How Mighty is My Magnet

Simple STEM Activities You Can Do at Home

Purpose:	The purpose of this activity is for students to investigate different attributes of rocks and then use these attributes to build something useful.
Standard:	**S1P2. Obtain, evaluate, and communicate information to demonstrate the effects of magnets on other magnets and other objects.** b. Plan and carry out an investigation to demonstrate how magnets attract and repel each other and the effect of magnets on common objects.
Materials:	Bar magnet (or similar magnet), ruler or unifix cubes, paperclip, thread, 2 cups, tape, scissors, piece of paper.
Procedure:	1. Tie or tape an 8 inch piece of thread to a small paperclip. 2. Tape the other end of the thread to the bottom of an upside down plastic cup. 3. Tape the cup to your table or desk to secure it. 4. Using your magnet, try to get your paperclip to "float" in the air beside the cup. See how far you can move your magnets to the side. 5. Using Unifix cubes or pennies, measure how far you can pull the magnet away from the paperclip before it falls. Record your results. 6. Try to pass a piece of paper between the cup and the paperclip. 7. If time permits, make a simple kite out of paper, tape your paperclip inside your kite, and try to fly your kite in the wind. Pretty cool huh.
Science Behind It:	**Magnets** are objects that have an unusual ability to attract and repel certain materials. Magnets have two poles that are called the north pole and the south pole. The **poles** are areas near the opposite ends of a magnet where the magnetic force is the strongest. The area of space near a magnet where the magnet exerts force is called the **magnetic field**. Magnets are useful in lots of ways. Their attractive properties are used to stick things on other objects like refrigerators. In addition, the force generated by the attractive pull or repulsive push of magnets can be used to help move objects from one place to another. For example, electromagnetic trains like MAGLEV train in China use magnetic repulsion to "float" the train on top of its track. Since it doesn't take much energy to push a floating train down a track, the MAGLEV is one of the fastest trains in the world and can reach speeds of 430 km/hr (270 mi/hr). In this activity, your first task is to "float" your paperclip in the air using your magnet. Your second task is to measure the strength of the magnet. Your final task is see if you can use your magnet and paperclip to fly your kite above your cup. While it might seem like magic, we know it's just mighty magnetism at work.
Questions to Ask:	1. Describe why you were able to fly your paperclip and kite in the air. 2. Why do you think magnets are able to exert their attraction even with space between the object and the magnet?