Course Syllabus
Mathematics, Grade 1

Jefferson County Schools Curriculum, Final
Jefferson County Schools

The Terra Nova Complete Battery for Mathematics is "designed to help students show what they know and can do. Many questions call for critical thinking, reasoning, and problem solving. Questions allow students to use different strategies and to take individual paths to a solution. Real-world topics engage students' interest, and the extensive use of graphics reduces the need for explanatory text and provides a supportive context. Themes group items into meaningful configurations, and items are generally sequenced to promote initial success so that students will continue with confidence to more challenging questions.

The [Terra Nova] tests taps broad mathematical power, yet retains the specifics from the traditional curriculum. The first section of the test includes computation, computation in context, and estimation items, and is administered without calculators. The second section covers a broad range of core skills and may be administered with calculators. Some questions require the use of rulers, which are supplied with the testing materials."

The Tennessee Mathematics Curriculum Standards provide standards, performance indicators, and accomplishments for students in mathematics.

The Terra Nova Complete Battery assesses students in first grade (Level 11).

The Tennessee Mathematics Curriculum Standards provide standards, performance indicators, and accomplishments for students in first grade.

Algebraic Concepts

The Algebraic Concepts Unit includes Competencies/Objectives which focus on algebraic equations and operations. Students explore the symbolic nature of algebraic concepts by identifying and extending patterns in algebra, by following algebraic procedures, and by proving theorems with properties.

- The learner will be able to (IMPORTANT) describe how objects in a set are alike and how they are different.
- The learner will be able to (IMPORTANT) illustrate addition and subtraction sentences written in symbolic form involving numbers zero through twenty using manipulatives.
- The learner will be able to (IMPORTANT) interpret and obtain solutions to simple open addition sentences.
- The learner will be able to (IMPORTANT) create, explain, and continue physical, visual, auditory, and number patterns.
- The learner will be able to (IMPORTANT) recognize and explain growing patterns present in literature, in the real world, in concrete arrangements, and in pictures.
- The learner will be able to (IMPORTANT) recognize the unit of a two-part repeating pattern.
- The learner will be able to (IMPORTANT) translate a repeating pattern from one form to another.
- The learner will be able to (IMPORTANT) apply the commutative property of addition.
- The learner will be able to (IMPORTANT) sort objects by two characteristics.
- The learner will be able to (IMPORTANT) use mathematical vocabulary and appropriate symbols to communicate ideas.

Data Analysis and Probability

- The learner will be able to (ESSENTIAL) read bar graphs.
- The learner will be able to (IMPORTANT) describe events associated with students' experiences as likely or unlikely.
- The learner will be able to (ESSENTIAL) make comparisons of data.
- The learner will be able to (IMPORTANT) develop, choose, and apply appropriate strategies to collect, organize, display, and analyze data.

- The learner will be able to (IMPORTANT) interpret and display data applying physical objects, pictures, picture graphs, and bar graphs.
- The learner will be able to (ESSENTIAL) understand grouping methods.
- The learner will be able to (ESSENTIAL) understand sorting methods.
- The learner will be able to (ESSENTIAL) read a diagram.
- The learner will be able to (ESSENTIAL) read pictographs.
- The learner will be able to (IMPORTANT) apply the basic concepts of probability.
- The learner will be able to (ESSENTIAL) read information in a table and/or chart.
- The learner will be able to (ESSENTIAL) obtain solutions to problems by applying data.

Geometry

The Geometry Unit includes Competencies/Objectives which focus on exploring geometric concepts from multiple perspectives. Students study properties and construction of figures, proofs and theorems, history of geometry, transformations, logic, and problem solving.

The Geometry Unit includes Competencies/Objectives which focus on exploring geometric concepts from multiple perspectives. Students study properties and construction of figures, proofs and theorems, history of geometry, transformations, logic, and problem solving.

- The learner will be able to (ESSENTIAL) combine geometric figures in creating other geometric figures.
- The learner will be able to (IMPORTANT) identify basic properties of and similarities and differences between simple geometric shapes (e.g., number of sides, corners).
- The learner will be able to (IMPORTANT) predict and explain the results of combining and taking apart two- and three-dimensional shapes.
- The learner will be able to (IMPORTANT) analyze the attributes of geometric figures.
- The learner will be able to (ESSENTIAL) apply inductive and deductive reasoning to solve problems.
- The learner will be able to (IMPORTANT) identify whole numbers on a number line.
- The learner will be able to (IMPORTANT) use directional vocabulary in a variety of scenarios)(e.g., over, under, forward, backward, between, right, left).
- The learner will be able to (ESSENTIAL) use spatial reasoning skills.
- The learner will be able to (IMPORTANT) specify locations and explain spatial relationships.
- The learner will be able to (IMPORTANT) construct a figure from memory using spatial sense.
- The learner will be able to (ESSENTIAL) obtain solutions to problems using spatial visualization.
- The learner will be able to (ESSENTIAL) use the concepts, properties, and relationships of three-dimensional solids.
- The learner will be able to (IMPORTANT) recognize and apply the transformations translation, rotation, or reflection (flips, slides, and turns).
- The learner will be able to (ESSENTIAL) use the concepts, properties, and relationships of two-dimensional shapes.
- The learner will be able to (ESSENTIAL) identify figures that are similar and/or congruent.
- The learner will be able to (ESSENTIAL) subdivide figures.

Measurement

The Measurement Unit includes Competencies/Objectives which focus on measurement concepts, applications, and analysis. Students study length, area, circumference, perimeter, volume, weight, formulas, distance, calendar, money, tools, accuracy, units, constructions, patterns, and problem solving.

The Measurement Unit includes Competencies/Objectives which focus on measurement concepts, applications, and analysis. Students study length, area, circumference, perimeter, volume, weight, formulas, distance, calendar, money, tools, accuracy, units, constructions, patterns, and problem solving.

- The learner will be able to (IMPORTANT) identify the calendar as a measure of time.
- The learner will be able to (ESSENTIAL) develop an understanding of calendars and their uses.
- The learner will be able to (IMPORTANT) compare and order objects by weight, length, or capacity.
- The learner will be able to (ESSENTIAL) measure distance.
- The learner will be able to (ESSENTIAL) determine the length of the object.
- The learner will be able to (IMPORTANT) estimate the length of objects using nonstandard units.
- The learner will be able to (IMPORTANT) measure the length of an object to the nearest inch or centimeter.
- The learner will be able to (IMPORTANT) understand the concept of length measurement.
- The learner will be able to (ESSENTIAL) make measurement estimations.
- The learner will be able to (IMPORTANT) comprehend the measurable characteristics of objects.
- The learner will be able to (IMPORTANT) use various methods and tools to determine measurements.
- The learner will be able to (ESSENTIAL) perform calculations with money.
- The learner will be able to (IMPORTANT) make comparisons of time units.
- The learner will be able to (IMPORTANT) read and write time to the nearest hour and half-hour.
- The learner will be able to (ESSENTIAL) solve problems involving time.
- The learner will be able to (IMPORTANT) explain the relationship between days and months.
- The learner will be able to (IMPORTANT) accurately measure temperature using a thermometer.
- The learner will be able to (IMPORTANT) identify the necessity of standard units of measure.
- The learner will be able to (IMPORTANT) measure weight in pounds or kilogram.
- The learner will be able to (ESSENTIAL) apply nonstandard units in measurement situations.

Number and Operations

- The learner will be able to (IMPORTANT) create story problems that illustrate simple addition and subtraction facts.
- The learner will be able to (IMPORTANT) obtain solutions to simple addition and subtraction story problems with numbers less than twenty.
- The learner will be able to (IMPORTANT) apply a variety of methods to add and subtract two-digit whole numbers(i.e., counting up or back, taking away, doubles plus one, comparison, number relationships, modeling).
- The learner will be able to (IMPORTANT) apply calculators in problem solving scenarios.
- The learner will be able to (ESSENTIAL) compare and order numbers.
- The learner will be able to (IMPORTANT) apply pictures or objects to illustrate one more or one less than any number up to ninety-nine.

- The learner will be able to (IMPORTANT) use symbols (i.e., <, >, =) to make comparisons of numbers.
- The learner will be able to (ESSENTIAL) correctly perform various computations.
- The learner will be able to (ESSENTIAL) perform computations in the context of given problems.
- The learner will be able to (IMPORTANT) count forward and backward by ones starting with any number less than 100.
- The learner will be able to (ESSENTIAL) solve problems using counting.
- The learner will be able to (IMPORTANT) count by ones the number of objects in a set with less than 100 items.
- The learner will be able to (IMPORTANT) estimate the number of objects in a set and describe the reasoning used.
- The learner will be able to (IMPORTANT) identify one whole as two halves or four fourths.
- The learner will be able to (IMPORTANT) model halves and fourths of one object or figure.
- The learner will be able to (IMPORTANT) model halves and fourths of a set of items.
- The learner will be able to (IMPORTANT) match the verbal, written, physical, and picture representation of 1/2 and 1/4.
- The learner will be able to (ESSENTIAL) model problem scenarios.
- The learner will be able to (IMPORTANT) find the value of a set of coins (quarters, dimes, nickels, pennies) totaling up to fifty cents.
- The learner will be able to (IMPORTANT) illustrate numbers in flexible ways using many different materials (e.g., 23 as 23 ones, 1 ten and 13 ones, and/or 2 tens and 3 ones).
- The learner will be able to (IMPORTANT) determine one more or one less using a number line or hundred grid with numbers up to fifty.
- The learner will be able to (ESSENTIAL) identify numbers.
- The learner will be able to (IMPORTANT) recognize odd and even whole numbers to 50.
- The learner will be able to (IMPORTANT) understand the meaning of operations.
- The learner will be able to (IMPORTANT) place whole numbers that are less than 100 in order.
- The learner will be able to (IMPORTANT) apply the language of ordinal numbers up to twelfths.
- The learner will be able to (ESSENTIAL) understand ordinal numbers.
- The learner will be able to (ESSENTIAL) comprehend number patterns.
- The learner will be able to (ESSENTIAL) find an element that is missing in a pattern.
- The learner will be able to (ESSENTIAL) understand and/or apply geometric patterns.
- The learner will be able to (ESSENTIAL) use number patterns.
- The learner will be able to (IMPORTANT) identify place value in whole numbers up to 99.
- The learner will be able to (ESSENTIAL) understand the concept of place value.
- The learner will be able to (ESSENTIAL) obtain solutions to non-routine problems.
- The learner will be able to (IMPORTANT) use words, actions, pictures, and manipulatives to solve problems.
- The learner will be able to (ESSENTIAL) read numbers.
- The learner will be able to (IMPORTANT) read and write numerals to at least 100.

- The learner will be able to (IMPORTANT) count at most thirty objects by twos, fives, and tens.
- The learner will be able to (IMPORTANT) skip count by twos. fives, and tens up to 100.
- The learner will be able to (IMPORTANT) use a hundred chart to count by tens from any number.
- The learner will be able to (IMPORTANT) describe the reasonableness of a solution.
- The learner will be able to (IMPORTANT) explain and justify solutions and strategies in problem solving.
- The learner will be able to (IMPORTANT) model whole numbers up to ninety-nine using manipulatives (e.g., base-ten blocks, sticks, straws).