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| **8th Grade Math – 1st Quarter** |
| **Strand** | Cluster | **Standard** | **Learning Targets** | **Resources** | **Module** | **Module Unit Name** |
| **Expressions and Equations** | 8.EE.1 Work with radicals and integer exponents. | 8.EE.1 **Work with radicals and integer exponents.** **1.** Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, 32 x 3-5 = 1/33 = 1/27 | * I can recognize taking a square root as the inverse of squaring a number.
* I can recognize taking a cube root as the inverse of cubing a number.
* I can evaluate the square root of a perfect square.
* I can evaluate the cube root of a perfect cube.
* I can justify that the square root of a non-perfect square will be irrational.
 |  | **1** | **Integer Exponents and Scientific Notation** |
| 8.EE.3 Work with radicals and integer exponents. | 8.EE.3 **Work with radicals and integer exponents.** 3. Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. For example, estimate the population of the United States as 3 × 108 and the population of the world as 7 × 109, and determine that the world population is more than 20 times larger.  | * I can write an estimation of a large quantity by expressing it as the product of a single-digit number and a positive power of ten.
* I can write an estimation of a very small quantity by expressing it as the product of a single-digit number and a negative power of ten.
* I can compare quantities written as the product of a single-digit number and a power of ten by stating their multiplicative relationships.

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| **Expressions and Equations** | 8.EE.4 Work with radicals and integer exponents. | 8.EE.4 **Work with radicals and integer exponents.**4. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.   | * I can add and subtract two numbers written in scientific notation.
* I can multiply and divide two numbers written in scientific notation.
* I can select the appropriate units for measuring derived measurements when comparing quantities written in scientific notation.
* I can identify and interpret the various ways scientific notation is displayed on calculators and through computer software.
 |  | **1** | **Integer Exponents and Scientific Notation** |
| **Geometry** | 8.G.1a Verify experimentally the properties of rotations, reflections, and translations: | 8.G.1a  **Verify experimentally the properties of rotations, reflections, and translations:** a. Lines are taken to lines, and line segments to line segments of the same length. | * I can verify - by measuring and comparing lengths, angle measures, and parallelism of a figure and its image - that after a figure has been translated, corresponding lines and line segments remain the same length, corresponding angles have the same measure, and corresponding parallel lines remain parallel.
 |  | **2** | **The Concept of Congruence** |
| **Geometry** | 8.G.1b Verify experimentally the properties of rotations, reflections, and translations: | 8.G.1b  **Verify experimentally the properties of rotations, reflections, and translations:** b. Angles are taken to angles of the same measure. | * I can verify - by measuring and comparing lengths, angle measures, and parallelism of a figure and its image - that after a figure has been reflected corresponding lines and line segments remain the same length, corresponding angles have the same measure, and corresponding parallel lines remain parallel.
 |  | **2** | **The Concept of Congruence** |
| 8.G.1c Verify experimentally the properties of rotations, reflections, and translations: | 8.G.1c  **Verify experimentally the properties of rotations, reflections, and translations:** c. Parallel lines are taken to parallel lines. | * I can verify - by measuring and comparing lengths, angle measures, and parallelism of a figure and its image - that after a figure has been rotated corresponding lines and line segments remain the same length, corresponding angles have the same measure, and corresponding parallel lines remain parallel.
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| 8.G.2 Verify experimentally the properties of rotations, reflections, and translations: | 8.G.2  **Verify experimentally the properties of rotations, reflections, and translations:**2. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them. | * I can explain how transformations can be used to prove that two figures are congruent.
* I can perform a series of transformations (reflections, rotations, and/or translations) to prove or disprove that two given figures are congruent.
 |  | **2** |
| **Geometry** | 8.G.5 Verify experimentally the properties of rotations, reflections, and translations: | 8.G.5  **Verify experimentally the properties of rotations, reflections, and translations:**5. Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so. | * I can informally prove that the sum of any triangle's interior angles will have the same measure as a straight angle (i.e., by tearing off the three corners of a triangle and arranging them to form a 180 degree straight angle.
* I can informally prove that the sum of any polygon's exterior angles will be 360 degrees.
* I can make conjectures regarding the relationships and measurements of the angles created when two parallel lines are cut by a transversal.
* I can apply proven relationships to establish minimal properties to justify similarity.
 |  | **2** | **The Concept of Congruence** |
| 8.G.6 Understand and apply the Pythagorean Theorem. | 8.G.6 **Understand and apply the Pythagorean Theorem.**6. Explain a proof of the Pythagorean Theorem and its converse. | * I can use visual models to demonstrate the relationship of the three side lengths of any right triangle.
* I can use algebraic reasoning to relate the visual model to the Pythagorean Theorem.
* I can use the Pythagorean Theorem to determine if a given triangle is a right triangle.
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| **Geometry** | 8.G.7 Understand and apply the Pythagorean Theorem. | 8.G.7 **Understand and apply the Pythagorean Theorem.**7. Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions. | * I can connect any two points on a coordinate grid to a third point so that the three points form a right triangle.
* I can use the right triangle and the Pythagorean Theorem to find the distance between two original points.
 |  | **2** | **The Concept of Congruence** |