Course Syllabus
Science, TN: Grade 7

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 seventh grade (Level 17).

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

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.

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.

- The learner will be able to (ESSENTIAL) comprehend the atmosphere.
- The learner will be able to (ESSENTIAL) understand rock dynamics.
- The learner will be able to (ESSENTIAL) comprehend the solar system.
- The learner will be able to (ESSENTIAL) determine how temperature affects evaporation, condensation, and precipitation.
- The learner will be able to (ESSENTIAL) identify the detailed features of the water cycle.
- The learner will be able to (ESSENTIAL) understand water dynamics.
- The learner will be able to (IMPORTANT) investigate careers that are related to meteorology.
- The learner will be able to (ESSENTIAL) comprehend the nature of climate.
- The learner will be able to (IMPORTANT) use diagrams to illustrate how weather and climate are affected by atmospheric winds and oceans.
- The learner will be able to (IMPORTANT) describe the impact of catastrophic events on climate (e.g., volcanic eruption).
- The learner will be able to (IMPORTANT) document meteorological data to forecast weather patterns.
- The learner will be able to (ESSENTIAL) interpret weather data using a weather map.
- The learner will be able to (ESSENTIAL) analyze data to make predictions about weather.
- The learner will be able to (ESSENTIAL) understand weather.

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.

Course Syllabus
Science, TN: Grade 7

Jefferson County Schools Curriculum, Final
Jefferson County Schools

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.

- The learner will be able to (ESSENTIAL) classify animals according to their means of obtaining oxygen.
- The learner will be able to (IMPORTANT) compare and contrast the processes of cellular respiration and photosynthesis.
- 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) predict the movement of substances across the cell membranes when given solutions of different concentrations.
- The learner will be able to (IMPORTANT) design models to show how materials move between cells and their environment.
- The learner will be able to (IMPORTANT) order a series of illustrations depicting the stages of cell division in plant and animal cells.
- The learner will be able to (IMPORTANT) recognize that cell division occurs in successive steps.
- The learner will be able to (ESSENTIAL) associate photosynthesis and respiration to the appropriate cellular organelles.
- The learner will be able to (ESSENTIAL) identify the reactants and products of photosynthesis and respiration.
- The learner will be able to (ESSENTIAL) identify major cell organelles and their functions.
- The learner will be able to (ESSENTIAL) recognize the basic structures that most cells share (i.e., nucleus, cytoplasm, cell membrane).
- The learner will be able to (ESSENTIAL) differentiate between the cell structures of plants and animals.
- The learner will be able to (ESSENTIAL) develop an understanding of cells.
- The learner will be able to (ESSENTIAL) interpret a diagram depicting the oxygen-carbon dioxide cycle.
- 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) determine which materials are needed by plants to make food.
- The learner will be able to (ESSENTIAL) select the illustration that depicts the movement of oxygen and carbon dioxide between living things and their environment.
- The learner will be able to (ESSENTIAL) sequence a series of diagrams depicting the movement of chromosomes during mitosis.
- The learner will be able to (ESSENTIAL) understand the heredity of living things.
- 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) utilize various classification systems for living things.
- The learner will be able to (ESSENTIAL) select the structure that animals use to make oxygen.
- The learner will be able to (ESSENTIAL) identify photosynthesis as the food making process in plants.

- The learner will be able to (ESSENTIAL) recognize a variety of pollination methods and associated floral adaptations.
- The learner will be able to (ESSENTIAL) identify the difference between sexual and asexual reproduction.
- The learner will be able to recognize that genetic information is passed from parent to offspring during reproduction.
- The learner will be able to (ESSENTIAL) establish if an organism reproduces sexually or asexually.
- The learner will be able to (ESSENTIAL) recognize the relationship between reproduction and the survival of a species.
- The learner will be able to (ESSENTIAL) match a flower part with its reproductive function.
- The learner will be able to (ESSENTIAL) construct a diagram showing the relationship among cells, tissues, organs, and systems.

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.

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.

- The learner will be able to (ESSENTIAL) classify substances as elements or compounds from their chemical equations or formulas.
- The learner will be able to (ESSENTIAL) understand the properties of energy.
- The learner will be able to (ESSENTIAL) understand and use concepts about and principles of force and motion.
- The learner will be able to (ESSENTIAL) understand the properties and structure of matter.
- The learner will be able to (IMPORTANT) explain the arrangement of particles in different states of matter.
- The learner will be able to (IMPORTANT) comprehend that the periodic table is used to classify elements and gather information about an element using the table.
- The learner will be able to (IMPORTANT) identify the mass, volume, density, boiling point, melting point, and solubility of a given substance.
- The learner will be able to (IMPORTANT) measure a substance's mass, volume, density, and temperature.
- The learner will be able to (ESSENTIAL) determine the measurable properties of matter using appropriate metric units.
- The learner will be able to (ESSENTIAL) identify the observable and measurable properties of solids, liquids, and gases.
- The learner will be able to (ESSENTIAL) recognize the different properties of elements, compounds, and mixtures.

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 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.