Rollercoaster Tycoon: Feel the Force

Timeline							
Jan 4th 1643	**1687**	**1687**	**March 31st 1727**	**1884**	**1959**	**May 17th 1983**	**April 12th 1992**
Isaac Newton was Born	Newton published his 3 laws of motion.	Newton publishes his theory of gravity	Isaac Newton died.	The first rollercoaster was invented. It was built in the United States and it was called 'The Cyclone'.	Disneyland built the first steel rollercoaster.	Paulton's Park opened.	Disneyland Paris opened.

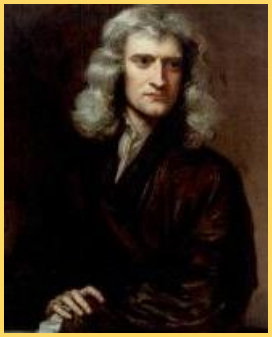
Forces

A force is an interaction which can start something moving, stop something moving, speed something up, slow something down, change the direction of something or even change its shape. Forces are measured in Newtons and there are many forces:

- Gravity
- Friction
- Air resistance
- Water resistance
- Upthrust

Isaac Newton

Isaac Newton was a scientist, mathematician and astronomer. He was born on January 4th 1643 and died on March 31st 1727. He was best known for defining three laws of motion and developing the theory of gravity.

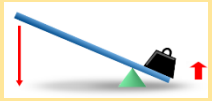


Newton's laws of motion:

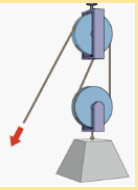
1. An object will stay still until a greater force acts upon it.
2. The object changes speed in the same direction as the force which is acting upon it.
3. For every action, there is an equal and opposite reaction.

Levers, gears and pulleys:

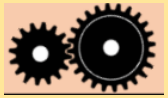
Levers: a way to lift heavy weights using the least amount of effort. The longer the lever, the easier the weight is to lift.



Pulleys: used like levers to lift loads with less effort by for longer distances. Rope is passed through a pulley, which is attached to an anchor point and returned back to the ground to be pulled.



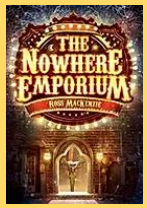
Gears: used to transmit power from one part of a machine to another. Connected gears can increase speed, increase force or cause a change in direction.

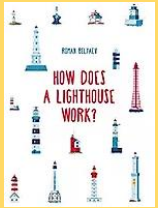


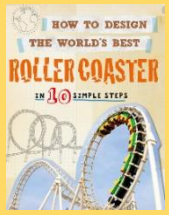
Rollercoasters

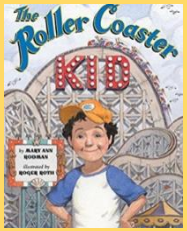
Did you know that rollercoasters don't have engines?! They don't need them! Rollercoasters rely on gravity to take them to the end of the track.

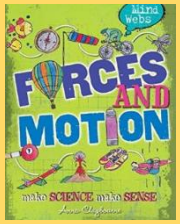
BOOKS TO READ WITH THIS TOPIC

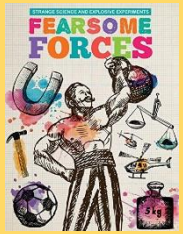












water resistance

Water resistance is a type of friction which can slow things down in the water.

friction

When objects are pushed or pulled, an opposing force can be felt, which is called **friction**. Friction causes things to slow down or stop. The rougher the surface, the greater the friction!

gravity

Gravity is a force that holds thing to the Earth's surface and prevents things from floating off into the atmosphere. Gravity ensures that unsupported objects fall back down to Earth.

effort

Effort is the energy used to move the load.

fulcrum

A **fulcrum** is where the lever pivots in order to lift a heavy load.

load

A **load** is what you are trying to move with a pulley or lever.

spring

A spring is type of metal coil that can be pressed or pulled. It turns to its original shape

upthrust

Upthrust is the name of a force which keeps things afloat in the water. When gravity is greater than upthrust, the object sinks.

deaccelerate

If something **deaccelerates**, it slows down.

pivot

If you **pivot**, you turn.

buoyant

If something is **buoyant**, it can float.

accelerate

If something **accelerates**, the speed of it is increased.

surface

A **surface** is the outside or top layer of something.

streamlined

Objects can be **streamlined**, which means they cause less resistance so they can move (through the air or water) easier.

air resistance

Air resistance (sometimes referred to as drag) acts against gravity on falling or moving objects. It's what you feel on your hair when riding fast on a bike or it's what fills a parachute to help slow you down when you're falling from the sky.

mechanism

A **mechanism** is a system of parts working together in a machine.