

## Natural Navigation

Time: 10 minutes

Suggested Materials:

- Cork
- Paper Clip
- Container for water (bucket, tub, sink)
- Clear Tape
- Magnet

Instructions:

1. Cut the paper clip into one piece to make a metal dial.
2. Cut cork into disk.
3. Rub paper clip fifty (50) times against magnetizing material (fur, magnet), always in the same direction and with broad strokes. This charges the metal.
4. Once charged, use a piece of tape to attach the metal to the cork.
5. Place cork onto water (gently, to prevent waves and unnecessary disturbances in the water).
6. Watch your compass point towards the north!
7. Label compass with Cardinal Directions (north, south, east, west)  
(Note: Metal will eventually lose its charge and steps 1-4 may be repeated.)

Background:

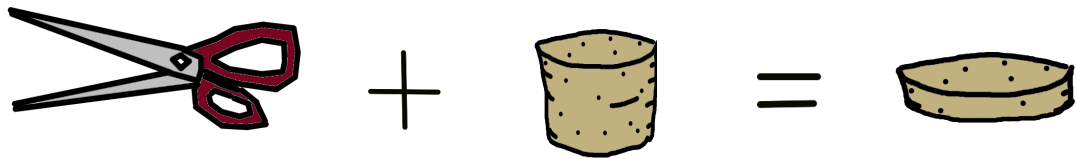
- In the mid-1700's, explorers and surveyors in North America used compasses to measure angles and plot territory lines. By using magnetism to determine which way was north, they were able to find their bearings and conclude south, east, and west.
- There are actually two norths, magnetic north and true north. Magnetic north refers to the natural magnetism created by the Earth's core. Because the core is molten, magnetic north is perpetually shifting. True north depends on the poles in which the Earth rotates around. These poles remain the same and are the "north" referred to on maps!
- Scientists theorize that the center of the Earth is made up of molten metal, which is responsible for the Earth's magnetism! For thousands of years, humans have been using magnetized metals, such as iron, to navigate the world.

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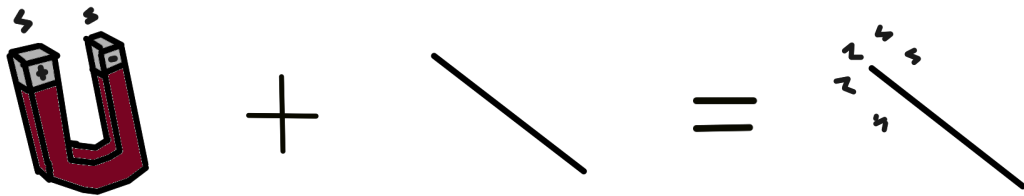
# Create Your Own Compass



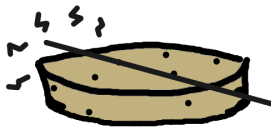
1. Cut paper clip into one piece to make metal dial



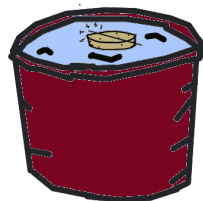
2. Cut cork into disk



3. Rub dial on magnet or static surface to magnetize dial



4. Tape metal dial to cork to make compass.



5. Place the compass into water and watch it point north!