

**Saddlebrook preparatory School**  
**Mathematics Curriculum – Mathematics 2**

**Saddlebrook Course Number:**

**Course Number:** 1205010

**Course Title:** Mathematics 2

Credit: 1.0

**A.Major Concepts/Content.**The purpose of this course is to continue the development of mathematical concepts and processes that can be used to solve real-world and mathematical problems.

The content will include, but not be limited to, the following:

-structure and properties of rational numbers, including whole numbers, integers, fractions, mixed numbers, and decimals

-equivalent representations of numbers, including fractions, decimals, and percents, numbers with exponents, and absolute value

-operations and problem solving with rational numbers

-number theory, including primes, factors, multiples, and number sequences

-measurement techniques including choice of appropriate instruments, conversion of units, scale drawings, and derivation of simple geometric formulas for perimeter and area

-geometric terminology, properties, and relationships

-transformational geometry, including flips, turns, and slides

-algebraic thinking: analyzing and expressing patterns and relationships in various ways, including words, manipulatives, tables, graphs, number sequences, algebraic expressions, and geometric formulas

-statistical methods for collecting, organizing, analyzing, and displaying data, including measures of central tendency

-introduction to probability, including comparison of experimental and mathematically expected results

-basic calculator skills

This course shall integrate the Goal 3 Student Performance Standards of the Florida System of School Improvement and Accountability as appropriate to the content and

processes of the subject matter

**B.Course Requirements.**These requirements include the benchmarks from the Sunshine State Standards that are most relevant to this course.The benchmarks printed in regular type are required for this course.**The portions printed in *italic type* are not required for this course.**

**After successfully completing this course,the student will:**

**1.Demonstrate understanding and application of concepts about number systems.**

understand and use exponential *and scientific notation*.

understand the structure of number systems other than the decimal number system.

use concepts about numbers,including primes,factors,and multiples,to build number sequences.

**2.Demonstrate understanding and apply a variety of strategies to solve problems.**

-understand and explain the effects of addition,subtraction,multiplication,and division on whole numbers,fractions, including mixed numbers,and decimals,*including the inverse relationships of positive and negative numbers*

-select the appropriate operation to solve problems involving addition,subtraction,multiplication,and division of rational numbers,*ratios,proportions,and percents,including the appropriate application of the algebraic order of operations.*

(**Note:**Problems may be limited to integers or non-negative rational numbers.)

-add,subtract,multiply,and divide whole numbers,decimals, and fractions,including mixed numbers,to solve real-world problems,using appropriate methods of computing,such as mental mathematics,paper and pencil,and calculator.

-use estimation strategies to predict results and to check the reasonableness of results.

-use direct (measured)and indirect (not measured)measures to compare a given characteristic in either metric or customary units.

-solve problems involving units of measure and convert answers to a larger or smaller unit within either the metric or customary system.

-represent and solve real-world problems graphically, with algebraic expressions, *equations, and inequalities*.

-use algebraic problem-solving strategies to solve real-world problems *involving linear equations and inequalities*.

### **3. Estimate and measure quantities and use measures to solve problems.**

-use estimation strategies to predict results and to check the reasonableness of results.

-use concrete and graphic models to derive formulas for finding perimeter, area, *surface area*, circumference and volume of two- and three-dimensional shapes, *including rectangular solids and cylinders*.

-use concrete and graphic models to derive formulas for finding rates, distance, time, and angle measures.

-understand and describe how the change of a figure in such dimensions as length, width, height, or radius affects its other measurements such as perimeter, area, *surface area*, and *volume*.

-construct, interpret, and use scale drawings such as those based on number lines and maps to solve real-world problems.

-solve real-world and mathematical problems involving estimates of measurements including length, time, weight/mass, temperature, money, perimeter, area, and volume in either customary or metric units.

-select appropriate units of measurement *and determine and apply significant digits in a real world context. (Significant digits should relate to both instrument precision and to the least precise unit of measurement.)*

-select and use appropriate instruments, *technology*, and *techniques* to measure quantities *in order to achieve specified*

*degrees of accuracy in a problem situation.*

**4. Describe situations either verbally or by using graphical, numerical, physical or algebraic mathematical models.**

-associate verbal names, written word names, and standard numerals with integers, fractions, and decimals; numbers expressed as percents; numbers with exponents; *numbers in scientific notation*; *radicals*; absolute value; and ratios.

-understand the relative size of integers, fractions, decimals, numbers expressed as percents, numbers with exponents, *numbers in scientific notation*, *radicals*, absolute value, and ratios.

-understand concrete and symbolic representations of rational numbers *and irrational numbers* in real-world situations.

-describe a wide variety of patterns, relationships, and functions through models, such as manipulatives, tables, graphs, expressions, *equations*, and *inequalities*.

-create and interpret tables, graphs, *equations*, and verbal descriptions to explain cause-and-effect relationships.

**5. Demonstrate understanding, representation, and use of numbers in a variety of equivalent forms.**

-understand that numbers can be represented in a variety of equivalent forms, including integers, fractions, decimals, percents, *scientific notation*, exponents, *radicals*, and absolute value.

**6. Apply statistical methods and probability concepts in real-world situations.**

-use estimation strategies to predict results and to check the reasonableness of results.

-1 collect, organize, and display data in a variety of forms, including tables, line graphs, charts, and bar graphs, to determine how different ways of presenting data can lead to different interpretations.

-understand and apply the concepts of range and central tendency (mean, median, and mode).

-analyze real-world data by applying appropriate formulas for measures of central tendency and organizing data in a quality display, using appropriate technology, including calculators and computers.

-compare experimental results with mathematical expectation of probabilities.

(**Note:** The following types of problems may be used for this course: a) calculate simple probabilities and use multiple representations; b) obtain experimental results using manipulatives; c) collect data and construct graphs.)

### **7. Use geometric properties and relationships.**

-understand the basic properties of, and relationships pertaining to, regular and irregular geometric shapes in two and three dimensions.

-understand the geometric concepts of symmetry, reflections, congruency, similarity, perpendicularity, parallelism, and transformations, including flips, slides, turns, and enlargements.

-represent and apply geometric properties and relationships to solve real-world and mathematical problems.

-identify and plot ordered pairs in all four quadrants of a rectangular coordinate system (graph) *and apply simple properties of lines.*