

# Course Syllabus

## Science, TN: Grade 3

Jefferson County Schools Curriculum, Final  
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The Terra Nova Multiple Assessments Battery for Science "measures knowledge of key concepts and facility with science process skills. By applying scientific concepts to objects and situations that are familiar to them, students draw connections between what they learn in the classroom and what they find in their own lives. Engaging graphics, photographs, and page designs typify science instructional materials and invite students to participate fully in the test.

The test covers the traditional core areas of science - inquiry, physical science, life science, Earth and space sciences - and adds science and technology, science in personal and social perspectives, and the history and nature of science, as suggested in the National Science Education Standards. Implicit in many questions is the measurement of higher-order thinking skills - the student's ability to analyze, infer, synthesize, and evaluate."

The Tennessee Science Curriculum Standards provide standards, performance indicators, and accomplishments for students in science.

The Terra Nova Multiple Assessments assess students in third grade (Level 13).

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### Earth and Space Science

The Earth and Space Science unit addresses the composition, structure, exploration, and history of the earth and space. Topics include plate tectonics, the atmosphere, geological cycles and processes, weather, climate, the solar system, and the universe.

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- The learner will be able to (ESSENTIAL) comprehend the atmosphere.
- The learner will be able to (ESSENTIAL) choose the illustration that identifies a particular geological feature.
- The learner will be able to (ESSENTIAL) recognize a geological feature when provided with specific information.
- The learner will be able to (ESSENTIAL) recognize a measurable characteristic of a particular earth material.
- The learner will be able to (IMPORTANT) describe how the rotation of the earth relative to the sun results in day and night.
- The learner will be able to (IMPORTANT) identify that the sun provides a main source of heat and light for the earth and analyze data to explain the heating and cooling of land, air, and water.
- The learner will be able to (IMPORTANT) identify that telescopes are used to study distant objects.
- The learner will be able to (ESSENTIAL) recognize and order the four basic phases of the moon.
- The learner will be able to (ESSENTIAL) understand natural resources.
- The learner will be able to (ESSENTIAL) choose the illustration that depicts a method to conserve or reuse a natural resource.
- The learner will be able to (ESSENTIAL) select a suitable instrument for observing a particular distant object.
- The learner will be able to (IMPORTANT) recognize rock types.
- The learner will be able to (ESSENTIAL) understand rock dynamics.
- The learner will be able to (IMPORTANT) explain that rock is made up of various combinations of minerals.

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- The learner will be able to (ESSENTIAL) recognize the season given specific weather conditions.
- The learner will be able to (ESSENTIAL) identify objects visible in the sky during the day and night.
- The learner will be able to (ESSENTIAL) recognize the components of the solar system.
- The learner will be able to (ESSENTIAL) comprehend the solar system.
- The learner will be able to (ESSENTIAL) recognize the approximate time of day based on an illustration of the sun's position in the sky.
- The learner will be able to (ESSENTIAL) understand that objects can be classified into two categories: natural and human-made.
- The learner will be able to (IMPORTANT) identify planets as major components of the universe.
- The learner will be able to (IMPORTANT) identify that events in the universe occur in predictable patterns.
- The learner will be able to (IMPORTANT) identify and compare and contrast a variety of different landforms and bodies of water.
- The learner will be able to (ESSENTIAL) comprehend the nature of climate.
- The learner will be able to (ESSENTIAL) choose appropriate clothing for a specific weather condition.
- The learner will be able to (ESSENTIAL) connect kinds of clouds to weather events and patterns.
- The learner will be able to (IMPORTANT) illustrate daily weather using specific data.
- The learner will be able to (ESSENTIAL) recognize the appropriate instruments to measure temperature and precipitation.
- The learner will be able to (IMPORTANT) recognize that weather can be measured using tools and instruments.

- The learner will be able to (ESSENTIAL) match temperature, wind speed and direction, and precipitation are associated with weather (Learning Accomplishment includes describing how changes affect weather).
- The learner will be able to (ESSENTIAL) understand weather.
- The learner will be able to (ESSENTIAL) understand water dynamics.

### Life Science

The Life Science unit addresses the characteristics and cycles of and relationships between living things and their environments. Topics include cellular organization, classification, ecosystems, genetics, and human health issues.

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- The learner will be able to (IMPORTANT) understand the characteristics of plants and animals that help them to survive in their environment and identify examples of these characteristics.
- The learner will be able to (IMPORTANT) identify how plants and animals of the same kind can be different from one another and provide specific examples.
- The learner will be able to (IMPORTANT) analyze the interactions among plants, animals, non-living things, and their environments.

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- The learner will be able to (ESSENTIAL) recognize the characteristics that enable a particular plant and/or animal to survive in its environment.
- The learner will be able to (IMPORTANT) identify that some plants and animals are no longer found on earth and give examples.
- The learner will be able to (ESSENTIAL) recognize the basic needs of plants and animals.
- The learner will be able to (ESSENTIAL) recognize a part that belongs to specific plant or animal.
- The learner will be able to (IMPORTANT) give evidence of the fact that animals of the same kind can have differences and provide examples.
- The learner will be able to (ESSENTIAL) choose the animals found in a particular environment.
- The learner will be able to (IMPORTANT) identify and examine the smaller parts of animals and identify their functions through the use of magnifiers.
- The learner will be able to (IMPORTANT) recognize and identify materials that can be recycled and reused and identify some of these.
- The learner will be able to (ESSENTIAL) comprehend environments.
- The learner will be able to (ESSENTIAL) differentiate between water and land environments.
- The learner will be able to (ESSENTIAL) comprehend ecology.
- The learner will be able to (ESSENTIAL) select the diagram that shows a parent with its offspring.
- The learner will be able to (IMPORTANT) recognize that while offspring tend to resemble their parents there can be differences as well.
- The learner will be able to (ESSENTIAL) understand human health issues.
- The learner will be able to (ESSENTIAL) choose the illustration that depicts an adult organism.
- The learner will be able to (ESSENTIAL) comprehend the life cycles of living things.
- The learner will be able to (IMPORTANT) identify alterations in the appearance of plants and animals, as they get older and describe some of these changes (e.g., frog, butterfly).
- The learner will be able to (ESSENTIAL) choose an illustration that depicts how an organism changes as it matures.
- The learner will be able to (ESSENTIAL) understand that various living things live in various habitats (Performance Indicator includes "identify organism that lives in a specific environment").
- The learner will be able to (IMPORTANT) identify that living things are made up of smaller parts and that these parts are essential to its well-being.
- The learner will be able to (ESSENTIAL) choose the illustration that depicts what happens when a living thing is missing a specific part.
- The learner will be able to (ESSENTIAL) differentiate among living and non-living things in an illustration by examining its characteristics.
- The learner will be able to (ESSENTIAL) understand behavioral and/or structural adaptations.
- The learner will be able to (ESSENTIAL) utilize various classification systems for living things.
- The learner will be able to (ESSENTIAL) identify and match an organism to evidence for its former existence.
- The learner will be able to (ESSENTIAL) cite examples of organisms, other than a dinosaur, which used to live on the earth and are now extinct.
- The learner will be able to (IMPORTANT) identify the basic needs living things require for survival and explain how animals depend on plants to meet their need for energy.
- The learner will be able to (IMPORTANT) recognize that organisms use their senses to interact with the environment around them.

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- The learner will be able to (ESSENTIAL) recognize similar groups of organisms.
- The learner will be able to (IMPORTANT) discover the functions of the major plant parts by studying them.
- The learner will be able to (ESSENTIAL) associate the parts of a plant with their functions.
- The learner will be able to (ESSENTIAL) identify the different parts of plants.
- The learner will be able to (IMPORTANT) use magnifiers to survey and explain what happens when a plant loses a part (e.g., leaves, root).
- The learner will be able to (ESSENTIAL) recognize the environment that has been affected by pollutants.
- The learner will be able to (IMPORTANT) identify and explain how different types of pollution impact environments.
- The learner will be able to (IMPORTANT) identify that living things acquire the potential to reproduce as they mature.
- The learner will be able to (ESSENTIAL) recognize the senses that are utilized to collect information.
- The learner will be able to (ESSENTIAL) classify objects as solids or liquids.
- The learner will be able to (ESSENTIAL) understand the properties of energy.
- The learner will be able to (IMPORTANT) describe the relationship between the amount of force applied to an object and the distance the object moves.
- The learner will be able to (ESSENTIAL) recognize the suitable tools that would be used to determine the weight or length of materials.
- The learner will be able to (IMPORTANT) identify that magnets can make certain objects move without coming in contact with them.
- The learner will be able to (ESSENTIAL) choose an object that would be attracted by a magnet.
- The learner will be able to (ESSENTIAL) choose a mixture that shows the retention or loss of the individual characteristics of the combined substances.
- The learner will be able to (ESSENTIAL) recognize the effects of combining two types of materials (e.g., sugar and water).
- The learner will be able to (IMPORTANT) choose appropriate tools to survey and measure the physical properties of materials.
- The learner will be able to (IMPORTANT) describe how the properties of form, color, or texture in materials can change when they are heated, separated, or mixed.
- The learner will be able to (ESSENTIAL) understand the properties and structure of matter.
- The learner will be able to (ESSENTIAL) choose the balance that has been affected by the addition or subtraction of weight.
- The learner will be able to (ESSENTIAL) recognize methods of separating mixtures.

### Physical Science

The Physical Science unit includes concepts related to matter, forces, motion, and energy, as well as their interactions. Topics include chemical and physical changes, electricity, magnetism, heat, light, sound, machines, work and power.

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- The learner will be able to (ESSENTIAL) choose the surface that would have the greatest impact on the motion of an object.
- The learner will be able to (IMPORTANT) identify that different surfaces cause objects to move differently.
- The learner will be able to (ESSENTIAL) recognize how the motion and direction of an object can be altered.
- The learner will be able to (ESSENTIAL) recognize the part that is missing from an object.
- The learner will be able to (IMPORTANT) explain how altering the position of an object impacts balance.
- The learner will be able to (IMPORTANT) identify that the observable properties of objects can change over time and under different conditions.
- The learner will be able to (ESSENTIAL) identify and sequence objects based on a particular property (e.g., longest to shortest, heaviest to lightest).
- The learner will be able to (ESSENTIAL) recognize an object when provided with its properties.
- The learner will be able to (ESSENTIAL) explain how sounds are produced.
- The learner will be able to (ESSENTIAL) distinguish between the pitch and volume of sound.
- The learner will be able to (ESSENTIAL) predict the volume of sound when provided with a specific source for the sound.
- The learner will be able to (IMPORTANT) classify substances based on their observable (physical) properties.
- The learner will be able to (ESSENTIAL) recognize the illustration that shows the impact of the sun on various materials.
- The learner will be able to identify the sun as the source of earth's heat and light energy.

### Research and Inquiry

The Research and Inquiry unit focuses on the knowledge, processes, and real world issues associated with science and technology. Topics include experimentation, data analysis, science related careers, and technological advances.

- The learner will be able to (ESSENTIAL) interpret scientific data.
- The learner will be able to (ESSENTIAL) understand methods of scientific inquiry.
- The learner will be able to (ESSENTIAL) comprehend the design of an experiment.
- The learner will be able to (ESSENTIAL) understand and use the processes and skills of science and technology.
- The learner will be able to (ESSENTIAL) comprehend technological design.
- The learner will be able to (ESSENTIAL) utilize available and suitable technology.