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| Learning Objectives | Practices | | Reason & Explanations | | | Notes | |
| Scientific Notation and Exponents | | | | | | | |
| **8.EE.3.a**  I can use scientific notation to write very large and very small numbers.  **8.EE.3.b**  I can compare numbers in scientific notation and express how many times bigger, or smaller, one number 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.  **8.EE.4.c** I can use scientific notation to interpret data that has been generated by technology.  **8.EE.4.a**  I can use operations with numbers in both decimal and scientific notation.  **8.EE.4.b** I can use scientific notation and choose units of appropriate size for measurements of very large or very small quantities.  **For example**: use millimeters per year for seafloor spreading.  **8.EE.1** I know and can apply the properties of integer exponents to generate equivalent numerical expressions.  **For example**: 32×3–5 = 3–3 = 1/33 = 1/27. |  | |  | | |  | |
| Functions | | | | | | | |
| **8.F.1.a** I understand that a function is a rule that assigns to each input exactly one output.  **8.F.1.b** I understand that the graphical representation of a function consists of the ordered pairs of each input and its corresponding output.  **Note:** Function notation is not emphasized in Intermediate 2  **8.F.5.b** I can sketch the graph of a function given the verbal attributes: is increasing or decreasing, linear or nonlinear.  **8.F.5.a** I can describe the attributes of a graph of a function (increasing or decreasing, linear or nonlinear).  **8.F.3.b** I can give examples of functions that are not linear.  **8.F.3.a** I can understand that the equation  defines a linear function, whose graph is a straight line. |  | |  | | |  | |
| Linearity | | | | | | | |
| **8.EE.6.b** I can write the equation of a line in the form *y = mx + b* given its graph. I understand the connection between the *y*-intercept and the value of *b*.  **8.EE.6.a** I can use similar triangles to explain why the slope *m* is the samebetween any two points on a line (non-vertical).  **8.F.4.a** I can create a linear function which models two ordered pairs, a table, a graph, or a contextual situation by finding the rate of change and the initial value.  **8.F.4.b** I can explain the meaning of the rate of change and initial value of a linear function given a contextual situation, its graph or table of values  **8.SP.3** I can use the meaning of the slope and intercept of a linear model in the context of bivariate data to solve contextual situations.  **For example:** In a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height  **8.EE.5.a**  I can graph proportional relationships interpreting the unit rate as the slope of the graph.  **8.EE.5.b**  I can compare two different proportional relationships represented in different ways.  **For example**: compare a distance-time graph to a distance-time equation to determine which of two  moving objects has greater speed |  | | |  | | |  |
| Pythagorean Theorem, Rational & Irrational Numbers | | | | | | | |
| **8.G.6** I can explain a proof of the Pythagorean Theorem and its converse.  **8.G.7** I can use the Pythagorean Theorem to determine unknown side lengths in right triangles in contextual situations  **For example**: Determine if a baseball bat 33 inches long will fit completely in a box that is 28 inches by 16 inches by 7 inches.  **8.G.8** I can use the Pythagorean Theorem to find the distance between two points in a coordinate system.  **8.EE.2.b**  I can evaluate perfect square roots and perfect cube roots.  **8.NS.1.a** I understand that numbers that are not rational are called irrational and every number has a decimal expansion.  **For example:** , ,  **8.NS.2.b** I canapproximate the location of irrational numbers on a number line.  **For example:** By truncating the decimal expansion of , show that  is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.  **8.NS.1.b** I can convert a rational number into its decimal form, and I can convert a repeating decimal into its fractional form.  **8.NS.2.a** I can use rational approximations of irrational numbers to compare the size of irrational numbers. |  | | |  | | |  |
| Surface Area and Volume | | | | | | | |
| **8.G.9** I know and can use the formulas for the volumes of cones, cylinders, and spheres and use them to solve contextual and mathematical problems.  **8.EE.2.a** I can use square and cube root symbols to represent solutions to equations of the form *x*2 = *p* and *x*3 = *p*, where *p* is a positive rational number.  **For example**: if then, or if , then  **8.NS.2.c** I can estimate the value of an expression that involves irrational numbers.  **For example:** Estimate π2 |  | | |  | | |  |
| System of Linear Equations | | | | | | | |
| **8.EE.8.a.1** I understand that the solution to a system of two linear equations in two variables corresponds to the point of intersection on a graph and that the solution must satisfy both equations.  **8.EE.8.a.2** I understand that a system of two linear equations in two variables can have one solution, infinitely many solutions, or no solutions.  **8.EE.8.b.2** I can recognize how many solutions a linear system has by recognizing similarities or differences in the equations.  **For example:** 3*x* + 2*y* = 5 and 3*x* + 2*y* = 6 have no solution because 3*x* + 2*y* cannot simultaneously be 5 and 6.  **8.EE.8.c** I can solve contextual problems involving systems of two linear equations given a table, a graph, or equations.  **8.EE.8.b.1** I can solve systems of two linear equations algebraically and estimate solutions by graphing the equations. |  |  | | |  | | |
| Interpreting Data | | | | | | | |
| **8.SP.4.a** I can construct a two-way table of categorical data and recognize patterns of association by using frequencies and relative frequencies.  For example: Use the table below to determine if there is evidence that if a student takes band that the student is less likely to play sports.   |  |  |  |  | | --- | --- | --- | --- | |  | Plays sports (yes) | Plays sports (no) | Total | | Takes band (yes) | 18 | 10 | 28 | | Takes band (no) | 20 | 7 | 27 | | Total | 38 | 17 | 55 |   **8.SP.1** I can create and describe patterns in a scatter plot for a set of bivariate (two variable) data. (i.e. clustering, outliers, positive or negative association, linear or nonlinear association.)  **8.SP.2** I can fit a line to a scatter plot and informally assess the closeness of the line to the data points.  **8.F.2** I can compare properties, e.g., rate of change, intercepts, intersections, increasing and decreasing, etc., of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).  **For example:** Given a linear function represented by a table of values and a second linear function represented by an algebraic expression, determine which function has the greater rate of change. |  |  | | |  | | |
| Similarity, Transformations, Congruence and Angle Relationships | | | | | | | |
| **8.G.3** I can describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates  **For example:** The point (*x*, *y*) can be translated to the point  (*x* + 2, *y* – 3)  **For example:** A dilation with scale factor of 2 centered at the origin is performed on a circle centered at the origin with a radius of 1. The dilated circle contains the point (0, 2).  **8.G.1** I can verify experimentally that rotations, reflections, and translations preserve length, angle measure, and parallelism (i.e. lines to lines, line segments to line segments, angles to angles, and parallel lines are taken to parallel lines.)  **8.G.2.a** I understand that congruency of two-dimensional figures is preserved through any sequence of rotations, reflections, and translations.  **8.G.2.b** I can describe a sequence of transformations between two congruent figures.  **8.G.4.a** I understand that similarity of a two-dimensional figure is preserved through any sequence of rotations, reflections, translations, and dilations.  **8.G.4.b** I can describe a sequence of transformations between two similar figures.  **8.G.5.b** I can informally establish angle relationships created when parallel lines are cut by a transversal.  **8.G.5.c** I can informally establish the angle-angle criterion for similarity of triangles.  **8.G.5.a** I can informally establish the exterior angle of triangles and angle sum theorems. |  |  | | |  | | |
| Throughout the Entire Year | | | | | | | |
| **8.EE.7.b** I can solve linear equations with rational number coefficients including those whose solutions require expanding expressions, using the distributive property, and combining like terms.  **For example :**  **8.EE.7.a**  I can solve linear equations in one variable, where there is exactly one solution, infinitely many solutions or no solutions. |  |  | | |  | | |

There was discussion about adding Linear Inequalities to Intermediate 2 to help students prepare for systems of linear inequalities in Secondary 1.