



Universität  
Basel

Swiss Nanoscience Institute



EINE INITIATIVE DER UNIVERSITÄT BASEL  
UND DES KANTONS AARGAU

## Fun with magnets II

### Make your own compass

#### What you'll need:

- a large bowl
- a piece of polystyrene or wood (something that will easily float on water)
- a bar magnet
- a compass (alternatively, you can use a cell phone app - however, make you sure not to put your phone too close to the magnet)

#### Instructions

1. Fill the bowl with water
2. Place the piece of polystyrene in the bowl
3. Place the bar magnet on top of it
4. Watch what happens

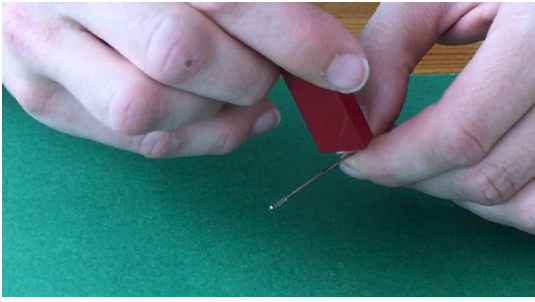
#### What happens?

The bar magnet turns, coming to rest in a particular position. If you repeat the experiment a few times, you will see that the magnet's north pole always points in the same direction.

Now check whether the red needle on your compass points in the same direction.

Careful: Don't hold your compass too close to the bar magnet, or they will influence each other.





## Make your own magnet

### What you'll need

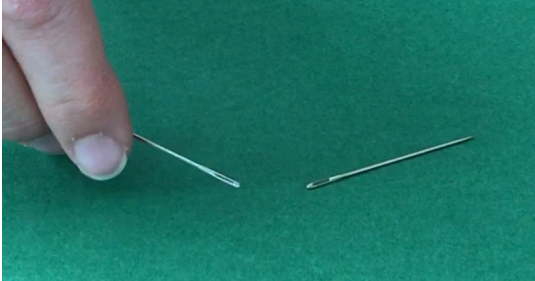
- a bar magnet
- two large needles

### Instructions

1. Stroke one end of the magnet along each needle around 40 times (always in the same direction).
2. Bring one of the needles close to the other.

### What happens?

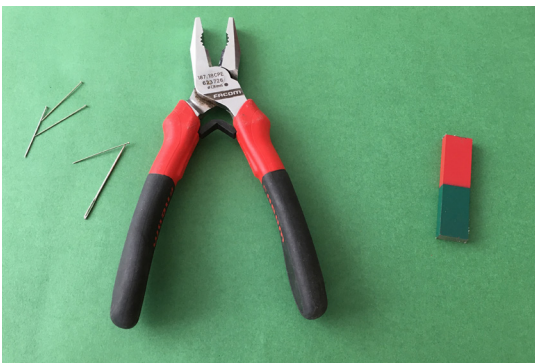
The needles attract or repel each other, depending on which ends are close to each other.



## Splitting a magnet

### What you'll need

- a large needle
- a bar magnet
- a pair of pliers
- a few pins



### Instructions

1. Magnetize the needle as in the previous experiment.
2. Hold the magnet to the ends of the needle.
3. With the help of a grown-up, cut the needle into two halves with the pliers.
4. Hold the magnet to the ends of each half.

### What happens?

The two halves of the needle behave like two smaller magnets, each with its own north and south pole. You could keep on dividing these halves into smaller pieces, and they would always keep their magnetism and polarity.