



Key Ideas & Vocabulary

A force is a push or a pull. When an object moves on a surface, the texture of the surface and the object affect how it moves. It may help the object to move better or it may hinder its movement e.g. ice skater compared to walking on ice in normal shoes. A magnet attracts magnetic material. Iron and nickel and other materials containing these, e.g. stainless steel, are magnetic. The strongest parts of a magnet are the poles. Magnets have two poles – a north pole and a south pole. If two like poles, e.g. two north poles, are brought together they will push away from each other – repel. If two unlike poles, e.g. a north and south, are brought together they will pull together – attract. For some forces to act, there must be contact e.g. a hand opening a door, the wind pushing the trees. Some forces can act at a distance e.g. magnetism. The magnet does not need to touch the object that it attracts.

contact force



A force that occurs when two things touch.

force



A push or a pull. A force can make things move, change their speed, or change their shape.

magnet



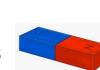
A magnet is a rock or metal that pulls towards (**attracts**) or pushes away (**repels**) other materials.

magnetic material



Magnetic materials are attracted to magnets. They are always made of metal. Not all metals are magnetic.

poles

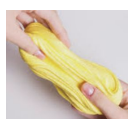


Poles are the strongest parts of a magnet. Magnets have a north and south pole.

Knowledge I already have

In Year 2, I:

- Found out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.



New Knowledge

By the end of this unit:

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

Future Knowledge

In Year 5, I will:

- Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.
 - Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.
 - Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.
- In KS3, I will learn:
- About about plotting and representing magnetic fields by plotting
 - About the Earth's magnetism, compass and navigation.

Scientific Enquiry

Identifying and classifying

- I will classify materials according to whether they are magnetic and present my results.
- Comparative and fair tests
- I will test how objects move on different surfaces and make predictions for further tests.
- I will devise a comparative test to identify the strength of magnets in order to rank them.

