

Year 5 Science Progression

Objective	What to look for (Working towards)	What to look for (Meeting expectations)	What to look for (Exceeding expectations)
Living Things			
Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird	Explain what a life cycle is, e.g. that kittens grow into cats, have kittens and die.	Identify similarities and differences in two different life cycles, e.g. sparrow and butterfly, with reference to eggs and intermediate stages.	<i>Suggest similarities in the life cycles of a number of vertebrates, e.g. comparison of dog, human and bird embryos.</i>
Describe the life process of reproduction in some plants and animals	Describe the life process of reproduction in humans.	Describe in sequence the stages of reproduction in some plants and animals, e.g. dog and a thistle.	<i>Compare the process of reproduction in animals and plants, e.g. compare and contrast fertilisation.</i>

Animals including humans			
Describe the changes as humans develop to old age	Identify that people change as they age, e.g. recognise differences in appearance, abilities etc.	Describe the changes as humans develop to old age, e.g. trends in changes to size, weight, mobility etc.	Suggest why some of the changes that take place in humans happen, e.g. suggest why babies have disproportionately large heads compared to adults.

Materials

Year 5 Science Progression

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	Compare and group together everyday materials on the basis of their appearance and feel.	Test and sort a range of materials based on their physical properties.	Suggest why those properties might influence the selection of those materials for certain uses.
Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution	Know that some materials will dissolve in liquid to form a solution.	Describe how some materials, e.g. sugar, will dissolve and can be retrieved.	Identify that some soluble materials are more soluble than others.
Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating	Suggest how mixtures might be separated.	Justify separation techniques proposed, with reference to materials being separated.	Explain why a particular separation method might be more effective.
Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic	Give reasons for the particular uses of everyday materials, including metals, wood and plastic.	Use evidence to justify the selection of a material for a purpose.	Suggest limitations of the uses of selected materials based on test results.
Demonstrate that dissolving, mixing and changes of state are reversible changes	Understand that some processes are reversible.	Show how the original materials can be retrieved from each of these changes.	<i>Classify various processes relating to materials as reversible or irreversible.</i>

Year 5 Science Progression

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	Understand that burning is irreversible.	Identify reactants and products of chemical changes and recognise these as being irreversible.	<i>Provide examples of when changes being irreversible are a good thing, e.g. making bricks, or not, e.g. non-biodegradable plastic bags.</i>
Earth and space			
Describe the movement of the Earth, and other planets, relative to the Sun in the solar system	Recognise that the planets move, relative to the Sun.	Draw a diagram or use a model to describe planetary orbits.	Identify that the further out a planet is, the longer its orbit is around the Sun.
Describe the movement of the Moon relative to the Earth	Recognise that the Moon moves relative to the Earth.	Draw a diagram or use a model to describe the Moon's orbit around the Earth.	Relate the Moon's orbit of the Earth to the Earth's orbit of the Sun.
Describe the Sun, Earth and Moon as approximately spherical bodies	Sketch the outlines of the Sun, Earth and Moon.	Describe the Sun, Earth & Moon as spheres.	Recognise that many heavenly bodies are approximately spherical..

Year 5 Science Progression

Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky	Relate day and night to the apparent position of the Sun.	Use a diagram or model to explain why the Sun seems to travel across the sky, and what causes day and night.	Explain the effect of a planet in the solar system rotating at a different rate to Earth.
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Forces

Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object	Describe the effect of gravity on unsupported objects.	Explain that gravity causes objects to fall towards Earth.	Recognise that gravity acts between all masses, e.g. the Sun and the Earth.
Identify the effects of air resistance, water resistance and friction, that act between moving surfaces	Recognise that motion may be resisted by forces.	Describe how motion may be resisted by air resistance, water resistance or friction.	Identify ways in which forces that oppose motion may be useful (e.g. bicycle handlebar grips) or a nuisance (e.g. bicycle chain).
Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect	Recognise that simple machines transfer force.	Describe how some devices may turn a smaller force into a larger one.	Explain, with reference to everyday contexts, why a force multiplier might be useful.

Working scientifically

Year 5 Science Progression

Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	Pupil can plan investigations using different types of scientific enquiry.	Pupil can, with support, can answer questions using evidence gathered from different types of scientific enquiry, e.g. comparing life cycles of different plants using change over time, surveys and secondary research.	Pupil can answer questions using evidence gathered from different types of scientific enquiry.
Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	Pupil can, following discussion, follow guidance to use equipment, e.g. timer.	Pupil can, following discussion of alternatives, selects appropriate equipment, e.g. using a shadow stick and measuring length and angle of shadow.	Pupil can use appropriate equipment, such as meter rule, to take measurements, such as distance travelled.
Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	Pupil can use various ways to record evidence.	Pupil can, with prompting, use various ways to record complex evidence, e.g. when investigating how gears and levers enable a small force to have a larger effect	Pupil can use various ways, as appropriate, to record complex evidence.
Using test results to make predictions to set up further comparative and fair tests	Pupil can, with prompting, suggest further relevant comparative or fair tests.	Pupil can suggest further relevant comparative or fair tests, e.g. when testing materials for various properties to determine their suitability for an application.	Pupil can use evidence to suggest further comparative or fair tests that would develop the investigation.
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	Pupil can write a conclusion based on evidence.	Pupil can, with prompting, write a conclusion using evidence and identifying causal links, e.g. investigating what makes a parachute fall quicker.	Pupil can write a conclusion using evidence and identifying causal links.

Year 5 Science Progression

Identifying scientific evidence that has been used to support or refute ideas or arguments	Pupil can show how evidence supports a conclusion.	Pupil can identify how an idea is supported or refuted by evidence, e.g. selective breeding to produce animals or plants with desirable characteristics.	Pupil can suggest how factors other than evidence may support or oppose an idea.
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