Amblecote Primary School—Knowledge Organisers

Phase: 5/6	**Subject:** Science	**Focus:** Forces	**Term: Spring 1**

Prior Learning

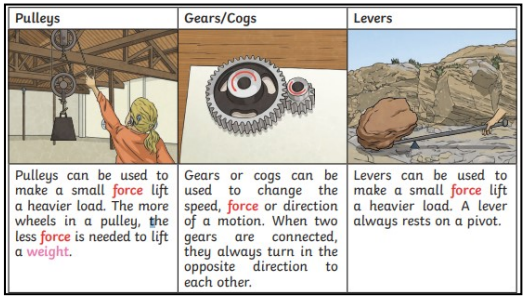
- Compare how things move on different surfaces.
- Notice that some forces need contact between two objects, but magnetic forces can act at a distance.
- Observe how magnets attract or repel each other and attract some materials and not others.
- Compare and group together a variety of everyday materials 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.

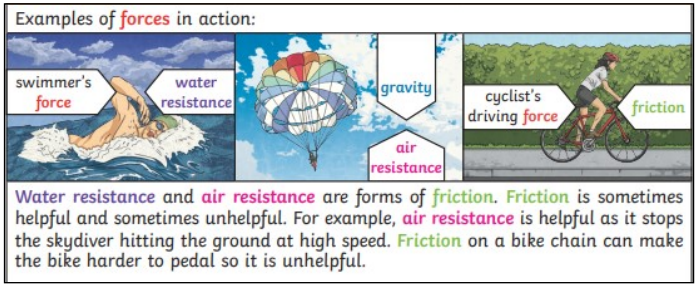
Knowledge

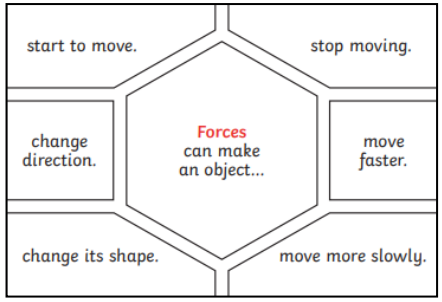
- A force causes an object to start moving, stop moving, speed up, slow down or change direction. Gravity is a force that acts at a distance. Everything is pulled to the Earth by gravity. This causes unsupported objects to fall.
- Air resistance, water resistance and friction are contact forces that act between moving surfaces. The object may be moving through the air or water, or the air and water may be moving over a stationary object.
- 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, e.g. a crowbar or bottle top remover. Pulleys, levers and gears are all mechanisms, also known as simple machines.

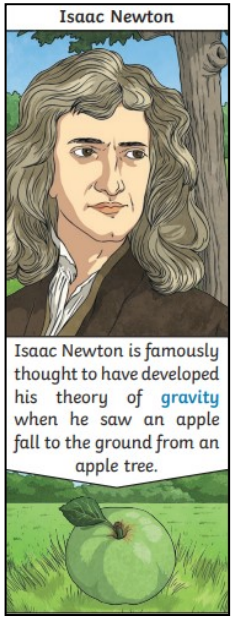
Vocabulary

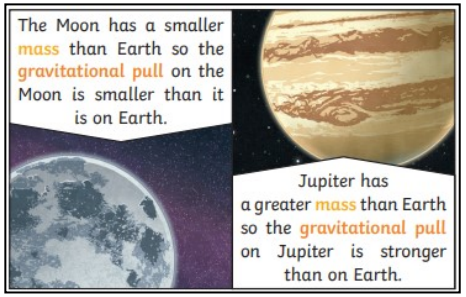
Force	Push or pull
Gravity	A pulling force exerted by the Earth (or anything else which has mass).
Weight	The measure of the force of gravity on an object.
Mass	A measure of how much matter (or 'stuff') is inside an object.
Air Resistance	A type of friction caused by air pushing against any moving object.
Water Resistance	A type of friction caused by water pushing against any moving object.
Streamlined	When an object is shaped to minimise the effects of air or water resistance
Friction	A force that acts between two surfaces or objects that are moving, or trying to move, across each other.
Upthrust	A force that pushes objects up, usually in water
Mechanism	Mechanisms are simple machines with moving parts that change input forces and movement into a set of useful output forces. Examples of mechanisms are pulleys, gears and levers.

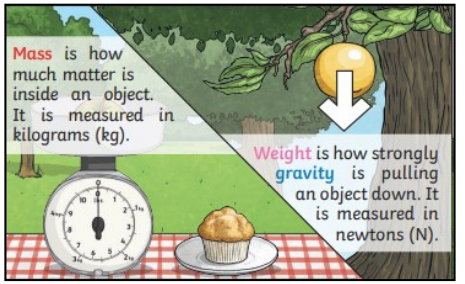


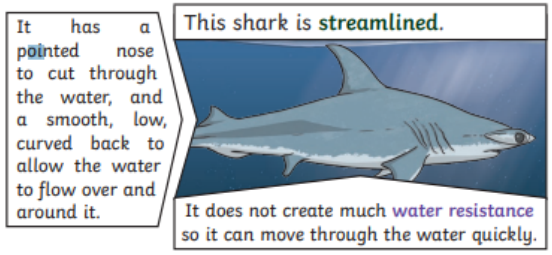












By the end of the unit I should know..

- 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

Question 1 - What type of force acts to slow objects down?	Start of Unit	End of Unit
gravity		
friction		
Buoyancy		

Question 2 - Who developed the theory of gravity?	Start of Unit	End of Unit
Isaac Newton		
Charles Darwin		
Albert Einstein		

Question 3 - What is gravity measured in?	Start of Unit	End of Unit
Metres		
Kilograms		
Newtons		

Question 4— What is the name given to objects that are shaped to reduce air or water resistance?	Start of Unit	End of Unit
streamlined		
artificial		
energised		
sleek		

Question 5— Which of the following has the strongest gravitational pull?	Start of Unit	End of Unit
The moon		
Jupiter		
Earth		

Question 6— This diagram shows a mechanism used to lift heavy loads, What is it called?		Start of Unit	End of Unit
pivot			
pulley			
lever			