


# Year 5 Science Curriculum

	Autumn	
Curriculum focus/links	Earth and Space	Forces
Scientist/Inventor Study	<b>Katherine Johnson:</b> NASA Mathematician and Scientist involved in space exploration.	<b>Issac Newton:</b> scientist and mathematician who formed laws of motion and theories on gravity.
Key Vocabulary	<p> <b>Solar system:</b> star, planet.  <b>Names of planets:</b> Mercury, Venus, Earth, Mars, Jupiter, Saturn, Neptune, Uranus.  <b>Shape:</b> spherical bodies, sphere.  <b>Movement:</b> rotate, axis, orbit, satellite.  <b>Theories:</b> geocentric model, heliocentric model, astronomer.  <b>Day length:</b> sunrise, sunset, midday, time zone.           </p> <p> <b>Previously introduced vocabulary:</b> Sun, moon, shadow, day, night, heat, light, reflect.           </p>	<p> <b>Types of forces:</b> air resistance, water resistance, buoyancy, upthrust, Earth's gravitational pull, gravity, opposing forces, driving force.  <b>Mechanisms:</b> levers, pulleys, gears/cogs.  <b>Measurements:</b> weight, mass, kilograms (kg), Newtons (N), scales, speed, fast, slow.  <b>Other:</b> streamlined, Earth.           </p> <p> <b>Previously introduced vocabulary:</b> air, heat, moon.           </p>
Substantive Concepts	<ul style="list-style-type: none"> <li>•describe the movement of the Earth and other planets relative to the Sun in the solar system;</li> <li>•describe the movement of the Moon relative to the Earth;</li> <li>•describe the Sun, Earth and Moon as approximately spherical bodies;</li> <li>•use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</li> </ul>	<ul style="list-style-type: none"> <li>•explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object;</li> <li>•identify the effects of air resistance, water resistance and friction, that act between moving surfaces;</li> <li>•recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.</li> </ul>
Scientific Enquiry	<p> <b>Do</b>            set up and carry out enquires that involve observing over time, including changes over different periods of time         </p> <p>           use a wide range of secondary sources for researching answers to questions, deciding which sources will be most useful and reliable, and understanding the difference between fact and opinion.         </p> <p> <b>Record</b>            gather, record and present findings of increasing complexity from their research (such as from secondary sources) in a variety of ways, e.g. fact files, answers to questions or giving explanations            use and apply mathematical skills at a level consistent with their increasing maths knowledge at upper key stage 2         </p>	<p> <b>Plan</b>            make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions            make their own decisions about what observations to make, the most appropriate equipment to use, what measurements to take and for how long, and whether to repeat them            recognise variables in comparative and fair tests and plan how they will control them            decide how to record data from a choice of familiar approaches         </p> <p> <b>Do</b>            make systematic, careful and detailed observations            take measurements, using a range of scientific equipment, with increasing accuracy and precision            take repeat readings where appropriate and understand the importance of this         </p>

# Year 5 Science Curriculum

## Review

draw increasingly complex conclusions based on their data, observations and scientific knowledge, identifying if this refutes or supports their previous ideas

read, spell and pronounce scientific vocabulary correctly

report and present their results and conclusions to others in oral and written forms with confidence

talk about how scientific ideas have developed over time, with reference to scientific evidence that has been used to support or refute ideas or arguments

use a wide range of secondary sources for researching answers to questions, deciding which sources will be most useful and reliable, and understanding the difference between fact and opinion.

set up and carry out comparative and fair tests, including controlling variables

set up and carry out pattern seeking enquiries, choosing a reliable sample size

identify, group, classify and describe a wide range of living things and materials, using their scientific knowledge to justify their choices

## Record

gather, record and present observations of increasing complexity, e.g. using scientific diagrams and labels

gather, record and present measurements in a variety of increasingly complex ways, e.g. using tables, scatter graphs, bar graphs or line graphs

gather, record and present findings of increasing complexity from their research (such as from secondary sources) in a variety of ways, e.g. fact files, answers to questions or giving explanations

use and apply mathematical skills at a level consistent with their increasing maths knowledge at upper key stage 2

## Review

notice patterns in their results (including those found in the natural environment)

analyse results to determine and then explain causal relationships draw increasingly complex conclusions based on their data, observations and scientific knowledge, identifying if this refutes or supports their previous ideas

use their test results to make predictions to set up further comparative and fair tests

discuss the degree of trust they can have in a set of results, e.g. by considering measurement precision and accuracy, how variables were controlled and enquiry limitations.

read, spell and pronounce scientific vocabulary correctly report and present their results and conclusions to others in oral and written forms with confidence

talk about how scientific ideas have developed over time, with reference to scientific evidence that has been used to support or refute ideas or arguments



# Year 5 Science Curriculum

use and apply mathematical skills at a level consistent with their increasing maths knowledge at upper key stage 2

## **Review**

notice patterns in their results (including those found in the natural environment)

analyse results to determine and then explain causal relationships


draw increasingly complex conclusions based on their data, observations and scientific knowledge, identifying if this refutes or supports their previous ideas

read, spell and pronounce scientific vocabulary correctly

report and present their results and conclusions to others in oral and written forms with confidence

talk about how scientific ideas have developed over time, with reference to scientific evidence that has been used to support or refute ideas or arguments

# Year 5 Science Curriculum

	<h2 style="color: white; margin: 0;">Summer</h2>
<b>Curriculum focus/links</b>	<b>Properties and Changing of Materials</b>
<b>Scientist/Inventor Study</b>	<b>Albert Einstein</b>
<b>Key Vocabulary</b>	<p><b>Properties of materials:</b> thermal conductor/insulator, magnetism, electrical resistance, transparency.</p> <p><b>Mixtures and solutions:</b> dissolving, substance, soluble, insoluble.</p> <p><b>Changes of materials:</b> reversible change, physical change, irreversible change, chemical change, burning, new material, product. Separating: sieving, filtering, magnetic attraction.</p> <p><b>Previously introduced vocabulary:</b> electrical conductor/insulator, bulb, translucent.</p>
<b>Substantive Concepts</b>	<ul style="list-style-type: none"> <li>•compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets;</li> <li>•know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution;</li> <li>•use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating;</li> <li>•give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic;</li> <li>•demonstrate that dissolving, mixing and changes of state are reversible changes;</li> <li>•explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</li> </ul>
<b>Scientific Enquiry</b>	<p><b>Plan</b>          explore and talk about their ideas and scientific experiences to raise enquiry questions about scientific phenomena          make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions          make their own decisions about what observations to make, the most appropriate equipment to use, what measurements to take and for how long, and whether to repeat them          recognise variables in comparative and fair tests and plan how they will control them          decide how to record data from a choice of familiar approaches</p> <p><b>Do</b>          make systematic, careful and detailed observations          take measurements, using a range of scientific equipment, with increasing accuracy and precision          set up and carry out enquires that involve observing over time, including changes over different periods of time          set up and carry out comparative and fair tests, including controlling variables          identify, group, classify and describe a wide range of living things and materials, using their scientific knowledge to justify their choices          use and develop keys and other information records of increasing complexity to identify, classify, group and describe living things and materials</p> <p><b>Record</b></p>

# Year 5 Science Curriculum

gather, record and present observations of increasing complexity, e.g. using scientific diagrams and labels  
gather, record and present measurements in a variety of increasingly complex ways, e.g. using tables, scatter graphs, bar graphs or line graphs  
record classification tasks in a variety of ways to help answer questions, e.g. classification keys  
use and apply mathematical skills at a level consistent with their increasing maths knowledge at upper key stage 2

## **Review**

notice patterns in their results (including those found in the natural environment)  
analyse results to determine and then explain causal relationships  
draw increasingly complex conclusions based on their data, observations and scientific knowledge, identifying if this refutes or supports their previous ideas

discuss the degree of trust they can have in a set of results, e.g. by considering measurement precision and accuracy, how variables were controlled and enquiry limitations.

read, spell and pronounce scientific vocabulary correctly

report and present their results and conclusions to others in oral and written forms with confidence.