

# Course Syllabus

## Mathematics, Grade K

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 Kindergarten (Level 10).

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

### 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) appropriately use mathematical language.

- The learner will be able to (IMPORTANT) analyze change in many different contexts.
- The learner will be able to (IMPORTANT) comprehend the vocabulary and symbols of mathematics using physical, pictorial, and oral representations.
- The learner will be able to (IMPORTANT) apply manipulatives or pictures to illustrate addition and subtraction sentences written symbolically involving numbers from zero to five.
- The learner will be able to (IMPORTANT) read and describe simple addition and subtraction number sentences written in symbolic form.
- The learner will be able to (IMPORTANT) illustrate the properties of operations.
- The learner will be able to (IMPORTANT) create and explain a simple repeating pattern.
- The learner will be able to (IMPORTANT) identify and continue a physical, visual, or auditory two- or three-part repeating pattern.
- The learner will be able to (IMPORTANT) represent and analyze patterns and functions.
- The learner will be able to (IMPORTANT) sort items by color, shape, size, or kind.
- The learner will be able to (IMPORTANT) sort objects according to size, number, and other properties.

### Data Analysis and Probability

- The learner will be able to (ESSENTIAL) make interpretations of data displays.
- 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.

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- 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) illustrate and compare data applying objects, pictures, and simple graphs.
- 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) 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.

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- The learner will be able to (IMPORTANT) analyze characteristics and properties of geometric shapes.
- The learner will be able to (IMPORTANT) put together two-dimensional figures to create pictures.
- The learner will be able to (IMPORTANT) use three-dimensional shapes to create structures.
- 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) recognize and name circles, squares, triangles, and rectangles when shown in different positions.

- The learner will be able to (IMPORTANT) use directional vocabulary in a variety of scenarios (e.g., over, under, forward, backward, backward, right, left).
- The learner will be able to (IMPORTANT) recognize triangles, rectangles, squares, and circles in the environment and as the faces of three-dimensional objects.
- The learner will be able to (IMPORTANT) create circles, squares, triangles, and rectangles.
- The learner will be able to (IMPORTANT) specify locations and explain spatial relationships.
- 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) use spatial reasoning skills.
- The learner will be able to (ESSENTIAL) apply the geometric properties.
- The learner will be able to (ESSENTIAL) obtain solutions to problems using spatial visualization.

### 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.

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- The learner will be able to (IMPORTANT) identify the calendar as a measure of time.
- The learner will be able to (IMPORTANT) understand the concept of length measurement.
- The learner will be able to (IMPORTANT) demonstrate understanding of units of measure and 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 (IMPORTANT) recognize coins.
- The learner will be able to (IMPORTANT) correctly apply the vocabulary connected with time measurement (e.g., day, night, morning, afternoon, yesterday, today, tomorrow).
- The learner will be able to (IMPORTANT) tell time to the nearest hour.
- The learner will be able to (IMPORTANT) use terms related to temperature (e.g., hot, warm, cool, cold).
- The learner will be able to (IMPORTANT) identify a thermometer as a way to measure temperature.
- The learner will be able to (IMPORTANT) compare the length, weight, and capacity of two objects.
- The learner will be able to (ESSENTIAL) develop an understanding of calendars and their uses.
- The learner will be able to (ESSENTIAL) identify and understand how money is used.
- The learner will be able to (ESSENTIAL) determine the length of the object.
- The learner will be able to (ESSENTIAL) solve problems involving time.
- The learner will be able to (ESSENTIAL) use the appropriate measurement instrument (ruler, thermometer, etc.) when measuring a specific attribute.

- The learner will be able to (ESSENTIAL) apply nonstandard units in measurement situations.

### Number and Operations

- The learner will be able to (IMPORTANT) create methods for adding and subtracting whole numbers using manipulatives.
- The learner will be able to (IMPORTANT) describe the relationship between two numbers up to twenty using the terms less than, more than, or equal to.
- The learner will be able to (IMPORTANT) apply pictures or objects, such as a ten frame, to illustrate one more or one less than any number to twenty.
- The learner will be able to (IMPORTANT) count by ones and tens to fifty.
- The learner will be able to (IMPORTANT) count backward from ten to one.
- The learner will be able to (IMPORTANT) count groups of object up to twenty.
- The learner will be able to (IMPORTANT) solve problems, compute fluently, and apply estimation to obtain reasonable approximations.
- The learner will be able to (IMPORTANT) name coins and their values.
- The learner will be able to (IMPORTANT) understand numbers, the various ways of representing numbers, relationships among numbers, and number systems.
- The learner will be able to (IMPORTANT) recognize the location of whole numbers up to twenty on the number line.
- The learner will be able to (IMPORTANT) decide if a figure has been divided in halves.
- The learner will be able to (IMPORTANT) understand the meanings of operations and how they relate to one another.

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- The learner will be able to (IMPORTANT) order whole numbers less than 20.
- The learner will be able to (IMPORTANT) use ordinal number names from "first" through "tenth".
- The learner will be able to (IMPORTANT) obtain solutions to simple verbal word problems involving numbers zero to ten using many different methods.
- The learner will be able to (IMPORTANT) apply terms, actions, pictures, or manipulatives to obtain solutions to problems.
- The learner will be able to (IMPORTANT) illustrate quantities up to twenty on ten-frames.
- The learner will be able to (IMPORTANT) match a quantity with the number that represents it up to twenty.
- The learner will be able to (IMPORTANT) identify sets of objects that are equivalent.
- The learner will be able to (IMPORTANT) describe the reasonableness of a solution.
- The learner will be able to (IMPORTANT) write whole numbers to at most 20 in numeric form.
- The learner will be able to (ESSENTIAL) understand and/or apply geometric patterns.
- The learner will be able to (ESSENTIAL) comprehend number patterns.
- The learner will be able to (ESSENTIAL) use number patterns.
- The learner will be able to (ESSENTIAL) solve problems using counting.
- The learner will be able to (ESSENTIAL) understand ordinal numbers.
- The learner will be able to (ESSENTIAL) find an element that is missing in a pattern.
- The learner will be able to (ESSENTIAL) compare and order numbers.
- The learner will be able to (ESSENTIAL) perform computations in the context of given problems.
- The learner will be able to (ESSENTIAL) develop an understanding of the concept of fractional parts.
- The learner will be able to (ESSENTIAL) model problem scenarios.
- The learner will be able to (ESSENTIAL) model problem solutions.