



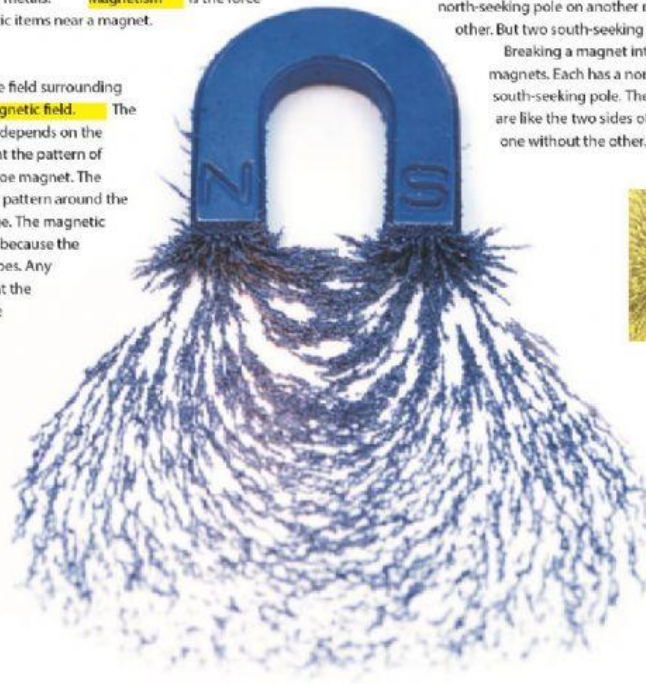
## What are magnetic fields?

### Magnetism

A magnet is an object that attracts other objects made of steel, iron, and certain other metals. **Magnetism** is the force that pushes or pulls magnetic items near a magnet.

### Magnetic Fields

Magnets have an invisible field surrounding them. This is called a **magnetic field**. The shape of the magnetic field depends on the shape of the magnet. Look at the pattern of iron filings near the horseshoe magnet. The pattern is different from the pattern around the bar magnet on the next page. The magnetic fields have different shapes because the magnets have different shapes. Any magnetic field is strongest at the magnet's ends, or poles. The pushing or pulling force is also strongest at the poles.



### Magnetic Poles

All magnets have a south-seeking pole and a north-seeking pole. Opposite poles have opposite charges. Opposite charges pull toward each other. Like charges push away from each other. The south-seeking pole on one magnet and the north-seeking pole on another magnet pull toward each other. But two south-seeking poles push apart.

Breaking a magnet into two parts makes two magnets. Each has a north-seeking pole and a south-seeking pole. The two poles of a magnet are like the two sides of a coin. You cannot have one without the other.

