



# Year Five: Forces

## Knowledge Organiser



### The Big Idea

Forces can move objects, change their direction of travel and their shape. Forces are pushes and pulls and can be contact forces such as friction or non-contact forces such as gravity. Friction, air and water resistance can slow the movement of objects. Simple machines such as gears, levers and pulleys can transform the direction and strength of forces. Forces are measured in newtons (N).

#### Isaac Newton

Isaac Newton was a physicist and mathematician who developed the principles of modern physics, including the laws of motion.



#### Why objects fall to Earth



The force that pulls things to the ground on Earth (and other planets) is called gravity. Gravity acts as a pull force making unsupported objects fall towards Earth.

#### Friction

Friction occurs when objects move through water or air. Air resistance is a type of friction between air and another material. As an object moves, air resistance slows it down.

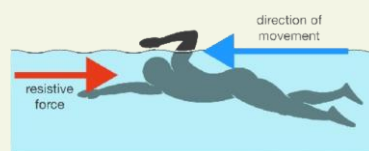


#### Parachutes

When you first release a parachute, the force of gravity pulls it downward. The faster the parachute falls, though, the more air resistance it creates. This force resists the downward movement of gravity, pushing the parachute up.



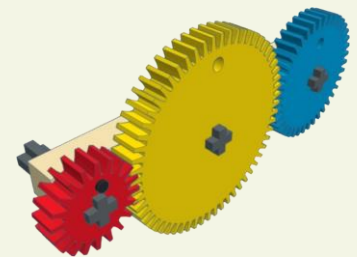
#### Water resistance



Water resistance acts in the same way that air resistance does. If you go swimming, there is friction between your skin and the water particles. This is known as water resistance.

#### Levers, pulleys and gears

Levers, pulleys and gears are mechanisms that allow a small force to have a greater effect.



### Vocabulary

force    gravity    air resistance    water resistance    friction  
simple machines    levers    pulleys    gears