



Statutory Requirements:

- Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
- Identify the effects of air resistance, water resistance and friction, that act between moving surfaces
- Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect

Working Scientifically:

- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- Using test results to make predictions to set up further comparative and fair tests
- Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations

Key Vocabulary:

- Gravity, friction, air resistance, up thrust, water resistance
- Newton meter, Newtons (N)
- Surface area
- Push, pull
- Balance
- Mass – grams and kilograms
- Weight
- Gears, levers, pulleys, springs

Key Knowledge:

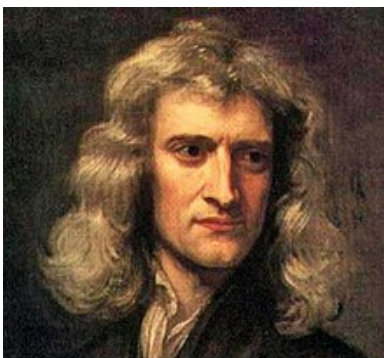
Gravity - is a pull towards the centre of an object such as the Earth. All objects have a gravitational force, but the size of the force is related to the mass of the object. Objects with big masses have very large gravitational forces.

Friction – the resulting force from two surfaces rubbing together.

Air resistance – objects moving through air experience the frictional force of the air, which acts in the opposite direction of their movement.

Up thrust – in water, is the force pushing up against an object. If this force balances the gravitational force pulling the object down, it will float.

Key Scientists:



Sir Isaac Newton
(1642 – 1727)
English scientist and mathematician famous for his laws of motion.



Archimedes
(c.287 - c.212 BC)
Ancient Greek physicist, and engineer, famous for his principles of buoyancy.