

NPA Knowledge Organiser: Year 3 Forces & Magnets



Force: A push or a pull in a particular direction.

Push: Exert a force on something to move it away.

Pull: Exert a force on something to move it closer.

Surface: The outside part of something.

Magnet: An object that produces a magnetic field.

Magnetic: The power to attract or repel without touch.

Attract: Pull something to you without contact.

Repel: Push something away without contact.

Magnetic poles: North ↑ South ↓

MAGNETIC MATERIALS

- Magnets can attract other magnets but they can also attract magnetic materials.
- The magnetic materials are always metals but only a few metals are magnetic.
- Iron is magnetic, so any metal with iron in it will be attracted to a magnet. Steel contains iron, so a steel paperclip, for example, will be attracted to a magnet.

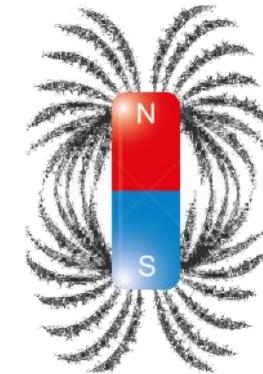


Michael Faraday (1791-1867)

Faraday was an English scientist who discovered much about magnetism and forces, and many electrical devices today came about because of his work. Did you know? >>> Albert Einstein kept a picture of Faraday on his wall!



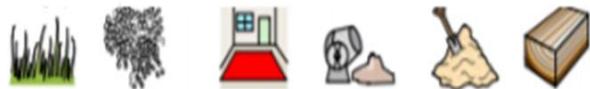
North &
South Poles



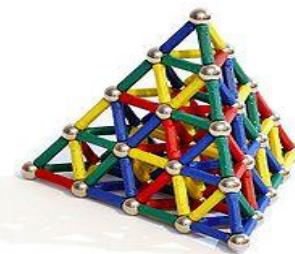
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How do different **surfaces** affect the **motion** of an object?

- **Forces** act in **opposite** directions to each other.
- When an object moves across a surface, **friction** acts as an **opposite** force.
- **Friction** is a **force** that holds back the **motion** of an object.
- Some **surfaces** create more **friction** than others which means that objects move across them slower.



- On a ramp, the **force** that causes the object to move downwards is **gravity**.
- Objects move differently depending on the **surface** of the object itself and the **surface** of the ramp.



Why do the balls stick to the plastic tubes?

Think about what is inside the tubes!



Loud Speaker



Printer



Medical Equipment



Magnetic Levitation



Motor



Sensor



Mobile Cover



Gift Box Packing



Magnetic Toy



Car holder



Wind Turbine



VCM

By the end of this unit, you'll know:

- Forces are pushes and pulls.
- These **forces** change the **motion** or **movement** of an object.
- They will make it start to speed up or start to slow down, or even stop it.
- For example, when a cyclist **pushes** down on the pedals of a bike, it begins to move. The harder the cyclist pedals, the faster it goes.
- When the cyclist **pulls** the brakes, the bike slows down and eventually stops.

I'm puzzled: Will it **attract**?



Crayon
Paper clip
Plastic ruler
Paper plane
A screw
Scissors
An orange



Tip: Look on the other side of this **Knowledge Organiser**!

SCIENCE IS



*"Nothing in life is to be feared, it is only to be understood.
Now is the time to understand more, so that we may fear less." – Marie Curie*