



Year 3 Science Knowledge Organiser: Forces and Magnets



Subject Specific Skills

- I can compare how things move on different surfaces
- I can notice that some forces need contact between two objects, but magnetic forces can act at a distance
- I can observe how magnets attract or repel each other and attract some materials and not others
- I can compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials
- I can describe magnets as having two poles
- I can predict whether two magnets will attract or repel each other, depending on which poles are facing.

Prior Learning

- Children should recognise the term 'magnet' and may identify a 'fridge magnet'
- Children should understand the terms 'push' and 'pull' although may not identify them as forces

Key Knowledge: Magnets

A magnet is a special object which produces an area of magnetic force around itself called a magnetic field. If a metal object enters this magnetic field, they will be attracted towards the magnet and end up sticking to it - non-metallic objects would not be attracted to it. N.B. some forces need contact between two objects, but magnetic forces can act at a distance. Magnetic materials are always made of metal, but not all metals are magnetic. Iron is magnetic, so any metal with iron in it will be attracted to a magnet. Nickel and Cobalt are also magnetic. Steel contains iron, so a steel paperclip will be attracted to a magnet too. Most other metals, for example aluminium, copper and gold, are NOT magnetic.

Key Vocabulary

Force A push or pull on an object. It can cause an object to accelerate, slow down, remain in place, or change shape.

Push The act of applying force in order to move something away e.g. 'he gave the door a hard push.'

Pull The act of applying force to move something toward you

Magnetic Force The force between two objects in which current is flowing, it can repel or attract.

Magnet An object made from iron, nickel or cobalt materials which attracts other objects made from these materials.

Key Individual: Isaac Newton



Key Knowledge: Magnetic poles



The two ends of a magnet are known as the north pole (N) and the south pole (S). The same poles repel— opposite poles attract. If you try to put two magnets together with the same poles pointing towards one another, the magnets will push away from each other. We say they repel each other. Opposite poles attract and are brought together. They attract.

Forces and friction: When objects are pushed or pulled, an opposing force can be felt. This opposing force is called 'friction'. Friction causes things to slow down or stop. The grip on our shoes stops us slipping. Therefore, friction is great. Ice-skates on an ice-rink will move for a long time because there is very little friction. The rougher the surfaces, the greater the friction. This rubbing of two surfaces can release energy, causing heat.

