apply and extend previous understandings of numbers to the system of rational numbers.

STANDARDS:

5. Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.

YouthTouch Activity: Point of Origin: Activity 3

YouthTouch Activity: Adding and Subtracting Integers on a Numberline: Activity 4

6. Understand a rational number as a point on the number line. Extend number line number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.
 - a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., $-(-3) = 3$, and that 0 is its own opposite.

YouthTouch Activity : Estimating Angles: Activity 3

- b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.
 - c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.
7. Understand ordering and absolute value of rational numbers.

- a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. *For example, interpret $-3 > -7$ as a statement that -3 is located to the right of -7 on a number line oriented from left to right.*

YouthTouch Activity: Adding and Subtracting Integers on a Numberline: Activity 5

- b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. *For example, write $-3C > -7C$ to express the fact that -3 C is warmer than $-7C$.*
- c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as distance for a positive or negative quantity in a real-world situation. *For example, for an account balance of -30 dollars, write $|-30| = 30$ to describe the size of the debt in dollars.*

YouthTouch Activity: Absolute Value: Activities 2 and 3

YouthTouch Activity: Analyzing Data: Activity 3

- d. Distinguish comparisons of absolute value from statements about order. *For example, recognize that an account balance less than -30 dollars represents a debt greater than 30 dollars.*
8. Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

DOMAIN: EXPRESSIONS and EQUATIONS

CLUSTER: Apply and extend previous understandings of arithmetic to algebraic expressions

STANDARDS:

1. Write and evaluate numerical expressions involving whole-number exponents.
YouthTouch Activity: Electromagnetic Spectrum: Activity 3
2. Write, read, and evaluate expressions in which letters stand for numbers.
 - a. Write expressions that record operations with numbers with letters standing for numbers. *For example, express the calculation "Subtract y from 5" as $5 - y$.*

YouthTouch Activity: Solving Equations: Activity: 1, 2 and 3

YouthTouch Activity: Solving for an Unknown: Activity 3

YouthTouch Activity: Adding Algebraically: Activity 4 and 5

- b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. *For example, describe the expression $2(8 + 7)$ as a product of two factors; view $(8 + 7)$ as both a single entity and a sum of two terms.*

YouthTouch Activity: Friction: Activity 3

- c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents,

in the conventional order when there are no parentheses to specify a particular order (Order of Operations). *For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = 1/2$.*

3. Apply the properties of operations to generate equivalent expressions. *For example, apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$.*
4. Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). *For example, the expressions $y + y + y$ and $3y$ are equivalent because they name the same number regardless of which number y stands for.*

CLUSTER: Reason about and solve one–variable equations and inequalities.

STANDARDS:

5. Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
6. Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
YouthTouch Activity: Work: Activity 3
YouthTouch Activity: Pressure: Activity 3
7. Solve real world and mathematical problems by writing and solving equations of the form $x + p = q$ for cases in which p , q , and x are all nonnegative rational numbers.
YouthTouch Activity: Adding and Subtracting Integers on a Numberline: Activity 2
8. Write an inequality of the form $x > c$ or $x < c$ to represent a constant or condition in a real world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.

CLUSTER: Represent and analyze quantitative relationships between dependent and independent variables.

STANDARDS:

9. Use variables to represent two quantities in a real world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate the equation.
YouthTouch Activity: Graphing Results: Activity 2

DOMAIN: GEOMETRY

CLUSTER: Solve real-world and mathematical problems involving area, surface area, and volume.

STANDARDS:

1. Find the area of right triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangle or shapes; apply these techniques in the context of solving real world and mathematical problems.
YouthTouch Activity: Area of a Circle: Activity 4
2. Find the volume of right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formula $V=l \cdot w \cdot h$ and $V=b \cdot h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
3. Draw polygons in the coordinate plane using nets made of rectangles and triangles, and use the nets to find the surface are of these figures. Apply these techniques in the context of solving real-world and mathematical problems.
4. Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

DOMAIN: STATISTICS and PROBABILITY

CLUSTER: Develop understanding of statistical variability.

STANDARDS:

1. Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.
YouthTouch Activity: Creating Data Tables: Activities 1, 2, 3
YouthTouch Activity: Analyzing Data: Activities 1, 2, 3
2. Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread and overall shape.
3. Recognize that a measure of center for a numerical data set summarizes all of its values with a simple number, while a measure of variation describes how its values vary with a single number.

CLUSTER: Summarize and describe distributions.

STANDARDS:

4. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
YouthTouch Activity: Analyzing Data: Activity 4
YouthTouch Activity: Graphing Results: Activity 1
5. Summarize numerical data sets in relation to their context, such as by:
 - a. Reporting the number of observations
 - b. Describing the nature of the attribute under investigation, including how it was measured with its units of measurement.

- c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and /or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.
- d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which data were gathered.

YouthTouch Activity: Analyzing Data: Activity 5