Progression in Science

All years

Clearwell CofE Primary School

Children should be taught	Progression in knowledge, skills and understanding by the end of the phase, children will be able to		
How to work scientifically by	Year 2	Year 4	Year 6
	• asking **simple questions** and recognising that they can be answered in different ways; • **observing closely**, using **simple equipment**; • performing **simple tests**; • **identifying** and • **classifying**; • using their **observations** and **ideas** to **suggest answers** to questions; • **gathering** and **recording data** to help in answering questions.	• **asking relevant questions** and using different types of **scientific enquiries** to answer them. • setting up **simple practical enquiries**, **comparative** and **fair tests**; • making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers; • **gathering**, **recording**, **classifying** and **presenting data** in a variety of ways to help in answering questions; • **recording findings** using simple **scientific language**, **drawings**, **labelled diagrams**, **keys**, **bar charts**, and **tables** • **reporting** on findings from enquiries, including **oral** and **written explanations**, **displays** or **presentations** of results and conclusions; • using results to **draw** simple **conclusions**, make **predictions** for new values, **suggest improvements** and raise further **questions**; • identifying **differences**, **similarities** or **changes** related to simple scientific ideas and processes; • using straightforward scientific evidence to answer questions or to support their findings.	• **planning** different types of **scientific enquiries** to answer questions, including recognising and controlling variables where necessary; • accuracy and precision, taking **repeat readings** when appropriate. • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs; • using test results to make **predictions** to set up further comparative and fair tests; • **reporting** and **presenting** findings from enquiries, including **conclusions**, **causal relationships** and **explanations** of and a degree of trust in results, in **oral** and **written forms** such as displays and other presentations; • identifying **scientific evidence** that has been used to support or refute ideas or arguments

Progression in Science

All years

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Animals including humans **(Biology)**	Year 2	Year 4	Year 6
	• find out about and describe the basic needs of animals, including humans, for survival. • notice that animals, including humans have offspring which grow into adults. • describe the importance for humans to exercise. • describe the importance for humans to eat the right amounts of different types of food. • describe the importance for humans to have good hygiene. • describe the importance for humans to look after themselves.	• name the basic parts of the digestive system and describe their functions. • identify the different teeth and describe their functions. • construct and interpret a variety of food chains. • understand what producers, predators and prey are	• identify and name the main parts of the human circulatory system. • identify and name the main parts of the heart. • describe how water and nutrients are transported in humans. • identify how humans can live a healthy lifestyle.

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Plants **(Biology)**	Year 2	Year 4	Year 6
	• identify that fruit, vegetables and herbs are types of plant that we eat. • observe and describe how seeds grow into mature plants. • know what plants need to grow and stay healthy. • explain the life cycle of plants.	• explore the requirements of plants for life and growth. • identify, locate and describe the function of different parts of flowering plants. • identify, locate and describe the function of the roots in plants. • investigate the way in which water is transported within plants. • explore the part that flowers play in the life cycle of flowering plants, including pollination. • explore the part that flowers play in the life cycle of flowering plants, including seed formation and seed dispersal.	

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Living things and their habitats **(Biology)**	Year 2	Year 4	Year 6
	• explore and compare the differences between things that are living, dead, and things that have never been alive. • identify and name a variety of plants and animals in their habitats, including microhabitats. • identify and name a variety of plants and animals in their habitats. • identify that most living things live in a habitat to which they are suited. • construct a simple food chain.	• recognise that living things can be grouped in a variety of ways. • explore and use classification keys to help group, identify and name a variety of living things in my local environment. • recognise that environments can change and that this can sometimes pose dangers to living things	• discuss the seven life processes. • explain how mammals explain how animals • understand reproduction in plants. • describe the differences in the life cycles of mammals, amphibians, reptiles, insects and birds. • explain the life cycle of plants. • describe how living things can be classified into broad groups. • understand how I can use classification keys to help group, identify and name a variety of living things • describe how living things can be classified into broad groups. • understand that microorganisms are also living things • describe how living things can be classified into broad groups. • know that scientists have developed different ways to classify living things.

Progression in Science

All years

Children should be taught	Progression in knowledge, skills and understanding by the end of the phase, children will be able to		
Evolution	Year 2	Year 4	Year 6
(Biology)			• identify how plants are adapted to their environment. • identify how animals are adapted to their environment. • explain natural selection and how it may lead to evolution. • explain how adaptations may lead to evolution. • recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. • recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.

Progression in Science

All years

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Children should be taught	Progression in knowledge, skills and understanding by the end of the phase, children will be able to		
Rocks **(Chemistry)**	Year 2	Year 4	Year 6
		• compare and group together different kinds of rocks on the basis of their physical properties. • explain how some rocks are formed • explain how the Earth is made up of different layers of rocks and soils • describe how fossils are formed when things that have lived are trapped within rock.	
Materials **(Chemistry)**	• compare and group together a variety of everyday materials on the basis of their simple physical properties. • identify a variety of everyday materials. • distinguish between an object and the material it is made from. • investigate the properties of different materials.		• compare and group materials according to whether they are solids, liquids or gases and name their properties. • describe the properties of materials using scientific vocabulary. • investigate the thermal insulation of different materials. • compare and group materials based on their response to magnets. • know that some materials dissolve in a liquid to make a solution. • predict how I could separate mixtures. • explain why some changes are irreversible.

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Children should be taught	Progression in knowledge, skills and understanding by the end of the phase, children will be able to		
States of matter **(Chemistry)**	Year 2	Year 4	Year 6
		• identify solids, liquids and gases. • take accurate measurements using thermometers. • observe that some materials change state when they are heated or cooled. • identify the part played by evaporation and condensation in the water cycle. • associate the rate of evaporation with temperature	

Children should be taught	Progression in knowledge, skills and understanding by the end of the phase, children will be able to		
Forces and magnets **(Physics)**	Year 2	Year 4	Year 6
			• explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and falling objects. • identify the effect of friction between moving surfaces. • identify the effect of air resistance. • identify the effect of water resistance. • recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.

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Children should be taught	Progression in knowledge, skills and understanding by the end of the phase, children will be able to		
Seasonal change **(Physics)**	Year 2	Year 4	Year 6
	• observe and describe changes across the four seasons • observe how day length varies. • describe weather associated with the seasons.		
Earth and space **(Physics)**			• describe the planets in the solar system. • describe the Sun, Earth and Moon as approximately spherical bodies. • describe the movement of the Earth, and other planets, relative to the Sun in the solar system. • describe the movement of the Moon relative to the Earth • use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. • describe the movement of the Moon relative to the Earth.

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Children should be taught	Progression in knowledge, skills and understanding by the end of the phase, children will be able to		
Sound **(Physics)**	Year 2	Year 4	Year 6
		• identify how sounds are made, associating some of them with something vibrating. • recognise that vibrations from sounds travel through a medium to the ear. • find patterns between the pitch of a sound and features of the object that produced it. • find patterns between the volume of a sound and the strength of the vibrations.	
Light **(Physics)**			• recognise that light appears to travel in straight lines. • use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye • explain how the eye works. • use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. • explain how shadows change during the day.