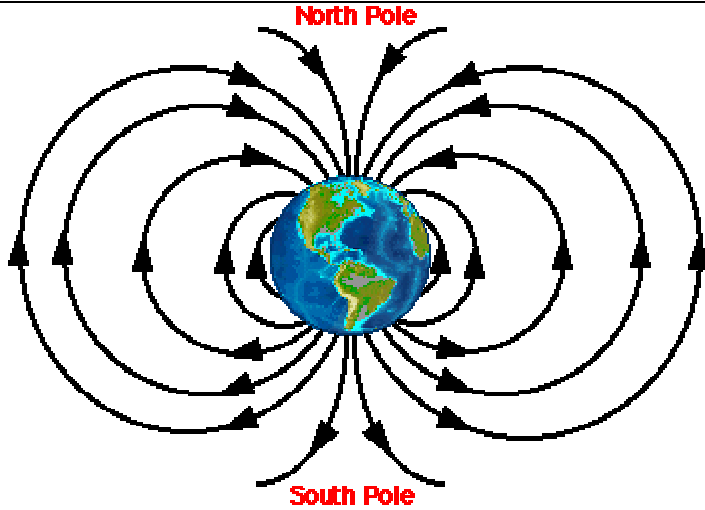


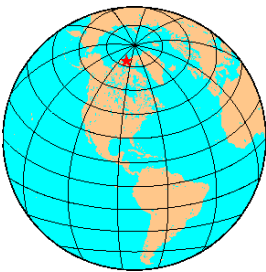
The Earth's Magnetic Field:



How Does It Work?

Inside the rubber model of the Earth a strong magnet attracts the paper clips and causes them to “line up” along the invisible “lines” of the magnetic field. These magnetic field lines point straight up at the north and south magnetic poles. At the equator, these lines are parallel to the surface of the Earth.

The Earth's magnetic field is produced by electrical currents within the fluid outer core of the Earth, which is composed mostly of molten iron. These currents change slowly with time, causing the location of the north magnetic pole to move as well.



Today the north magnetic pole is located about 700 miles (1,200 km) south-southeast of the north (spin) pole of the Earth (see red star on globe to left). Many times in the history of the Earth the core's electrical currents have reversed direction, causing the north and south magnetic poles to switch positions! If you were to use a compass after a such a change, you would end up going south when the compass indicates that you are going north! This should not be a big concern, however, as the last reversal was 780,000 years ago, and scientists don't expect another change any time soon.

John C. Lahr, US Geological Survey



Things to do and notice:

- Place paper clips in various places on the rubber model. Notice which direction the paper clips point.
- Why do you think some of the paper clips lie flat while others stick up?
- Try to guess which way each added paper clip will point, and see if you're right.
- Using a compass, find the north pole of this model Earth.
- If the magnetic field of the Earth were to reverse, could you still use a compass to find your way?