St Giles C.E. Primary School

Curriculum for Science

Long term plan showing coverage of National Curriculum objectives (two-year curriculum cycle due to mixed age classes – where areas of learning are studied in consecutive year groups, the content for the lower year group is taught in Year A) - content to be taken from Developing Experts

Year A	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Class 1	All about me Our Body Food: How to stay healthy All about fruit All about vegetables	Once Upon a Sparkly Time Space Weather and Seasons	Winter Wonderland Materials Weather and Seasons (Winter) Food: Wheat and Flour (Chinese New Year) Ingredients and measures (pancakes)	Our World Animals Food: All about chicken and eggs All about cows and milk Weather and Seasons (Spring)	On Safari Insects (3 sessions) Plants (3 sessions)	Under the sea <u>Developing experts:</u> The Beach (3 sessions) Weather and Seasons (Summer)
Class 2	Seasonal changes	Animals including humans (animals)	Plants	Materials and states of matter (identify) – part 1	Materials and states of matter (uses/suitability of materials) Part 2	Animals including humans (humans)
Class 3	Plants (Year 3)	Animals including humans (Nutrition and Skeletons)	Light and sound (light)	Forces and magnets	Rocks	Working scientifically

Class 4	Forces	Properties of materials	Earth and space	Changes of materials	Animals including humans	Living things and their habitats

Year B	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Class 1	All about me Our Body	Once Upon a time Sparkly Time Space Weather and Seasons	Winter Wonderland Materials	Our World Animals	On Safari Insects (3 sessions) Plants (3 sessions)	Under the sea <u>Developing experts:</u> The Beach (3 sessions) Weather and Seasons (Summer)
Class 2	Animals including humans (growth) (2)	Animals (life cycles)	Living things and their habitats (2)	Living things and their habitats – around the world (2)	Plants (2)	Materials and states of matter (2)
Class 3	Animals including humans (Digestion)	Living things and their habitats (Classification)	Materials and states of matter	Light and sound (Sound)	Electricity	Living things and their habitats (Conservation)
Class 4	Electricity	Living things and their habitats	Light and sound	Animals including humans	Evolution and inheritance	Looking after our environment

Progression map showing key skills to be taught over the curriculum cycle

Area of study	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Working scientifically	Using magnifying glasses Investigation of best places for plants to grow. Cameras to record growth.	I know how to ask questions, make observations and perform simple tests I know how to gather and record data		I can conduct simple practical enquiries using fair testing, taking accurate measurements and using a range of equipment. I can record and use findings to draw conclusions and answer scientific questions.		I can plan different types of scientific investigate and take measurements with increasing precision and accuracy. I can record data, report findings and identify how scientific evidence has been used to support or refute evidence.	
Plants	To know where plants grow best Label parts of a plant Explore plants and seeds Looking after and recording growth	I can name common plants, including deciduous and evergreen trees, and describe their structure.	I know how plants grow and the conditions required for them to remain healthy.	I can identify the parts, function and lifecycle of flowering plants; I can investigate water transportation in plants.			
Animals including humans	Key facts about common animals – diet and habitat How to keep happy and healthy Life cycle of an animal Healthy eating Exploring senses	I can name common animals and identify their type; name carnivores, herbivores and omnivores and compare their structure. I can identify, name and label the basic parts of the human body and	I know animals have offspring and grow into adults; I understand the needs of animals and can describe the importance of living a healthy lifestyle.	I know animals get nutrition from what they eat; I understanding that humans and other animals have a skeleton and muscles for movement, support and protection.	I can describe the functions of different parts of the digestive system; I name different types of human teeth and can construct and interpret food chains.	I know how humans change as they age.	I can name the main parts of the human circulatory system; I can describe how nutrients are supported in animals including humans and the impact of diet, exercise, drugs and lifestyle on the human body.

		link them to senses.					
Living things and their habitats	Explore various different habitats and the animals that live there		I know the difference between things that are living, dead and have never been alive; I can identify habitats and living things that inhabit them; I can describe a simple food chain.		I can group living things and use classification keys; I recognise that environments change and can threaten living things.	I can describe differences in the lifecycle of a mammal, amphibian, insect and bird; I can describe the process of reproduction in some plants and animals.	I know living things are classified into broad groups; I can give reasons for classifying plants and animals based on characteristics.
Materials and states of matter	Floating and sinking Recycling Explore ice and changes of state Using senses to describe materials	I can identify a variety of everyday materials (wood, plastic, glass, metal, water, rock); describe their properties and make comparisons.	I can identify and compare the suitability of different everyday materials; I can change everyday materials by squashing, bending, twisting and stretching.		I can compare materials based on states of matter (liquid, solid, gas); I can observe changes of state and link this to the water cycle.	I can compare materials based on properties (hardness, solubility, transparency, conductivity, magnetism); I can investigate separating materials including through dissolving and condensation and know there are reversible and irreversible changes.	
Light and sound	Using torches and mirrors			I know that light is needed to see and dark is the absence of light; I can observe and investigate shows and reflection; I know it is harmful to look at the sun.	I know that sound is vibrations and can investigate how it travels; I can link sound vibrations to pitch and volume.		I know that light appears to travel in straight lines; I can explain why this means shadows have the same shape as the objects that cast them.

Forces and magnets	Explore magnets			I can investigate friction and magnetic forces; I know magnets have poles and can repel or attract.		I can explain the force of gravity; I can identify forces including air resistance, water resistance and friction; I know some mechanisms allow a smaller force to have a greater effect (levers, pulleys, gears).	
Electricity					I can construct a simple circuit and investigate how it works; I can recognise conductors and insulators.		I can investigate how voltage affects a circuit and use recognised symbols in a simple circuit diagram.
Other areas of study (revisited to ensure learning is secure)	Seasonal changes Autumn walk – observe changes throughout the seasons Explore why do leaves fall Describe signs of Spring, Summer, Autumn and Winter Identify appropriate clothing for the weather/season	Seasonal changes: I can name the seasons and describe how day length and weather relates to seasons.		Rocks: I can compare and group different types of rock (igneous, sedimentary, metamorphic); I can explain how fossils are formed and the structure of soil.		Earth and space: I can name and order the planets in our solar system; I can describe the movements of the planets, sun and moon and explain how this causes day and night.	Evolution and inheritance: I know that living things have changed over time; I understand the theory of natural selection and how this may lead to evolution.

Medium term plan showing objectives taught in each year group

Year A	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Class 1	Know about arms, legs and chest Know about hands and feet Know about eyes and ears Know about ears, mouth and hair Know how our body changes Know why we are unique Know about the sense, sight, taste and touch Explore ways to make sound Know about the sense, hearing and sight Know about senses smell and touch Know how to stay healthy Know about fruit Know about vegetables	Why are rockets important? Explore outer space What happens in Autumn and winter	How do things change shape? All about melting Where does your knitted jumper come from? Why is wool useful? Reflecting – mirrors Can water change? Wheat and Flower uses Ingredients and measures	Are animals living things? Where animals live and what they need Where birds live and what they need Which animals live on a farm? When dinosaurs roamed the earth All about bears What happens in Spring and Summer All about chicken and eggs All about cows and milk	Where do insect and invertebrates live? What are insects and invertebrates Discover more about insects and invertebrates Are plants living things? Plants and where they come from How to look after plants	Explore how waves wear away the shoreline Make the perfect sandcastle Measure foot prints in the sand
Class 2	• observe changes across the four seasons • observe and describe weather associated with the seasons and how day length varies.	• identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • identify and name a variety of common	• identify and name a variety of common wild and garden plants, including deciduous and evergreen trees	• distinguish between an object and the material from which it is made • identify and name a variety of everyday materials, including wood,	• distinguish between an object and the material from which it is made • identify and name a variety of everyday materials,	• identify, name, draw and label the basic parts of the human body • Say which part of the body is associated with each sense.

		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) • which part of the body is associated with each sense.	• identify and describe the basic structure of a variety of common flowering plants, including trees	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	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	
Class 3	• identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers • explore the requirements of	• identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get	• recognise that they need light in order to see things and that dark is the absence of light • notice that light is	• compare how things move on different surfaces • notice that some forces need contact between two objects, but magnetic forces	• compare and group together different kinds of rocks on the basis of their appearance and simple physical properties	• Applying scientific enquiry to investigations based on previous learning

	plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant • investigate the way in which water is transported within plants • explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	nutrition from what they eat • identify that humans and some other animals have skeletons and muscles for support, protection and movement.	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 an opaque object • find patterns in the way that the size of shadows change.	can act at a distance • observe how magnets attract or repel each other and attract some materials and not others • 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 • describe magnets as having two poles • predict whether two magnets will attract or repel each other, depending on which poles are facing.	• 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	

Class 4	• Explore gravity and the life and work of Isaac Newton • Examine the connection between air resistance and parachutes • Explore factors which affect an object's ability to resist water • Investigate the effects of friction on different surfaces • Investigate mechanisms - levers and pulleys • Investigate mechanisms – gears	• Exploring properties of materials • Explore thermal conductors and thermal insulators • Explore the hardness of materials • Discover materials that become soluble in water • Investigate the solubility of materials • Explore how mixtures could be separated by filtering, sieving, evaporating or magnets	• Explore the solar system and its planets • Understand the heliocentric model of the solar system. • Explain Earth's movement in space. • Explain the Earth's rotation and night and day. • Explain the movement of the Moon. • Design a planet using knowledge gained.	• Use evaporation to recover the solute from a solution • Recognise and describe reversible changes • Observe chemical reactions and describe how we know new materials are made • Investigate rusting reactions • Investigate burning reactions • Investigate chemical reactions - acids and bicarbonate of soda	• Identify the key stages of a mammal's life cycle • Explore the gestation period of mammals • Learn about foetal development • Investigate the hand span of different aged children • Learn about the changes experienced during puberty • Describe the changes humans may experience during adulthood and old age	• Understand the life process of a plant • Understand the life cycles of mammals • Compare the life cycles of insects and amphibians • Understand the life cycle of bird and reptiles • Know about the life and work of Jane Goodall and David Attenborough • Research and present the life cycle of a creature

Year B	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Class 1	Know about arms, legs and chest Know about hands and feet Know about eyes and ears Know about ears, mouth and hair Know how our body changes Know why we are unique Know about the sense, sight, taste and touch Explore ways to make sound Know about the sense, hearing and sight Know about senses smell and touch Know how to stay healthy Know about fruit Know about vegetables	Why are rockets important? Explore outerspace What happens in Autumn and winter	How do things change shape? All about melting Where does your knitted jumper come from? Why is wool useful? Reflecting – mirrors Can water change? Wheat and Flower uses Ingredients and measures	Are animals living things? Where animals live and what they need Where birds live and what they need Which animals live on a farm? When dinosaurs roamed the earth All about bears What happens in Spring and Summer All about chicken and eggs All about cows and milk	Where do insect and invertebrates live? What are insects and invertebrates Discover more about insects and invertebrates Are plants living things? Plants and where they come from How to look after plants	Explore how waves wear away the shoreline Make the perfect sandcastle Measure foot prints in the sand
Class 2	• Notice that animals, including humans, have offspring which grow into adults	• notice that animals, including humans, have offspring which grow into adults	• explore and compare the differences between things that are living, dead, and things that	• explore and compare the differences between things that are living, dead, and things that	• observe and describe how seeds and bulbs grow into mature plants • find out and describe how	• identify and compare the suitability of a variety of everyday materials, including wood,

	• 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.		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	have never been alive • Learn how to 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. • How to identify and name a variety of plants and animals in their habitats, including microhabitats • How to describe how animals obtain their food from plants and	plants need water, light and a suitable temperature to grow and stay healthy.	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

			food chain, and identify and name different sources of food.	other animals, using the idea of a simple food chain, and identify and name different sources of food.		
Class 3	• describe the simple functions of the basic parts of the digestive system in humans • identify the different types of teeth in humans and their simple functions • construct and interpret a variety of food chains, identifying producers, predators and prey	• 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 • recognise that environments can change and that this can sometimes pose dangers to living things.	• compare and group materials together, according to whether they are solids, liquids or gases • 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) • identify the part played by evaporation and	• identify how sounds are made, associating some of them with something vibrating • recognise that vibrations from sounds travel through a medium to the ear • 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	• identify common appliances that run on electricity • 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	• Applying scientific enquiry to investigations based on previous learning

			condensation in the water cycle and associate the rate of evaporation with temperature.	strength of the vibrations that produced it • recognise that sounds get fainter as the distance from the sound source increases	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 • recognise some common conductors and insulators, and associate metals with being good conductors.	
Class 4	• Describe the parts of an electric circuit • Explore voltage and its effects on an electrical circuit	• Classify living organisms • Understand the kingdoms of life • Classify living things using the Linnaean system • Identify the characteristics of different	• Explore how light travels • Explore reflection • Explore reflection and explain how it can be used to help us see	• Understand the function of the heart and its role in the circulatory system • Identify and compare	• Understand how offspring vary and are not identical to their parents • Learn about animal adaptations	• Learn about climate change • Explore ways to reduce how much rubbish is sent to landfill • Explore ways to

	• Apply knowledge to identify and correct problems in a circuit • Investigate what affects the output of a circuit • Build a set of traffic lights • Apply knowledge of conductors and insulators	types of microorganisms • Investigate asexual reproduction through spore dispersal • Classify and describe a living organism	• Investigate how shadows can change • Investigate how we can show why shadows have the same shape as the objects that cast them • Explore light phenomena	blood vessels • Explore blood • Learn how the body transports water and nutrients • Investigate what affects your heart rate • Learn about the impact of drugs and alcohol on the body	• Learn about plant adaptations • Explore what we learn from fossils • Explore the theory of evolution by natural selection • Explore human evolution	reduce energy consumption • Explore what happens when fuels are burnt • Explore the outcomes of COP26 • Compare data associated with the weather