COURSE OUTLINE

SUBJECT: 6th Grade Mathematics   **GRADE:** 6

Curriculum reflects new Next Generation Learning Standards

Anticipated student outcomes:

By June of this year, students in this class should be able to…

Geometry

Statement of Inquiry: Understanding forms and shapes enhances creativity.

- Find the area of triangles, parallelograms, trapezoids, and composite shapes
- Find the volume of a right rectangular prism
- Draw polygons in the coordinate plane given coordinates for the vertices
- Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures

Ratios and Proportional Relationships

Statement of Inquiry: Interconnectedness through models and patterns to represent relationships.

- Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities
- Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, and use rate language in the context of a ratio relationship
- Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations

The Number System

Statement of Inquiry: Quantities and mathematical relationships can be represented in a globally – recognized language.

- Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.
- Fluently divide multi-digit numbers using the standard algorithm
- Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
- Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12.

Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor
- Understand that positive and negative numbers are used together to describe quantities having opposite directions or values
- Understand a rational number as a point on the number line
- Understand ordering and absolute value of rational numbers
- Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane

Expressions and Equations

Statement of Inquiry: Decision making can be improved using models to represent relationships.

- Write and evaluate numerical expressions involving whole-number exponents
- Write, read, and evaluate expressions in which letters stand for numbers
- Apply the properties of operations to generate equivalent expressions
- Identify when two expressions are equivalent
- Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true
- Use variables to represent numbers and write expressions when solving a real-world or mathematical problem
- Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q, and x are all nonnegative rational numbers
- Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem
- Represent and analyze quantitative relationships between dependent and independent variables

Statistics and Probability

Statement of Inquiry: Establishing patterns in the natural world can help in understanding relationships.

- Develop understanding of statistical variability
- Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape
- Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number
- Display numerical data in plots on a number line, including dot plots and histograms.
- Summarize numerical data sets in relation to their context

- Understand that the probability of a chance event is a number between 0 and 1 inclusive.
- Develop a probability model and use it to find probabilities of simple events.

Materials required:

- Two folders
- Scientific calculator *[Suggested calculator: TI-34 Multiview (Texas Instruments)]*
- Pencils with sharpener
- Highlighters
- Whiteboard markers

Resources:

Illustrative Mathematics -
https://ilclassroom.com/wikis/235592-illustrative-mathematics-grade-6-course?path=Wiki.73932/Wiki.4014792/Wiki.294896

IXL – https://www.ixl.com/

Criteria for grading:
At the end of each quarter you will have earned a grade. This grade is the percentage of *points earned* out of the *total number of possible points*. These points are earned by your performance in the following areas:
- Class Participation
- Homework
- IXL Skill Practice
- Assessments

Outline developed by: Math Department   *Date: Spring 2025*