***7TH GRADE ACCELERATED MATH – YAG***

**1ST – 6 – WEEKS**

**UNIT 1 – ONE-VARIABLE EQUATIONS AND INEQUALITIES WITH VARIABLES ON BOTH SIDES (17 DAYS)**

7.11A\* – Model and solve one variable, two-step equations and inequalities.

8.8A – Write one variable equations or inequalities with variables on both sides that represent problems using

 rational number coefficients and constants.

8.8B – Write a corresponding real-world problem when given a one-variable equation or inequality with

 variables on both sides of the equal sign using rational number coefficients and constants.

8.8C\* – Model and solve one-variable equations with variables on both sides of the equal sign that represent

 mathematical and real-world problems using rational number coefficients and constants.

**UNIT 2 – DEVELOPING AN UNDERSTANDING OF SLOPE AND Y-INTERCEPT (8 DAYS)**

7.4A\* – Represent constant rates of change in mathematical and real-world problems given pictorial, tabular,

 verbal, numeric, graphical, and algebraic representations, including d=rt.

7.4C – Determine the constant of proportionality (k=y/x) within mathematical and real-world problems.

7.7A\* – Represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to

 the form y=mx+b.

8.4A – Use similar right triangles to develop an understanding that slope, *m*, given as the rate comparing the

 change in y-values to the change in x-values, (y2-y1)/(x2-x1), is the same for any two points (x1,y1) and

 (x2,y2) on the same line.

8.4C\* - Use data from a table or graph to determine the rate of change or slope and y-intercept in

 mathematical and real-world problems.

**2ND – 6 – WEEKS**

**UNIT 3 – PROPORTIONAL AND NON-PROPORTIONAL RELATIONSHIPS (17 DAYS)**

8.4B\* – Graph proportional relationships, interpreting the unit rate as the slope of the line that models the

 relationship.

8.5A – Represent linear proportional situations with tables, graphs, and equations in the form of y=kx.

8.5B – Represent linear non-proportional situations with tables, graphs, and equations in the form of y=mx+b,

 where b is not equal to 0.

8.5E – Solve problems involving direct variation.

8.5F – Distinguish between proportional and non-proportional situations using tables, graphs, and equations

 in the form of y=kx or y=mx+b, where b in not = to 0.

8.5G\* – Identify functions using sets of ordered pairs, tables, mappings and graphs.

8.5H – Identify examples of proportional and non-proportional functions that arise from mathematical and

 real-world problems.

8.5I\* – Write an equation in the form y=mx+b to model a linear relationship between2 quantities using verbal,

 numerical, tabular, and graphical representations.

8.9A – Identify and verify the values of x and y that simultaneously satisfy two linear equations in the form

 y=mx+b from the intersections of the graphed equations.

**UNIT 4 – SIMILARITY AND SCALED DRAWINGS (8 DAYS)**

7.5A – Generalize the critical attributes of similarity, including ratios within and between similar shapes.

7.5C\* – Solve mathematical and real-world problems involving similar shape and scale drawings.

8.3A – Generalize that the ratio of corresponding sides of similar shapes are proportional, including a shape

 and its dilation.

**3RD – 6 – WEEKS**

**UNIT 5 – TRANSFORMATIONAL GEOMETRY (14 DAYS)**

8.3A – \*\*Generalize that the ratio of corresponding sides of similar shapes are proportional, including a shape

 and its dilation.

8.3B - Compare and contrast the attributes of a shape and its dilation(s) on a coordinate plane.

8.3C\* – Use an algebraic representation to explain the effect of a given positive rational scale factor applied to

 two-dimensional figures on a coordinate plane with the origin as the center of dilation.

8.10A – Generalize the properties of orientation and congruence of rotations, reflections, translations, and

 dilations of two-dimensional shapes on a coordinate plane.

8.10B – Differentiate between transformations that preserve congruence and those that do not.

8.10C\* – Explain the effect of translations, reflections over the x or y – axis, and rotations limited to 90°, 180°,

 270°, and 360° as applied to two dimensional shapes on a coordinate plane using an algebraic

 representation.

8.10D – Model the effect on linear and area measurements of dilated two-dimensional shapes.

**UNIT 6 – STATISTICS AND DATA (7DAYS)**

7.12B – Use data from a random sample to make inferences about a population.

7.12C – Compare two populations based on data in random samples from these populations, including

 informal comparative inferences about differences between the two populations.

8.5C - Contrast bivariate sets of data that suggest a linear relationship with bivariate sets of data that do not

 suggest a linear relationship from a graphical representation.

8.5D\* – Use a trend line that approximates the linear relationship between bivariate sets of data to make

 predications.

8.11A – Construct a scatterplot and describe the observed data to address questions of association such a

 linear, non-linear, and no association between bivariate data.

8.11B - Determine the mean absolute deviation and use this quantity as a measure of the average distance

 data are from the mean using a data set of no more than 10 data points.

**UNIT 7 – REAL NUMBER RELATIONSHIPS AND REPRESENTATIONS (4 DAYS)**

8.2A – Extend previous knowledge of sets and subsets using a visual representation to describe relationships

 between sets of real numbers.

8.2B – Approximate the value of an irrational number, including π and square roots of numbers less than 225,

 and locate that rational number approximation on a number line.

8.2C – Convert between standard decimal notation and scientific notation.

8.2D\* – Order a set of real numbers arising from mathematical and real-world contexts.

**4TH – 6 – WEEKS**

**UNIT 8 – ANGLE AND TRIANGLE RELATIONSHIPS (11 DAYS)**

7.11C – Write and solve equations using geometry concepts, including the sum of the angles in a triangle, and

 angle relationships.

8.6C – Use models and diagrams to explain the Pythagorean theorem.

8.7C\* - Use the Pythagorean theorem and its converse to solve problems.

8.7D - Determine the distance between two points on a coordinate plan using the Pythagorean Theorem.

8.8D - Use informal arguments to establish facts about the angle sum and exterior angle of triangles, the

 angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity

 of triangles.

**UNIT 9 – CIRCLES AND COMPOSITE FIGURES (14 DAYS)**

7.5B – Describe π as the ratio of the circumference of a circle to its diameter.

7.9B\* – Determine the circumference and area of circles.

7.9C\* – Determine the area of composite figures containing combinations of rectangles, squares,

 parallelograms, trapezoids, triangles, semicircles, and quarter circles.

8.10D – Model the effect on linear and area measurements of dilated two-dimensional shapes.

**5TH – 6 – WEEKS**

**UNIT 10 - MEASUREMENT OF THREE-DIMENSIONAL FIGURES (18 DAYS)**

7.9A\* – Solve problems involving the volume of rectangular prisms, triangular prisms, rectangular pyramids,

 and triangular pyramids.

7.9D – Solve problems involving the lateral and total surface area of a rectangular prism, rectangular pyramid,

 triangular prism, and triangular pyramid by determining the area of the shape’s net.

8.6A – Determine the volume formula V=Bh of a cylinder in terms of its base area and its height.

8.7A\* – Solve problems involving the volume of cylinders, cones and spheres.

8.7B\* – Use previous knowledge of surface area to make connections to the formulas for lateral and total

 surface area and determine solutions for problems involving rectangular prisms, triangular prisms, and

 cylinders.

**UNIT 11 - FINANCIAL LITERACY (7 DAYS)**

7.13E – Calculate and compare simple interest and compound interest earnings.

8.12A – Solve real-world problems comparing how interest rate and loan length affect the cost of credit.

8.12C – Explain how small amounts of money invested regularly, including money saved for college and

 retirement grow over time.

8.12D\* – Calculate and compare simple interest and compound interest earnings.

8.12G – Estimate the cost of a two-year and four-year college education, including family contribution, and

 devise a periodic savings plan for accumulating the money needed to contribute to the total cost of

 attendance for at least the first year of college.

**6TH – 6 – WEEKS**

**UNIT 12 - PROBABILITY – (13 DAYS)**

7.6A – Represent sample spaces for simple and compound events using lists and tree diagrams.

7.6C – Make predictions and determine solutions using experimental data for simple and compound events.

7.6D - Make predictions and determine solutions using theoretical probability for simple and compound

 events.

7.6E – Find the probabilities of a simple events and its complement and describe the relationship between the

 two.

7.6H\* – Solve problems using qualitative and quantitative predictions and comparisons from simple

 experiments.

7.6I\* – Determine experimental and theoretical probabilities related to simple and compound events using

 data and sample spaces.

**UNIT 13 – ESSENTIAL UNDERSTANDINGS OF ALGEBRA (12 DAYS)**

8.5A – Represent linear proportional situations with tables, graphs, and equations in the form of y=kx.

8.5B – Represent linear non-proportional situations with tables, graphs, and equations in the form of y=mx+b,

 where b is not equal to 0.

8.5E – Solve problems involving direct variation.

8.5F – Distinguish between proportional and non-proportional situations using tables, graphs, and equations

 in the form of y=kx or y=mx+b, where b in not = to 0.

8.5G\* – Identify functions using sets of ordered pairs, tables, mappings and graphs.

8.5I\* – Write an equation in the form y=mx+b to model a linear relationship between2 quantities using verbal,

 numerical, tabular, and graphical representations.

8.9A – Identify and verify the values of x and y that simultaneously satisfy two linear equations in the form

 y=mx+b from the intersections of the graphed equations.