

Saddlebrook Preparatory School
Mathematics Curriculum – Transition Math

Saddlebrook Course Number: 84

Florida DOE Course Number: 1205070

Course Title: Transition Math

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 realworld and mathematical problems. The content will include, but not be limited to, the following:

- structure and properties of rational and irrational numbers
- equivalent representations of numbers, including fractions, decimals, and percents, numbers with exponents and radicals, scientific notation, and absolute value
- operations and problem solving with rational and irrational 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 geometric formulas for perimeter, area, and volume
- 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 equations, algebraic inequalities, and geometric formulas
- ratio, proportion, and percent
- statistical methods for collecting, organizing, analyzing, and displaying data
- 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 and those standards established by the National Council of Teachers of Mathematics. 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.

- MA.A.2.3.1 understand and use exponential and scientific notation.
- MA.A.2.3.2 understand the structure of number systems other than the decimal system.
- MA.A.5.3.1 use concepts about numbers, including primes, factors, and multiples, to build number sequences.

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

- MA.A.3.3.1 understand and explain the effects of addition, subtraction, multiplication, and division on whole numbers, fractions, including mixed numbers and decimals, including the inverse relationship of positive and negative numbers.
- MA.A.3.3.2 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.
- MA.A.3.3.3 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.
- MA.A.4.3.1 use estimation strategies to predict results and to check the reasonableness of results.
- MA.B.2.3.1 use direct (measured) and indirect (not measured) measures to compare a given characteristic in either metric or customary units.

- MA.B.2.3.2 solve problems involving units of measure and convert answers to a larger or smaller unit within either the metric or customary system.
- MA.D.2.3.1 represent and solve real-world problems graphically, with algebraic expressions, equations, and inequalities.
- MA.D.2.3.2 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.

- MA.A.4.3.1 use estimation strategies to predict results and to check the reasonableness of results.
- MA.B.1.3.1 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.
- MA.B.1.3.2 use concrete and graphic models to derive formulas for finding rates, distance, time, and angle measures.
- MA.B.1.3.3 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.
- MA.B.1.3.4 construct, interpret, and use scale drawings such as those based on number lines and maps to solve real-world problems.
- MA.B.3.3.1 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.
- MA.B.4.3.1 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.)
- MA.B.4.3.2 select and use appropriate instruments, technology, and techniques to measure quantities in order to achieve specified degrees of accuracy in a problem situation.

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

- MA.A.1.3.1 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.

- MA.A.1.3.2 understand the relative size of integers, fractions, and decimals, numbers expressed as percents; numbers with exponents; numbers in scientific notation; radicals; absolute value; and ratios.
- MA.A.1.3.3 understand concrete and symbolic representations of rational numbers and irrational numbers in real-world situations.
- MA.E.1.3.1 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.

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

- MA.A.1.3.4 understand that numbers can be represented in a variety of equivalent forms, including integers, fractions, decimals, percents, scientific notation, exponents, radicals, and absolute value.

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

- MA.A.4.3.1 use estimation strategies to predict results and to check the reasonableness of results.
- MA.E.1.3.2 understand and apply the concepts of range and central tendency (mean, median, and mode).
- MA.E.1.3.3 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.
- MA.E.2.3.1 compare experimental results with mathematical expectations of probabilities.
- MA.E.2.3.2 determine the odds for and the odds against a given situation.
- MA.E.3.3.1 formulate hypotheses, design experiments, collect and interpret data, and evaluate hypotheses by making inferences and drawing conclusions based on statistics (range, mean, median, and mode) and tables, graphs, and charts.
- MA.E.3.3.2 identify the common uses and misuses of probability and statistical analysis in the everyday world.

6. Use the relationships among arithmetic, algebra, and geometry.

- MA.C.1.3.1 understand the basic properties of, and relationships pertaining to, regular and irregular geometric shapes in two and three dimensions.
- MA.C.2.3.1 understand the geometric concepts of symmetry, reflections, congruency, similarity, perpendicularity, parallelism, and transformations, including flips, slides, turns, and enlargements.
- MA.C.2.3.2 predict and verify patterns involving tessellations (covering of a plane with congruent copies of the same pattern with no holes or overlaps, like floor tiles).
- MA.C.3.3.1 represent and apply geometric properties and relationships to solve real-world and mathematical problems.
- MA.C.3.3.2 identify and plot ordered pairs in all four quadrants of a rectangular coordinate system (graph) and apply simple properties of lines.
- MA.D.1.3.1 describe a wide variety of patterns, relationships, and functions through models, such as manipulatives, tables, graphs, expressions, equations, and inequalities.
- MA.D.1.3.2 create and interpret tables, graphs, equations, and verbal descriptions to explain cause-and-effect relationships.