

DoDEA Grade 7 Science Standards

S1: Scientific Inquiry

The student demonstrates abilities necessary to do scientific inquiry and an understanding about scientific inquiry; that is, the student:

- S1a:** develops research questions that can be answered through scientific investigations.
- S1b:** accesses, evaluates and uses information from a variety of reliable scientific sources.
- S1c:** designs, conducts and records scientific investigations following the general procedures of scientific inquiry.
- S1d:** applies appropriate tools and techniques to systematically collect, record, analyze, and interpret data.
- S1e:** develops logical descriptions, explanations, predictions, and models using evidence.
- S1f:** recognizes and analyzes interpretations, conclusions, and predictions based upon alternative evidence and explanations.
- S1g:** communicates scientific procedures, explanations, and conclusions using appropriate scientific language and writing, and mathematics.

S2: History and Nature of Science

The student demonstrates an understanding of science as a human endeavor, and the history and nature of science; that is, the student:

- S2a:** recognizes that scientists are from diverse backgrounds, but that all use scientific habits of mind such as: (reasoning, insight, skill, creativity, intellectual honesty, tolerance for ambiguity, skepticisms, and openness to new ideas) in their work.
- S2b:** explains how scientists formulate and test their explanations, revising when necessary.
- S2c:** investigates and identifies how scientists communicate their results and ideas, and describes and identifies situations in which scientists disagree about interpretation of evidence.
- S2d:** examines the effects of science on cultural development and the relationship between scientific innovation and human history.

S3: Science in Personal and Social Perspectives

The student demonstrates an understanding of safety, natural and human hazards, and their risks and benefits; that is, the student:

- S3a:** demonstrates personal and group safety and resource conservation.
- S3b:** thinks critically about risks and benefits of natural, chemical, biological, and personal hazards.
- S3c:** explains environmental degradation on a global scale.

S4: Science and Technology

The student demonstrates an understanding about science and technology and the nature of technological design; that is, the student:

- S4a:** explains how societal challenges may impact scientific research.
- S4b:** tests a design or invention and evaluates its effectiveness.

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S4c: compares the intended benefits and unintended consequences of technology and how it impacts society.

S4d: describes how technology responds to societal needs.

S5: Physical Science

The student demonstrates a conceptual understanding of matter, motions and forces, and transfer of energy; that is, the student:

S5a: compares and contrasts chemical and physical properties of matter and groups materials according to those properties and their changes.

S5b: designs and conducts investigations to calculate the speed of moving objects and determine the forces acting on the object.

S5c: compares types of energy and explains how energy is transformed.

S6: Life Science

The student demonstrates a conceptual understanding of the structure and function of living systems, populations and ecosystems, that is, the student:

S6a: communicates an understanding of the specialized structures and functions found in humans (multicellular organisms).

S6b: examines the influence of genes and the environment on trait expression in organisms.

S6c: predicts how environmental changes may impact the survival of organisms.

S7: Earth and Space Sciences

The student demonstrates a conceptual understanding of Earth systems, history, and place in the solar system; that is, the student:

S7a: compares constructive and destructive forces (e.g., plate tectonics, volcanoes, earthquakes) that cause rapid changes on the Earth's surface.

S7b: analyzes the four major interacting components (i.e., geosphere, hydrosphere, atmosphere, and biosphere) of the Earth's system.

S7c: describes and illustrates the features and structure of the sun and moon.