Spring[illegible]d Elementary—Essential Standards

2010-[illegible]11

Semester:__1 and 2_ Grade Level/Department:__6th__ Subject:__Math_____ Team Members:___Eckstein_____

Standard #	Description	Example or Rigor	Prior Skills Needed	Assessment	When Taught?
6.1.1.1	Locate positive rational numbers on a number line and plot pairs of positive rational numbers on a coordinate grid.	*For example*: $\frac{1}{2} > 0.36$.	Have an understanding of positive and negative numbers and number lines.	Math Book Study Island IXL Houghton Mifflin	1st quarter
6.1.1.2	Compare positive rational numbers represented in various forms. Use the symbols <, = and >.	*For example*: $\frac{1}{2} > 0.36$.	Have an understanding of greater or less than symbols	Math Book Study Island IXL Houghton Mifflin	1st quarter
6.1.1.3	Understand that percent represents parts out of 100 and ratios to 100.	*For example*: 75% corresponds to the ratio 75 to 100, which is equivalent to the ratio 3 to 4.	Have an understanding of how to convert percents	Math Book Study Island IXL Houghton Mifflin	1st quarter
6.1.1.4	Determine equivalences among fractions, decimals and percents; select among these representations to solve problems.	*For example*: If a woman making $25 an hour gets a 10% raise, she will make an additional $2.50 an hour, because $2.50 is $\frac{1}{10}$ or 10% of $25.	Have an understanding of the term equivalent.	Math Book Study Island IXL Houghton Mifflin	1st quarter
6.1.1.5	Factor whole numbers; express a whole number as a product of prime factors with exponents.	*For example*: $24 = 2^3 \times 3$.	Have an understanding of how to factor numbers.	Math Book Study Island IXL Houghton Mifflin	1st quarter
6.1.1.6	Determine greatest common factors and least common multiples. Use common factors and common multiples to calculate with fractions and find equivalent fractions.	*For example*: Factor the numerator and denominator of a fraction to determine an equivalent fraction.	Have an understanding of how to factor numbers.	Math Book Study Island IXL Houghton Mifflin	1st quarter

6.1.1.7	Convert between equivalent representations of positive rational numbers.	*For example*: Express $\frac{10}{7}$ as $\frac{7+3}{7}=\frac{7}{7}+\frac{3}{7}=1\frac{3}{7}$.	Understand how to compare fractions and rational numbers	Math Book Study Island IXL Houghton Mifflin	1st quarter
6.1.2.1	Identify and use ratios to compare quantities; understand that comparing quantities using ratios is not the same as comparing quantities using subtraction.	*For example*: In a classroom with 15 boys and 10 girls, compare the numbers by subtracting (there are 5 more boys than girls) or by dividing (there are 1.5 times as many boys as girls). The comparison using division may be expressed as a ratio of boys to girls (3 to 2 or 3:2 or 1.5 to 1).	Have an understanding of fractions and proportions	Math Book Study Island IXL Houghton Mifflin	1st quarter
6.1.2.2	Apply the relationship between ratios, equivalent fractions and percents to solve problems in various contexts, including those involving mixtures and concentrations.	*For example*: If 5 cups of trail mix contains 2 cups of raisins, the ratio of raisins to trail mix is 2 to 5. This ratio corresponds to the fact that the raisins are $\frac{2}{5}$ of the total, or 40% of the total. And if one trail mix consists of 2 parts peanuts to 3 parts raisins, and another consists of 4 parts peanuts to 8 parts raisins, then the first mixture has a higher concentration of peanuts.	Have an understanding of ratio and the different formats that they can be written in.	Math Book Study Island IXL Houghton Mifflin	1st quarter
6.1.2.3	Determine the rate for ratios of quantities with different units.	*For example*: 60 miles for every 3 hours is equivalent to 20 miles for every one hour (20 mph).	Have an understanding of the term UNIT RATE.	Math Book Study Island IXL Houghton Mifflin	1st quarter
6.1.2.4	Use reasoning about multiplication and division to solve ratio and rate problems.	*For example*: If 5 items cost $3.75, and all items are the same price, then 1 item costs 75 cents, so 12 items cost $9.00.	Have an understanding of how to multiply and divide fractions and whole numbers.	Math Book Study Island IXL Houghton Mifflin	1st quarter
6.1.3.1	Multiply and divide decimals and fractions, using efficient and generalizable procedures, including standard algorithms.	*For example*: Just as $\frac{12}{4}=3$ means $12=3\times 4$, $\frac{2}{3}\div\frac{4}{5}=\frac{5}{6}$ means $\frac{5}{6}\times\frac{4}{5}=\frac{2}{3}$.	Have an understanding of how to multiply and divide single digit numbers.	Math Book Study Island IXL Houghton Mifflin	1st quarter

6.1.3.3	Calculate the percent of a number and determine what percent one number is of another number to solve problems in various contexts.	*For example*: Just as $\frac{12}{4}=3$ means $12=3\times 4$, $\frac{2}{3}\div\frac{4}{5}=\frac{5}{6}$ means $\frac{5}{6}\times\frac{4}{5}=\frac{2}{3}$.	Have an understanding of how to convert decimals and percents.	Math Book Study Island IXL Houghton Mifflin	2nd quarter
6.1.3.4	Solve real-world and mathematical problems requiring arithmetic with decimals, fractions and mixed numbers	*For example*: If 5 items cost $3.75, and all items are the same price, then 1 item costs 75 cents, so 12 items cost $9.00.	Have an understanding of how to solve real world problems in a variety of contexts.	Math Book Study Island IXL Houghton Mifflin	2nd quarter
6.1.3.5	Estimate solutions to problems with whole numbers, fractions and decimals and use the estimates to assess the reasonableness of results in the context of the problem.	*For example*: The sum $\frac{1}{3}+0.25$ can be estimated to be between $\frac{1}{2}$ and 1, and this estimate can be used to check the result of a more detailed calculation.	Have an understanding of rounding and estimation.	Math Book Study Island IXL Houghton Mifflin	2nd quarter
6.2.1.1	Understand that a variable can be used to represent a quantity that can change, often in relationship to another changing quantity. Use variables in various contexts.	*For example*: If a student earns $7 an hour in a job, the amount of money earned can be represented by a variable and is related to the number of hours worked, which also can be represented by a variable.	Have an understanding of one and two step equations.	Math Book Study Island IXL Houghton Mifflin	2nd quarter
6.2.1.2	Represent the relationship between two varying quantities with function rules, graphs and tables; translate between any two of these representations.	*For example*: Describe the terms in the sequence of perfect squares $t = 1, 4, 9, 16, \ldots$ by using the rule $t = n^2$ for $n = 1, 2, 3, 4, \ldots$.	Have an understanding of tables and graphs using a variety of functions.	Math Book Study Island IXL Houghton Mifflin	2nd quarter

6.2.2.1	Apply the associative, commutative and distributive properties and order of operations to generate equivalent expressions and to solve problems involving positive rational numbers.	*For example*: $\frac{32}{15}\times\frac{5}{6}=\frac{32\times5}{15\times6}=\frac{2\times16\times5}{3\times5\times3\times2}=\frac{16}{9}\times\frac{2}{2}\times\frac{5}{5}=\frac{16}{9}$. *Another example*: Use the distributive law to write: $\frac{1}{2}+\frac{1}{3}\left(\frac{9}{2}-\frac{15}{8}\right)=\frac{1}{2}+\frac{1}{3}\times\frac{9}{2}-\frac{1}{3}\times\frac{15}{8}=\frac{1}{2}+\frac{3}{2}-\frac{5}{8}=2-\frac{5}{8}=1\frac{3}{8}$.	Have an understanding of the property of zero and one.	Math Book Study Island IXL Houghton Mifflin	2nd quarter
6.2.3.1	Represent real-world or mathematical situations using equations and inequalities involving variables and positive rational numbers.	*For example*: The number of miles *m* in a *k* kilometer race is represented by the equation *m* = 0.62 *k*.	Have an understanding of how to solve real world problems in a variety of contexts.	Math Book Study Island IXL Houghton Mifflin	2nd quarter
6.2.3.2	Solve equations involving positive rational numbers using number sense, properties of arithmetic and the idea of maintaining equality on both sides of the equation. Interpret a solution in the original context and assess the reasonableness of results.	*For example*: A cellular phone company charges $0.12 per minute. If the bill was $11.40 in April, how many minutes were used?	Have an understanding of how to multiply and divide decimals.	Math Book Study Island IXL Houghton Mifflin	2nd quarter
6.3.2.1	Solve problems using the relationships between the angles formed by intersecting lines.	*For example*: If two streets cross, forming four corners such that one of the corners forms an angle of 120°, determine the measures of the remaining three angles. *Another example*: Recognize that pairs of interior and exterior angles in polygons have measures that sum to 180°.	Have an understanding of Supplementary and Complementary Angles. Also understand vertical and adjacent angles and use them in right world situations.	Math Book Study Island IXL Houghton Mifflin	3rd quarter Jan.
6.3.2.2	Determine missing angle measures in a triangle using the fact that the sum of the interior angles of a triangle is 180°. Use models of triangles to illustrate this fact.	*For example*: Cut a triangle out of paper, tear off the corners and rearrange these corners to form a straight line. *Another example*: Recognize that the measures of the two acute angles in a right triangle sum to 90°.	Finding acute, obtuse, and right angles will lead into finding the sum of the interior of triangles	Math Book Study Island IXL Houghton Mifflin	3rd quarter Jan.

6.3.2.3	Develop and use formulas for the sums of the interior angles of polygons by decomposing them into triangles.	*For example: Take an octagon and start with one vertices and from that vertices create triangles by connecting the starting vertices with the rest of the vertices or use (n-2) x 180.*	Have an understanding of polygons and how many sides each one has.	Math Book Study Island IXL Houghton Mifflin	3rd quarter Jan.
6.3.1.2	Calculate the area of quadrilaterals. Quadrilaterals include squares, rectangles, rhombuses, parallelograms, trapezoids and kites. When formulas are used, be able to explain why they are valid.	*For example*: The area of a kite is one-half the product of the lengths of the diagonals, and this can be justified by decomposing the kite into two triangles.	Have an understanding of how to find the area of square, rectangles and triangles.	Math Book Study Island IXL Houghton Mifflin	3rd quarter Jan.
6.3.1.3	Estimate the perimeter and area of irregular figures on a grid when they cannot be decomposed into common figures and use correct units, such as cm and cm^2.	*For example: use a grid to figure out the area and perimeter of irregular figures.*	Understanding how to find the area and perimeter of regular figures	Math Book Study Island IXL Houghton Mifflin	3rd quarter Jan.
6.3.1.1	Calculate the surface area and volume of prisms and use appropriate units, such as cm^2 and cm^3. Justify the formulas used. Justification may involve decomposition, nets or other models.	*For example*: The surface area of a triangular prism can be found by decomposing the surface into two triangles and three rectangles.	Finding the area of prisms in previous grades	Math Book Study Island IXL Houghton Mifflin	3rd quarter Feb.
6.4.1.1	Determine the sample space (set of possible outcomes) for a given experiment and determine which members of the sample space are related to certain events. Sample space may be determined by the use of tree diagrams, tables or pictorial representations.	*For example*: A 6×6 table with entries such as (1,1), (1,2), (1,3), ..., (6,6) can be used to represent the sample space for the experiment of simultaneously rolling two number cubes.	Have an understanding how to use probability and what probability is.	Math Book Study Island IXL Houghton Mifflin	4th quarter Mar.

6.4.1.2	Determine the probability of an event using the ratio between the size of the event and the size of the sample space; represent probabilities as percents, fractions and decimals between 0 and 1 inclusive. Understand that probabilities measure likelihood.	*For example*: Each outcome for a balanced number cube has probability $\frac{1}{6}$, and the probability of rolling an even number is $\frac{1}{2}$.	Have an understanding of ratios and how to find equivalent ratios. Also understand how to simplify ratios	Math Book Study Island IXL Houghton Mifflin	4th quarter Mar.
6.4.1.3	Perform experiments for situations in which the probabilities are known, compare the resulting relative frequencies with the known probabilities; know that there may be differences.	*For example*: Heads and tails are equally likely when flipping a fair coin, but if several different students flipped fair coins 10 times, it is likely that they will find a variety of relative frequencies of heads and tails.	Have an understanding how to use probability and what probability is.	Math Book Study Island IXL Houghton Mifflin	4th quarter Mar.
6.4.1.4	Calculate experimental probabilities from experiments; represent them as percents, fractions and decimals between 0 and 1 inclusive. Use experimental probabilities to make predictions when actual probabilities are unknown.	*For example*: Repeatedly draw colored chips with replacement from a bag with an unknown mixture of chips, record relative frequencies, and use the results to make predictions about the contents of the bag.	Have an understanding how to use probability and what probability	Math Book Study Island IXL Houghton Mifflin	4th quarter Mar.
6.3.3.2	Estimate weights, capacities and geometric measurements using benchmarks in measurement systems with appropriate units.	*For example*: Estimate the height of a house by comparing to a 6-foot man standing nearby.	Understand how to use U.S. and Metric Ruler. Also, have an understanding of how to convert U.S. and Metric Units.	Math Book Study Island IXL Houghton Mifflin	4th quarter Mar.

6.2.3.1	Represent real-world or mathematical situations using equations and inequalities involving variables and positive rational numbers.	*For example*: The number of miles m in a k kilometer race is represented by the equation $m = 0.62\,k$.	Understand one-step and two-step equations	Math Book Study Island IXL Houghton Mifflin	4th quarter Apr.
6.2.3.2	Solve equations involving positive rational numbers using number sense, properties of arithmetic and the idea of maintaining equality on both sides of the equation. Interpret a solution in the original context and assess the reasonableness of results.	*For example*: A cellular phone company charges $0.12 per minute. If the bill was $11.40 in April, how many minutes were used?	Understand one-step and two-step equations	Math Book Study Island IXL Houghton Mifflin	4th quarter Apr.

Description—What is the essential standard to be learned? Define in student-friendly vocabulary.
Example or Rigor—What does this look like? Provide an example or sample problem.
Prior Skills Needed—What knowledge or skills must the student already have in order to master this standard?
Assessment—How will student mastery be measured?
When Taught—What is the proposed time frame for teaching this standard?

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