

# Forces and Magnets.

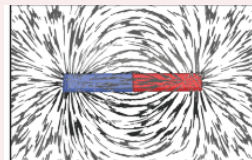

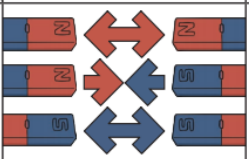
## Key Knowledge

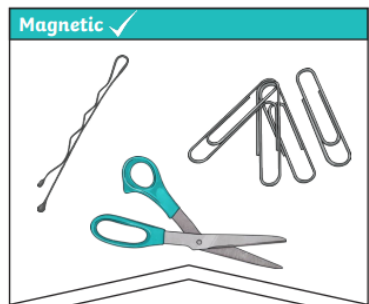
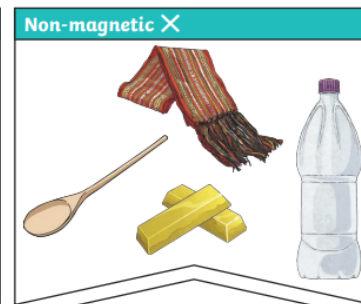
Different **surfaces** create different amounts of **friction**. The amount of **friction** created by an object moving over a **surface** depends on the roughness of the **surface** and the object, and the **force** between them.

The driving **force** pushes the bicycle, making it move.

**Friction** pushes on the bicycle, slowing it down.



	Like <b>poles</b> repel. Opposite <b>poles</b> attract.	
A <b>magnetic field</b> is invisible. You can see the <b>magnetic field</b> here though. This is what happens when iron filings are placed on top of a piece of paper with a <b>magnet</b> underneath.		The needle in a compass is a <b>magnet</b> . A compass always points north-south on Earth.

<b>Magnetic</b> ✓ 	<b>Non-magnetic</b> ✗ 
These objects contain iron, nickel or cobalt. Not all metals are <b>magnetic</b> .	These objects do not contain iron, nickel or cobalt.

### Vocabulary

Forces—pushes and pulls

Friction— a force that acts between two surfaces or objects that are moving or trying to move across each other.

Magnet—an object that produces a magnetic force.

Magnetic field—the area around a magnet where there is a magnetic force.

Poles— North and South poles are found at different ends of the magnet

Repel— repulsion is a force that pushes objects away

Attract— Attraction is a force that pulls objects together.

### Key questions

Which surfaces cause the most friction?

How can friction between surfaces be reduced?

Which metals are attracted to magnets?

### Skills

Plan—Ask relevant questions

Set up simple practical enquiries

Observe—Make systematic and careful observations

Record—Gather, record, classify and present data

Record findings using scientific language, drawings and charts

Identify differences and similarities

### Common misconceptions.

the bigger the magnet the stronger it is.

All metals are magnetic.

### Key outcomes

Be able to:

Compare how things move on different surfaces

Notice that some forces need two objects to be touching but that magnets can act if they are not touching

Observe how magnets attract and repel some materials

Compare and group everyday materials according to whether they are attracted to a magnet

Identify some magnetic materials