



Forces

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

Key Vocabulary:

- force
- contact force
- non-contact force
- friction
- motion
- air resistance
- drag
- streamline
- surface area
- water resistance
- weight
- lever
- gear
- pulley
- machine
- independent variable
- dependent variable
- controlled variable
- repeatability
- precision

Key Learning Steps

1. Friction
2. Air resistance
3. Plan - parachute experiment
4. Investigate - parachute experiment
5. Evaluate - parachute experiment
6. Plan - water resistance
7. Investigate - water resistance
8. Explore gravity
9. Use small forces for greater effects

Key Scientists:



Classic

Archimedes

(c.287 - c.212 BC)

Ancient Greek physicist and engineer, famous for principles of buoyancy.

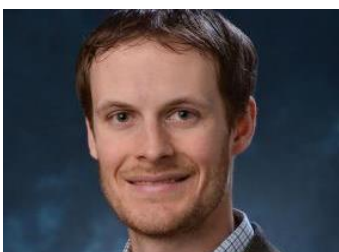


Classic

Sir Isaac Newton

(1642 - 1727)

English scientist and mathematician famous for his laws of motion.



Contemporary

Torin Clark

Investigating artificial gravity at the University of Colorado Boulder.

Working Scientifically:

- Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas (non-statutory).
- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
- Use a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
- Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results.
- 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.
- Identifying scientific evidence that has been used to support or refute ideas or arguments.
- Recognise which secondary sources will be most useful to research their ideas (non-statutory).