

3rd Grade Magnetism & Electricity Unit

Unit Overview

Students are introduced to many of the phenomena associated with magnetism. By experimenting with a variety of magnets and other materials, students identify the laws that govern magnetism. Throughout the lab investigations, students discuss and model good scientific practices.

Unit Questions

Concepts

1. What is a general rule about what things stick to a magnet?
2. What is a general rule about magnetic forces going through things?
3. How do magnets pull things without touching them?
4. What happens when two magnets are brought together?
5. What is necessary for making a bulb light?
6. If a circuit doesn't work, what are some possible reasons?

Processes

1. Why is it important to keep records or notes about experiments?
2. Why is numerical data important?
3. Why is it important to make predictions and not change them later?
4. What is a "fair" experiment? Why should experiments be "fair?"

Activity Summary of Magnetism Section (Page 9 in Delta Curriculum)

Activity 1: Student encounter a floating paper clip and offer explanations for this strange behavior. They soon discover that the paper clip is actually being held up by magnetism.

Activities 2 and 3: Students investigate the force of magnetism. They find out which common materials are attracted to magnets, and which are not; which can "block" the passage of the magnetic force, and which cannot. They determine that the force of a magnet acting on a magnetic object is inversely related to the magnet's distance from that object.

Activity 4: Students compare the strengths of different magnets and see that bigger magnets are not necessarily stronger magnets. They also compare the strength of a single magnet at different points along its length and discover that force is concentrated at either end of a magnet rather than at the center.

Activity 5: Student use iron filings to visualize the invisible field lines that surround the magnets and notice the concentration of these lines at either end of the magnets. In this way students discover the polarity of magnets. (*For safety reasons, this experiment should be a teacher demo.*)

Activity 6: Students observe the interaction of poles (like poles attract, opposite poles repel) and define their observations as the Law of Magnetic Attraction.

Activity Summary of Electricity Section (Page ix in *STC Electric Circuits*)

Lessons 1-6: Students are introduced to the basic properties of electricity and learn about electric circuits and the parts of a light bulb.

Lesson 7: Students learn about conductors and insulators.

Lessons 12 & 13: Students learn about switches and apply what they have learned about circuits by making a working flashlight.