

Defying Gravity

Theme: Magnetic Forces

Curriculum Area: Physical Science

Activity:

- Gravity is a force which pulls two objects towards one another. In our case, Earth's gravity is responsible for keeping us on the ground, and making sure things fall down, instead of up. However, there exists other forces of pull that can defy gravity, which is what makes us think of floating and flying objects. In this activity, we will demonstrate one such force known as magnetic force. This is commonly seen through the use of magnets, such as the ones on whiteboards or on your refrigerator. We will examine how magnets are able to hold objects up, instead of down with paperclips.

Ages of Children: 7-8 years of age | 2nd grade

Materials Needed:

- String
- Paperclips
- .5 inch strong magnets or larger
- Scissors
- Tape
- Metal Ruler
- Blocks, books, or other objects of uniform size used for stacking
- A flat area or surface for optimal presentation

Developmental Objectives/Domains: By participating in this activity, children will:

1. Enhance their language arts skills with the use of vocabulary such as “magnetic force” and “gravity”.
2. Develop observational and classifying skills.
3. Learn about scientific concepts such as the Earth's gravitational force, and the forces exerted by magnets called the magnetic force.
4. Understand the correlation between certain objects and its properties. In this case, referring to the magnet and the forces exerted from the magnet.

Procedure:

1. Using the metal ruler, students will place a magnet on the face of the ruler and turn it upside-down, with the magnet on the bottom.

2. Students will then begin to assemble the stage from which they will suspend the ruler by building two stacks of blocks (or other appropriate materials) which will support each edge of the ruler.
3. Students will suspend the ruler by placing each edge of the ruler on each of the two stacks, creating a bridge-like structure. Ensure the magnets are face-down on the ruler.
4. Attach a piece of string to the paperclip, and tape the end of the string to the surface below the magnet (such as the floor or table).
5. Slowly have the students lift the paperclip up to the magnet until a force is exerted, then release when the paperclips are suspended via magnetic forces.
6. Explain the magnetic phenomenon, and ask the students to disassemble the constructs and place the materials back in their designated locations.

References: <https://buggyandbuddy.com/gravity/>