

Using a Compass

Have you ever gone hiking or sailing? For these activities, it is necessary to know where you are headed. One way to find out is by looking at a compass.

Back in the old days, captains guided their ships by finding the North Star in the night sky. This helped them know in which direction they were moving. Of course, this method did not work on cloudy nights.

Fortunately, there was a solution to the problem of cloudy nights. Sailors would place a piece of floating wood in a bowl of water, and then place a magnet on top of the wood. The wood always floated to the north side of the bowl.

Earth itself is a weak magnet with lines of force going toward the north and south poles. That is why the magnet pulled the wood toward the north. The magnet was attracted to the pull of Earth's North Pole. Things glide easily through water, so even the smallest pull from one direction would cause the wood to float that way.

Compasses are a handier version of this idea. A magnetized needle spins above a smooth surface marked with the four directions: north, east, south and west. The same pull that moved the wood north through the water keeps the compass always pointing north. All you have to do is line up the needle with the letter N. Once you know where north is, you can easily figure out where the other directions are.

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