

Science Standard
Catalina Foothills School District
Grade 6

The sixth grade science program emphasizes the skills of scientific inquiry and builds on the processes of refining testable hypotheses, precise data collection, and analysis. Through a rich, inquiry-based program of study, students will demonstrate scientific literacy and the use of applicable CFSD deep learning proficiencies in the physical, life, earth, and space sciences. Content is taught through an integrated approach with an emphasis on the development of major science systems, changes, and models. Students will engage in active inquiries and investigations to develop conceptual understanding and research/laboratory skills. Sixth grade science promotes the study of major milestones and innovation in science and technology, and invites students to explore new concepts in the areas of plant and animal cells, human body systems, energy transformations, and weather/climate.

SCIENTIFIC INQUIRY

SCIENTIFIC INQUIRY: GENERATING SCIENTIFIC QUESTIONS

SC6.1a.1 Creates observational, experimental, and research questions based on a prompt (for example: observational - How is a cell organized? / experimental – How does a cell respond to different concentrations of a solution? / research - Why are plant cells different than animal cells?).

SCIENTIFIC INQUIRY: PREDICTING AND HYPOTHESIZING

SC6.1b.1 Refines a teacher generated testable hypothesis based on experimental data (for example: If an organism is deprived of water, then the organism may die because water is essential to organisms).

SCIENTIFIC INQUIRY: DESIGNING INVESTIGATIONS

SC6.1c.1 Writes a plan for an experiment that includes the following: (1) list of materials with specified quantities and types, (2) labeled diagram(s) using scientific vocabulary, (3) procedure that lists sequentially significant steps (based on a student generated question).

SCIENTIFIC INQUIRY: OBSERVATION AND DATA COLLECTION

SC6.1d.1 Gathers precise (for example: precision tool allows for - to the nearest tenth, to the nearest hundredth) data (qualitative, quantitative or both) to match investigation.

SC6.1d.2 Describes tools and/or technology (for example: a weather balloon, triple beam balance, barometer, microscope) scientists use to investigate phenomenon.

SCIENTIFIC INQUIRY: ANALYSIS AND CONCLUSION

SC6.1e.1 Justifies a correlation between variables or a sequence of events.

SC6.1e.2 Analyzes data or pattern of findings (own or others' data) for accuracy.

SC6.1e.3 Displays graphic representations (for example; line graph, bar graph, stem and leaf plot) for collected data from a controlled investigation and, communicates the results/findings.

INTERACTION OF SCIENCE AND SOCIETY

SC6.2.1 Describes how diverse people and/or cultures, past and present, have made important contributions to scientific innovation (for example: Jacques Cousteau, Robert Hooke, Thor Heyerdahl, William Beebe).

SC6.2.2 Describes how a major milestone in science or technology has revolutionized the thinking of the time (for example: Cell Theory, sonar, SCUBA, underwater robotics, iPhones).

SC6.2.3 Describes the impact of natural hazards/disasters on the environment (for example: sandstorm, hurricane, tornado, drought, flooding, UV light, fire caused by lightning) and how people respond to them.

SYSTEMS THINKING (CFSD Deep Learning Proficiency – DLP)

SYSTEMS THINKING: BIG PICTURE/INTERDEPENDENCIES

SC6.3a.1 Creates a model of key interdependent relationships by taking a whole-system perspective on an issue or process (for example: causal loop – as circulatory system increases what is the impact on the respiratory system; stock flow map for ground water use; hierarchy of cells, tissues, organs, and systems) (Big Picture/Interdependencies).

SYSTEMS THINKING: CHANGE OVER TIME

SC6.3b.1 Describes a system component's continuous pattern of change over a specified period of time (for example: climate and weather patterns, environmental conditions over time).

SYSTEMS THINKING: LEVERAGE

SC6.3c.1 Describes a critical variable within a system that produces leverage toward a desired change (for example: the quality of natural resources impacts the quality of life –availability of fresh water; science is an ongoing process that changes in response to technology).

LIFE SCIENCE

CHARACTERISTICS OF LIVING THINGS

SC6.4.1 Describes the structure (for example: ribosome as a tiny grain-like organelle) and function (for example: ribosome as the site where proteins are made) of cellular organelles.

SC6.4.2 Describes the structures, functions, and relationships of and between the respiratory, digestive, circulatory, muscular, skeletal, excretory, and nervous systems in humans.

SC6.4.3 Describes the structures, functions, and relationships of systems in seed plants (for example: transpiration, absorption of nutrients from the soil, tropisms).

SC6.4.4 Compares structures and functions of plant and animal cells.

INTERDEPENDENCE OF LIVING THINGS AND THEIR ENVIRONMENT

SC6.5.1 Explains the importance of water to organisms.

SC6.5.2 Describes how environmental conditions affect the quality of life (required: water quality, climate, population density, air quality).

PHYSICAL SCIENCE

STRUCTURE AND PROPERTIES OF MATTER

Not assessed at this level.

INTERACTIONS OF MATTER

Not assessed at this level.

CONSERVATION AND TRANSFORMATION OF ENERGY

SC6.8.1 Describes various ways in which electrical energy is produced and stored (required: wind, water, fossil fuels, nuclear reactions, solar, chemicals in batteries).

SC6.8.2 Compares ways in which energy can be transformed (required: mechanical to electrical, electrical to thermal).

SC6.8.3 Explains how thermal energy can be transferred by conduction, convection, and radiation.

EARTH AND SPACE SCIENCE

STRUCTURE AND PROCESSES OF THE EARTH

SC6.9.1 Describes the properties and composition of layers of the atmosphere.

SC6.9.2 Explains the composition, properties, and structure of the earth's oceans, lakes, ponds, rivers, and streams.

SC6.9.3 Analyzes climate and weather patterns (large scale and local) as the interaction of earth's atmosphere, bodies of water, and landmasses (required: water cycle, storm cycle, heat transfer).

STRUCTURE AND PROCESSES OF OBJECTS IN SPACE

Not assessed at this level.