South Farnborough Infant School
Skills & Knowledge Progression in Science

Intent	Children will be encouraged to behave as 'scientists' and develop their knowledge and understanding of our world by exploring questions. Through scientific activities and the Harmony principles we aim to foster curiosity and interest in the living and non-living things in our world. Children will learn how to set up and carry out investigations, observe what happens, record results and draw conclusions in response to questions.

The EYs Melody	Statutory Guidance	The KS1 Melody
ELG 15: 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.		**Working scientifically at Key Stage 1** *During Years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:* • asking simple questions and recognising that they can be answered in different ways • observing closely, using simple equipment • performing simple tests • identifying and classifying • using their observations and ideas to suggest answers to questions • gathering and recording data to help in answering questions

The EYs Melody	SKILLS	The KS1 Melody
Ask simple questions.	**Planning & carrying out investigations**	*Use my observations to help me predict.* *Use my scientific knowledge to help me predict.* *Measure precisely enough and with appropriate resolution i.e. cm or mm* *Plan to investigate how one thing affects another.* *Carry out simple fair tests and investigations.* *Give a simple reason for their answers.*

		Suggest how to find things out. *Explain why it might not be fair to compare two things.*	
Discuss their observations and ideas. Observe closely, and talk about what they see.	**Interpreting data & recording findings**	*Use evidence to describe how one thing affects another.* *Use my scientific knowledge to hypothesize why something happened.* *Use text, diagrams, pictures, charts, tables to record ideas observations.* *Measure using simple equipment.*	
Use information from books they have read to help answer questions.	**Drawing conclusions**	*Explain what I have found out* *Use my scientific knowledge to hypothesize why something happened.*	
Identify and sort into groups.	**Identifying and classifying**	*Identify and classify things they observe.* *Identify and discuss similarities and differences.* *Organise things into groups.* *Find simple patterns.*	
The EYs Melody	KNOWLEDGE	**The Year 1 Melody**	**The Year 2 Melody**
Range 4 *Notices detailed features of objects in their environment* *Can talk about some of the things they have observed such as plants, animals, natural and found objects* *Enjoys playing with small world reconstructions, building on first hand experiences* Range 5 *Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world* *Talks about why things happen and how things work* *Developing an understanding of growth, decay and changes over time*	**Science: Plants**	NC PoS Y1: Plants *Pupils should be taught to:* • 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 ***'Wonderful Woodland***– *Autumn 2 Circles & Cycles, Interdependence)* *To know that most plants have leaves, roots and stems and produce flowers and seeds.* *To know that plants grow from seeds and bulbs.* *To know that plants need water, light and warmth to grow.*	*See Longitudinal Study* ***'Rainforests'*** *(Spring 1&2 – Adaptation, Interdependence)* *To know that plants need water, light and warmth to grow* *To know that roots absorb water from the soil and leaves absorb light from the sun*

Shows care and concern for living things and the environment *Begin to understand the effect their behaviour can have on the environment* <u>Range 6</u> *Looks closely at similarities, differences, patterns and changes in nature* *Knows about similarities and differences in relation to places, objects, materials and living things* *Talks about the features of their own immediate environment and how environments might vary from one another* *Makes observations of animals and plants and explains why some things occur, and talks about changes*			*To know that plants need light to grow and leaves collect light from the sun*
	Science: Animals, including humans	<u>NC PoS Y1: Animals, including humans</u> *Pupils should be taught to:* • 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 ***<u>'Wildflowers and Bees</u>*** *(Summer 1 and 2– **Circles & Cycles, Adaptation**):* *To know there are many different types of living things and to understand some things are living, some were once living but now dead and somethings have never lived.* *I can recognise and observe the basic characteristic of woodland animals and other living things.* *To know that animals move in order to survive. They have to get their food so they have to move to where it is. They have to move in different ways.* *To know that different animals and plants live in different places.* *To know that animals need food to survive. It gives them energy to move and material to grow. Animals are all different so eat different foods.* *I can treat animals in the environment with care and sensitivity.*	<u>NC PoS Y2: Living things & their habitats</u> *Pupils should be taught to:* • *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* <u>NC PoS Y2: Animals, including humans</u> *Pupils should be taught to:* • 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 ***<u>'Rainforests</u>*** *(Spring 1&2 – **Interdependence, Adaptation**)* *To know that all animals are adapted to eat and survive as predators or prey. Animals have adapted many different ways to survive.*

		I can identify and classify which animals are vertebrates and which are invertebrates. ***'Marvellous Me!'*** *(Autumn 1 – **Health & Wellbeing, Oneness**)* *I can identify, draw and label the basic parts of the human body.* *To know how humans grow and change and record their own growth.* *To identify each sense and know what body part each one is associated with.* *To understand that we can take care of our bodies by maintaining a balanced diet and exercising regularly.*	*To know that animals use their senses to detect where their food is.* *To know that animals use their senses to detect if there are any predators around.* *To know that animals have different ways to avoid being eaten, such as camouflage.* ***'Oceans'*** *(Summer 1&2 – **Circles & Cycles**)* *To know that animals need food to survive. It gives them energy to move and material to grow. Animals are all different so eat different foods (carnivores, herbivores, omnivores)* *To know that all animals grow and develop until they are strong enough to reproduce. Animals normally die when they are no longer able to reproduce.* *To know that all animals are born which is when they begin to breathe and feed. They grow until they are strong enough to reproduce.* *To know that different animals reach different sizes and ages before they are able to reproduce.* *To know that different animals live for different ages.*
Range 4 *Notices detailed features of objects in their environment* *Can talk about some of the things they have observed such as plants, animals, natural and found objects* *Enjoys playing with small world reconstructions, building on first hand experiences* Range 5 *Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world*	Science: Everyday Materials	NC PoS Y1: Everyday materials *Pupils should be taught to:* • *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*	NC PoS Y2: Uses of everyday materials *Pupils should be taught to:* • 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

Talks about why things happen and how things work *Developing an understanding of growth, decay and changes over time* *Shows care and concern for living things and the environment* *Begin to understand the effect their behaviour can have on the environment* **Range 6** *Looks closely at similarities, differences, patterns and changes in nature* *Knows about similarities and differences in relation to places, objects, materials and living things* *Talks about the features of their own immediate environment and how environments might vary from one another* *Makes observations of animals and plants and explains why some things occur, and talks about changes*		***'Water and Climate Change'*** *(Spring 1– Diversity)* *To know that there are many different materials that have different describable properties.* *To know that materials that have similar properties are grouped into rocks, fabrics, wood, plastic, metals and ceramics.* *To know that the properties of a material determine whether or not they are suitable for a purpose.* *To find out how materials can be changed by squashing, twisting, bending and stretching.* *Y1 key properties: weight, strength, hardness* *To know that floating means that a material rests on or near the surface of the water without sinking.* *To know that some materials float because they have air trapped in them.* *To know that dense materials sink more easily.* *To know that absorbent materials have holes in and liquids are drawn into the holes.* *To know that when water becomes very cold and is frozen it becomes ice. Heat melts ice. Heating and cooling can change the state of materials.*	***'Explorers'*** *(Autumn 1 – Oneness)* *To know that there are many different materials that have different describable properties.* *To know that waterproof means that water will not pass through a fabric.* *To know that insulation means that heat or cold do not easily travel through a material.* *To know that opaque materials block light.* *To know that sometimes when an object is pushed, pulled or twisted it changes shape.* *To understand the meanings of brittle, elastic and plastic.* *To know that pushing and pulling materials can change their shape.* *Y2 key properties: shiny/dull, transparent/opaque, smooth/rough, flexible/rigid*
	Science: Forces		***'Pushes, pulls & their effects'*** *(Autumn 2)* *To know that objects move in different ways – they roll, slide, bounce etc.* *To know that we can change the way an object moves by pushing or pulling it. Sometimes pushing and pulling slows things down, sometimes it speeds them up and sometimes it makes them change direction.*

			To know that bigger pushes and pulls have bigger effects. (They change how things move more.)
<u>Range 4</u> *Notices detailed features of objects in their environment* *Can talk about some of the things they have observed such as plants, animals, natural and found objects* *Enjoys playing with small world reconstructions, building on first hand experiences* <u>Range 5</u> *Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world* *Talks about why things happen and how things work* *Developing an understanding of growth, decay and changes over time* *Shows care and concern for living things and the environment* *Begin to understand the effect their behaviour can have on the environment* <u>Range 6</u> *Looks closely at similarities, differences, patterns and changes in nature* *Knows about similarities and differences in relation to places, objects, materials and living things* *Talks about the features of their own immediate environment and how environments might vary from one another* *Makes observations of animals and plants and explains why some things occur, and talks about changes*	**Science: Seasonal changes** **(Longitudinal studies)**	<u>NC PoS Y1: Seasonal changes</u> *Pupils should be taught to:* • observe changes across the 4 seasons • observe and describe weather associated with the seasons and how day length varies *To know how the seasons affect plant and animal life in the pond.* *Can observe changes across the four seasons.* *Can name the four seasons in order.* *Can observe and describe weather associated with the seasons.* ***<u>'When should Billy the Boatman move to the school pond?'</u>** (Autumn 2, Spring 1, Summer 1&2)* *To know that animals are adapted to eat and survive. Animals have to get their food so they move to where it is. Plants are also adapted to survive.* *To know that the changing seasons have a dramatic effect on plants, which has an impact on the animals that feed on them.* *To know that animals have adapted ways of surviving when seasons change and food becomes scarce, including hibernation, migration and storing food.* *To know that in Spring, the days are getting longer and warmer. Many plants start to grow in Spring so there are more food sources for animals.* *The properties of the seasons affect plants and animals throughout the year.*	<u>NC PoS Y2: Plants</u> *Pupils should be taught to:* • 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 ***<u>Will the biggest bulb turn into the tallest flower?</u>** (November)* ***<u>Making new plants</u>** (Autumn 2)* *To know that the seasons affect how and when plants grow.* *Can observe changes across the four seasons.* *Can observe and describe weather associated with the seasons.* *Can observe and describe how day length varies.* *To know that plants need water, light and warmth to grow.* *To know that all flowering plants make seeds that can grow into new plants.* *To know that sometimes a plant dies after it has produced its seed and sometimes the plant lives for many generations, producing seeds each year.*

SCIENCE	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
The Early Years Melody	***Summer adventure book*** – *How I have changed and grown*	***Autumn*** – *Autumn walk; look for seasonal changes. Collect and sort autumnal items, i.e. conkers, leaves, acorns*	***Animals & Plants*** – *life in the jungle. Similarities and differences of animals and the habitats they live in.*	***Spring*** – *Spring walk; look for blossom and buds etc. Compare with what they saw in the Autumn.*	***Farm animals*** *and their babies* *Trip to* ***Wellington Country Park***	***Animals & Plants*** – *Eddie the Penguin and other polar animals* ***Recyclable materials*** – *which ones can be recycled?*
HARMONY	*'Getting to know you' – Oneness, Wellbeing* *'Once upon a time'*	*'Autumn', "Delve into a book' & 'Christmas – The Nativity' – Diversity, Circles & Cycles*	*'Walking through the Jungle' – Interdependence, Adaptation* *'Wellbeing Week' – Wellbeing, Oneness*	*Toys & Special things' - Diversity* *Real-life Superheroes' – Interdependence* *'Spring' – Circles & Cycles, Interdependence, Geometry*	*'Children & Celebrations Around the World' – Diversity* *'Down on the Farm' – Interdependence, Circles & Cycles*	*'Geometry in Nature' – Geometry* *'Climate Change with Eddie the Penguin'– Interdependence, Oneness & Adaptation.* *'Growing & Changing' - Wellbeing*
The Year 1 Melody	***Longitudinal Study*** – *Billy the Boatman* →					
	Animals, including humans – *The human body. Exploring my body – body parts, senses for survival. Exercise. Growing and changing.*	***Everyday Materials*** – *Suitability of materials for housing. Naming, describing and sorting materials.*	***Everyday Materials*** – *Suitability of materials for a knights armour and to resist the 'blow' of the wolf in 'The Three Little Pigs'*	***Everyday Materials*** – *Water. Floating and sinking. Freezing and meeting.*	***Animals, including humans*** – *How do animals survive? The characteristics of living things. Moving and feeding for survival.*	***Plants*** – *How do plants grow? Exploring seeds and what plants need in order to grow.* *Visit from* ***Fleet Beekeepers***
HARMONY	*"What makes me marvellous?' – Wellbeing, Oneness, Diversity, Interdependence*	*'Why is the woodland wonderful?' Diversity & Circles and Cycles* *'Christmas' – Diversity*	*'How does water help us? – Oneness & Circles and Cycles*	*"How can we bring traditional tales to life?' – Adaptation*	*'Which is my favourite wildflower and why?' – Circles and Cycles & Diversity*	*'Why are bees so brilliant?' – Circles and Cycles & Interdependence*
The Year 2 Melody	***Longitudinal Study*** – *Plants* →					
	Everyday Materials – *Suitability of materials for explorers and their different environments* ***Animals*** – *Polar animal adaptation*	***Forces*** – *Pushes, pulls and their effects*	***Animals, including humans*** – *Living things and their habitats, life cycles* *Trip to* ***RHS Wisley*** *Visit from* ***RaptorXotics***	***Plants*** – *Plants & how they grow*	***Animals, including humans*** – *Living things and their habitats, life cycles*	***Everyday Materials*** – *changing materials by twisting, stretching, bending and squashing*
HARMONY	*'Explorers' - Oneness*	*'Remembrance' & 'Light' - Diversity*	*'Rainforests' – Interdependence & Adaptation*	*'Easter' – Diversity & Oneness*	*'Oceans' – Circles & Cycles*	*'Oceans' – Circles & Cycles* *'Fibonacci' – Geometry and Circles & Cycles*