



## 6th Grade Mathematics Course Syllables – Summer 2020

Note: Due to the current COVID-19 situation, the course is planned to be taught online with ZOOM, tentatively. Further notice will be sent out if any changes.

### Placement Test:

For Students Entering Grade 6 in August, 2020.

All students need to take a 15-minute placement test prior to class enrollment. The placement test contains arithmetic calculations, such as order of operations, fraction, decimal and percentage conversion.

### Workbooks:

No textbook. This 6<sup>th</sup> Grader math course will cover a wide range of Pre-algebra, Algebra I, and Geometry, Algebra II, mostly focused on Algebra I and Geometry. See course goals below for details. Supplement materials will be provided as handouts, or lecture slides.

### Course Goals:

Algebra I and Geometry builds a bridge between elementary and high school. Students develop algebraic thinking and logical reasoning in their early study have tremendous likelihood of success at higher level classes. In addition, these two classes help students understand most of the topics that are needed to master for AMC 8 - American Mathematics Contest 8.

### Exit Tickets:

There will be quizzes periodically. Students are expected to follow standardized test-taking rules.

### Course Content:

10 classes. Every class is 1.5 hours. One class per week. This is a summer edition. Content be part of:

6A:

- Number Chart.
- Exponents and Powers. Rules, operations of exponents
- Read, write and solve algebraic expressions involving four operations
- Variables, coefficients, Combine like terms
- Understand (negative) fractions and decimals
- Understand percentage of a quantity
- Understand percentage change and its application to interest and sales tax, and how to apply discount

- Understand ratio and proportion in comparing quantities
- Use ratio and comparison in multi-step word problems
- Use the method of cross multiplication
- Change ratios or changing quantities
- Understand the concept and calculation of rate and speed
- Use rate and speed in word problems
- Understand equations and functions
- Identify points on a coordinate plane
- Tabulate values for linear equations
- Solve algebraic equations graphically
- Understand Slope – Intercept linear equations
- Find slope and rate of change
- Write linear equations in slope-intercept form
- Methods of Multiplication of Polynomials
- Operations of radicals
- Quadratic Equations. Function. Graph

(Unit 2 – Solid Figures will be reviewed in 6B)

6B:

- Review fractions, and use variables to build equations in word problems
- Understand Circles and its elements, quadrant, semicircle, arc, segment, sector, radius, diameter
- Use the value of pie to calculate Circumference, Area
- Calculate circumference and area of Segment, Sectors, and shaded figures
- Read data on Pie Chart, Bar Graph, Line Graph
- Know to extract/calculate data information from the graphs
- Understand Combinations and Permutations
- Identify the mean, median, mode, and range for data sets
- Stem – Leaf Plots
- Understand probability
- Understand theoretical probability of simple events and of combined events
- Identify Solid Figures (6A Unit 2)
- Understand Volume of Prisms and Cylinders
- Use the volume formula to solve word problems
- Draw Lines and angles
- Know the types of triangles and quadrilaterals
- Understand properties of angles including vertically opposite, corresponding, alternate, complementary, supplementary angles
- Pythagorean Theorem
- Inequality and Absolute values
- Solve Inequality equation, double inequality equations, compound inequity equations, and absolute values equations