



High Touch High Tech®

Science Experiences That Come To You

Home Made Compass

Ingredients & Supplies:

- 2 needles (one for each compass)
- Magnet
- Straight pin
- Cork
- Scissors
- 2 clear 9 oz cups (one for each compass)
- Water
- 4 inch piece of Thread
- Pencil

Instructions:

The most important part of a magnetic compass is a magnetized needle. For each of these compasses, you will need to follow these steps.

You need a magnet and a needle. (Be sure to ask an adult for help.) Carefully rub the pointed end of the needle along the side of the magnet. Only use one side of the magnet and rub in the same direction. (Do not rub back and forth.) Do this 30 times.

Test to see if your needle is magnetized. Hold the needle over the straight pin without touching it. What happens to the straight pin? If the needle picks the pin off the table, it is magnetized! If the pin does not move, you need to continue rubbing the needle alongside the magnet.

Now follow the same steps for your second needle.

Floating Compass

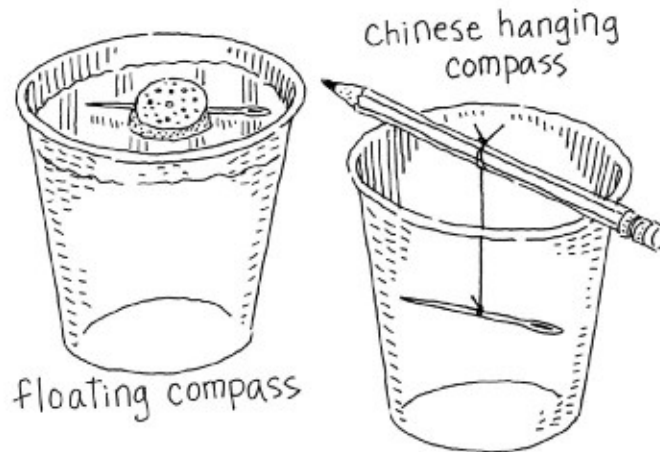
To make this magnetic compass, you will need a small piece of cork and one magnetized needle. Ask an adult to help you push the needle through the cork. Fill your plastic cup with water. Carefully, place your cork and magnetized needle into the cup. What happens? The cork will float on top of the water.

Try turning your cup slightly and observe. When you stop turning the cup, the needle will move to continue pointing north!



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Chinese Hanging Compass

Now let's try another type of magnetic compass. You will need a magnetized needle, a cup, a 4 inch piece of thread, and a pencil.

Ask an adult to help you tie the end of the thread to the center of the magnetized needle. Now tie the other end of the thread to the pencil.

Place the pencil across the top of the cup so it rests on the rim. The needle should hang inside the cup.

What happens? The needle turns toward magnetic north! Try moving the cup and observe. The needle will rotate to keep pointing north.

Great job! You have created two different types of magnetic compasses.

The Science Behind It:

When ships set sail, they make certain there is a compass onboard! The compass is extremely useful when in the middle of the ocean because it is a navigational tool. A magnetic compass relies on the Earth's magnetic field. A metal rod inside a compass will automatically point North because of the gravitational pull of Earth's magnetic north. When you hold a compass, you can even spin in circles and the metal rod will still point north!



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The magnetic compass was invented during the Han Dynasty in China over 1600 years ago! It wasn't until the 12th century that Europe adapted the magnetic compass as a navigational tool for their ships. Europeans used this compass for safe ocean travel. This allowed them to cross oceans and discover new lands!

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