

Math 7 Course Overview

| Unit | Major Concepts | Skills | Summative Assessments |
|-----------------|--|---|--------------------------------|
| Numbers | <ul style="list-style-type: none"> • Why we need an order of operations • Why we have multiple sets of numbers | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • What a dimension is • How we can compare the sizes of very differently shaped objects | <ul style="list-style-type: none"> • Solve for missing measurements in geometric shapes • Apply skills to real world situations and problems | Miniature Mug Market |
| Plane Geometry | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • Identify angle relationships • Solve algebraic problems using angle relationships • Identify planar shapes and write them with correct notation • Identify polygons by number of sides | GeoCities |
| Transformations | <ul style="list-style-type: none"> • How we can mathematically describe movements in a plane | <ul style="list-style-type: none"> • 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 |

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| Statistics | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • Compute 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 | <ul style="list-style-type: none"> • 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 to smaller, concurrent events • Sometimes one event can alter the likelihood of another occurring. | <ul style="list-style-type: none"> • 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 Quiz |
| Percents and Proportions | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • Perform arithmetic operations with polynomials • Factor polynomials using a variety of techniques | Polynomial Study Guide/Animation |
| Functions | <ul style="list-style-type: none"> • What makes a function • Relationships can be expressed in multiple forms • How an equation and its graph are related | <ul style="list-style-type: none"> • 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 |