

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:**

Gravity is the force that makes things fall to Earth.  
Explain what happens when air resistance, water resistance or friction occur, giving examples.  
Explain how mechanisms can be used to create a greater effect from a smaller force, giving examples.  
Measure with an increasing degree of accuracy, using the appropriate equipment.  
Make systematic observations, being clear about what you are looking for.  
Collect relevant data and record it appropriately.  
Identify relationships in the results.

**Key Vocabulary**

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

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

**Progression in Resources:**

Levers  
Pulleys  
Cams  
Gears

**Relevance**

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