Math 7 Course Overview

Unit	Major Concepts	Skills	Summative Assessments
Numbers	• Why do we need an order of operations • Why do we have multiple sets of numbers	• Classify numbers into sets • Identify the properties of numbers • Use PEMDAS to evaluate expressions • Perform arithmetic operations with integers, rational numbers, and real numbers • Apply the Pythagorean Theorem in context for problem-solving • Use exponent properties to simplify expressions Factor a number	Game Project
Algebra Intro	• Each arithmetic operation has an inverse operation that "undoes" it • It is possible to solve two (or more) equations simultaneously to find a single solution to both • Solutions to problems, like inequalities, can be a set of values rather than just one	• Solve multi-step equations using a variety of techniques • Solve multi-step inequalities • Graph an inequality • Find solutions to simple systems of equations by taking linear combinations and substituting	Draw by Numbers - Math Edition
Solid Geometry	• What a dimension is • How we can compare the sizes of very differently shaped objects	• Solve for missing measurements in geometric shapes • Apply skills to real-world situations and problems • Calculate the area of triangles, circles, and rectangles • Calculate volume and surface area for prisms and cyliners	Miniature Mug Market
Plane Geometry	• Planar shapes can be described in a variety of ways • Many special angle relationships are formed when parallel lines are cut by a third line	• Identify angle relationships when lines cross • Solve algebraic problems using angle relationships • Identify planar shapes • Determine the sum of angles in polygons • Identify polygons by their number of sides	GeoCities
Transformations	• How we can mathematically describe movements in a plane	• Translate, rotate, dilate, and reflect shapes (or coordinate points) • Tessellate the plane with a shape • Identify properties preserved and not preserved under transformations	Transformation Art Project

Math 7 Course Overview

Unit	Major Concepts	Skills	Summative Assessments
Statistics	● There are many ways to look at what an “average” element of a set is ● Graphs can be used to more effectively communicate data ● Statistics can be used to mislead others	● Compute the range, mean, median, and mode of a data set ● Create a box and whisker plot ● Create a scatter plot, histogram, bar graph, and circle graph ● Identify the correlation between independent and dependent variables ● Interpret graphical data and draw conclusions	Statistics Experiments
Probability	● The likelihood of an event occurring can often be found by comparing all possible outcomes of that event ● The number of outcomes of a complex event is often related to the number of outcomes of smaller, concurrent events ● Sometimes one event can alter the likelihood of another occurring.	● Create a tree diagram or list a sample space for a series of events ● Determine the number of possible events using the Fundamental Principle of Counting ● Determine the number of permutations or combinations of a list of items ● Calculate the probability of independent and dependent events	Game Creation and Probability Analysis
Percents and Proportions	● Fractions, percents, and decimals are all equivalent representations of rational numbers ● Interest can be represented by a series of percent changes to some original amount	● Convert between various representations of rational numbers ● Compute percent increase/decrease ● Calculate a value before a percent change ● Compute simple and compound interest	Dice Interest Worksheet
Polynomials	● Arithmetic operations can be extended to work with operands beyond just numbers ● Much of math is developed by starting with an intuitive, concrete scenario and then abstracting it	● Perform arithmetic operations with polynomials using algebra tiles ● Factor polynomials using a variety of techniques	Free Form Polynomial Guide
Functions	● What makes a function ● Relationships can be expressed in multiple forms ● How an equation and its graph are related	● Write an equation for a line ● Determine if a relation is a function ● Determine the domain and range of a function ● Determine the slope and y-intercept of a line ● Explain the meaning of slope and the intercepts in a real-world context	Function Drawings