

3rd Grade Magnetism and Electricity Unit Student Misconceptions

Common Student Misconceptions about Magnetism and Electricity

- All metals are attracted to magnets.
Addressed in Magnet Activity 2
- All silver colored items are attracted to a magnet.
Addressed in Magnet Activity 2
- While magnetism may be able to pass through paper, it cannot pass through wood, a notebook, a table, or other thicker materials.
Addressed in Magnet Activity 3
- The size of a magnet determines its strength.
Addressed in Magnet Activity 4
- A magnetic field is a two dimensional pattern of line surrounding a magnet, not a three-dimensional field of force.
Should be addressed in a discussion during Magnet Activity 5
- If wires are connected to a battery and bulb, no matter where, a complete circuit is made.
Addressed in Electricity Lessons 2, 3, 5, 6, and 7

Sources of Students' Confusion and Misconceptions

- It is difficult for students to accept that aluminum, for example, a metal that seems very much like iron, is not attracted to a magnet.
- Materials such as a stack of paper, wood, plastic, and glass are tangible barriers, unlike air. It is difficult for students to accept that magnetic fields can penetrate these tangible barriers.
- Relating magnetic force, which acts at a distance, to a push or pull, where contact is required, may cause difficulty.

Source:

Stepans, J. (1996). *Targeting students' science misconceptions*. Idea Factory: Riverview, FL.