



Knowledge is Power...

Ivington CofE Primary and Preschool

Reaching together... stand firm in your faith, be courageous and strong - 1 Corinthians 16:13



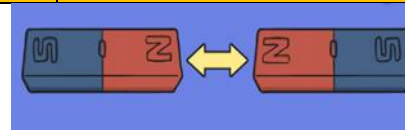
SUBJECT Science – Forces and magnets

TERM: Autumn 2022

YEAR GROUPS: 3/4

What I should already know:

- I have an awareness of how to make things stop and start using simple pushes and pulls.
- I know about floating and sinking.



Overview

- Compare how things move on different surfaces.
- Know how a simple pulley works and use making lifting an object simpler
- Notice that some forces need contact between two objects, but magnetic forces can act at a distance.
- Observe how magnets attract and repel each other and attract some materials and not others.
- 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.
- Describe magnets as having two poles.
- Predict whether two magnets will attract or repel each other, depending on which poles are facing.

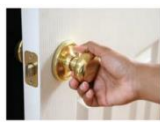
Magnets (sticky knowledge)

- Magnets exert attractive and repulsive forces on each other.
- Magnets exert non-contact forces, which work through some materials.
- Magnets exert attractive forces on some materials.
- Magnet forces are affected by magnet strength, object mass, distance from object and object material.

Forces and magnets – Key Terms

Forces- Pushes or pulls

Forces will change the motion of an object. They will either make it start to move, speed up, slow it down or even make it stop.



Opening a Door

Friction

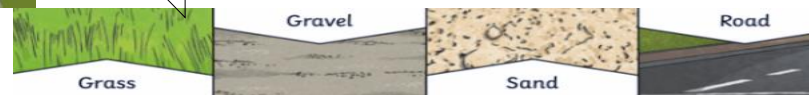
A force that acts between two surfaces or objects that are moving, or trying to move across each other. Different surfaces create different amounts of friction. The amount of friction created by an object moving over a surface depends on the roughness of the surface and the object, and the force between them.

The driving force pushes the bicycle making it move.



Surface

Friction pushes on the bicycle slowing it down.



Push

Pull

Force

Friction

Surface

Grass, gravel, sand, road



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Vocabulary

Magnet	An object which produces a magnetic force that pulls certain objects towards it.
Magnetic	Objects which are attracted to a magnet are magnetic. Objects containing iron, nickel or cobalt metals are magnetic.
Magnetic field	The area around a magnet where there is a magnetic force which will pull magnetic objects towards the magnet.
Poles (north and south)	North and south poles are found at different ends of a magnet.
Repel	Repulsion is a force that pushes objects away. For example, when a north pole is placed near the north pole of another magnet, the two poles repel (push away from each other).
Attract	Attraction is a force that pulls objects together. For example, when a north pole is placed near the south pole of another magnet, the two poles attract (pull together).

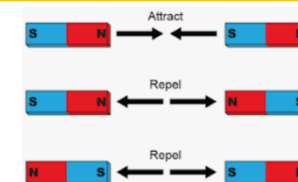
Magnetic, non-magnetic, magnetic field

Poles the same repel. Opposite poles attract.

How far away can the magnetic attraction between two magnets be experienced?

Are bigger magnets stronger?

Is the repulsive force the same as? How is the magnetic attraction of repulsion force affected by putting materials between the magnets?

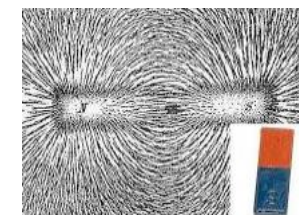


A magnetic field is invisible. You can see the magnetic field using iron filings. This is what happens when iron filings are placed on paper with a magnet underneath.



A needle in a compass is a magnet.

A compass always points towards north on Earth.



What are magnetic materials? How can we find out?

Objects that contain iron, nickel or cobalt are magnetic. Not all metals are magnetic.

How far away does a magnet have to be before it attracts a magnetic material?

Can I make a magnetic material non-magnetic?

