

# Course Syllabus

## Science, Grade 7

Middle School, Review  
Jefferson County Schools

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The Tennessee TCAP Achievement Test provides standards for science.

The Tennessee TCAP Achievement Test for science provides standards for 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 learner will be able to understand the properties and functions of water.
- The learner will be able to understand igneous, sedimentary, and/or metamorphic rocks.
- The learner will be able to develop an understanding of the objects in the sky.
- The learner will be able to comprehend the earth-moon system.
- The learner will be able to understand natural resources.
- The learner will be able to comprehend the solar system.
- The learner will be able to understand Earth as it exists in our solar system.
- The learner will be able to comprehend the processes of the systems of the earth.
- The learner will be able to understand weather.
- The learner will be able to understand the characteristics of the universe.
- The learner will be able to comprehend the atmosphere.
- The learner will be able to comprehend resources.
- The learner will be able to understand the earth's history.

- The learner will be able to explore alterations in the earth and sky.
- The learner will be able to comprehend the nature of climate.
- The learner will be able to comprehend that the earth is composed of various materials.
- The learner will be able to understand the properties of Earth's materials.

### 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.

- The learner will be able to comprehend the cell.
- The learner will be able to understand the adaptations and diversity of organisms.
- The learner will be able to comprehend reproduction and heredity.
- The learner will be able to develop an understanding about environmental quality.
- The learner will be able to comprehend ecology.
- The learner will be able to comprehend environments.
- The learner will be able to understand the heredity of living things.
- The learner will be able to understand that living things have a life cycle.
- The learner will be able to understand that cells utilize the nutrients that they must take in to provide energy for the work that cells perform and to produce the materials that a cell or living thing requires.
- The learner will be able to recognize the basic structure and function of organ systems.

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- The learner will be able to develop an understanding of personal and community health.
- The learner will be able to understand human health issues.
- The learner will be able to understand the behavior and regulation of living things.
- The learner will be able to understand habitats and/or niches.
- The learner will be able to comprehend populations.
- The learner will be able to develop an understanding of organisms' characteristics.
- The learner will be able to comprehend adaptation.
- The learner will be able to develop an understanding of organisms and the environments in which they live.
- The learner will be able to understand the applications of taxonomy.
- The learner will be able to understand that an ecosystem is comprised of all populations living together and the physical factors with which they interact.

### 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 learner will be able to understand the structure of atoms.
- The learner will be able to understand chemical reactions.
- The learner will be able to comprehend light.
- The learner will be able to develop an understanding of heat.

- The learner will be able to comprehend electricity.
- The learner will be able to comprehend magnetism.
- The learner will be able to understand the properties of energy.
- The learner will be able to understand forces and motion.
- The learner will be able to comprehend the characteristics of physical science.
- The learner will be able to understand the properties and structure of matter.
- The learner will be able to recognize examples of natural and synthetic polymers.

### 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 develop an understanding of the nature of science.
- The learner will be able to explain significant contributions in science.
- The learner will be able to comprehend the applications of technology.
- The learner will be able to comprehend science and technology in society.
- The learner will be able to recognize careers that need science and technology.
- The learner will be able to comprehend scientific inquiry.
- The learner will be able to understand methods of scientific inquiry.
- The learner will be able to exhibit the ability to conduct science inquiry.

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- The learner will be able to plan explorations that lead to scientific inquiry.
- The learner will be able to comprehend the contexts of science and technology.
- The learner will be able to create a timeline of the major scientific and technological advances.
- The learner will be able to comprehend the history of science.
- The learner will be able to comprehend the historical concepts of science.
- The learner will be able to comprehend science in ancient cultures.
- The learner will be able to comprehend risks and benefits.
- The learner will be able to understand how technology's products and processes influence society.
- The learner will be able to comprehend technological design.
- The learner will be able to begin to develop the abilities necessary for technological design.
- The learner will be able to comprehend science as a human endeavor.
- The learner will be able to comprehend alteration over a period of time.
- The learner will be able to comprehend structure and function .
- The learner will be able to interpret scientific data.