

MAGNETS ATTRACT

THE ADVENTURE:

Magnets are all around us – even the earth is a giant magnet. Do you know how magnets and compasses work? Figure it out by experimenting and then build your own compass!

PLAN:

- What do you know about magnets and how they work?
- What about magnetic fields?
- What are some of the ways we use magnets in our daily lives?
- Where can you find compasses?
- How do you want to form your groups?

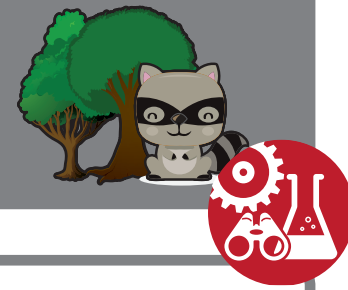
DO:

Activity #1: What do magnets do?

- How can you use your magnet to sort the objects in your box?
- How do the magnets affect each other?
- Go around the meeting hall and test things with your magnets. What is magnetic? What is not?
- What do you notice about the objects your magnets



RINGTAIL'S HOLLOW Environment & Outdoors



DO (CONTINUED)

Activity #1: What do magnets do?

- How can you use your magnet to sort the objects in your box?
- How do the magnets affect each other?
- Go around the meeting hall and test things with your magnets. What is magnetic? What is not?
- What do you notice about the objects your magnets are attracted to? What do they have in common?

Activity #2: What does a magnetic field look like?

- Lay the clear plastic over a magnet and carefully shake the iron filings onto the plastic. Try to keep the iron filings on top of the plastic.
- How are the iron filings shaped on the plastic?
- What happens when you move the magnet?
- What happens if you use a different magnet?

Activity #3: How does a compass work?

- Have a look at your compass. Do you know where north is?
- Put the compass on the floor. Put a few magnets around it. Which way does your compass point now? What happens if you take away the magnets?
- How does the magnet affect the direction your compass is pointing?

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DO (CONTINUED)

Activity #4: Make a compass!

- Stroke the needle with the magnet 50 times. The needle is now a magnet.
- Put the cork in the water and lay the needle on top. The compass should now rotate to point north.
- If your compass does not work, take the needle out of the cork and stroke it against the magnet 50 more times to try again.

Activity #5: Magnet game

- Get a blue and a red piece of fabric (or rope). Tie the one colour around each of your wrists. Each colour will be a magnetic pole.
- Hide your hands and gather in the middle.
- On the count of three, hold your arms up and move like a plane. Form a magnetic chain by holding each other's hands. In this game, the colours on two holding hands cannot match. This is because the matching poles of a magnet repel each other, and can't be matched up.

ONLINE RESOURCES:

- Magnetic field and Iron Filings [youtube.com/watch?v=snNG481SYJw](https://www.youtube.com/watch?v=snNG481SYJw)
- All about magnets www.dowlingmagnets.com/about_magnets.php
- How to make a homemade compass [youtube.com/watch?v=QiSp6pGe0w0](https://www.youtube.com/watch?v=QiSp6pGe0w0)

SAFETY TIP:

- Be careful when handling the needle to avoid hurting yourself or other Beaver Scouts.

REVIEW:

- What do you know now that you did not know before?
- How can you use what you learned today in a camp or on a hike?
- Where else do you see magnets in use in the real world?
- What elements of STEM were in this adventure? Science? Technology? Engineering? Mathematics?
- What did you like about this adventure? What did you not like about it? How would you do this adventure differently?

MATERIALS:

- For each Beaver:
 - 1 Bar magnet with colored poles
 - 1 Needle
 - 1 Cork (the cork should be able to hold a needle afloat and be as light as possible)
 - Red and blue fabrics or ropes
- For each group of 2-3 Beavers:
 - Iron filings (about half a cup)
 - A clear plastic sheet (about 3m X 3m)
 - A non-magnetic bowl of water
 - Compass
 - A variety of small metal (made of iron and other material) and non-metal objects
 - A shoebox to put the materials in