


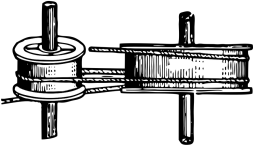

# ROCKET WORDS

Learn these words and their definitions.

Key Word	Definition
Sir Isaac Newton	An English physicist and mathematician, one of the most influential scientists in history.
gravity	A force that attracts something with mass towards earth, measured in Newtons per kilogram.
resistance	A force exerted on something to slow it down or stop it.
lever	A simple machine used to move an object or operate a machine.
gear	Toothed wheel that engages with another to change speed or direction of a machine.
pulley	A wheel which a cord passes through; it helps to raise heavy weights.
mass	The measure of how much matter is in an object.
friction	The force or resistance when one object rubs on another.

# Knowledge Organiser

## Forces

Name	Picture	How it Works	Used For
Lever		Helps to reduce the amount of force needed to move or lift an object, by increasing the distance through which the force acts.	<ul style="list-style-type: none"> <li>• stapler</li> <li>• door handle</li> <li>• Claw of hammer</li> <li>• tweezers</li> </ul>
Pulley		Helps to reverse the direction of the lifting force, therefore multiplying the force your body produces on the object.	<ul style="list-style-type: none"> <li>• elevator</li> <li>• wells</li> <li>• theatre curtains</li> <li>• bulldozer</li> </ul>
Gear		The 'teeth' on the gears turn one another, and in doing so, helps to increase the power of a turning force.	<ul style="list-style-type: none"> <li>• cars</li> <li>• Bikes</li> <li>• pendulum clock</li> <li>• vacuums</li> </ul>

### Lesson Sequence

- Describe the life and work of Sir Isaac Newton
- Explore gravity and air resistance
- Understand water resistance and friction
- Investigate mechanisms – levers and pulleys
- Investigate mechanisms - gears
- Predict if an object will float or sink

There are three additional lessons about Newton's laws of motion also available.

### Sir Isaac Newton (1643-1726)

- Explained the three laws of motion
- Explained the theory of gravity, including gravitational pull of the Earth.
- Invented the reflecting telescope
- His physics book 'Principia' contained many theories of physics

### Can you resist me?

**Air resistance**, otherwise known as **drag**, is the way air opposes the direction an object is travelling in and slows it down. A good example of this is a **parachute**, the large surface area **absorbs** the air resistance, and slows down the descent of the parachutist.



**Water resistance** is the way water slows down the speed of the item travelling through it. This is why high-speed boats have a narrow front end, so that they can easily glide through it.

**Friction** occurs when two surfaces run against each other. The rougher the surface, the more friction is caused. For example, sand and carpet have lots of friction.

