Alverton School Science Knowledge Organiser Years 5 and 6 - FORCES

What we already know:
We have investigated how things move on different surfaces. Noticed that some forces need contact between two objects but magnetic surfaces can act at a distance. We have compared, grouped and identified magnetic and non-magnetic materials. We know magnets can be described as having two poles and finally we understand that magnets can attract and repel each other, depending on which poles are facing each other.

Key Vocabulary	
Forces	Pushes or pulls
Gravity	A pulling force exerted by Earth or anything else that has mass.
Earth's gravitational pull	The force that Earth exerts on an object when it pulls it towards Earth's centre. Earth's gravitational pull is what keeps us on the ground.
Weight	The measure of the force of gravity on an object.
Mass	A measure of how much matter (or stuff) is inside an object
Friction	A **force** that acts between two surfaces or objects that are moving, or trying to move, across
Air Resistance	A type of **friction** caused by air pushing against any moving object
Bouyancy	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**

Core Knowledge

What is a force?
A force is a push or pull that acts on an object
Forces can make an object
- Start to move
- Stop moving
- Move faster
- Move more slowly
- Change shape
- Change direction

Gravity - The force that pulls things to the ground.
It is gravity that keeps us on the earth's surface. Gravity also holds earth and other planets in their orbits around the sun

Friction - friction is a force between 2 surfaces that are sliding across each other. Friction works in the opposite direction which the object is moving. It slows down the moving object and also produces heat. It can be helpful in certain situations but not helpful in other.

Air.resistance- A type of friction between air and another material. Aeroplanes and cars are streamlined so they can move through the air as easily as possible. Air resistance pushes up on the parachute, opposing the force of gravity. This makes the parachute land more slowly.

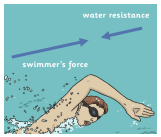
Water resistance - a type of friction between water and an object that is moving through it. When you go swimming there is friction between the water particles .and your skin. Some objects can move through water with less resistance if they are streamlined.

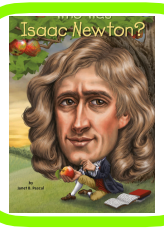
Sir Isaac Newton is a British Scientist and mathematician who was born in the 1600's
Is considered by some as one of the most impotent scientists in history. One of his achievements is that he developed the theory of gravity. It is thought he developed the theory when he saw an apple fall from a tree

Gravity

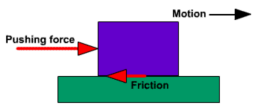
Air resistance

Water resistance



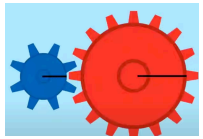


Pushes and Friction



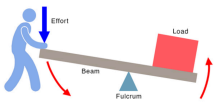
Pushes and pulls

Cogs



Pulleys

Levers



Types of Mechanisms
Pulleys - They are used to reduce the amount of force to move a load. The more wheels in a pulley, the less force is needed to pull a weight
Gears or cogs - are you to change speed, direction or force of a motion. When 2 gears are connected, they always turn in the opposite direction to each other.
Levers - can be used to make a small force lift a lighter load. A lever always rests on a pivot or a fulcrum.