

Science Benchmark:

Earth and some Earth materials and magnetic properties. Without touching them, a magnet attracts things made of iron and either pushes or pulls on other magnets.

STANDARD III:

Students will understand that magnetism can be observed when there is an interaction between the magnetic fields of magnets or between a magnet and materials made of iron

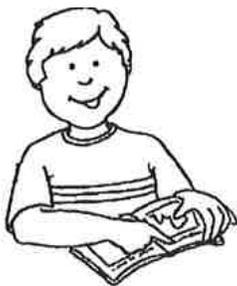
STANDARD III: Students will understand that magnetism can be observed when there is an interaction between the magnetic fields of magnets or between a magnet and materials made of iron.

Objective 1: Investigate and compare the behavior of magnetism using magnets.

- a. Compare various types of magnets (e.g., permanent, temporary, and natural magnets) and their abilities to push or pull on objects they are not touching.
- b. Investigate how magnets will both attract and repel other magnets.
- c. Compare permanent magnets and electromagnets.
- d. Research and report the use of magnets that is supported by sound and scientific properties.

Objective 2: Describe how the magnetic field of Earth and a magnet are similar.

- a. Compare the magnetic fields of various types of magnets (e.g., bar magnet, disk magnet, horseshoe magnet).
- b. Compare Earth's magnetic field to the magnetic field of a magnet.
- c. Construct a compass and explain how it works.
- d. Investigate the effects of magnets on the needle of a compass and compare this to the effects of Earth's magnetic field on the needle of a compass (e.g., magnets affect the needle only at close distances, Earth's magnetic field affects the needle at great distances, magnets close to a compass overrides the Earth's effect on the needle).



Science language students should use:

Attract, compass, electromagnetism, magnetic force, magnetic field, natural magnet, permanent magnet, properties, repel, temporary magnet

Intended Learning Outcomes for Fifth Grade Science

The Intended Learning Outcomes (ILOs) describe the skills and attitudes students should learn as a result of science instruction. They are an essential part of the Science Core Curriculum and provide teachers with a standard for evaluation of student learning in science. Instruction should include significant science experiences that lead to student understanding using ILOs.

The main intent of science instruction in Utah is that students will value and use science as a process of obtaining knowledge based upon observable evidence.

By the end of fifth grade students will be able to:

1. Use Science Process and Thinking Skills

- a. Observe simple objects and patterns and report their observations.
- b. Sort and sequence data according to a criteria given.
- c. Given the appropriate instrument, measure length, temperature, volume, and mass in metric units as specified.
- d. Compare things and events.
- e. Use classification systems.
- f. Plan and conduct simple experiments.
- g. Formulate simple research questions.
- h. Predict results of investigations based on prior data.
- i. Use data to construct a reasonable conclusion.

2. Manifest Science Attitudes and Interests

- a. Demonstrate a sense of curiosity about nature.
- b. Voluntarily read or look at books and other materials about science.
- c. Pose questions about objects, events, and processes.
- d. Maintain an open and questioning mind toward new ideas and alternative points of view.
- e. Seek and weigh evidence before drawing conclusions.
- f. Accept and use scientific evidence to help resolve ecological problems.

3. Understand Science Concepts and Principles

- a. Know and explain science information specified for the grade Level.
- b. Distinguish between examples and non-examples of science concepts that have been taught.
- c. Solve problems appropriate to grade level by apply science principles and procedures.

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4. Communicate Effectively Using Science Language and Reasoning

- a. Record data accurately when given the appropriate form (e.g., table, graph, chart).
- b. Describe or explain observations carefully and report with pictures, sentences, and models.
- c. Use scientific language in oral and written communication.
- d. Use reference sources to obtain information and cite the source.
- e. Use mathematical reasoning to communicate information.

5. Demonstrate Awareness of Social and Historical Aspects of Science

- a. Cite examples of how science affects life.
- b. Understand the cumulative nature of science knowledge.

6. Understand the Nature of Science

- a. Science is a way of knowing that is used by many people not just scientists.
- b. Understand that science investigations use a variety of methods and do not always use the same set of procedures; understand that there is not just one “scientific method.”
- c. Science findings are based upon evidence.

- **Instruction should include significant science experiences that lead to student understanding using ILOs.**