Science Standard
Catalina Foothills School District
Grade 7

The seventh grade science program emphasizes the skills of scientific inquiry and builds on the processes of developing questions, experimental design, and the use of statistical methods for data 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. Seventh grade science explores the impact of science and technology on society, and expands science learning in areas such as astronomy, earth processes, populations/ecosystems, and environmental science.

1A. SCIENTIFIC INQUIRY: GENERATING SCIENTIFIC QUESTIONS	
SC7.1a.1	Composes (independently) observational, experimental, and research questions.
1B. SCIENTIFIC INQUIRY: PREDICTING AND HYPOTHESIZING	
SC7.1b.1	Justifies the choice of a primary hypothesis with evidence.
1C. SCIENTIFIC INQUIRY: DESIGNING INVESTIGATIONS	
SC7.1c.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 and recognizes possible errors (based on a student generated question).
1D. SCIENTIFIC INQUIRY: OBSERVATION AND DATA COLLECTION	
SC7.1d.1	Organizes data tables to match investigation.
SC7.1d.2	Describes and uses tools and/or technology *(for example: magnifying glass, graduated cylinder, telescopes, seismograph)* scientists use to investigate phenomenon.
1E. SCIENTIFIC INQUIRY: ANALYSIS AND CONCLUSION	
SC7.1e.1	Proposes an alternative solution to the problem.
SC7.1e.2	Explains why the results of an investigation are valid and reliable.
SC7.1e.3	Applies appropriate statistical methods to analyze data *(required: range, mean, mode)*.
2. INTERACTION OF SCIENCE AND SOCIETY	
SC7.2.1	Describes how diverse people and/or cultures, past and present, have made important contributions to scientific innovation *(for example: Percival Lowell, Edwin Hubble, Caroline and William Herschel, Rachel Carson, Luis and Walter Alvarez, Copernicus)*.
SC7.2.2	Analyzes the impact of a major scientific or technological development *(for example: GPS, telescopes, seismographs, photography)*.
SC7.2.3	Analyzes environmental impacts (risks and benefits) caused by human interactions with biological or geological systems *(for example: deforestation, habitat destruction)*.
3A. SYSTEMS THINKING: BIG PICTURE/INTERDEPENDENCIES	
SC7.3a.1	Creates a model of key interdependent relationships by taking a whole-system perspective on an issue or process *(for example: plate tectonics role in the changes to the Earth's surface)*.
3B. SYSTEMS THINKING: CHANGE OVER TIME	
SC7.3b.1	Describes a system component's continuous pattern of change over a specified period of time *(required: geologic time; for example: rock cycle – rocks continually constructed and destructed by Earth's processes)*.

3C. SYSTEMS THINKING: LEVERAGE	
SC7.3c.1	Describes a critical variable within a system that produces leverage toward a desired change *(for example: reforestation methods - selective cutting v. clear cutting with replanting – what is the greatest lever for sustainability).*
4. LIFE SCIENCE: CHARACTERISTICS OF LIVING THINGS	
	Not assessed at this level.
5. LIFE SCIENCE: INTERDEPENDENCE OF LIVING THINGS AND THEIR ENVIRONMENT	
SC7.5.1	Compares the flow of energy through food chains in a specified ecosystem and their corresponding food web.
SC7.5.2	Explains how organisms obtain and use resources to develop and thrive in different niches.
SC7.5.3	Analyzes how limiting factors *(for example: carrying capacity, water supply)* affect populations in an ecosystem.
SC7.5.4	Predicts how environmental factors *(required: floods, droughts, temperature changes, overgrazing, forest management, and invasion of non-native species)* will affect population dynamics.
6. PHYSICAL SCIENCE: STRUCTURE AND PROPERTIES OF MATTER	
	Not assessed at this level.
7. PHYSICAL SCIENCE: INTERACTIONS OF MATTER	
	Not assessed at this level.
8. PHYSICAL SCIENCE: CONSERVATION AND TRANSFORMATION OF ENERGY	
SC7.8.1	Describes the relationship between wavelength, frequency, and energy of the electromagnetic spectrum.
SC7.8.2	Explains why various electromagnetic waves are used to study objects *(for example: in space, medicine).*
9. Earth and Space Science: Structure And Processes Of The Earth	
S7.9.1	Structures - Classifies rocks (igneous, metamorphic, sedimentary) and minerals by their physical properties *(for example: color, texture, grain, hardness).*
S7.9.2	Structures - Describes the properties and composition of the major layers of the Earth *(required: crust, mantle, core).*
S7.9.3	Processes - Explains the formation of earth's structures by erosion, deposition, and weathering *(for example: mountain formation and deformation over time).*
S7.9.4	Processes - Describes the relationship between plate tectonics, earthquakes, and volcanism *(required: sea floor spreading, continental drift, and geologic time; for example: moving tectonic plates help to destroy and form many types of rocks).*
10. EARTH AND SPACE SCIENCE: STRUCTURE AND PROCESSES OF OBJECTS IN SPACE	
S7.10.1	Describes interactions of the sun, earth, and moon *(required: phases of the moon, solar and lunar eclipses, tides).*
S7.10.2	Compares the seasons in the northern and southern hemispheres in terms of the earth's axis relative to the plane of its orbit.
S7.10.3	Describes the arrangement of major constellations and other celestial objects in the solar system, galaxies, and universe *(required: Orion, Ursa Major, Cygnus, Scorpius, Cassiopeia).*