



Key People/Scientists

Galileo Galilei
(1564-1642)



An Italian Mathematician and astronomer discovered that any falling objects accelerates at the same rate regardless of their size or mass. E.g if a hammer and feather were both dropped from same height in unison they would hit the ground at the same time.

Misconceptions/Key facts

Misconception: If there is no motion, then there is no force acting.

Fact: There are forces acting on a stationary object in equilibrium.

Misconception: When oil is applied, there is no more friction.

Fact: When oil is applied, friction is reduced.

Misconception: Friction only exists between two solid surfaces.

Fact: There is friction when solid objects move through fluids (e.g. air resistance when objects move through air).

Key Questions

What happens when an object falls?

When an object falls towards Earth, it accelerates due to the force of gravity, gaining speed and momentum until the upward force of air resistance exactly balances the downward force due to the object's weight under gravity.

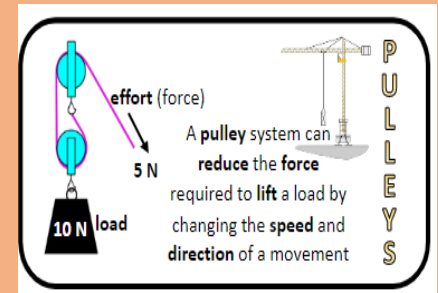
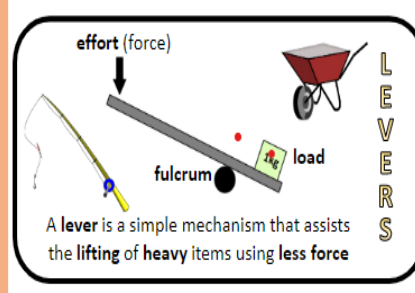
What is the effect of air resistance?

Also known as 'drag,' air resistance is a force caused by air. The air particles hit the front of an object, causing it to slow down. The greater the surface area, greater the overall resistance.

What is the effect of water resistance?

Friction occurs when objects move through water. If you go swimming, there is friction between your skin and the water particles. This is known as water resistance. Some shapes, known as streamlined shapes, cause less resistance than others

Diagrams/Visual Aids



Key Vocabulary

air resistance	A force that tries to slow things down that are moving through air.
friction	A force that tries to slow objects down when two objects rub against each other. Friction is a force that happens when two things rub together.
gravity	The force that attracts an object towards the centre of the earth.
mass	The actual amount of material in an object. Mass always stays the same.
motion	Movement.
Newton	The unit of measurement used to measure force.
Newton meter	A piece of equipment used to measure force.
streamlined	Shaped to provide little resistance to air or water, like a shark's nose or a rocket.
up-thrust	A force that pushes things up. Things float in water because of up-thrust. When you are standing on the ground, gravity is pulling you down. The upwards force from the ground stops you from sinking into the Earth - this upwards force is called up-thrust.
water resistance	A force that is caused by water with the force acting in the opposite direction to an object moving through the water.
weight	The weight of an object is defined as the force of gravity on the object.