

MIGHTY METALS



You're an engineer, a scientist, a maker of men (iron men, of course). Explore the scientific world of forces and magnetism, metals and materials. Expand your mind as you test and trial, build and move. Which force is at play as you slide down a slide or swing on a swing? Can you explain why magnets repel and attract? Can you make a penny look shiny and new or build a steel band from pots and pans? If you were a metal, which one would you be? Gold, a shimmering, precious and costly mineral? Or steel, that strong and useful alloy? Maybe you're iron, malleable and easy to shape, but ready to rust. Maybe you're not a metal at all, but a force to be reckoned with.

Help your child prepare for their topic!

Metals and magnets are everywhere! Why not do a hunt around the house to see how metal is used?

You could also make fridge magnets using a flat magnet, glue and modelling clay or recycled materials. Alternatively, you could build models using blocks or recycled materials and investigate the force needed to knock them over!

Forces

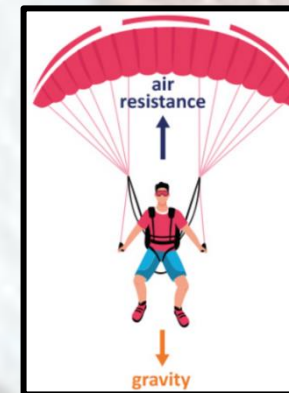
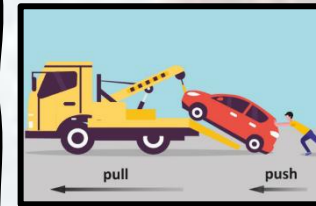
A force is a push or a pull. Forces cannot be seen, but it is possible to see what forces do. When a force is applied to an object, it can change the object's speed, direction of movement or shape. Some forces can be measured in Newtons (N) using a force meter.

Gravity

Gravity is a non-contact force. It pulls objects towards each other. Anything with a mass can pull on another object. The bigger the object, the bigger the gravitational pull. Gravity is the reason that objects on Earth fall to the floor when dropped.

Friction

Friction is the force between two surfaces moving across each other. It acts in the opposite direction to movement and always slows down a moving object. Usually smooth surfaces have less friction than rough ones.



Metals

A metal is a solid material found in rocks. Each material has different properties but most are strong, tough and hard. Metals can be melted and shaped into different forms such as screws and cars. They can also be used to conduct electricity and heat. Some metals, such as iron and nickel, are magnetic. Metals can be mixed together. These are called alloys.

Science	An object will not move unless a pushing or pulling force is applied. Some forces require direct contact, whereas other forces can act at a distance, such as magnetic force.
	Friction is a force between two surfaces as they move over each other. Friction slows down a moving object. Smooth surfaces usually generate less friction than rough surfaces.
	Some materials have magnetic properties. Magnetic materials are attracted to magnets. All magnetic materials are metals but not all metals are magnetic. Iron is a magnetic metal.
	Magnets have two poles (north and south). Opposite poles (north and south) attract each other, while like poles (north and north, or south and south) repel each other.
Art	Visual elements include colour, line, shape, form, pattern and tone.
DT	Levers consist of a rigid bar that rotates around a fixed point, called a fulcrum. They reduce the amount of work needed to lift a heavy object. Sliders move from side to side or up and down, and are often used to make moving parts in books. Axles are shafts on which wheels can rotate to make a moving vehicle. Cams are devices that can convert circular motion into up-and-down motion.
	Materials for a specific task must be selected on the basis of their properties. These include physical properties as well as availability and cost.
PSHE	The value of rules and laws, rights and freedoms
	How the internet is used.
	Different jobs and skills; job stereotypes; setting personal goals.
MFL	Hobbies
	Recap conjugation of regular verbs
PE	Cool Core: Improving core strength and agility.
IT	Digital Animator: Video- Zooming, downloading, combining clips, titles and credits.