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| Course Syllabus  |

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| ***Course Name:*** Liberal Arts Math (1.0 Credit)***Prerequisites:*** Algebra 1 **Estimated Completion Time:** 2 semesters/36 weeks**Course Description:**This course will enable students to strengthen algebraic and geometric concepts and skills necessary for further study of mathematics. Learning will take place as students spend time at an amusement park. **Course Objectives:** Upon completion of this course, the student will be able to:* Estimate, simplify, and evaluate expressions with radicals and exponents.
* Demonstrate knowledge of operations on polynomials and simplify algebraic expressions and polynomials.
* Demonstrate use of varied methods (e.g., words, tables, graphs, variable representations) to analyze mathematical concepts in problem-solving situations.
* Solve linear equations, quadratic equations, and inequalities.
* Demonstrate knowledge of coordinate geometry and graphing functions and relations.
* Solve systems of equations and inequalities by algebraic and graphic methods.
* Demonstrate knowledge of the properties of two- and three-dimensional figures (e.g., polygons, circles, solids) to solve real-world problems.
* Demonstrate use of transformations and the properties of congruence, similarity, parallelism, and perpendicularity.
* Demonstrate use of basic concepts and techniques in data analysis, introductory statistics, and probability.

**Scope & Sequence:** Module 1 - Introduction * Students learn how to be an online student.

Module 2 - Expressions, Operations and the Real Number System* The Real Number System
* Operations with Integers
* Order of Operations
* Evaluating Expressions and Absolute Value
* Algebraic Properties
* Simplifying Algebraic Expressions
* Translating English Phrases into Algebraic Expressions

Module 3 - Equations and Inequalities* Solving Equations
* Solving Equations with Variables on Both Sides
* Solving Equations Containing Fractions
* Absolute Value Equations
* Literal Equations
* Word Problems with Equations
* Solving Inequalities
* Solving Combined Inequalities

Module 4 - Graphing Equations and Inequalities* Relations
* Functions
* Linear Equations
* Slope and Special Lines
* Graphing Linear Equations
* Writing Equations of Lines
* Parallel and Perpendicular Lines
* Graphing Linear Inequalities

Module 5 - Systems* Solving Systems of Equations by Graphing
* Solving Systems of Inequalities
* Solving Systems by Substitution
* Solving Systems by Addition Methods
* Word Problems with Systems

Module 6 - Polynomials* Introduction to Polynomials
* Multiplying and Dividing Monomials
* Laws of Exponents
* Multiplying Polynomials
* Dividing Polynomials
* Scientific Notation

Module 7 - Factoring * Taking out the Greatest Common Factor
* Factoring Differences of Squares
* Factoring by Grouping
* Factoring Trinomials
* Factoring Polynomials Completely
* Solving Quadratic Equations by Factoring
* Solving Quadratic Equations using the Quadratic Formula

Module 8 - Rationals* Simplifying Rations Expressions
* Operations with Rational Expressions
* Solving Equations containing Rational Expressions

Module 9 - Radicals* Simplifying Radicals
* Operations with Radicals
* Solving Equations containing Radicals
* Pythagorean Theorem
* Distance and Midpoint Formulas

Module 10 - Introduction to Geometry* Basic Geometric Figures
* Special Angles
* Parallel Lines and Transversals
* Working with Polygons

Module 11 - Geometric Relationships* Similar Figures
* Congruence
* Perimeter and Circumference
* Area
* Surface Area
* Volume

Module 12 - Transformation Geometry* Reflections and Symmetry
* Translations
* Rotations
* Dilations

Module 13 - Probability and Statistics* Counting Principle
* Permutations
* Combinations
* Basic Probability
* Statistical Values
* Statistical Graphs

Module 14 - Final Exam |