Science Curriculum overview

SY 2022-23

Blue font = the knowledge has been covered before

	Reception	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
. Scientific enquiry	ELG: Listening, Attention and Understanding Make comments about what they have heard and ask questions to clarify their understanding. ELG: Fine motor skills Use a range of small tools, including	Green fingers Time Travellers Asking simple questions and recognising that they can be answered in different ways	Super Humans Buildings The Magic Toymaker Asking simple questions and recognising that they can be answered in different ways	How Humans Work Shake it Feel the Force Asking relevant questions and using different types of scientific enquiries to answer them	How Humans Work 2022 only Land, Sea and Sky From 2023 Let's Plant It Bright Sparks Making Waves Asking relevant questions and using different types of	Space Scientists Being Human Roots, Shoots and Fruits Bake it Planning different types of scientific enquiries to answer questions, including recognising and	Existed, Endangered, Extinct Full Power Fairgrounds Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary

	scissors, paint brushes and cutlery. ELG: Building Relationships Work and play cooperatively and take turns with others.				scientific enquiries to answer them	controlling variables where necessary	
	To feel confident to answer simple questions about observable properties of objects and people, animals and plants around them To compare objects in their environment and talk about similarities and differences To ask questions about the world around them, and seek to find their own answers	Brainwave: The Brain Green fingers Performing simple tests. using their observations and ideas to suggest answers to questions.	From A to B Super Humans Buildings Performing simple tests. using their observations and ideas to suggest answers to questions.	Feel the Force Shake it Setting up simple practical enquiries, comparative and fair tests	How Humans Work 2022 only Land, Sea and Sky From 2023 Let's Plant It Bright Sparks Making Waves Setting up simple practical enquiries, comparative and fair tests	Bake it Space Scientists Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	Full power Fairgrounds Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate

		Green fingers Time Travellers The Earth: Our Home Identifying and classifying	Super Humans Buildings Live and let live The Magic Toymaker Identifying and classifying	Feel the force Shake it Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	Let's plant it Land sea and sky Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	Space Scientists Bake it Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	Existed, Endangered, Extinct Full power Fairgrounds Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
		Brainwave: The Brain Green fingers Time Travellers The Earth: Our Home Observing closely, using simple equipment	From A to B Buildings Love and let live The Magic Toymaker Observing closely, using simple equipment	How Humans Work Shake it Feel the Force Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	Let's plant it How Humans Work Shake it Land Sea and sky Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	Bake it Space Scientists Using test results to make predictions to set up further comparative and fair test	Full power Fairgrounds Using test results to make predictions to set up further comparative and fair test
		Brainwave: The Brain Green fingers	From A to B Buildings Live and let live	How Humans Work Shake it Feel the Force	How Humans Work 2022 only Land, Sea and Sky	Roots shoots fruits Space Scientists Being Human	Existed, Endangered, Extinct Full power

		Time Travellers The Earth: Our Home Gathering and recording data to help in answering questions	The Magic Toymaker Gathering and recording data to help in answering questions	Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Using straightforward scientific evidence to answer questions or to support their findings.	From 2023 Let's Plant It Bright Sparks Making Waves Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Using straightforward scientific evidence to answer questions or to support their findings.	Bake it Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	Fairgrounds Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations
				How Humans Work Shake it Feel the Force Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	How Humans Work 2022 only Land, Sea and Sky From 2023 Let's Plant It Bright Sparks Making Waves Recording findings using simple scientific language, drawings, labelled diagrams,	Space Scientists Bake it identifying scientific evidence that has been used to support or refute ideas or arguments	Existed, Endangered, Extinct Full power Fairgrounds identifying scientific evidence that has been used to support or refute ideas or arguments

				Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions identifying differences, similarities or changes related to simple scientific ideas and processes Using straightforward scientific evidence to answer questions or to support their findings	keys, bar charts, and tables Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Identifying differences, similarities or changes related to simple scientific ideas and processes Using straightforward scientific evidence to answer questions or to support their findings.		
Biology							
	Reception	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Humans and animals	ELG: The Natural World Explore the natural world around them,	Green fingers and The Earth our home Identify, name, draw and label the basic parts of the human	Super Humans and Live and Let Live Identify, name, draw and label the basic parts of the human	How Humans Work Identify that humans and some other animals have skeletons and muscles	How Humans Work 2022 only Identify that humans and some other animals have	Space Scientists and Being Human identify and name the main parts of the	

	making observations and drawing pictures of plants and animals. 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. ELG: Speaking Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary. To know what an animal is To recognise and name a variety of different animals To know the names of different body parts of humans and animals	body and say which part of the body is associated with each sense.	body and say which part of the body is associated with each sense	for support, protection and movement. Identify the different types of teeth in humans and their simple functions How Humans Work Describe the simple functions of the basic parts of the digestive system in humans	skeletons and muscles for support, protection and movement. Identify the different types of teeth in humans and their simple functions How Humans Work 2022 only Describe the simple functions of the basic parts of the digestive system in humans Land, Sea and Sky From 2023 Identify that humans and some other animals have skeletons and muscles for support, protection and movement. Identify the different types of teeth in humans and their simple functions	human circulatory system, and describe the functions of the heart, blood vessels and blood describe the ways in which nutrients and water are transported within animals, including humans	

	they have experience of All about me! And Amazing animals Come outside						
Plants	ELG: The Natural World Explore the natural world around them, making observations and drawing pictures of plants and animals. 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. ELG: Speaking Participate in small group, class and one-to-one discussions, offering their own ideas, using recently	Green fingers and The Earth our home Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy Green fingers and The Earth our home Identify and describe the basic structure of a variety of common flowering plants, including trees Green fingers and The Earth our home Observe and describe how seeds and bulbs grow into mature plants	Live and Let Live Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy Live and Let Live Identify and describe the basic structure of a variety of common flowering plants, including trees Live and Let Live Observe and describe how seeds and bulbs grow into mature plants		Let's Plant It Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers Investigate the way in which water is transported within plants Let's Plant It Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant Let's Plant It	Space Scientists Describe the life process of reproduction in some plants and animals Roots, Shoots and Fruits Describe the life process of reproduction in some plants and animals Roots, Shoots and Fruits Describe the life process of reproduction in some plants and animals	

	introduced vocabulary. To know what a plant is To know what a flower is To know where you see plants To describe different plants and flowers **Come outside – planting seeds**				Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal **Land, Sea and Sky from 2023** Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers Investigate the way in which water is transported within plants		

Living things	ELG: The Natural World Explore the natural world around them, making observations and drawing pictures of plants and animals. Summer adventures – life cycle of frogs and butterfly	Greenfingers and The Earth our home Explore and compare the differences between things that are living, dead, and things that have never been alive Greenfingers and The Earth our home Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Greenfingers Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) Greenfingers and The Earth our Hunan Find out about and describe the basic needs of animals, including humans, for	Super Humans and Live and Let Live Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals Super Humans Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) Super Humans and Live and Let Live Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) Super Humans Notice that animals, including humans,	How Humans Work and Shake it! Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat	How Humans Work 2022 only Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat Let's Plant It Construct and interpret a variety of food chains, identifying producers, predators and prey Let's Plant It 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	Roots, Shoots and Fruits Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution Being Human identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution Being Human Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents Being Human	Existing, Endangered, Extinct Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Existing, Endangered, Extinct Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals give reasons for classifying plants and animals based on specific characteristics. Existing, Endangered, Extinct Identify how animals and plants are

		survival (water, food and air) **Greenfingers and The Earth our home** 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 **The Earth our home** Identify and name a variety of common animals that are carnivores, herbivores and omnivores. 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 **The Earth our home**	have offspring which grow into adults **Super Humans** Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene **Live and Let Live** Explore and compare the differences between things that are living, dead, and things that have never been alive **Live and Let Live** Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Describe how animals obtain their food from plants and other animals, using the		**Land, Sea and Sky from 2023** 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 **Land, Sea and Sky from 2023** Construct and interpret a variety of food chains, identifying producers, predators and prey **Land, Sea and Sky from 2023** Recognise that environments can change and that this can sometimes pose dangers to living things	Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function	adapted to suit their environment in different ways and that adaptation may lead to evolution **Existing, Endangered, Extinct** Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago **Existing, Endangered, Extinct** Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents **Existing, Endangered, Extinct**

		Notice that animals, including humans, have offspring which grow into adults	idea of a simple food chain, and identify and name different sources of food **Live and Let Live** 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				Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function
Chemistry							
Properties	**ELG: The Natural World** Understand some important processes and changes in the natural world, including the seasons and changing states of matter. **ELG: Speaking**	**Time Traveller** 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	**Buildings and The Magic Toymaker** Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. Describe the simple physical properties of		**Bright Sparks** Notice that light is reflected from surfaces. Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify	**Bake it** Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets	**Full Power** Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets

	Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary. To recognise that different everyday objects are made from different materials To describe how different objects look and feel Changes The World around us.	Time Traveller Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses Time Traveller Compare and group together a variety of everyday materials on the basis of their simple physical properties.	a variety of everyday materials Buildings and The Magic Toymaker Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses The Magic Toymaker Compare and group together a variety of everyday materials on the basis of their simple physical properties.		some magnetic materials Let's Plant It Notice that light is reflected from surfaces. Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials Land, Sea and Sky from 2023 Notice that light is reflected from surfaces. Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials	give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic Bake it Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda	give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic Fairgrounds Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic

Matter			**Buildings** Be able to compare solids and liquids	**Shake it!** Compare and group materials together, according to whether they are solids, liquids or gases		**Bake it** Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating	
Changes	ELG: The Natural World Understand some important processes and changes in the natural world, including the seasons and changing states of matter. ELG: Speaking Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.		**Buildings and The Magic Toymaker** Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	**Shake it!** Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)		**Bake it** Demonstrate that dissolving, mixing and changes of state are reversible changes explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda **Bake it** Know that some materials will dissolve	

	To know about different types of weather To observe changes in trees and plants as the seasons progress Changes The World around us					in liquid to form a solution, and describe how to recover a substance from a solution Bake it Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Bake it Demonstrate that dissolving, mixing and changes of state are reversible changes	
Physics							
Earth and space		Treasure Island Observe and describe weather associated with the seasons and how day length varies				Space Scientists Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky	Fairgrounds Explain that unsupported objects fall towards the Earth because of the force of gravity acting

		Treasure Island and The Earth our home Observe changes across the 4 seasons				**Space Scientists** Describe the movement of the Moon relative to the Earth **Space Scientists** Describe the movement of the Earth, and other planets, relative to the Sun in the solar system **Space scientists** Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object	between the Earth and the falling object
Energy			**The Magic Toymaker** NC +		**Bright Sparks** Identify common appliances that run on electricity		

Electricity and electromagnetism			The Magic Toymaker NC+		**Bright Sparks** Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. **Bright Sparks** Recognise some common conductors and insulators, and associate metals with		**Fairgrounds** Use recognised symbols when representing a simple circuit in a diagram

					being good conductors. Bright Sparks Observe how magnets attract or repel each other and attract some materials and not others Describe magnets as having two poles		
Waves				How Humans Work Identify how sounds are made, associating some of them with something vibrating Find patterns between the pitch of a sound and features of the object that produced it Find patterns between the volume of a sound and the strength of the vibrations that produced it How Humans Work Recognise that they need light in order to see things and that	Making Waves Identify how sounds are made, associating some of them with something vibrating Find patterns between the pitch of a sound and features of the object that produced it Find patterns between the volume of a sound and the strength of the vibrations that produced it Making Waves Recognise that sounds get fainter as the distance from the	Space Scientists Recognise that light appears to travel in straight lines Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye Space Scientists Use the idea that light travels in straight lines to explain why shadows have the	Fairgrounds Recognise that light appears to travel in straight lines Fairgrounds Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them

				dark is the absence of light	sound source increases **Making Waves** Recognise that they need light in order to see things and that dark is the absence of light **How Humans Work 2022 only** Identify how sounds are made, associating some of them with something vibrating Find patterns between the pitch of a sound and features of the object that produced it Find patterns between the volume of a sound and the strength of the vibrations that produced it **How Humans Work 2022 only** Recognise that they need light in order to	same shape as the objects that cast them	

					see things and that dark is the absence of light		
Forces			**Buildings** Know how pushes and pulls can move an objects Be able to create push and pulls of different strengths	**Feel the Force and Shake it** Compare how things move on different surfaces NC+			**Fairgrounds** Identify the effects of air resistance, water resistance and friction, that act between moving surfaces **Fairgrounds** Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect