

9TH GRADE SCIENCE SCOPE AND SEQUENCE

EARLY FIRST QUARTER

Earth and Space Sciences

- A. Explain how evidence from stars and other celestial objects provide information about the processes that cause changes in the composition and scale of the physical universe.
- B. Explain that many processes occur in patterns within the Earth's systems.

Science and Technology

- A. Explain the ways in which the processes of technological design respond to the needs of society.
- B. Explain that science and technology are interdependent; each drives the other.

Scientific Inquiry

- A. Participate in and apply the processes of scientific investigation to create models and to design, conduct, evaluate and communicate the results of these investigations.

Scientific Ways of Knowing

- A. Explain that scientific knowledge must be based on evidence, be predictive, logical, subject to modification and limited to the natural world.
- B. Explain how scientific inquiry is guided by knowledge, observations, ideas and questions.
- C. Describe the ethical practices and guidelines in which science operates.
- D. Recognize that scientific literacy is part of being a knowledgeable citizen.

LATE FIRST QUARTER

Earth and Space Sciences

- C. Explain the 4.5 billion-year-history of Earth and the 4 billion-year-history of life on Earth based on observable scientific evidence in the geologic record.

Science and Technology

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EARLY SECOND QUARTER

Earth and Space Sciences

- D. Describe the finite nature of Earth's resources and those human activities that can conserve or deplete Earth's resources.

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LATE SECOND QUARTER

Earth and Space Sciences

- E. Explain the processes that move and shape Earth's surface.
- F. Summarize the historical development of scientific theories and ideas, and describe emerging issues in the study of Earth and space sciences.

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9TH GRADE SCIENCE SCOPE AND SEQUENCE

EARLY THIRD QUARTER

Physical Sciences

- A. Describe that matter is made of minute particles called atoms and atoms are comprised of even smaller components. Explain the structure and properties of atoms.

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LATE THIRD QUARTER

Physical Sciences

- B. Explain how atoms react with each other to form other substances and how molecules react with each other or other atoms to form even different substances.
- C. Describe the identifiable physical properties of substances (e.g., color, hardness, conductivity, density, concentration and ductility). Explain how changes in these properties can occur without changing the chemical nature of the substance.

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EARLY FOURTH QUARTER

Physical Sciences

- D. Explain the movement of objects by applying Newton's three laws of motion.
- E. Demonstrate that energy can be considered to be either kinetic (motion) or potential (stored).
- F. Explain how energy may change form or be redistributed but the total quantity of energy is conserved.

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LATE FOURTH QUARTER

Physical Sciences

- F. Explain how energy may change form or be redistributed but the total quantity of energy is conserved.
- G. Demonstrate that waves (e.g., sound, seismic, water and light) have energy and waves can transfer energy when they interact with matter.

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