



Elementary Science

The ISK Science program is designed to engage students' natural curiosity. Teachers begin by laying a foundation of knowledge, and then students' own interests and curiosity help guide the learning. Many units integrate social studies and science concepts as well as library skills, art, music and technology.

Science units are designed to provide opportunities for students to learn through inquiry and hands-on activities. Units are centered around five general strands:

1. *Nature of Science and Scientific Inquiry (integrated into all units)*
2. *Life Sciences*
3. *Physical Sciences*
4. *Earth and Beyond*
5. *Environmental Sciences (integrated into all units)*



Grade 5

1. NATURE OF SCIENCE

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Standard 1.1: Understand the nature of scientific inquiry (*Understand and use the scientific method*)

- 1.1.1 Plan and conduct simple investigations (formulate a testable question, plan a fair test, make systematic observations, develop logical conclusions)
- 1.1.2 Identify dependent and controlled variables in an investigation

Standard 1.2: Communicate scientific ideas and activities clearly

- 1.2.1 Record data by using appropriate graphic representations and make inferences based on that data
- 1.2.2 Draw conclusions from scientific evidence and indicate whether further information is needed to support a specific conclusion
- 1.2.3 Write formal reports of investigations

Standard 1.3: Investigate using appropriate tools and instruments to conduct scientific activities

- 1.3.1 Select appropriate tools and make quantitative and qualitative observations to test a prediction and draw conclusions

Standard 1.4: Understand the nature of scientific knowledge and enterprise (*Understand why science is important*)

- 1.4.1 Offer justifiable explanations when similar scientific investigations do not produce exactly the same results

2. LIFE SCIENCES

Standard 2.1: Understand biological evolution and diversity (scientific comparisons)

- 2.1.1 Describe and explain the nervous, endocrine and human reproduction systems

Standard 2.2: Understand the structure and function of cells and organisms

- 2.2.1 Understand that the behavior of individual organisms is influenced by internal cues (hunger) and external cues (weather)
- 2.2.2 Know that humans and other organisms have senses that help them to detect internal and external cues
- 2.2.3 Know that all organisms are composed of cells (fundamental units of life)
- 2.2.4 Explain that organisms are single cells but others are multicellular

Standard 2.3: Understand the relationships among organisms and their environment

- 2.3.1 Explain that changes in the environment can have different effects on different organisms
- 2.3.2 Know that all organisms cause changes in their environments and these changes can be beneficial or detrimental
- 2.3.3 Understand the definition and function of what constitutes a population and ecosystem

Standard 2.4: Understand the cycling of matter and the flow of energy through ecosystems

- 2.4.1 Investigate ways in which organisms interact and depend on one another through food chains and food webs in an ecosystem
- 2.4.2 Identify the characteristics of 5 ecosystems (tundra, rainforest, desert, marine, grasslands)

3. PHYSICAL SCIENCES

Standard 3.2: Understand the sources and properties of energy

- 3.2.1 Explain that energy is not lost or gained but transformed from one form to another
- 3.2.2 Understand that energy is the ability to do work

Standard 3.3: Understand forces and motion

- 3.3.1 Explain what a force is
- 3.3.2 Know that when a force is applied to an object, the object either speeds up, slows down, or



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- 3.3.3 goes in a different direction
Investigate the relationship between the strength of a force and its effect on an object (e.g., the greater the force, the greater the change in motion; the more massive the object, the smaller the effect of a given force)

4. EARTH AND BEYOND

Standard 4.2: Understand the composition and structure of the universe and the Earth's place in it

- 4.2.1 Describe the relative magnitude of Earth's place in the universe
4.2.2 Know that there are different astronomical objects in space. (asteroids, comets, meteors, meteorites, dwarf, planets)
4.2.3 Know that the seasons are caused by the earth's revolution around the sun
4.2.4 Investigate the history of space exploration and man's quest to know what's out there

5. ENVIRONMENTAL SCIENCES

Standard 5.1: Understand atmospheric processes and cycles

- 5.1.1 Explain the importance of biodiversity

Standard 5.2: Understand how society uses and conserves resources and energy

- 5.2.1 Describe the actual and potential effects of habitat destruction

Standard 5.3: Identify, investigate and evaluate environmental problems and issues

- 5.3.1 Give examples of human impact on various ecosystems

Standard 4: Develop an understanding and commitment to environmental responsibility

PASSION | CREATIVITY | AMBITION