

Magnetic Painting

Big idea

Explore how magnetic fields can be used to pull things together... and to make art!

You will need

WHAT WE GAVE YOU:

- paper plates
- washable paint
- assorted metal objects
- 4 magnetic wands
- Magnetic Painting instruction sheet

STUFF YOU PROVIDE:

- additional metal objects (optional)
- additional paint colors (optional)
- paper towels/ wipes
- pens or markers

Set it up

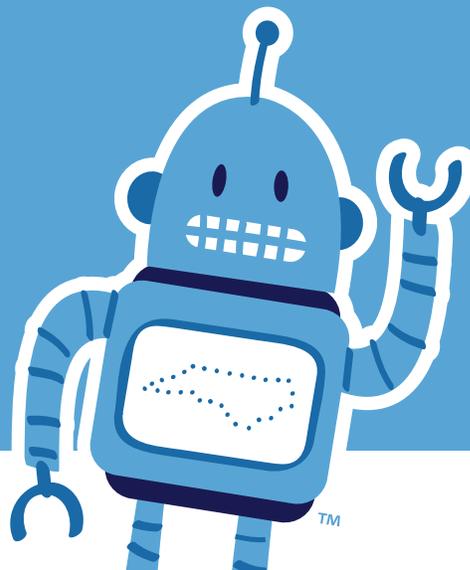
Set out the supplies in the following order: paper plates, paint, metallic objects, magnetic wands, and Magnetic Painting instruction sheet. At the end of the table you may wish to have pens or markers so that the students can write their name on the back of their plate and leave it to dry.

It's showtime

As families approach your station, ask if they've ever used a magnet to attach art or a note to their refrigerator or the classroom whiteboard. Everyone likely knows the feeling when a magnet and a magnetic material come close to each other and join together with a sudden 'snap'. This is because magnets create an invisible magnetic field around them. Metal objects that contain the elements iron, nickel, or cobalt are attracted to this magnetic field.

Now they're going to use this knowledge to create art! Give each student one paper plate. Place two to four dime-sized drops of paint on their plate (note: any more and the plate will get soggy and floppy.) Let the student pick a few of the metal objects to place on their plate. The student should hold the plate with one hand and hold the magnetic wand under the plate with the other hand. As they slowly move the wand around, they will drag the metal objects through the paint and create their own masterpiece! If younger students have difficulty holding the plate and wand at the same time, ask a parent or friend to hold the plate while the student holds the magnetic wand.

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Fun options

Collect an assortment of metal objects that will interact with the magnets. Students can create more variety in their artwork with items like springs and ball chains.

If they love it

Use a variety of magnetic objects in different shapes and sizes. Have students make observations about the strength of the magnetic force as well as the paint patterns created by each object.

Why is this science?

All magnets have the ability to attract other magnets or magnetic objects, such as paper clips. But a magnet doesn't necessarily have to touch a magnetic object for the object to be attracted to it. (That is why the paper plate can be between the magnet and the objects.) The invisible area around a magnet is called a magnetic field. Magnetic objects will pull towards the magnet if they are placed in this field.

Magnets attract only certain types of metals (such as iron, nickel, and cobalt.) Most metals are actually not attracted to magnets. These include copper, silver, gold, magnesium, platinum, aluminum, and more. Other materials such as glass, plastic, and wood are also not attracted to magnets.

North Carolina connection

The effects of magnetic currents on moving vehicles can be experienced firsthand at Carowinds in Charlotte, NC. Magnetic brakes are used on the Drop Tower, Intimidator Rollercoaster, and the Fury 325 Rollercoaster. Magnetic brakes are an effective way to slow down large amusement park rides and are commonly used in modern thrill ride designs. Magnetic brakes slow the movement of a ride by using magnetic eddy currents. These powerful magnetic currents safely reduce the speed before friction brakes are applied to bring the ride to a complete stop.



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Supplies

- 1 paper plate
- washable paint
- metallic objects
- 1 magnetic wand

What to do

1. Write your name on the paper plate.
2. Have an adult place 2-4 dime sized drops of paint on the plate – if you place too much paint on the plate it will get soggy and floppy.
3. Place one or more metal objects on your plate.
4. Hold the plate with one hand and hold the magnetic wand under the plate with the other hand. You can have a friend or a parent hold the plate for you.
5. Move the wand around slowly to drag the objects through the paint.
6. Observe the interaction of the objects and the magnetic wand as you create your masterpiece!

