

What should I already know?

- I can compare how things move on different surfaces.
- I know that some forces need contact between two objects but magnetic forces can act at a distance.
- I know how magnets attract or repel each other; attract some materials and not others.
- I can group materials on the basis of whether they are attracted to a magnet and identify some magnetic materials.
- I know that magnets have 2 poles and that the direction of these will determine if

Vocabulary

force	The pulling or pushing effect that something has on something else.
Earth	Our planet, third from the sun.
simple machines	A device that can change the direction or amount of force.
gravity	The force that causes things to
air resistance	Force that moves in the opposite direction of a moving object.
water resistance	Force that slows things down as they move through water.
friction	The resistance of motion when one object rubs against another.
mechanisms	Parts that make a machine work.
levers	A tool to lift or pry things open.
pulleys	A simple machine that makes lifting something easier.
gears	Part of a machine that causes another part to move due to teeth connecting the moving parts.

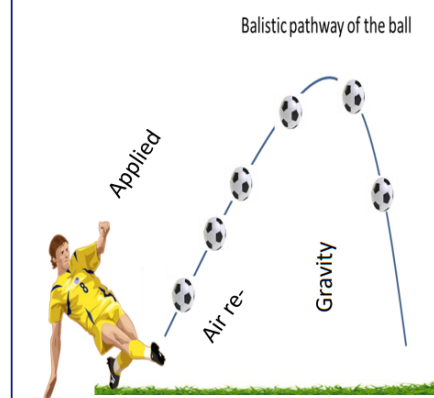
Gravity

Gravity is a force that acts at a distance. Everything is pulled to the Earth by gravity.

- It has been around since the beginning of the Universe, and applies to all matter in the Universe.
- The bigger an object's mass, the more gravity it will have. The smaller the mass of an object, the less gravity it will be subject to.
- Without gravity we would fly right off the planet! The moon's gravity causes our ocean tides on Earth. The Sun's gravity keeps Earth in orbit around the Sun.
- We don't actually 'feel' gravity. We only feel the effects of trying to overcome it by jumping or when we fall.
- Sir Isaac Newton discovered gravity around 300 years ago. The tale is that he saw an apple fall from a tree, and wondered what force made it fall to the ground.



Forces



Forces cause an object to start moving, speed up, slow down or change direction. There are a number of different forces that affect us in our daily lives:

- Applied force: The force placed on an object by a living creature.
- Friction: The 'sticking' force that occurs when an object moves over another.
- Air resistance: A type of friction force that pulls against an object travelling through the air. Some objects are more 'streamlined', meaning that the air pulls on them less, and they travel faster.
- Water resistance: A friction force on objects floating or moving in water.
- Surface resistance: The friction force of objects moving across a surface.

Machines and Mechanisms

A mechanism is a device that allows a small force to be increased to a larger force. The pay back is that it requires a greater movement. The small force moves a long distance and the resulting large force moves a small distance. This means that we can use these machines to accomplish things more easily.

Lever gives us extra pushing or pulling force and help us lift greater weights.

Gears are different sized cogs which work together to give a machine extra force.

Pulleys are wheels and ropes that work together to lift heavy objects.



Inclined Plane



Lever



Wedge



Screw



Pulley



Wheel and Axle