




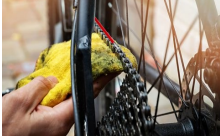
Forces and Mechanisms



| Key Vocabulary |
|---|
| force: a push or pull |
| air resistance: a contact force acting on all objects that are moving through air, whether this is falling, |
| force meter: a piece of equipment that measures a |
| friction: a contact force that makes it harder to move an object across a surface or slows down an |
| fulcrum: the point about which a lever turns |
| gears: a simple mechanism, consisting of wheels that have teeth that slot together with the teeth on |
| gravity: a non-contact force that pulls an object towards the centre of the Earth |
| impact: the force produced when two objects |
| lever: a simple mechanism, consisting of a rigid arm that turns about a fulcrum, which makes it easier to move a load |
| load: a heavy object that is being moved |
| mechanism: a device that makes it easier to move something |
| Newton (N): the unit of measurement of a force |
| oppose: to move in a direction that is the opposite direction to another movement |
| pivot: to turn |
| pulley: a mechanism used for lifting heavy objects by applying force at one end of a rope which passes |
| water resistance: a contact force which slows down an object moving through water due to the water pushing back against the object as it moves |

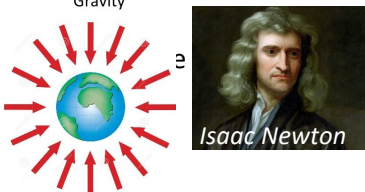
What is the friction between different surfaces?

Friction is a force that makes it harder to move an object across a surface or slows down an object moving over a surface. The force of friction can be measured using a Newton meter. The unit of measurement of a force is Newtons (N)

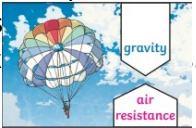
| Helpful friction | Unhelpful friction |
|---|---|
|  <p>Friction between tyres and the road stop cars from skidding.</p> |  <p>Friction acting on a bike chain makes it more difficult to turn the pedals</p> |

Why do some objects fall faster than others?

Gravity is a force that objects towards Earth.




Air resistance is a force that slows down an object moving through air. The amount of air resistance depends on the surface area of the object. It is air resistance that affects how quickly objects fall. A skydiver uses a parachute to increase their surface area, so they can fall slowly and safely.




How does the number of pulleys affect the force needed to lift a load?

A pulley is a mechanism used for lifting heavy objects (the load) by applying a pulling force at one end of rope attached to the load which passes over a wheel. The more pulleys in the mechanism, the less pulling



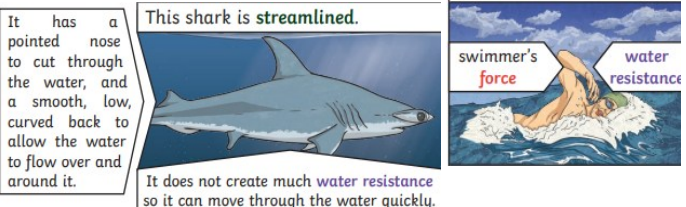
How does the length of the lever affect the force needed to lift a load?

A lever is a long, rigid arm that rests on a pivot. A force is applied to one part of the lever to lift the load at another point on the lever. The longer the lever, the less



How does the shape of an object affect its movement in water?

Water resistance is a force that slows down an object moving through water. The amount of water resistance



How do gears work?

A gear is a mechanism which consists of wheels with teeth that slot together. Gears change the direction of movement and the force required to make something move. Smaller gears turn faster than larger gears. A smaller force is needed to turn a smaller gear than a

