



## Magnets attract

In this Adventure, Beaver Scouts experiment with magnets and compasses to learn how they work. They also build a compass out of simple materials.



### SOME BACKGROUND INFORMATION ON MAGNETS

- Magnets have four major properties: they attract other materials; are able to tell direction; have two poles; and opposite poles attract, like poles repel each other.
- Iron, nickel, cobalt, and other rare-Earth metals are magnetic. Some alloys (combinations of metals) are also magnetic. Non-metal materials are not magnetic.
- Magnetic fields are invisible, and act at a distance. A magnetic field is stronger closer to the magnet. Magnetic fields can be "added" and "subtracted" from each other, depending on the position of two or more magnets. If the magnetic fields line up, the overall field gets stronger. The opposite is true when two or more magnetic fields do not line up.
- A compass points north because the needle is magnetic. Earth's magnetic field exerts a force on the needle to bring it in line with the magnetic field. The north pole of the needle points in the same direction as the magnetic field, towards Earth's North Pole. However, if you bring another magnet near the compass, the needle will align itself with the magnetic field of this magnet, because this field is stronger than Earth's magnetic field.

### SUGGESTED TIMING:

- Plan: 10 minutes
- What do magnets do?: 15 minutes
- What does a magnetic field look like?: 10 minutes
- How compass works?: 15 minutes
- Magnet game: 10 minutes
- Review: 10 minutes

### ONLINE RESOURCE:

- For a video on using iron fillings to demonstrate magnetic fields visit: <http://youtu.be/j8XNHIV6Qxg>
- For some basic information about magnets and magnetic fields visit: [http://www.dowlingmagnets.com/about\\_magnets.php](http://www.dowlingmagnets.com/about_magnets.php) and [http://www.internet4classrooms.com/science\\_elem\\_magnets.htm](http://www.internet4classrooms.com/science_elem_magnets.htm)

