PLANTS

RECEPTION	YEAR 1	YEAR 2	FUTURE LEARNING
• Make observations of plants • Know some names of plants, trees and flowers • May be able to name and describe different plants, trees and flowers • Show some care for their world around them **Vocabulary** plants • Grow • Roots, shoots, stem, leaves, buds, flower • Water, light, warmth, temperature, soil, compost	**National Curriculum Objectives** • 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. • Identify and name the roots, trunk, branches and leaves of trees. **Knowledge** • Plants grow • Plants are important • We can eat lots of plants **Vocabulary** Examples of these common to Britain Examples of common British plants, Bulb, roots, stem, leaves, flower (blossom), petals, fruit, seeds, trunk, branches, twigs, crown, wild, garden, deciduous, evergreen	**National Curriculum Objectives** • Observe and describe how seeds and bulbs grow into mature plants. • Find out and describe how plants need water, light and warmth to grow and stay healthy **Knowledge** Plants grow from seeds/bulbs • Plants need light, water and warmth to grow and survive • Flowers make seeds to make more plants (reproduce) • Plants are important • We need plants to survive (to clean air, to eat) • We can eat different parts of the plants (leaves, stems, roots, seeds, fruit) **Vocabulary** Leaves, trunk, branch, root, seed, bulb, flower, stem, wild, garden, deciduous, evergreen, observe, grow, compare, record, temperature, predict, measure, diagram, germinate, warmth, sunlight, pollination, seed dispersal, photosynthesis, hydroponics, phototropism	In Year 3 Children will: • Identify and describe the functions of different parts of the flowering plant: roots, stem/trunk/leaves and flowers • Explore the part flowers play in a flowering plant's life cycle, including pollination, seed formation and seed dispersal • Explain the requirements of plants for life and growth (air, light, water, nutrients from soil, room to grow) and how they vary between plants • Know the way in which water is transported between plants

MATERIALS

• Be able to ask questions about the place they live. • Talk about why things happen and how things work. • Discuss the things they have observed such as natural and found objects. • Manipulates materials to achieve a planned effect. **Vocabulary** Object, material, properties, suitable, Waterproof, strong/weak, heavy / light, hard/soft.	**National Curriculum Objectives** Distinguish between and object and the material from which it is made. • Identify and name a variety of everyday materials, including wood, metal, plastic, glass, water and rock, • Describe the simple physical properties of a variety of everyday materials. • Compare and group together a variety of everyday materials based on their simple properties **Knowledge** There are many different materials that have different describable and measurable properties. • Materials that have similar properties are grouped into metals, rocks, fabrics, wood, plastic and ceramics • The properties of a material determine whether they are suitable for a purpose. **Vocabulary** Object, material, properties,Wood, plastic, glass, paper, water, metal, rock, brick, fabric, elastic, foil, rubber, wool, clay, Hard/soft, bendy /not bendy, rough/bumpy/smooth, stretchy/ squashy/brittle/stiff/ shiny/ dull, waterproof/not waterproof, absorbent/not absorbent, opaque, transparent	**National Curriculum Objectives** 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 shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. **Knowledge** Materials can be changed by physical force (twisting, bending, squashing and stretching) **Vocabulary** Waterproof, fabric, rubber, cars, rock, paper, cardboard, wood, metal, plastic, glass, brick, twisting, squashing, bending, durable, rigid, change, purpose, flexible, course,	In Year 3 children will: • Compare and group together different kinds of rocks based on their appearance and simple physical properties • Describe in simple terms how fossils are formed when things that have lived are trapped within rock • Recognise that soils are made from rocks and organic matter.

ANIMALS INCLUDING HUMANS

• Be able to identify different parts of their body. • Have some understanding of healthy food and the need for variety in their diets. • Be able to show care and concern for living things. • Know the effects exercise has on their bodies. • Have some understanding of growth and change. • Can talk about things they have observed including animals **Vocabulary** animals • Body parts. • Backbone, skeleton, •. • Adult/parent, baby. • Birds (owl, duck), insects/bugs/ minibeasts (ladybird, woodlouse, bee, wasp, spider, earthworm, snail, cricket, butterfly, caterpillar), fish, reptiles (snake, tortoise), amphibians, mammals What animals give us - Meat, roast chicken, bacon/ham, milk/cheese/ butter, wool, eggs, honeycomb, honey.	**National Curriculum Objectives** 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 **Knowledge** There are many different animals with different characteristics. • Animals have senses to help individuals survive. When animals sense things they are able to respond. • Animals need food to survive, grow and stay healthy **Vocabulary** sight, hearing, touch, taste, smell, head, neck, ear, mouth, shoulder, hand, fingers, leg, foot, thumb, eye, nose, knee, toes, teeth, elbow, mammals, birds, fish, amphibians, reptiles, human, carnivore, herbivore, omnivore, diet, domestic, wild, food, space, shelter, medicine, water, care, Pets: dog, cat, fish, rabbit, guinea pig, Fish: gills, fins, scales, Birds: beaks, wings, claws, feathers. Mammals: warm blooded, fur, live young. Reptiles: cold-blooded, nocturnal.	**National Curriculum Objectives** Know that animals, including humans, have offspring which grow into adults • Know the basic stages in a life cycle for animals, including humans. • Find out 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. **Knowledge** Animals move in order to survive. • Different animals move in different ways to help them survive. • Exercise keeps animal's bodies in good condition and increases survival chances. • All animals eventually die. • Animals reproduce new animals when they reach maturity. • Animals grow until maturity and then do not grow any larger. **Vocabulary** Survival, water, air, food • Reproduction, growth, adult, baby, offspring, kitten, calf, puppy • Exercise, hygiene • Predator, prey Lifecycle: - Egg, caterpillar, chrysalis, butterfly.	In Year 3 children will: • Identify that animals, including humans, need the right types and amount of nutrition, and they cannot make their own food; they get their nutrition from what they eat. • Know how nutrients, water and oxygen are transported within animals and humans. • Know about the importance of a nutritious, balanced diet. • Identify that humans and some other animals have skeletons and muscles for support, protection and movement:

LIVING THINGS AND THEIR HABITATS

Comments and questions about the place they live or the natural world. • Shows care and concern for living things and the environment. • Can talk about things they have observed such as plants and animals. • Notices features of objects in their environment. • Comments and asks questions about their familiar world. **Vocabulary** environments • farm, playground, woodland, desert, ocean, jungle, Arctic. • Microhabitats: - Log, stone, tree, dead leaves, soil. • Seaside. Recycling, compost.		**National Curriculum Objectives** Explore and compare the difference 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 micro habitats. • Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name the different sources of food. **Knowledge** Some things are living, some were once living but now dead and some things never lived. • There is variation between living things. • Different animals and plants live in different places. Living things are adapted to survive in different habitats. • Environmental change can affect plants and animals that live there **Vocabulary** Living, dead, never alive, habitats, micro-habitats, food, food chain, leaf litter, shelter, seashore, woodland, ocean, rainforest, conditions, desert, damp, shade, Adapted, hibernate, migrate	In Year 4 children will: • 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 their local and wider environment. • Know and label the features of a river • Recognise that environments can change and that this can sometimes pose danger to living things.

SEASONAL CHANGE

Developing an understanding of change. • Observe and explain why certain things may occur (e.g. leaves falling off trees, weather changes). • Look closely at similarities, differences, patterns and change. • Comments and questions about the place they live or the natural world. **Vocabulary** Seasons, spring, summer, autumn, winter, windy, sunny, overcast, snow, rain, temperature	**National Curriculum Objectives** • Observe changes across the four seasons • Observe and describe weather associated with the seasons and how day length varies. **Knowledge** Weather can change • There are lots of different types of weather: Rain, Sun, Cloud, Wind, Snow, etc • Days are longer and hotter in the summer • Days are shorter and colder in the winter • There are four seasons: Spring, Summer, Autumn, Winter **Vocabulary** Seasons; spring, summer, autumn, winter Year, months, days Hot, warm, mild, cold Sunny Cloudy Rain, sleet, snow, hail, thunder, lightning, rainbow Wet, damp, dry Windy, breezy, gust Temperature Degrees Celsius Thermometer Weather vane		In Year 3 children will: • Recognise that they need light in order to see things and that dark is the absence of light. • Notice that light is reflected from surfaces. • Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. • Recognise that shadows are formed when the light from a light source is blocked by a solid object. • Find patterns in the way that the sizes of shadows change.

WORKING SCIENTIFICALLY			
PLAN - Ask simple questions and recognise that they can be answered in different ways.			
Understand 'why' questions, like: "Why do you think the caterpillar got so fat?" Make comments about what they have heard and ask questions to clarify their understanding.	Use everyday language/begin to use simple scientific words to ask or answer a scientific question	Ask simple questions Recognise that questions can be answered in different ways	Ask relevant questions when prompted Set up simple and practical enquiries, comparative and fair tests
PLAN - Making Predictions			
Begin to give opinions	Begin to say what might happen in an investigation.	Begin to make predictions.	Make predictions and begin to give a reason.
PLAN - Making Observations			
Talk about what they see, using a wide vocabulary.	Observe objects, materials and living things and describe what they see.	Observe closely, using simple equipment	Make systematic observations, using simple equipment
DO - Equipment and Measurement			
Explore how things work.	Use simple, nonstandard equipment and measurements in a practical task.	Use simple equipment, such as hand lenses or egg timers to take measurements, make observations and carry out simple tests.	Take accurate measurements using standard units.
DO - Identify and Classify			
Show curiosity about objects Develop ideas of grouping	Sort and group objects, materials and living things, with help, according to simple observational features.	Decide, with help, how to group materials, living things and objects, noticing changes over time and beginning to see patterns.	Talk about criteria for grouping, sorting and categorising, beginning to see patterns and relationships.
DO - Engaging in practical enquiry (investigating)			
Choose resources they need for an activity	Follow instructions to complete a simple test individually or in a group.	Do things in the correct order when performing a simple test and begin to recognise when something is unfair.	Discuss enquiry methods and describe a fair test.

SCIENCE PROGRESSION

REVIEW - Recording and reporting findings			
Create simple representations	Begin to record simple data. Talk about their findings and explain what they have found out.	Gather data, record and talk about their findings, in a range of ways, using simple scientific vocabulary.	Record their findings using scientific language and present in note form, writing frames, diagrams, tables and charts.
REVIEW - Drawing conclusions			
Make links and notice patterns	Explain, with help, what they think they have found out.	Use simple scientific language to explain what they have found out.	Draw, with help, a simple conclusion based on evidence from an enquiry or observation.
REVIEW - Analysing data, Evaluating and raising further questions and predictions			
Answer how and why questions about their own experiences	Use every day or simple scientific language to ask and/or answer a question on given data.	Identify simple patterns and/or relationships using simple comparative language.	Gather, record and use data in a variety of ways to answer a simple question.
Vocabulary			
describe sort group observe	Properties, observe, describe, test, question, object, equipment, question, answer, record, identify, classify, sort, group, compare, magnifying glass, biology, chemistry, physics, data.	Plan, prediction, conclusion, research, measurement, gather, record, present, method, test, experiment, oral and written explanations, evidence, scientific enquiry	

SCIENTIFIC ENQUIRY APPROACHES

Over the course of an academic year, pupils should carry out several investigations which involve different types of enquiry:

COMPARATIVE/FAIR TESTING

We might start talking about comparative or fair testing with children by first talking about what can be changed (the 'variables') and whether this might make a difference to the outcome.

RESEARCH

Pupils might use pictures, books, websites or information sheets that have been pre-prepared to help them to find out answers to questions about any area of science. They may visit a museum or talk to a visitor in school or parent about science.

OBSERVATION OVER TIME

All sorts of questions can be answered through observation over time. The period of time might be seconds, minutes, days or even months depending on the question asked.

PATTERN SEEKING

Pattern seeking often starts with a question about a possible link between two events or phenomena (variables).
You may start by asking the children 'I wonder whether the smallest ...' or 'I wonder if the largest....'

IDENTIFYING, GROUPING AND CLASSIFYING

Young children (ages 4 -5 years) perform simple grouping tasks, sorting items by simple observable features such as colours, shape and size. As children develop their knowledge of plants, animals and materials, they will sort and classify living things and materials using specific criteria. Older children may make charts or keys to help identify different animals and plants according to their observable features, and materials according to their properties.