SCIENCE

EYFS ELGs	**Managing Self ELG:** • Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. **Understanding World ELG:** • Explore the natural world around them, making observations and drawing pictures of animals and plants • Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Plants	**Year R**	**Year 1**	**Year 2**
	Explore the natural world around them (Understanding the World): Observing and drawing familiar plants in the school and local environment	**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 (see Appendix 1 for W.S. progression)	Provision will offer opportunities to: • Observe closely • Ask and answer questions • Take measurements	• Observing closely using simple equipment • Gathering and recording data to help in answering questions • Taking measurements **Investigation:** Do bigger seeds produce taller plants? Planting and observing the growth of different flowering plants.	• Performing simple tests • Observing closely using simple equipment • Gathering and recording data to help in answering questions • Taking measurements • Present data **Investigation:** Cress - seeing the impact of sunlight, temperature, substance and water on the growth of cress. Observing the growth of different plants in different conditions - looking at the life cycles.
Vocabulary	root, stem, leaves, petals, blossom, seeds, soil, buds (daffodil, tree, plant, flower, crocus,, tulip, daisy buttercup)	observation, plants, flowers (*rose dandelion nettle poppy bluebell)*, trees (*oak, lime, horse chestnut, cedar holly*) deciduous tree, evergreen tree, structure	Bulb (*hyacinth*), temperature, growth, healthy, measure, height, pollen, germination, shoot, nutrition, grow, sunlight, water
Sticky knowledge	**Children will:** 1. Explore the natural world around them (e.g. know that some food grows in the ground and can be made into other products) 2.Talk about the change in plants according to the seasons (see seasons sticky knowledge)	**All children will:** 1. Know the main parts of a plant (roots, stem, leaves and flowers) and know what each part does. 2. Know the difference between a deciduous and evergreen tree. 3. Know the names of some wild and garden plants.	**All children will:** 1. Know that plants need water, light and a suitable temperature to grow and stay healthy. 2. Know and describe in simple terms how seeds/bulbs grow into mature plants using key vocabulary.

Animals incl. Humans	**Year R**	**Year 1**	**Year 2**
	Talk about members of their immediate family and community (Understanding the World): looking at baby photos and talking about their parents and grandparents. **Explore the natural world around them and describe what they see, hear and feel (Understanding the World): animals and their young, observing the life cycle of a chick/duckling, farm trip.** **Explore the natural world around them (Understanding the World): describing, comparing and commenting on animals they see (sea creatures and minibeasts)** **Further develop the skills they need to manage the school day successfully, including personal hygiene (Physical Development)**	**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.**

	Know and talk about the different factors that support their overall health and wellbeing: discussing the importance of regular physical activity, creating a healthy lunch box, good hygiene and making sure we brush our teeth. Looking at the growth of healthy food in the Farm topic.(PSED)		
Working Scientifically (see Appendix 1 for W.S. progression)	Provision will offer opportunities to: • Ask and answer questions • Observe closely • Identify and classify	• Gathering and recording data to help in answering questions • Observing closely, using simple equipment • Taking measurements • Identifying and classifying • Asking and answering questions • Performing simple tests **Investigations:** internal parts of the body experiments (lungs, stomach, intestines, skeleton, heart, brain). Observations of the class (e.g. eye colour, hair colour). Look for patterns e.g. do people with small hands have small feet? Senses investigations (recording sounds heard around the school, identifying different tastes [bitter, sweet, sour etc.], describing different smells using smell pots, blindfold activities).	• Gathering and recording data to help in answering questions • Taking measurements • Observing closely, using simple equipment • Present data **Investigations:** testing how many of each exercise can be completed in one minute Testing the impact of using soap when washing our hands. Looking at the life cycle of a caterpillar and observing changes.
Vocabulary	animals, grow, young, cow, pig, horse, calf, foal, piglet, chicken, chick, duck, duckling, baby, parents, grandparents, same, different insect, minibeast, creepy crawlies, caterpillar, butterfly, ladybird, life cycle, bee Sea, ocean, sea creature, fish, shark, dolphin, whale, turtle Washing hands, clean, tooth brushing, fruit, vegetables, healthy/unhealthy	human body (*including parts of the body),* senses, touch (*skin, pain, hot, cold)*, sight (*eyes, brain*), hearing (*ears, quieter, louder*), smell (*nose, nostrils)*, taste (*mouth, tongue, taste buds, bitter, sour, sweet, salty*) Animal, animal groups (*amphibians, reptiles, birds, mammals, fish*), pets, describe, compare, carnivores, herbivores, omnivores, eggs, live young, warm-blooded, cold-blooded, land, water Structure of animals (*beak, snout, tail, skeleton, vertebrae, feathers, scales, wings, gills, fur)*	offspring, life cycle, baby, toddler child, teenager adult, elderly, birth, death basic needs, survival, water, food, air, oxygen, sleep, shelter, essential, non-essential exercise (*muscles, exercise, fat, healthy, heart rate, breathing, sweat, active, strength, energy, obese)* balanced diet (*healthy, food, water, carbohydrates, protein, fruit, vegetables, fats, dairy, energy, vitamins, calcium, bones, food groups)* hygiene (*germs, bacteria, illness, sick, healthy, clean, dirty, spread, wash)*
Sticky knowledge	**Children will:** 1. Talk about the family that they live with. 2. Talk about how they have changed since they were a baby. **Children will:** 1. Know why they need to keep their teeth clean. 2. Know why they need to get enough sleep. 3. Talk about some foods that keep us healthy e.g. fruit and vegetables. 4. Talk about why they need to eat healthily. 5. Talk about why they need to exercise regularly. **Children will:** Explore the natural world around them (e.g. naming common farm animals and their young, minibeasts, british sea creatures, knowing some simple features, exploring lifecyles such as a ladybird or bee)	**All children will:** 1. Know the name of an animal from each main group. 2. Know how to describe one feature of an animal from each main group. 3. Know an example of one animal that is a herbivore, carnivore and omnivore. **All children will:** 1. Know the name and location of basic external body parts e.g. arm, head, leg, nose, ear, mouth, foot, elbow, knee, wrist, shoulder, neck 2. When provided with the five senses, know which body part is used for each sense.	**All children will:** 1. Know the three main things that animals including humans need to survive (air, food, water). 2. Know an example of a life cycle and explain it in simple terms. 3. Know the main changes that happen in a caterpillar's life cycle. **All children will:** 1. Know at least three examples of exercise and know some reasons why it is important for humans. 2. Know at least three ways that we can have good hygiene and explain simply what would happen if we had poor hygiene. 3. Know that we need to eat different foods to have a balanced diet and know that we need to eat more of certain food groups than others.

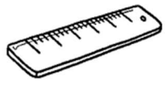
	Year R	Year 1	Year 2
Everyday Materials	**Exploring different materials (Understanding the World): thinking about the strongest/weakest materials for the houses of the three little pigs and building houses during construction play. How can we free a Frozen Stickman (looking at changing materials by melting)? Use of tweezers to sort simple materials and use magnets to explore forces. Further explore melting by melting frozen natural objects. Exploring which materials will float and sink.**	**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 (see Appendix 1 for W.S. progression)	Provision will offer opportunities to: • Ask and answer questions • Observe closely • Identify and classify	• Observing closely, using simple equipment • Identifying and classifying **Investigations:** Sorting materials in different ways based on physical properties (making predictions about what materials will go in each group and why)	• Identifying and classifying • Gathering and recording data • Asking simple questions and recognising that they can be answered in different ways • Performing simple tests • Present data **Investigations:** testing whether different objects can be squashed, twisted, stretched or bent. Testing which material is most suitable for an umbrella.
Vocabulary	feel, see, hear, smell, taste, magnet, light, floating, strong, weak, light, heavy, melting, frozen, natural materials (e.g. *leaves, sticks, bark, conkers, soil, rocks*), manmade	object, material, wood, plastic, glass, metal, rock, rubber, fabric properties (*hard, soft, bendy, squishy, flexible, dull, bright, see-through, smooth, strong, tough, bumpy)* compare, group, natural, man-made	object, materials (*see Year 1)*, shape, change, squashing, bending, twisting, stretching, reversible, irreversible identify, compare, suitable, not suitable, use, properties (waterproof, transparent, opaque, rough, smooth, absorbent, flexible)
Sticky knowledge	**Children will:** Explore different natural materials found in the environment (e.g. naming wood, straw, brick, sticks, stone… describe some basic properties- hard, strong, soft, bendy…)	**All children will:** 1. Know the names of at least 3 materials (e.g. wood, plastic, glass, metal, rock, paper) when they are shown them. 2. Know that an object is made from a material and be able to give at least 3 examples e.g. the chair is made from wood. **All children will:** 1. Know the simple properties of different materials e.g. hard, soft, flexible, squishy, strong, see-through 2. Know how to group materials that have the same property. 3. Know how to compare materials that have different properties.	**All children will:** 1. Know at least three examples of why a material has been selected to create an object, using key vocabulary such as: hard, soft, smooth, rough, transparent, opaque and waterproof. 2. Know what invention Charles Macintosh created. **All children will:** 1. Know that you can change the shape of some objects and when given a verbal instruction will be able to change the shape of objects by squashing, stretching, bending and twisting. 2. Know at least one material that can be changed easily and one material that cannot.

	Year R	Year 1	Year 2
Seasonal Changes	**Understand the effect of changing seasons on the natural world around them (Understanding the World): object sorting, comparing seasons and using the playground and garden to look at changes in school environment e.g. changes to trees/plants/weather** **Describe what they see, hear and feel whilst outside (Understanding the World): seasonal walks**	**Observe changes across the four seasons.** **Observe and describe weather associated with the seasons and how day length varies.**	**Covered in Year 2 Geography**
Working Scientifically (see	Provision will offer opportunities to: • Ask and answer questions	• Observing closely, using simple equipment	**Covered in Year 2 Geography**

Appendix 1 for W.S. progression)	• Observe closely • Identify and classify • Gather and record data • Present data	• Gathering and recording data to help in answering questions • Present data **Investigation:** Track a tree in the playground over several intervals during the year. Investigating the change in day length.	
Vocabulary	Autumn, Winter, Spring, Summer, season, hot, cold, sun, rain, cloud, sky, snow	seasons, change, year, months, weather (see *EYFS*), temperature	**Covered in Year 2 Geography**
Sticky knowledge	**Children will:** 1. Talk about common signs of Autumn (e.g. leaves changing colour and falling from trees, conkers, acorns and pine cones falling, starting to get colder and wetter). 2. Talk about common signs of winter (e.g. bare trees, few signs of animals, colder weather, darker days, frost/snow). 3. Talk about common signs of Spring (e.g. flowers growing, green leaves, baby animals being born, getting warmer) 4. Talk about common signs of Summer (e.g. hot with less rain, sun is usually visible, dry ground, plants need watering)	**All children will:** 1. Know that there are four seasons in the UK: Autumn, Spring, Summer and Winter 2. Know that weather changes with the seasons and know how day-length changes throughout the year.	**Covered in Year 2 Geography**

	Year R	Year 1	Year 2
Living Things and their Habitats	**Explore the natural world around them and describe what they see, hear and feel (Understanding the World): observe the life cycle of a chick, minibeasts e.g bees and butterflies (Hungry caterpillar/Bumble bear)** **Recognise some environments that are different to their own (Understanding the World): Comparing sea environments (Australia – Great Barrier Reef)**	**See Y1 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 (see Appendix 1 for W.S. progression)	Provision will offer opportunities to: • Ask and answer questions • Observe closely • Identify and classify • Gather and record data	**See Y1 Animals including Humans**	• Identifying and classifying • Observing closely using simple equipment • Asking and answering questions
Vocabulary	insect, minibeast, creepy crawlies, caterpillar, butterfly, ladybird, life cycle, bee, grow, change habitats (*stable, sty, field, farm, farmyard, sea, ocean)*	**See Y1 Animals including Humans**	living (*move, grow, reproduce, get rid of waste, react to surroundings), dead, never alive* habitats (*ocean, pond, rainforest, desert, forest)*, suited, adapted, microhabitats food chain, prey, predators, energy, transfer
Sticky knowledge	**Children will:** Explore the natural world around them (e.g. name some common British and tropical sea creatures, know which ones live in hot or cold waters, explore basic similarities and differences, talk about simple features of some known minibeasts and their homes)		**All children will:** 1. Know that all animals and plants do not live in the same place and know at least 3 examples of habitats. 2. Know at least one example of how an animal or plant is suited to the habitat that it lives in. 3. Know that things can either be living, dead or never living and give at least one example of each 4. Know that animals get their food from different places and give at least one example of a simple food chain

Appendix 1 - Working Scientifically Progression

	Year R	Year 1	Year 2
Asking and answering questions 	Children will be encouraged to be curious about what they see and will learn how to ask questions correctly through adult modelling.	Children will know how to ask questions about the world around them and begin to recognise that these questions can be answered in different ways. Children will know the language we use when asking questions e.g. I wonder…, I notice…, what would happen if…, do you think…, I wonder why…, what would I find if… etc.	Children will know how to ask questions that include scientific language and know that they can be answered in different ways and know some of these ways themselves. Children will know why it is important for scientists to ask questions.
Observing 	Children will be taught to develop their vocabulary to be able to describe what they observe. Children will begin to know that observing is looking for small details.	Children will know that good observation includes looking for details and differences in those detail (e.g. line, shape, texture, colour, properties).	Children will know that to observe, they will notice changes and reactions. Children will know that when observing, they should make connections with what they already know.
Identifying and Classifying 	Children will know that we can group things based on their simple features.	Children will know that we can use simple features to compare objects, materials and living things and with help, decide how to sort and group them.	Children will know how to sort and group things based on their simple features.
Performing simple tests 	Children are provided with a variety of opportunities to find things out through observing, classifying, grouping and identifying.	Children will know the methods that scientists use to find things out and be exposed to some of these methods through teacher modelling.	Children will know how to carry out a simple test after teacher modelling.
Taking measurements 	Children will know basic things that they can measure e.g. height, length, light, heat. Children will begin to know how to use their counting skills to measure amounts.	Children will know how to compare weight, length, height, distance, size, sound, light and capacity using non-standard units. Children will know they can use their counting skills to measure and know the tools and language they can use when measuring (e.g. cups, hands, large/small, loud/quiet, bright/dark etc.).	Children will know what equipment they can use to measure length, height, mass, temperature, capacity and volume. Children will begin to use m/cm, kg/g, °C and l/ml when taking measurements.
Gathering and recording data	Children will know that information needs to be recorded so we can remember it and use it.	Children will know that they have to gather information to find things out and will know some ways to record that information.	Children will know that the information that we gather is data and we can record it in different ways.

	Children are encouraged to gather information about the world around them.		Children will know some different ways of recording data e.g. tables, tally, lists, videos, pictures, sketches, sound recordings. Children will know that tables have rows, columns and headings.
Presenting results 	Children will know how to share what they have seen and discovered with adults and their peers.	Children will know how to share their findings orally and with drawings.	Children will know how to share their findings in different ways using scientific language.