Magnets & Forces

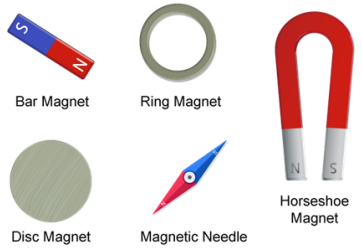
Knowledge Organiser

Vocabulary

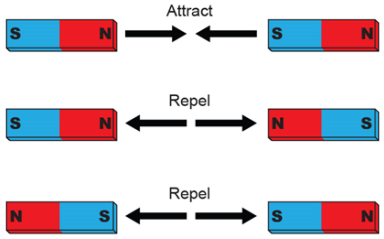
Word	Meaning
attract	To pull to or draw towards something
force	a push or pull acting on an object as a result of the object's interaction with another object.
friction	A force that exists between two surfaces. It works in the opposite direction to which the object is moving or trying to move.
gravity	A name for a force that pulls everything down towards the centre of the Earth.
investigation	A plan for asking questions and testing possible answers using different methods.
magnet	An object that has a magnetic field
magnetic field	The area around the magnet where a magnetic force occurs
magnetic force	An invisible force caused by the properties of magnets and magnetic materials.
magnetic material	Materials which are magnetic (iron, nickel and cobalt)
magnetic poles	An area at the end of each magnet where the magnetic field is the strongest.
materials	What something is made from. E.g. paper, wood, plastic, leather.
non-magnetic material	Materials which are non-magnetic and will not attract to magnets. E.g. wood, plastic, aluminium.
prediction	A statement about what will happen or may happen in the future.
pull	A force that brings an object closer.
push	A force that moves an object away from something.
repel	To push or move away from something
surface	The outside or upper most layer of something.

Magnets

Types of magnets
Magnets come in different shapes and sizes, they can vary in strength too. All magnets have a north and south pole.

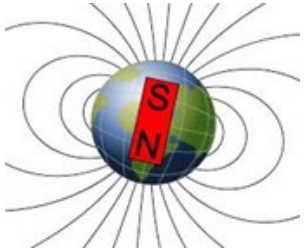


Magnetic metals
The three metals that are attracted to magnets are iron, cobalt and nickel.



Magnetic poles
Each magnet has a south pole and a north pole. Opposite poles attract, and like poles (two of the same) repel and push away from each other.

Magnetic field
Magnetic fields are areas where a magnetic material experiences a force.



The Earth
The Earth is like a giant magnet, and there is a magnetic field all around us. The core of the earth is made of iron and there are two points on the Earth's surface, called magnetic poles, where the magnetic field is strongest. These points are close to the Earth's North Pole and the Earth's South Pole. A compass needle points north because it is attracted by the magnetic pole near the Earth's North Pole.

Science

Year 3 Autumn Term

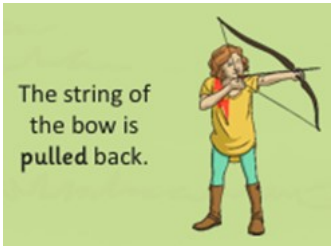
Magnets & Forces

Forces

The tug of war teams **pull** the rope.

A person **pushes** the piano keys down.

Forces make things move. Whenever an object starts to move or moves faster, it is a force making this happen. Forces can also make things stop moving or slow down.



The string of the bow is **pulled** back.

The runner's feet **push** off the ground.

Friction

Friction is a force that stops or slows us when trying to move an object. If the object is already moving, friction is slowing it down. It happens when there is contact between two materials, for example, a bike tyre and the road. Different surfaces, such as grass or the tarmac, create different amounts of friction. When friction happens heat is

How is friction helping these two people?

Friction pushes on the bicycle, slowing it down.

Types of Investigation

Working scientifically is more than just fair testing. We need different ways of working scientifically to answer different kinds of questions. There are 5 main ways we can enquire scientifically or 'ways of finding out'.

1. Observing changes over time.
2. Looking for naturally-occurring patterns and relationships.
3. Identifying and classifying things
4. Researching using secondary sources
5. Fair testing

Extending your learning

Fun things to do to extend your learning at home:

1. Have a look around your house and predict which materials will be magnetic or non-magnetic. And if you have a magnet at home you can test your predictions!
2. Use junk to create a model with moving parts where you have to use push and pull forces to make it work.
3. Watch a family member complete a task (e.g. cooking) and count how many times they used the push and pull forces. You could create a tally on a piece of paper.
4. When travelling on the bus or in a car, have a look at all the different surfaces on the ground. Have a think about which ones would create the most or least friction.