

Course Syllabus

Science, TN: Grade 6

Jefferson County Schools Curriculum, Final
Jefferson County Schools

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 sixth grade (Level 16).

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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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geological cycles and processes, weather, climate, the solar system, and the universe.

- The learner will be able to (ESSENTIAL) comprehend the atmosphere.
- The learner will be able to (IMPORTANT) make use of available resources (Internet, library, interviews, etc.) to research careers associated with technology and space exploration.
- The learner will be able to (IMPORTANT) find the geologic age of an object using diagrams or timelines.
- The learner will be able to (IMPORTANT) explain the relative positions of the earth, sun, and moon.
- The learner will be able to (ESSENTIAL) differentiate between a solar and lunar eclipse (Learning Accomplishment includes "model the placement of the earth, moon and sun during solar and lunar eclipses").
- The learner will be able to (ESSENTIAL) comprehend the earth-moon system.
- The learner will be able to (IMPORTANT) recognize that gravity is responsible for the orbits of the planets and moons.
- The learner will be able to (ESSENTIAL) identify the force that pulls objects toward the earth.
- The learner will be able to (ESSENTIAL) predict the type of tide produced by the different positions of the earth and moon system (Learning Accomplishment includes "relate tidal conditions with the position of the moon").
- The learner will be able to (ESSENTIAL) distinguish between a day, a month, and a year based on the movements of the earth, sun, and moon.
- The learner will be able to (ESSENTIAL) differentiate between planets according to size.
- The learner will be able to (ESSENTIAL) understand rock dynamics.

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- The learner will be able to (ESSENTIAL) describe, using a model, how the earth's revolution around the sun and its tilt cause the seasons.
- The learner will be able to (IMPORTANT) explore the role of technology and careers associated with the study of space.
- The learner will be able to (ESSENTIAL) comprehend the solar system.
- The learner will be able to (IMPORTANT) make a model of the solar system.
- The learner will be able to (ESSENTIAL) categorize the components of the universe (i.e., stars, planets, comets, asteroids, meteors).
- The learner will be able to (ESSENTIAL) understand water dynamics.
- The learner will be able to (ESSENTIAL) comprehend the nature of climate.
- The learner will be able to (ESSENTIAL) understand weather.
- The learner will be able to (ESSENTIAL) understand that cells undergo chemical changes which allow energy to be converted from one form to another.
- The learner will be able to (ESSENTIAL) develop an understanding of cells.
- The learner will be able to (IMPORTANT) differentiate between predators and prey.
- The learner will be able to (IMPORTANT) explain the effects of competition among species in an ecosystem.
- The learner will be able to (IMPORTANT) interpret how human beings affect ecosystems.
- The learner will be able to (ESSENTIAL) predict whether an organism can survive in a particular ecosystem.
- The learner will be able to (ESSENTIAL) comprehend environments.
- The learner will be able to (ESSENTIAL) comprehend ecology.
- The learner will be able to (ESSENTIAL) select additional lines of scientific evidence, other than fossils, that illustrate change over time.
- The learner will be able to (ESSENTIAL) infer the consequences of losing a link in the food chain.
- The learner will be able to (IMPORTANT) show interrelationships among living things in a food chain or food web.
- The learner will be able to (ESSENTIAL) distinguish between the relative ages of a variety of fossils in sedimentary rock.
- The learner will be able to (ESSENTIAL) characterize fossils according to their similarities and differences.
- The learner will be able to (IMPORTANT) explore fossil evidence found in sedimentary rock layers.
- The learner will be able to (ESSENTIAL) comprehend the relationship between an organisms structure and function (Performance Indicator includes "match the form of an organism's structure with its function").

Life Science

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- The learner will be able to (ESSENTIAL) understand human health issues.
- The learner will be able to (ESSENTIAL) comprehend the life cycles of living things.
- The learner will be able to (ESSENTIAL) understand that various living things live in various habitats.
- The learner will be able to (ESSENTIAL) understand behavioral and/or structural adaptations.
- The learner will be able to (ESSENTIAL) comprehend how organisms are adapted for surviving in specific environments.
- The learner will be able to (ESSENTIAL) utilize various classification systems for living things.
- The learner will be able to (ESSENTIAL) identify how organisms obtain food for energy.
- The learner will be able to (ESSENTIAL) identify the characteristics of a living thing that allows it to survive in an environment.
- The learner will be able to (ESSENTIAL) determine which organisms are likely to survive in a particular environment.
- The learner will be able to (ESSENTIAL) analyze the plants and animals of a specific environment and identify the characteristics that ensure their survival.
- The learner will be able to (ESSENTIAL) recognize how plants and animals are interdependent.
- The learner will be able to (ESSENTIAL) categorize living things as producers, consumers, and decomposers in a food chain.
- The learner will be able to (ESSENTIAL) identify factors that contribute to extinction.
- The learner will be able to (ESSENTIAL) predict how environmental alterations may impact the survival of a plant or animal species.
- The learner will be able to (ESSENTIAL) differentiate between commensalism, parasitism, and mutualism.

- The learner will be able to (ESSENTIAL) understand symbiotic relationships.
- The learner will be able to (ESSENTIAL) comprehend that organ systems work together to form living things.

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 (IMPORTANT) understand the law of the conservation of energy.
- The learner will be able to (IMPORTANT) explain how magnets are involved in the production of electricity.
- The learner will be able to (ESSENTIAL) understand the properties of energy.
- The learner will be able to (ESSENTIAL) recognize a variety of energy transformations.
- The learner will be able to (IMPORTANT) differentiate between heat, chemical, electrical, and mechanical energy.
- The learner will be able to (ESSENTIAL) understand and use concepts about and principles of force and motion.

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- The learner will be able to (IMPORTANT) describe the difference between the Fahrenheit and Celsius temperature scales.
- The learner will be able to (IMPORTANT) understand how heat and temperature differ.
- The learner will be able to (ESSENTIAL) predict the direction of heat flow between objects (Learning Accomplishment includes "describe how heat flows through objects").
- The learner will be able to (IMPORTANT) compare incandescent and fluorescent light with respect to production and efficiency.
- The learner will be able to (ESSENTIAL) select examples of refraction, reflection, and absorption of light.
- The learner will be able to (ESSENTIAL) understand the properties and structure of matter.
- The learner will be able to (ESSENTIAL) infer the impact of nuclear power on humans and the environment.
- The learner will be able to (IMPORTANT) explain how the properties of sound are related to wavelength, frequency, and amplitude.
- The learner will be able to (IMPORTANT) recognize the basic parts of a wave.
- The learner will be able to (ESSENTIAL) identify the wave length, frequency, and amplitude of a wave.
- The learner will be able to (ESSENTIAL) determine the wave frequencies within the electromagnetic spectrum (Learning Accomplishment includes "describe the electromagnetic spectrum").

Research and Inquiry

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- The learner will be able to (ESSENTIAL) recognize careers that utilize science and technology.
- 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) comprehend technological design.
- The learner will be able to (ESSENTIAL) utilize available and suitable technology.