



Gillingstool Science Long Term Plan

SOS = Switched on Science scheme

		Autumn	Spring	Summer
Enquiry Focus		<u>Geography: Thornbury/Cardiff</u>	<u>Local Study: Pioneers</u>	<u>History: Pirates</u>
Year 1/2	A	Plants (1), Animals, including humans (1)	Plants (2)	Animals, including humans (1)
		SOS Y1 topic 4 – Plants and animals where we live	SOS Y2 topic 5 – Young gardeners	SOS Y1 topic 1 – Who am I?
		Pupils should be taught to:	Pupils should be taught to:	Pupils should be taught to:
		<ul style="list-style-type: none"> Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees (use of outside area) Identify and describe the basic structure of a variety of common flowering plants, including trees. (use of outside area) Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals (animals found in local area) Identify and name a variety of common animals that are carnivores, herbivores and omnivores (animals found in local area) Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) 	<ul style="list-style-type: none"> Observe and describe how seeds and bulbs grow into mature plants (use of outside area) Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. 	<ul style="list-style-type: none"> Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (pirate body parts and senses)
		Living things and their habitats (2), Animals, including humans (2)	Animals, including humans (2), Plants (2), Uses of everyday materials (2)	Animals, including humans (2), Uses of everyday materials (2)
SOS Y2 topic 4 – Our local environment	SOS Y2 topic 6 – Little master chefs	SOS Y2 topic 1 – Healthy me		
Pupils should be taught to:	Pupils should be taught to:	Pupils should be taught to:		
<ul style="list-style-type: none"> explore and compare the differences between things that are living, dead, and things that have never been alive (things in the local area) 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 (local habitats and those further afield) identify and name a variety of plants and animals in their habitats, including micro-habitats (use local area, including school grounds) 	<ul style="list-style-type: none"> 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. observe and describe how seeds and bulbs grow into mature plants (use of outside area) identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses 	<ul style="list-style-type: none"> Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (scurvy, food and hygiene on a boat) identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses (building boats) 		



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	<ul style="list-style-type: none"> 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 of British wildlife e.g. seal, fox, heron) 		
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		Autumn	Spring	Summer
Enquiry Focus		<u>Geography: Weather</u>	<u>Local Study: Flight</u>	<u>History: Castles</u>
Year 1/2	B	Animals including humans (1), Everyday materials (1)	Plants (1), Animals, including humans (1), Everyday materials (1)	Plants (1), Animals, including humans (1)
		SOS Y1 topic 3 – Polar places	SOS Y1 topic 2 – Celebrations	SOS Y1 topic 5 – On safari
		Pupils should be taught to: <ul style="list-style-type: none"> Identify and name a variety of animals including fish, amphibians, reptiles, birds and mammals. Identify and name common animals that are carnivores, herbivores and omnivores. Describe and compare the structure of a variety of common animals. describe the simple physical properties of a variety of everyday materials (e.g. materials in clothing and shoes) Compare and group together a variety of everyday materials on the basis of their simple physical properties. (keeping warm, waterproof) 	Pupils should be taught to: <ul style="list-style-type: none"> say which part of the body is associated with each sense 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 Identify and describe the basic structure of a variety of common plants, including trees. 	Pupils should be taught to: <ul style="list-style-type: none"> Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees (local animals at Berkeley Castle) 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)
		Animals, including humans (1), Everyday materials (1)	Uses of everyday materials (2)	Uses of everyday materials (2)
		SOS Y1 topic 6 - Holiday	SOS Y2 topic 3 – Squash, bend, twist and stretch	SOS Y2 topic 2 – Materials monster
Pupils should be taught to: <ul style="list-style-type: none"> Identify and name a variety of animals including fish, amphibians, reptiles, birds and mammals. 	Pupils should be taught to: <ul style="list-style-type: none"> Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (building planes) 	Pupils should be taught to: <ul style="list-style-type: none"> identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, 		



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	<ul style="list-style-type: none">Identify and name common animals that are carnivores, herbivores and omnivores.Describe and compare the structure of a variety of common animals.Distinguish between an object and the material from which it is made (What materials can we find on a holiday?)identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rockDescribe 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. (planes, parasols, clothing)		<p>glass, brick, rock, paper and cardboard for particular uses</p> <ul style="list-style-type: none">Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (building castles)
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Seasonal changes to be taught as stand-alone activities, each month, throughout Years 1 and 2.

Pupils should be taught

- observe changes across the four seasons
- Observe and describe weather associated with the seasons and how day length varies.



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		Autumn	Spring	Summer
Enquiry Focus		<u>Geography: Disasters</u>	<u>Local Study: WW2 Bristol and Thornbury</u>	<u>History: Stone Age to Iron Age</u>
Year 3/4	A	Living things and their habitats (4)	Sound (4)	Rocks (3)
		SOS Y4 topic 2 – Living things	SOS Y4 topic 1 – What’s that sound?	SOS Y3 topic 1 – Rocks, soils and fossils
		Pupils should be taught to: <ul style="list-style-type: none"> 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. (Flooding, forest fires, earthquakes, tornadoes etc.) 	Pupils should be taught to: <ul style="list-style-type: none"> identify how sounds are made, associating some of them with something vibrating (local church bells) 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 strength of the vibrations that produced it recognise that sounds get fainter as the distance from the sound source increases. (air raid sirens) 	Pupils should be taught to: <ul style="list-style-type: none"> compare and group together different kinds of rocks on the basis of their appearance and simple physical properties (flint tools) describe in simple terms how fossils are formed when things that have lived are trapped within rock (fossil evidence, archaeology) recognise that soils are made from rocks and organic matter.
		States of matter (4)	Electricity (4)	
SOS Y4 topic 3 – Looking at states	SOS Y4 topic 5 – Power it up			
		Pupils should be taught to: <ul style="list-style-type: none"> 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) (volcanoes) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. (Water cycle and flooding) 	Pupils should be taught to: <ul style="list-style-type: none"> identify common appliances that run on electricity (school and in Thornbury) construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers (traffic lights) 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 Recognise some common conductors and insulators, and associate metals with being good conductors. 	
		Autumn	Spring	Summer



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Enquiry Focus	<u>Geography: Greece / Crete</u>	<u>Local Study: Romans/Invaders and Settlers</u>	<u>History: Ancient Egypt</u>
Year 3/4	Plants (3)	Animals, including humans (4)	Light (3)
	SOS Y3 topic 4 – How does your garden grow?	SOS Y4 topic 4 – Teeth and eating	SOS Y3 topic 3 – Light and shadows
	Pupils should be taught to:	Pupils should be taught to:	Pupils should be taught to:
	<ul style="list-style-type: none"> identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers 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 (<i>growing crops</i>) investigate the way in which water is transported within plants (<i>settlements need to be near water sources for plants to grow</i>) Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (<i>plants for food, farming</i>) 	<ul style="list-style-type: none"> Describe the simple functions of the basic parts of the digestive system in humans (<i>What did the Romans eat?</i>) identify the different types of teeth in humans and their simple functions (<i>teeth recovered in archaeology</i>) construct and interpret a variety of food chains, identifying producers, predators and prey. (<i>wild animals in Italy</i>) 	<ul style="list-style-type: none"> recognise that they need light in order to see things and that dark is the absence of light notice that light is reflected from surfaces recognise that light from the sun can be dangerous and that there are ways to protect their eyes (<i>sun in Egypt</i>) 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. (<i>shadows from pyramids</i>)
	Animals, including humans (3)		Forces and magnets (3)
SOS Y3 topic 2 – Food and our bodies		SOS Y3 topic 5 – Forces and magnets	
Pupils should be taught to:		Pupils should be taught to:	
<ul style="list-style-type: none"> 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 (<i>foods and nutrition leading to settlement choice</i>) Identify that humans and some other animals have skeletons and muscles for support, protection and movement. (<i>skeletons recovered from archaeology</i>) 		<ul style="list-style-type: none"> compare how things move on different surfaces notice that some forces need contact between two objects, but magnetic forces 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. (<i>Standalone unit – possible link to making an Egyptian themed game with magnets</i>) 	



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		Autumn	Spring	Summer
Enquiry Focus		<u>Geography: Energy</u>	<u>Local Study: Medicine</u>	<u>History: Ancient Greece</u>
Year 5/6	A	Electricity (6)	Animals, including humans (5) (6)	Earth and space (5)
		SOS Y6 topic 5 - Electricity	SOS Y5 topic 5 – Growing up and growing old	SOS Y5 topic 1 – Out of this world
		Pupils should be taught to:	Pupils should be taught to:	Pupils should be taught to:
		<ul style="list-style-type: none"> • associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit • compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches • use recognised symbols when representing a simple circuit in a diagram. <i>(saving electricity, how is electricity generated)</i> 	<ul style="list-style-type: none"> • Describe the changes as humans develop to old age. <i>(bodies change over time)</i> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> • identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood <i>(how to medicines effect functions of organs)</i> • recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function <i>(medicines to treat injuries, drug abuse linked to PSHE)</i> • describe the ways in which nutrients and water are transported within animals, including humans. <i>(water transporting medicines to sites of actions)</i> 	<ul style="list-style-type: none"> • describe the movement of the Earth, and other planets, relative to the Sun in the solar system <i>(Ancient Greek link)</i> • describe the movement of the Moon relative to the Earth • describe the Sun, Earth and Moon as approximately spherical bodies • use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. <i>(Greek myth of Apollo, God of Light)</i>
	Forces (5)		Light (6)	
	SOS Y5 topic 4 – Let's get moving		SOS Y6 topic 4 – Light	
	Pupils should be taught to:		Pupils should be taught to:	
	<ul style="list-style-type: none"> • explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • identify the effects of air resistance, water resistance and friction, that act between moving surfaces <i>(wave powered generators, windmills, mechanisms)</i> • recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. <i>(sustainable energy generation)</i> 		<ul style="list-style-type: none"> • 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 • explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes • use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. <i>(shadows from Greek architecture)</i> 	



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		Autumn	Spring	Summer
Enquiry Focus		<u>Geography: Climate</u>	<u>Local Study: Trade: Slavery/Fair-Trade</u>	<u>History: Mayan/Amazon Basin</u>
Year 5/6	B	Evolution and inheritance (6)	Properties and changes of materials (5)	Living things and their habitats (5)(6)
		SOS Y6 topic 3 – Evolution and inheritance	SOS Y5 topic 2 – Material World	SOS Y5 topic 3 – Circle of life SOS Y6 topic 1 – Classifying living things
		<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago (climate change and evolution seen in fossil record, Darwin) recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents (how are animals adapted to the climate in which they live?) identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. (Climate change, what could happen if the planet warms? How might animals adapt and evolve in the future) 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> 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 know that some materials will dissolve in liquid to form a solution (flour, sugar, salt – link to fair-trade) use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating (flour, sugar, salt – link to fair-trade) give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic (trade items) demonstrate that dissolving, mixing and changes of state are reversible changes (flour, sugar, salt – link to fair-trade and slavery) 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. (flour, sugar, salt – link to fair-trade and slavery) 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird describe the life process of reproduction in some plants and animals. (Mexican and central American animals and plants) <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> 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 (Mexican and central American animals and plants) give reasons for classifying plants and animals based on specific characteristics. (Mexican and central American animals and plants)