Middle School Math Learning Goals

6th GRADE MATH LEARNING GOALS

Number Sense

Each digit in a number represents a certain value.
In any number the place value increases as you move from right to left.
A number line represents where positive and negative numbers live.

Number Properties and Operations

Number properties show the rules that always work when performing operations with numbers.
Math symbols help us work with numbers.
There is a specific order that must be followed to simplify expressions with more than one step.

Decimals

Decimals, just like fractions, live between integers on a number line.
Decimals can be written as fractions or mixed numbers with denominators of 10, 100, 1000 etc.
Money can help us understand decimals.

6th GRADE MATH LEARNING GOALS

Fractions

Fractions, just like decimals, live between integers on a number line.
The fraction line means divide.
When adding and subtracting fractions, there **must** be a common denominator.

Percents

Any percent can be written as a fraction with a denominator of 100.
Any percent can be compared to ¼, ½ and ¾.
A proportion can be used to solve a percent word problem.

Ratios and Proportions

A ratio is a comparison of two quantities.
A proportion is two equal ratios.
The cross products of a proportion **must** be equal.

Algebra

A variable is a letter that represents different values.
Numbers can be substituted for variables.
A number next to a variable means multiply. Ex. $3y=3 \bullet y$

6th GRADE MATH LEARNING GOALS

Geometry

Two dimensional figures cover an area.
Three dimensional figures take up space.
Formulas can be used to determine area and volume of figures.

Coordinate Plane

A coordinate plane can be used to plot two positive or negative coordinates.
The x axis is horizontal and the y axis is vertical.
In a coordinate pair, the first number always represents the x coordinate.

Measurement

Different units are used to measure different properties.
There are two systems of measurement. (English Standard and Metric)
The metric system is based on powers of 10.

Statistics and Probability

Probability is the chance that an outcome will happen, not a guarantee.
Mean, median and mode are usually located in the central portion of the data.
Measures of central tendencies help us focus on where most of the data is located.

7th GRADE MATH LEARNING GOALS

<u>September</u>

1) Students will develop a consistent method for adding or subtracting signed numbers without a calculator. (number line, battle method, elevator method, personal method…)
2) Students will be able to identify perfect squares up to 144.
3) Students will be able to distinguish between a rational and irrational number.

<u>October</u>

1) Students will understand that taking the square root of a number is the opposite of squaring a number. Student should be able to tell before taking the square root of a number if it is rational or irrational. Ex) $\sqrt{25}$ vs $\sqrt{31}$
2) Students will understand how to break down a number into its prime factors by creating a factor tree. (*Bonus: they will understand the phrase "prime factorization" and not needed to be prompted by teacher saying "factor tree")*
3) Students will be able to explain the difference between a factor and a multiple.

<u>November</u>

1) Students will be able to translate a written statement into a mathematical equation or expression.
2) Students will be able to solve an equation with variables on both sides of the equal sign. Students must be able to show all steps in the process.
3) Students will understand the difference between an equation and an inequality. They will be able to graph the solution set of an inequality on a number line.

7th GRADE MATH LEARNING GOALS

December

1) Students will be able to solve an equation with variables on both sides of the equal sign. Students must be able to show all steps in the process.

2) Students will be able to substitute a value in for a variable and evaluate an answer given an expression.

3) Students will begin work on circles and be able to state the area and circumference formulas.

January

1) Students will be able to explain when to use the Pythagorean Theorem and how to determine if a triangle is a right triangle or not.

2) Students will develop common conversions for the US Customary System and be able to make conversions from one unit to another.

3) Students will be able to explain how the metric system works and how it is different than the US Customary System.

8th GRADE MATH LEARNING GOALS

September

1) Students will correctly be able to add and subtract signed numbers from 50 to -50 without a calculator.
2) Students will be able to identify if an answer will be positive or negative before multiplying or dividing two or more signed numbers.
3) Students will be able to correctly add or subtract exponents when multiplying or dividing like bases respectively.

October

1) Students will be able to explain how to quickly find base 10%'s (20%, 30%, 50%, etc.) By calculating 10% and multiplying.
2) Students will be able to calculate a dollar value when given a percent tax, tip, sale, or commission.
3) Students will be able to describe the impact a transformation (translation, reflection, dilation, rotation) has on a shape (flip, turn, slide, enlarge/shrink).

November

1) Students will be able to define complementary and supplementary angles.
2) Students will be able to name various angle relationships when given a parallel line diagram. (alternate interior, alternate exterior, vertical, corresponding, supplementary)
3) Students will be able to use the Pythagorean theorem to find the missing side of a right triangle.

8th GRADE MATH LEARNING GOALS

<u>December</u>

1) Students will be able to convert temperature between Fahrenheit and Celsius using the appropriate formula.

2)Students will be able to correctly measure a scale drawing and tell the actual size of an object after converting.

3)Students will be able to convert between different currencies by setting up a proportion.

<u>January</u>

1) Students will correctly add exponents when multiplying algebraic terms together.

2) Students will be able to multiply a monomial by a polynomial be using the distributive property.

3) Students will show the correct steps when solving a multistep equation that includes variables on both sides of the equal sign or the distributive property.

INTEGRATED ALGEBRA LEARNING GOALS

<u>September</u>

1) Students will be able to identify the various number properties given an example.
2) Students will be able to correctly add or subtract exponents when multiplying or dividing like bases respectively.
3) Students will be able to correctly manipulate a number between standard form and scientific notation.

<u>October</u>

1) Students will be able to solve multistep equations that involve the distributive property and/or variables on both sides of the equation.
2)Students will be able to simplify radical expressions that do not have perfect squares in the radicand. ex) $\sqrt{90} = 3\sqrt{10}$
3)Students will correctly simplify a rational expression by factoring polynomials and cancelling like terms.

<u>November</u>

1) Students will be able to multiply two binomials together using the FOIL method.
2) Students will be able to correctly identify which method of factoring to use on a polynomial. (GCF, PS-PS, un-foil)
3) Students will be able to match an equation to the graph it represents. (linear, quadratic, absolute value, exponential, rational.)

INTEGRATED ALGEBRA LEARNING GOALS

<u>December</u>

1) Students will be able to match an equation to the graph it represents. (linear, quadratic, absolute value, exponential, rational.)
2) Students will be able to graph a line on the coordinate plane given an equation in slope-intercept form.
3) Students will be able to calculate the slope of any line, given two points that exist on the line.

<u>January</u>

1) Students will be able to find the system of two linear equations by graphing, substitution, or elimination.
2) Students will be able to graph two inequalities on the coordinate plane and state which points are in the solution.
3) Students will be able to graph a parabola on a coordinate plane.