



What will I be learning? Key Vocabulary

You will 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, which act between moving surfaces. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Enquiry Questions?
 How can our knowledge of forces help us in everyday life?
 Why do you think we put salt/grit on icy roads in winter?
 How do you think gravitational forces differ?

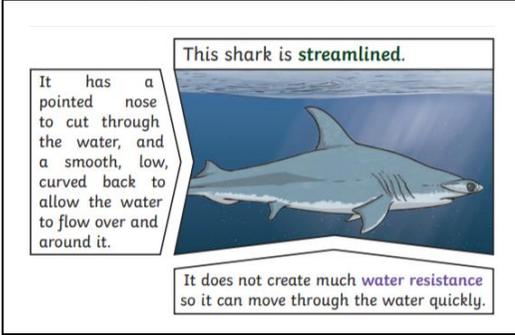


- Air resistance** – A force that is caused by air with the force acting in the opposite direction to an object moving through the air
- Force** – A push or pull upon an object resulting from its interaction with another object
- Friction** – The resistance that one surface or object encounters when moving over another
- Gears** – A toothed wheel that works with others to alter the relation between the speed of a driving mechanism (e.g. engine) and the speed of the driven parts (e.g. the wheels)
- Gravity** – The force that attracts a body towards the centre of the earth
- Levers** – A rigid bar resting on a pivot that is used to move a heavy or firmly fixed load
- Mass** – The weight measured by an objects acceleration under a given force or by the force exerted on it by gravity
- Pull force** – To draw or haul towards oneself or itself, in a particular direction
- Pulleys** – A wheel with a grooved rim around that changes the direction of a force applied to the cord
- Push force** – To move something in a specific way by exerting force
- Water resistance** - A force that is caused by water with the force acting in the opposite direction to an object moving through the water
- Upthrust**- an object that is partly, or completely, submerged experiences a greater pressure on its bottom surface than on its top surface. This causes a force

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.



<p>Pulleys</p>	<p>Gears/Cogs</p>	<p>Levers</p>
<p>Pulleys can be used to make a small force lift a heavier load. The more wheels in a pulley, the less force is needed to lift a weight.</p>	<p>Gears or cogs can be used to change the speed, force or direction of a motion. When two gears are connected, they always turn in the opposite direction to each other.</p>	<p>Levers can be used to make a small force lift a heavier load. A lever always rests on a pivot.</p>

Try it at home...
 Explore who Sir Isaac Newton was and create a fact file about him. Can you make a boat out of paper? How many objects will it hold before it sinks?
 Change its shape so there is more upthrust? Record your investigation