

Science – Progression of knowledge and skills

	Nursery	Reception	Year 1	Year 2
Plants (Biology)	- Use all their senses in hands-on exploration of natural materials - Explore collections of materials with similar and/or different properties - Plant seeds and care for growing plants - Understand the key features of the lifecycle of a plant and an animal - Begin to understand the need to care for and respect the natural environment and all living things.	- Explore the natural world around them. - Describe what they see, hear and feel whilst outside - Recognise some environments that are different to the one in which they live - Understand the effect of changing seasons on the natural world around them	- Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees - Identify and describe the basic structure of a variety of common flowering plants, including trees	- Observe and describe how seeds and bulbs grow into mature plants - Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy
Working Scientifically	- Show curiosity and ask questions. - Use one-handed tools and equipment, such as magnifying glasses - Make comparisons between objects (<i>e.g. there are more flowers on this one, this leaf is bigger than that one</i>). - Talk about what they see <i>(e.g. use of outdoor area to plant with children, care for plants over time, observe using magnifying glasses or magnifiers and discuss changes.)</i>	- Ask questions and show curiosity. - Make observations using their senses and simple equipment - Make direct comparisons - Use equipment to measure - Record their observations by drawing, taking photographs, using sorting rings or boxes; and simple tick sheets.	- Perform simple tests and observe changes over time. - While exploring the world, the children develop their ability to ask questions. Where appropriate, they answer these questions (<i>e.g. what happens to a plant as it grows?</i>) - Make careful observations to support identification, comparison and noticing change. Use senses, aided by equipment such as magnifying glasses or digital microscopes.	- Perform comparative tests and observe changes over time. - While exploring the world, the children develop their ability to ask questions. Where appropriate, they answer these questions (<i>e.g. what happens to a plant without water?</i>) - Make careful observations to support identification, comparison and noticing change. Use senses, aided by equipment such as magnifying glasses or digital microscopes.

			• Take measurements using non-standard units. • Use simple secondary sources (such as identification sheets) to name living things. • Record observations e.g. using photographs, videos, drawings, labelled diagrams or in writing. • Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources. • Recognise 'biggest and smallest', 'best and worst' etc. from data. <i>(e.g. plant broad beans or cress seeds and observe them as they grow. Discuss with peers what is changing and record observations. Measure plants using non-standard units. Use real-life plants to discuss structure).</i>	• Take measurements using standard units. • Use simple secondary sources (such as identification sheets) to name living things. • Record observations e.g. using photographs, videos, drawings, labelled diagrams or in writing. • Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources. • Record their measurements e.g. using prepared tables, pictograms, tally charts and block graphs. <i>(e.g. plant beans and observe them as they grow. What happens to the bean as it grows and changes over time? What happens to the plant without light, with light, without water, with water etc. Discuss with peers what is changing and record observations. Measure plants using standard units and record using tables and graphs.</i>
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	Nursery	Reception	Year 1	Year 2
Animals including Humans (Biology)	• Use all their senses in hands-on exploration of natural materials • Begin to make sense of their own life story and family's history • Understand the key features of the lifecycle of a plant and an animal • Begin to understand the need to care for and respect the natural environment and all living things.	• Talk about members of their immediate family and community • Name and describe people who are familiar to them • Recognise some environments that are different to the ones in which they live • Understand the key features of the lifecycle of a plant and an animal • Begin to understand the need to care for and respect the natural environment and all living things.	• Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • Identify and name a variety of common animals that are carnivores, herbivores and omnivores • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	• Notice that animals, including humans, have offspring which grow into adults • Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene
Working Scientifically	• Ask questions about what they notice and show curiosity. • Communicate their ideas, what they do and what they find out in a variety of ways. • Make comparisons between objects. • With support, sort and group objects using sorting rings and boxes. <i>(e.g. Observe the changes in the lifecycle of an animal - an</i>	• Ask questions about what they notice and show curiosity. • Communicate their ideas, what they do and what they find out in a variety of ways • Find things out using secondary sources of information <i>(e.g. include lots of non-fiction books in the library area for children to look through)</i> • Draw and write simple labels to record their observations. • Identify and name objects by matching them to pictures.	• Ask own questions about what they notice. • Use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting. • Use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing. • Classify using simple prepared tables and sorting rings	• Ask own questions about what they notice. • Use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting. <i>(e.g. how can we group the food we eat?)</i> • Use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing.

	<i>egg into a chick, or tadpole to a frog).</i>	• With support, record observations and comparisons e.g. using simple prepared tables, taking photographs, using sorting rings and boxes <i>(e.g. grouping and sorting animals, sometimes by their own criteria e.g. number of legs, flying or not flying etc).</i> <i>(e.g. Observe the changes in the lifecycle of an animal - an egg into a chick, or tadpole to a frog).</i>	<i>(e.g. classifying animals as amphibians, reptiles, birds, mammals, fish etc)</i>	<i>(e.g. use animals in school to observe changes over time. Observe the changes in the lifecycle of a lamb to sheep)</i>
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Living Things and their Habitats (Biology)	• Use all their senses in hands-on exploration of natural materials • Explore collections of materials with similar and/or different properties • Begin to understand the need to care for and respect the natural environment and all living things.	• Draw information from a simple map • Explore the natural world around them • Describe what they see, hear and feel whilst outside • Recognise some environments that are different to the one in which they live.	This area of the curriculum is linked to Animals including Humans.	• Explore and compare the differences between things that are living, dead, and things that have never been alive • Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other • Identify and name a variety of plants and animals in their habitats, including microhabitats • Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food
Working Scientifically	• Ask questions and show curiosity. • Make observations using their senses and simple equipment • Make direct comparisons • Use equipment to measure • Record their observations by drawing, taking	• Ask questions and show curiosity. • Make observations using their senses and simple equipment • Make direct comparisons • Use equipment to measure • Record their observations by drawing, taking photographs, using sorting rings or boxes; and simple tick sheets.		• Use practical resources to gather evidence to answer questions generated by themselves or the teacher. • Group and classify, (<i>e.g. group things that are dead, alive or never been alive</i>) and perform pattern seeking enquiries (<i>e.g. Do all woodlice prefer a light or dark environment?</i>)

	photographs, using sorting rings or boxes • Use their observations to help them to answer their questions • Talk about what they are doing and have found out • Identify, sort and group different materials based on what they can see.	• Use their observations to help them to answer their questions • Talk about what they are doing and have found out • Identify, sort and group different objects based on what they can see.		• Record their observations and results e.g. using photographs, videos, drawings, labelled diagrams or in writing. • Classify using simple prepared tables and sorting rings • Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources
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	Nursery	Reception	Year 1	Year 2
Materials (Chemistry)	• Use all their senses in hands-on exploration of natural materials • Explore collections of materials with similar and/or different properties • Talk about the differences between materials and changes they notice.	• Explore the natural world around them • Describe what they see, hear and feel outside	• Distinguish between an object and the material from which it is made • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock • Describe the simple physical properties of a variety of everyday materials • Compare and group together a variety of everyday materials on the basis of their simple physical properties	• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching
Working Scientifically	• Ask questions and show curiosity. • Make observations using their senses and simple equipment • Make direct comparisons • Use equipment to measure • Record their observations by drawing, taking photographs, using sorting rings or boxes • Use their observations to help them to answer their questions • Talk about what they are doing and have found out	• Ask questions and show curiosity. • Make observations using their senses and simple equipment • Make direct comparisons • Record their observations by drawing, taking photographs, using sorting rings or boxes; and simple tick sheets. • Use their observations to help them to answer their questions • Talk about what they are doing and have found out • Identify, sort and group different materials based on what they can see.	• Use practical resources to gather evidence to answer questions generated by themselves or the teacher. • Carry out tests to group and classify and perform comparative tests (e.g. <i>what is the best material for an umbrella?</i>) • Record their observations and results e.g. using photographs, videos, drawings, labelled diagrams or in writing. • Classify using simple prepared tables and sorting rings • Children use their experiences of the world around them to suggest appropriate answers	• Use practical resources to gather evidence to answer questions generated by themselves or the teacher. • Carry out tests to group and classify (e.g. <i>group materials based on properties</i>), perform comparative tests (e.g. <i>compare the suitability of materials for different uses. What are the best materials for a shelter for an animal in the school grounds?</i>) and pattern seeking enquiries (e.g. <i>do all stretchy materials stretch in the same way?</i>) • Record their observations and results e.g. using photographs,

	Identify, sort and group different materials based on what they can see.		to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources.	videos, drawings, labelled diagrams or in writing. - Classify using simple prepared tables and sorting rings - Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources
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Seasonal Changes (Physics)	Understand the key features of the life cycle of a plant and animal	- Explore the natural world around them - Describe what they see, hear and feel outside - Understand the effect of changing seasons on the natural world.	- Observe changes across the 4 seasons - Observe and describe weather associated with the seasons and how day length varies	This area of the curriculum is linked with Geography Identify seasonal and daily weather patterns in the United Kingdom and the location of hot and cold areas of the world in relation to the Equator and the North and South Poles.
Working Scientifically	- Ask questions and show curiosity. - Talk about what they can see. <i>(e.g. It is colder, hotter, trees are losing leaves etc).</i>	- Ask questions to find out more. - Observe changes over time <i>(e.g. observe how a tree in the school grounds changes over time)</i> - Find things out using secondary sources of information <i>(e.g. include lots of non-fiction books in the library area for children to look through)</i> - With support, record observations and comparisons e.g. using simple prepared tables, taking photographs, using sorting rings and boxes - Draw and write simple labels to record their observations.	- Use practical resources to gather evidence to answer questions generated by themselves or the teacher. - Make careful observations to notice change and seek patterns. - Use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations. - Record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing. <i>(e.g. observe the change in seasons over the course of a year. Find patterns in lengths of days, temperature etc).</i>	- Measure and record the temperature and rainfall in contrasting regions. - Make careful observations to notice change and seek patterns. - Record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing.