



Be the best that we can be.

EBJ Knowledge Organiser Science Year 5

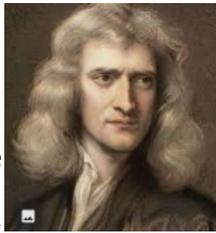
Spring 2 How does gravity act?



Forces overview

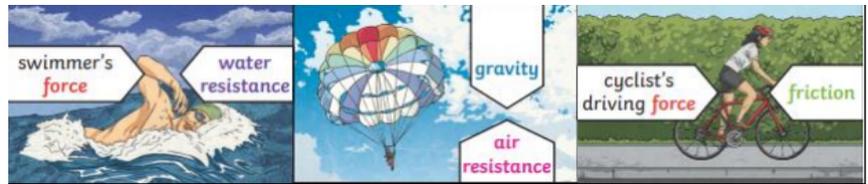


Forces are pushes and pulls. These forces change the motion of an object. They will make it start to move or speed up, slow it down or even make it stop. For example, when a cyclist pushes down on the pedals of a bike, it begins to move. The harder the cyclist pedals, the faster the bike moves. When the cyclist pulls the brakes, the bike slows down and eventually stops. Friction is a force - it is the resistance of motion when one object rubs against another. Other forces that create resistance of motion include water resistance and air resistance. Isaac Newton is thought to have developed the theory of gravity when an apple fell on his head.



Types of forces

Gravity is the force that pulls objects to the centre of the Earth. **Air resistance** pushes up on the parachute, opposing the force of gravity. This makes the parachute land more slowly. **Water resistance** is the friction that is created between water and an object that is moving through it. Some objects can move through water with less resistance if they are streamlined. Examples of forces in action: **Water resistance** and air resistance are forms of friction. Friction is sometimes helpful and sometimes unhelpful. For example, **air resistance** is helpful as it stops the skydiver hitting the ground at high speed. Friction on a bike chain can make the bike harder to pedal so it is unhelpful.



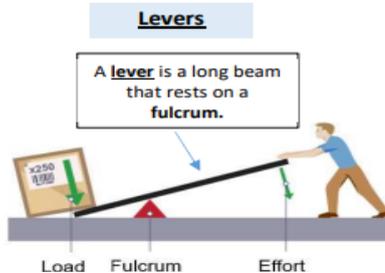
Key vocabulary

Air resistance, attract, buoyancy, force meter, friction, gears, gravity, levers, Newton, non-contact force, pulleys, reliable, repel, streamlined, water resistance, weight

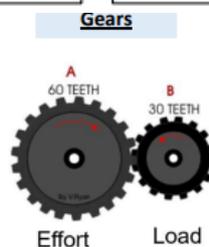
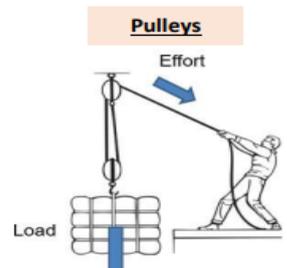
Levers, pulleys and gears

Levers allow us to do heavy work with less effort. For example, trying to pick up a large heavy box is difficult, however if a **lever** is used it becomes much easier to move it. **Pulleys** also allow us to do heavy work - objects are attached to ropes and pulley wheels, and so instead of lifting heavy objects upwards, we can pull on the pulley rope downwards. **Gears** are toothed wheels. Their 'teeth' can fit into each other so that when the first wheel turns, so does the next one. This allows forces to move across a surface. Springs can be stretched by pulling them or squashed by pushing them. The greater the force pulling or pushing the spring, the greater the force the spring uses to move back to its normal shape.

Read all about it. Can you find these books in the local library?



The **fulcrum** is what the lever turns on. **Effort** is the force needed to move a The **load** is the force being lifted



Gears or cogs can be used to change the speed, force or direction of a motion.

