TRY THIS OUT!

COMPASS

Time: 10 Minutes
Difficulty: Easy

Long before the age of GPS, navigators and explorers found their way using a compass. In this activity, make your own to bring on your next adventure!

WHAT YOU NEED:

- A wine cork
- A clear plastic container
- Tap water
- A magnet
- A metal sewing needle
- Scissors
- A printed copy of the compass rose template (below)

Safety first! Adult supervision may be needed when handling sharp sewing needles and scissors.

MAKE IT:

1. Print out the compass rose template.
2. Fill the plastic container with water and place it in the middle of the compass rose.
3. To magnetize the needle, rub the magnet along the needle at least 50 times – always in the same direction, from the eye to the tip.
4. Cut the cork in half lengthwise with the scissors. Ask an adult for help with this step; corks can be hard to cut.
5. Using the scissors, carefully scrape out a notch lengthwise down the centre of the cork.
6. Place the cork on the water, with the cut edge facing up.
7. Carefully place the magnetized needle into the notch made in the cork.

TEST IT:

Once your compass is built, the needle should point north. Ask an adult to verify this using a map, compass, or GPS. Then, rotate the container and the template so that the north on the template lines up with the needle. This is how you would use a compass if you were lost. You rotate it so that the north marking lines up with the needle, and that tells you which way to go to travel in any direction!

EXPLAIN IT:

All magnets have a north pole and a south pole, and when it comes to magnets, opposites attract. Two north poles or two south poles on different magnets will repel one another, but a north and a south pole will attract. When you rub the magnet on a needle (which contains iron), a process called magnetic induction occurs, meaning that it temporarily turns the needle into a magnet. The Earth acts as a big magnet, and has magnetic poles as well. Its magnetic north pole will attract the south pole of a magnetized needle in a compass.

OBSERVE IT:

Today, we mostly use GPS to navigate. However, this technology was invented quite recently, and before that, the compass was the best invention for the job. Even today, if you're hiking anywhere, it's a good idea to bring a compass – you never know if you'll lose cell service or run out of charge. That way, you can navigate back to safety – no matter what!

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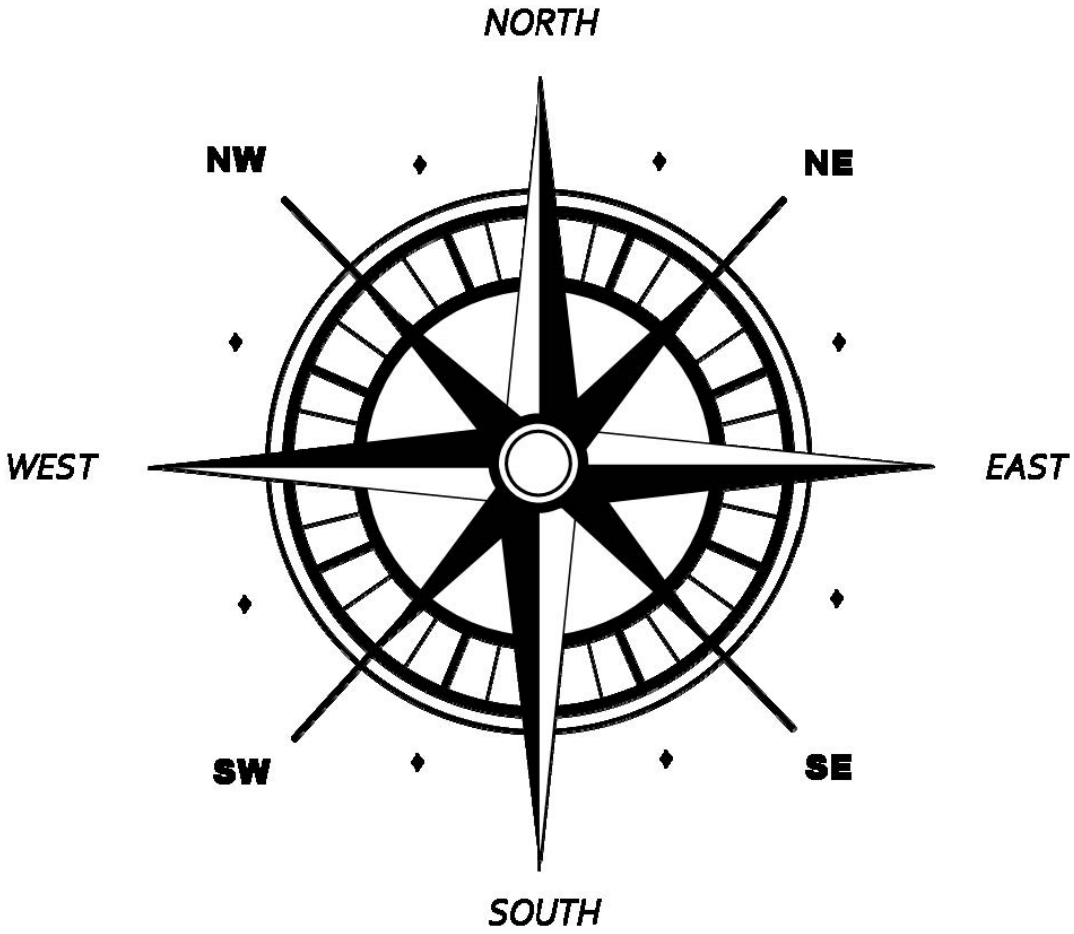
GO FURTHER:

What do you think would happen if you stood on the geographic North Pole (the very top of the Earth, on the axis) and pointed your compass? It would still move and point! This is because the geographic North Pole and the magnetic North Pole (where your compass naturally points) are not in the same place. The same goes for the South Poles. In fact, the geographic and magnetic poles aren't even all that close to one another!



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