Science in the Early Years at Whitleigh Primary School

In planning and guiding what children learn, practitioners reflect on the different rates at which children are developing and adjust their practice appropriately, referring to the Characteristics of Effective Teaching and Learning These are: **playing and exploring** – children investigate and experience things, and 'have a go'; **active learning** – children concentrate and keep on trying if they encounter difficulties, and enjoy their achievements for their own sake; **creating and thinking critically** – children have and develop their own ideas, make links between ideas, and develop strategies for doing things. In addition, the Prime Areas of Learning (**Personal, Social and Emotional Development, Communication and Language and Physical Development)** underpin and are an **integral part** of children's learning in all areas.

Statutory Educational Programme:

Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society, such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.

Statutory ELG (used as an assessment at the end of the Summer Term in Reception)

The Natural World
Children at the expected level of development will: - 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.

At Whitleigh Primary School we have an expectation that Science will be embedded within the youngest of our children. We believe that Science in the Early Years is not easier than other areas of the school. Children are being challenged proportionate to their age and stage of their learning journey. What underpins Science in the Early Years is a strong emphasis on the 'big ideas' (concepts). We strongly believe that early familiarity with these concepts will help in the future.

"In the Early Years, we teach the concepts, skills and language of working scientifically and some knowledge"

These concepts include – **Environment, Organisation, Cause and Effect, Processes, Structure and Function, Diversity, Systems, Scale, Similarity and Difference**

At Whitleigh Primary School, we see the progression of Science in the Early Years as a ripple effect, starting with the youngest of our children.

Increasing levels of knowledge and understanding of subject content

Application of skills and processes

Disciplinary Knowledge

Recognise
Identify
Describe
Observe
Select
Categorise
Classify
Sequence
Compare and Contrast
Recall
Reason/Speculate
Summarise
Synthesise
Explain
Demonstrate Understanding
Empathise
Reach Informed Conclusions
Make reasoned Judgements
Justify
Apply
Evaluate
Critique
Hypothesise

Basic

Appropriate

Specialised

Increasingly confident and appropriate use of subject vocabulary, terms and language

EYFS Science Skills				
	Working Scientifically	**Plants**	**Animals (including Humans) PSHE link**	**Everyday Materials**
2 Year old Nursery	**Recognise** and **identify** their familiar world. **Recognise** that things happen and how things work. **Recognise** similarities and differences. **Recognise** some changes in the natural world such as seasons. **Recognise** different forces I feel – push and pull toys.	**Recognise** basic features of a plant. **Recognise** some similarities and differences in living things. **Recognise** changes over time.	**Recognise** a life cycle. **Recognise** the needs to respect and care for my natural environment. **Recognise** the features of my own immediate environment.	**Recognise** similarities and differences in materials.
Pre-School	**Identify** and **describe** aspects of their familiar world such as the natural world, making observations and drawing pictures of animals and plants. · **Identify** and **describe** why things happen. **Describe** some important processes and changes in the natural world around them such as seasons and changing states of matter **Observe** and **describe** different forces I can feel such as push and pull toys	**Describe** the features of the lifecycle of a plant **Observe** and **describe** growth and decay over time **Identify** and **describe** similarities and differences in living things.	**Identify** and **describe** lifecycles **Identify** and **describe** the need to respect and care for the natural environment and all living things **Identify** and **describe** features of their local environment and how they may vary from one another	**Identify** and **describe** similarities and differences in relation to materials
Reception	**Compare and contrast** and ask questions about aspects of their familiar world such as the natural	**Sequence** and **recall** the key features of the life cycle of a plant.	**Sequence** and **recall** life cycles.	**Compare and contrast** similarities and differences in relation to materials.

	world, making observations and drawing pictures of animals and plants. **Sequence** and **recall** why things happen and how things work **Compare and contrast** by looking at similarities, differences, patterns and change. **Describe** and **sequence** some important processes and changes in the natural world around them, including the seasons and changing states of matter **Reason** and **speculate** about different forces I can feel – gravity, push and pull toys	**Compare and contrast** growth, decay and changes over time. **Categorise** similarities and differences in relation to living things.	**Reason** why we need to respect and care for the natural environment and all living things. **Compare and contrast** the features of their own immediate environment and how environments might vary from one another.	**Categorise** and **select** the appropriate materials for a purpose.
Links to KS1 Curriculum Scientific Enquiry	Observe – Qualitative and Simple Quantitative -Observe change over time. Use Senses/ equipment. Model – Concrete Context - Draw diagrams e.g. parts of plants/ the body	Observe – Qualitative and Simple Quantitative -Observe change over time. Classify and find patterns - Identify and Classify e.g. familiar plants, animals, materials. Compare and contrast	Research – Find Information using given sources. e.g. animals.	CONTROL INVESTIGATIONS: comparative and fair testing - Simple Comparative Tests - e.g. What is the best material for an umbrella?
EYFS Science Knowledge				
	Working Scientifically (also see Geography knowledge and skills document)	**Plants**	**Animals (including Humans) PSHE link**	**Everyday Materials**
2 Year Old Nursery	I know how to explore the world through my senses. I know about some changes in seasons. I know about aspects of my familiar world. I know my immediate environment.	I know basic features of a plant.	I know what animals look and sound like. I start to know I look different e.g. hair colour.	I know how to explore different materials.

Pre-School	I know about aspects of my familiar world such as the natural world, making observations and drawing pictures. I know why things happen I know some similarities, patterns and change. I know and can talk about the forces I can feel	I know about the lifecycle of a plant I know how to care for growing plants I know about growth and decay over time I know some similarities and differences in relation to living things	I know about the lifecycle of a Frog I know I need to respect and care for all living things I know some of the features of my own local environment and how they are different	I know some similarities in relation to materials
Reception	I know about aspects of my familiar world such as the natural world, making observations and drawing pictures I know and can talk about forces I can feel I know why things happen and how things work I know some similarities, differences, patterns and change in relation to people I know how to ask questions about the world the world through using my senses - feeling, hearing, seeing I know some important processes and changes in the natural world around them, including the seasons and changing states of matter.	I know how to care for growing plants. I know about the life cycle of a plant I know about growth, decay and changes over time I know some similarities and differences in relation to living things.	I know how to care for animals (trip) I know some of the features of my own immediate environment and how they might vary from one another (farm/zoo) I know about life cycle of a human I know I need to respect and care for the natural environment and all living things. I know which animals/dinosaurs are meat or plant eaters	I know some similarities and differences in relation to materials
Links to KS1 Curriculum	Ask simple questions and recognise that they can be answered in different ways.	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals	Distinguish between an object and the material from which it is made

	Use simple equipment to observe closely Perform simple tests Identify and classify Use his/her observations and ideas to suggest answers to questions Gather and record data to help in answering questions Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies	Identify and describe the basic structure of a variety of common flowering plants, including trees	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	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
Key Vocabulary (not limited to)				
Science, experiment, test, fair, why, senses, world, plants – leaf, stem, root, flower, animals, humans, materials - waterproof, natural, change, growth, decay, environment				

Daily weather and day of the week calendar in the mornings.

Season walks

Making healthy fruit kebabs/smoothies

Floating and sinking objects in the water tray.

Exploring change of materials when making Easter nests – melting of chocolate

Discussions about dinosaurs eating other dinosaurs. Make links to animals and the food chain.

Planting and caring for our vegetable and herb garden.

Animals and their habitats. What animals might we see at the zoo? At the farm? In our garden?

Melting ice cubes, drawing with ice, painting snow

Caring for our class tortoise

What does this look like in our provision?

Shadow drawing on the playground. Shadow puppet shows.

Arctic and Antarctic animals. How do they adapt to their environments? Comparing different animals

Painting with water on pavements and watching it dry quickly in warmer weather.

Chick experience – lifecycle of a chicken

Exploring different gradients and speeds when racing cars down ramps. Using materials to change the speeds of cars and discussing friction.

Exploring different objects using senses that relate to different environments/seasons e.g. pinecones, conkers, ice cubes,

Exploring the change of properties of mud in the mud kitchen or sand in the sand pit (cause and effect)

Lifecycle of a butterfly – caterpillar experience

Lifecycle of a frog – tadpole experience

Bird feeders, bug hotel

What animals come out in our garden at night? Discussions on nocturnal animals. Night cams to catch nocturnal animals.