

Year 5 – Term 6

**Has the time come to trust machines more than humans?
SCIENCE**



National Curriculum Links:

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 (DT links).

Essential Prior Learning:

Gravity is a force.
A force can be a push or a pull.
Some forces, such as magnetic forces, can act at a distance without needing contact.
Magnets can attract and repel.
Machines help humans in their daily lives.

Progression in Skill:

Choose/use the most appropriate equipment and take measurements with increasing accuracy and precision, taking repeat readings when appropriate.
Make systematic and careful observations.
Collect, gather, record data and results of increasing complexity using scientific diagrams and labels, tables, scatter graphs, bar and line graphs.

Identify scientific evidence that has been used to support or refute ideas or arguments.
Report and present 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:
The ___-er the ___, the ___-er the _____.
Read, spell and pronounce simple scientific vocabulary correctly.

Long-term Memory Knowledge:

Everything on Earth is powered by forces. Forces make things start moving, stop moving or change direction.
Some of the forces we experience are gravity (which keeps us on the Earth's surface), and friction (the force which makes things stick or slide).
Simple machines work by turning small forces into larger ones, allowing us to perform tasks with more strength or speed. Examples of simple machines are levers, gears, pulleys, wheels and screws.

Key Vocabulary

gravity	a force that pulls everything down toward the centre of the Earth
friction	a force between two surfaces that are sliding, or trying to slide, across each other
upthrust	the force that is pushing you up - to stop you from sinking right into the Earth
air resistance	a type of friction between air and another material
weight	the measure of the force of gravity on an object
Newton (N)	the unit we use to measure forces
Newton meter	the instrument used to measure Newtons

particles	an extremely tiny piece of matter, which scientists believe make up the world around us
surface area	measurement of all the space that the surface of a three-dimensional shape takes up
balance	when two different forces of equal strength push against each other in opposite directions, creating a balance
mass	a measurement of how much matter is in an object
mechanism	a device that changes movement in some way

Progression in Resources:

Lever
Pulleys
Cams
Gears

Relevance

Now	Know that machines they are familiar with rely on certain mechanisms to work.
Future	Have the knowledge and confidence to make basic repairs to toys, household appliance, cars, etc.
Aspiration	Pursue a career in engineering, mechanics, using scientific theories to test and develop products.