WORKSHOP EXTENSION ACTIVITY

Built by The Home Depot Kids Workshop

August Combination Locker

Ages 5–12

CONNECT.

When you think of a magnet, what comes to mind?

If you pictured the magnets on your fridge, you're probably not alone. But did you know that we're actually surrounded by magnets? Home speakers, vacuum cleaners, credit cards, computer hard drives, lawn mowers, purse latches, smart phones, and treadmills all use magnets... and the list doesn't stop there!

INVESTIGATE.

Just like Earth, every magnet has two poles: a north pole and a south pole.

The opposite poles on two different magnets (north + south and south + north) are attracted to each other. When you place two magnets close to each other, the pulling you feel is this attraction. You may also feel a pushing force when you put two magnets near each other, which is what happens when two poles repel each other. The same poles on different magnets (two north poles or two south poles) will push each other away.

An invisible area of magnetism exists around magnets, and the size of this area varies depends on how strong the magnets are. This invisible area is called a magnetic field! Let's explore this magnetic field...

You'll need:

- One heavy-duty block magnet
- Disk magnets of different sizes and strengths
- Magnetic tape
- Hot glue and hot glue gun
- Masking tape
- Ruler
- Marker

1. Place the heavy-duty block magnet at the "zero" end of your ruler.
2. Place a small piece of masking tape on each of your other magnets. It only has to be big enough to jot a number!
3. Now choose one of these magnets to be your first test magnet. Put it on the other end of the ruler and *slowly* slide it down toward zero. At a certain point, it will enter the heavy-duty magnet's magnetic field and will be pulled to it. Tip: If you feel your test magnet being *repelled* and not *pulled*, flip it around!

Use the ruler to help you measure how far your test magnet was from the heavy-duty magnet when the magnetic pull occurred. (Was it .5 inches away? 1 inch away?)

Record this measurement on the test magnet's piece of tape.

Once you have tested every magnet, line them up in order of weakest to strongest!

INNOVATE.

1. Now let's use what you learned to improve your combination locker! Decide:
   - Would you rather have help closing your locker door or keeping it open?
   - How strong would you like this magnetic force to be?
2. Refer to your testing results to select a magnet that matches the strength you're hoping for.
3. Then use the masking tape to secure this magnet along the inside bottom edge of your locker door. It should be as close to the edge as possible, while still allowing the door to close.
4. Next, use the masking tape to secure the heavy-duty magnet to the inside bottom of your locker. It should be as close to the locker's edge *and* as close to the magnet on the door as possible when the door is closed. Be sure to consider if you want the magnets to repel or attract and position the magnet correctly.
5. Test the door several times and change the magnets' positions as needed. Then use the hot glue to secure your magnets in place once you're happy with the results!