SCIENCE

UNDERSTANDING OF THE WORLD (The World)

This document shows how our Science curriculum develops from Nursery to Year 2.

	Nursery (Birth to 5 Matters)	***Learning experiences (implementation)***	**Reception** (Birth to 5 Matters)	***Learning experiences (implementation)***	**Year 1** (National Curriculum – POS KS1)	***Learning experiences***	**Year 2** (National Curriculum – POS KS1)	***Learning experiences (implementation)***
Working scientifically	Children enjoy stories about people and nature (birds, bees, snails, cats, dogs, etc) Children are curious and interested to explore new and familiar experiences in nature: grass, mud, puddles, plants, animal life	Using magnifiers and binoculars to focus and **observe closely** Teacher led **investigatory experiences** e.g. cutting open fruits/vegetables, exploring a sunflower head over time **Exploratory investigative play** e.g. torches (light/dark) **Sensory investigative play** e.g. gloop, ice	Children make observations of animals and plants, explain why some things occur, and talks about changes Children understand some important processes and changes in the natural world around them, including the	Using magnifiers and binoculars to focus and **observe closely** Teacher led **investigatory experiences** e.g: • minibeast hunts • recording **Adults model** the **language** of comparison and use comments and open ended questioning to encourage children to make links to previous experiences at home and school	-**asking simple questions** and recognising that they can be answered in different ways -**observing closely**, using simple equipment -performing simple tests -**identifying and classifying**	Teacher led investigations planned across the year: • Growing and planting – conditions for growth, recording growth on a graph, bean diary • Designing an allotment • Rot or not – planting objects to find out if they decompose or not over time • Recording the weather • Hands and feet – does the oldest child have the biggest hand?	-**asking simple questions** and recognising that they can be answered in different ways -**observing closely**, using simple equipment -performing simple tests -**identifying and classifying**	Teacher led investigations planned across the year: • Investigate how our body changes after exercise • Observe changes to food when heated or cooled (reversible/irreversible changes) • How can you keep an ice cube frozen? • Dissolving investigation – which substances dissolve? • Which is the bounciest ball? (recording data) • Grouping and classifying plants and animals • Investigate what happens to bread when it is left to go mouldy (Louis Pasteur) • Learn about extraordinary scientists

		cubes, sand and water play **Adults model** the **language** of comparison and use comments and open ended questioning to encourage children to make links to previous experiences at home and school	seasons and changing states of matter		-using their **observations** and ideas to suggest answers to questions -**gathering and recording data** to help in answering questions	Does the tallest child have the biggest foot?	-using their **observations** and ideas to suggest answers to questions -**gathering and recording data** to help in answering questions	and their work – Katherine Johnson, Alan Turing, Louis Pasteur, Jane Goodall, Mae Jemison, David Attenborough.
	<u>Nursery</u> (Birth to 5 Matters)	***Learning experiences (implementation)***	**<u>Reception</u> (Birth to 5 Matters)**	***Learning experiences (implementation)***	**<u>Year 1</u> (National Curriculum – POS KS1)**	***Learning experiences (implementation)***	**<u>Year 2</u> (National Curriculum – POS KS1)**	***Learning experiences (implementation)***
Plants	Children are curious and interested to explore new and familiar experiences in nature: grass, mud, puddles, plants, animal life Children can talk about	Teacher led **investigatory experiences** e.g. cutting open fruits/vegetables, exploring a sunflower head over time Adults **model** plant related **vocabulary** in context e.g. stem,	Children make observations of animals and plants and explain why some things occur, and talks about changes	Teacher led growing and planting experiences Adults **model** plant related **vocabulary** in context e.g. stem, bud, leaf, root, seed, bulb • Growing beans and recording in a 'bean diary'	Children can **identify and describe** the basic structure of a variety of common flowering plants, including trees	• Teachers introduce key vocabulary: stem, trunk, leaves, bulb, roots, light, minerals, energy, sun, photo-synthesis, flower, petals, stigma, stamen, style • Investigating trees on school grounds		

	some of the things they have observed such as plants, animals, natural and found objects Children are developing an understanding of growth, decay and changes over time	bud, leaf, root, seed, bulb Teacher led growing and planting experiences **Adults model** the **language** of comparison and use comments and open ended questioning to encourage children to make links to previous experiences at home and school		• Observing the changes over time to a flower that has been picked • Dissecting flowers **Adults model** the **language** of comparison and use comments and open ended questioning to encourage children to make links to previous experiences at home and school	Children can **identify and name** a variety of common wild and garden plants, including deciduous and evergreen trees Children **observe and describe** how seeds and bulbs grow into mature plants Children **find out and describe** how plants need water, light and a suitable temperature to grow and stay healthy	– map location, identify type (sycamore, beech, birch), bark rubbing looking at patterns. • Growing and planting (conditions for growth) • Lifecycles – the story of 'The Tiny Seed' by Eric Carle • Recording a bean diary – Introduce fair test, nine combinations with an element of growth removed for each pot		

	<u>Nursery</u> (Birth to 5 Matters)	***Learning experiences (implementation)***	**<u>Reception</u> (Birth to 5 Matters)**	***Learning experiences (implementation)***	**<u>Year 1</u> (National Curriculum – POS KS1)**	***Learning experiences (implementation)***	**<u>Year 2</u> (National Curriculum – POS KS1)**	***Learning experiences (implementation)***
Animals, including humans	Children closely observe what animals and, people do Children are curious and interested to explore new and familiar experiences in nature: grass, mud, puddles, plants, animal life Children can talk about some of the things they have observed such as plants, animals, natural and found objects	Talking about changes in themselves, naming basic parts through finger rhyme and action songs Talking about experiences of animals e.g. pets at home, animals in stories, linking to small world play Developing awareness of personal hygiene e.g. teeth brushing, hand washing **Adults model** the **language** of comparison and use comments and open ended	Children are developing an understanding of growth, decay and changes over time	Life cycles: Living eggs chick hatching experience 'How have I changed?' – talking about and **describing** how we have changed from 0-5 years, visits from Mums and babies/toddlers **Adults model** the **language** of comparison and use comments and open ended questioning to encourage children to make links to previous experiences at home and school Developing awareness of personal hygiene e.g. teeth brushing, hand washing	Children can **identify, name, draw and label** the basic parts of the human body and say which part of the body is associated with each sense Children **notice** that animals, including humans, have offspring which grow into adults Children can **identify and name** a variety of	• Senses carousel • Fruit tasting • Hearing investigation outside • Lifecycles – an animal which changes completely as it grows e.g. tadpole to a frog, an animal which grows but remains the same e.g. giraffe and the human lifecycle • Visit from school nurse (effective teeth brushing, diet, personal hygiene – hand washing) – pre learning for Year 2 topic on Healthy Eating	Children **find out about and describe** the basic needs of animals, including humans, for survival (water, food and air) Children can **describe** the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. Children can **describe and compare** the	• Identifying the basic needs of animals • What is a balanced diet? • Why is exercise important? • Why do we need to brush our teeth? • Why do we need to wash our hands? • Sorting and classifying animals (link to Rainforest topic and Fire and Ice topic)

		questioning to encourage children to make links to previous experiences at home and school			common animals including fish, amphibians, reptiles, birds and mammals		structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) Children can **identify and name** a variety of common animals that are carnivores, herbivores and omnivores	• Educational visit to Woburn Safari Park

	Nursery (Birth to 5 Matters)	***Learning experiences (implementation)***	**Reception** (Birth to 5 Matters)	***Learning experiences (implementation)***	**Year 1** (National Curriculum – POS KS1)	***Learning experiences (implementation)***	**Year 2** (National Curriculum – POS KS1)	***Learning experiences (implementation)***
Everyday materials	Children are curious and interested to explore new and familiar experiences Children explore objects by linking together different approaches: shaking, hitting, looking, feeling, tasting, mouthing, pulling, turning and poking	Teacher led cooking experiences, learning about characteristics of liquids and solids (melting, mixing) Children make informed choices based on properties of materials when building at junk modelling area Children **explore** the properties of materials that can be squeezed and squashed in **sensory play** **Adults model** the **language** of comparison and use comments	Children make observation and offer suggestions to explain why some things occur Children begin to understand the effect their behaviour can have on the environment	Teacher led **investigation** and **exploratory play** with natural and manmade materials e.g. ice, magnetic/non-magnetic materials, collections of objects sharing properties Developing children's awareness of recycling in the classroom **Adults model** the **language** of comparison and use comments and open ended questioning to encourage children to make links to previous experiences at home and school	Children can **distinguish between** an object and the material from which it is made. Children can **identify and name** a variety of everyday materials, including wood, plastic, glass, metal, water and rock Children can **describe** the simple physical properties of a variety of everyday materials	• Sorting objects by material • Going for a material hunt in the environment • Investigating how waterproof different materials are. Contrast with which are most absorbent (using water trays)	Children **investigate** how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching Children can **identify and compare** the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard	Links to experiences in Art and Design technology • Making dough • Using clay • Collage • Sorting and classifying • Exploring silly scenarios e.g. metal trousers • Design and make a puppet

		and open ended questioning to encourage children to make links to previous experiences at home and school			Children can **compare and group** together a variety of everyday materials on the basis of their simple physical properties		for particular uses *(link to DT)*	
	<u>Nursery</u> (Birth to 5 Matters)	***Learning experiences (implementation)***	**<u>Reception</u> (Birth to 5 Matters)**	***Learning experiences (implementation)***	**<u>Year 1</u> (National Curriculum – POS KS1)**	***Learning experiences (implementation)***	**<u>Year 2</u> (National Curriculum – POS KS1)**	***Learning experiences (implementation)***
Seasonal changes	Children are curious and interested to explore new and familiar experiences in nature: grass, mud, puddles, plants, animal life Children can talk about some of the things they have observed	**Adults introduce, model and develop key vocabulary** associated with time: night/day, yesterday/today/ tomorrow. **Adults introduce, model and develop key vocabulary** associated with weather: rain, sunny, hot,	Children make observations of animals and plants, explain why some things occur, and talk about changes Children understand some important processes	**Adults model** the **language** of comparison and use comments and open ended questioning to encourage children to make links to previous experiences at home and school **Adults talk** about the weather and seasons **in context** e.g. why do we need to wear gloves today? It's a hot, sunny day so we	Children can discuss observations of changes across the four seasons Children can describe and observe weather associated with the seasons and how day length varies	Weather diaries Recording a 'weather report' on tablet Taking weekly weather photographs and developing a weather timeline (weather topic)		

	such as plants, animals, natural and found objects	clouds, rainbow etc **Adults model** the **language** of comparison and use comments and open ended questioning to encourage children to make links to previous experiences at home and school	and changes in the natural world around them, including the seasons and changing states of matter	need to put sunscreen on. **Adults draw children's attention to** seasonal change in context e.g. in the outdoor area and model key vocabulary associated with the seasons e.g. names of seasons, weather, buds, leaves, shoots **Adults model** the **language** of comparison and use comments and open ended questioning to encourage children to make links to previous experiences at home and school				

	<u>Nursery</u> (Birth to 5 Matters)	***Learning experiences (implementation)***	**<u>Reception</u> (Birth to 5 Matters)**	***Learning experiences (implementation)***	**<u>Year 1</u> (National Curriculum – POS KS1)**	***Learning experiences (implementation)***	**<u>Year 2</u> (National Curriculum – POS KS1)**	***Learning experiences (implementation)***
Living things and their habitats	Children are curious and interested to explore new and familiar experiences in nature: grass, mud, puddles, plants, animal life Children can talk about some of the things they have observed such as plants, animals, natural and found objects	**Adults introduce, model and develop key vocabulary** associated with living things and their habitats in context in the outdoor area; naming minibeasts, talking about where living things live and what they need to survive, naming and describing weather Teacher led growing and planting experiences **Adults model** the **language** of comparison and use comments	Children make observations of animals and plants, explain why some things occur, and talk about changes	Life cycles: Living eggs chick hatching experience Butterfly hatching experience Children use 'explorer packs' in child-initiated learning to discover living things in the outdoor environment **Adults model** the **language** of comparison and use comments and open ended questioning to encourage children to make links to previous experiences at home and school			Children explore and **compare** the difference between things that are living, dead, and things that have never been alive Children **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	• Sorting and classifying • Learning about Antarctica (Fire and Ice topic) • Learning about Rainforests

		and open ended questioning to encourage children to make links to previous experiences at home and school					how they depend on each other Children can **identify** and name a variety of plants and animals in their habitats, including micro-habitats Children can 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	• Food chains