



Year 5 LTP

BIOLOGY	CHEMISTRY	PHYSICS
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Y4 objectives

These must be taught discreetly at the start of the year, before you move on to your Y5 Spiral LTP, as these objectives do to fit into your current year group topics.

***Science will be taught for 1 hour per week when we return in September until further notice. Therefore, it has been necessary to change the model of the spiral curriculum.**

- 1) Sound unit- curriculum statement(s):
 - a) recognise that vibrations from sounds travel through a medium to the ear (1)
 - b) 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 (2)
 - c) recognise that sounds get fainter as the distance from the sound source increases (1)
- 2) States of Matter unit- curriculum statement: identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature (2)

Autumn 1 Science (weeks 1-6) will be dedicated to teaching these Y4 objectives over weekly 1 hour lessons. Y5 will not start their year group spiral curriculum until Autumn 2 and still have 2 full rotations of the spiral curriculum rather than 3, please factor this in when teaching the objectives, you will only return to them once.

<u>Autumn Term</u>	Weeks 1-6 (Autumn 1) will now be dedicated to the discreet Y4 lost learning objectives above.	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11	WEEK 12
Science unit		Animals, including humans		Earth and space		Living things and their habitats	

Scientist(s)		Professor Lord Robert Winston Lord Winston is Professor of Science and Society at Imperial College London. He is well known for his TV and radio work including the long running BBC documentary Child of Our Time.	Galileo Galilei The father of modern science, Galileo discovered the first moons ever known to orbit another planet and that the Milky Way is made of stars. He rationalized how objects are affected by gravity, stated the principle of inertia, and proposed the first theory of relativity.	Jane Goodall Dame Jane Morris Goodall, DBE, is an English primatologist and anthropologist.
Scientific knowledge		<p>Y4 Objective: construct and interpret a variety of food chains, identifying producers, predators and prey (2)</p> <ul style="list-style-type: none"> describe the changes as humans develop to old age AIH1 (A,B,C) 	<ul style="list-style-type: none"> describe the movement of the Earth and other planets relative to the sun in the solar system and describe the sun, Earth and moon as approximately spherical bodies ES1 describe the movement of the moon relative to the Earth ES2 use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky ES3 	<ul style="list-style-type: none"> Y4 Objective: recognise that environments can change and that this can sometimes pose dangers to living things (1) describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird LTATH1 describe the life process of reproduction in some plants and animals LTATH2

Spring Term	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11	WEEK 12
Science unit	Properties and changes of materials				Forces			Animals, including humans			Earth and space	
Scientist(s)	Stephanie Kwolek Invented kevlar, the incredibly strong plastic used in applications ranging from body armour to tennis racquet strings.				Sir Isaac Newton Besides his work on universal gravitation (gravity), Newton developed the three laws of motion which form the basic principles of modern			Professor Lord Robert Winston Lord Winston is Professor of Science and Society at Imperial College London. He is well known for his TV and radio work including the long running BBC			Galileo Galilei The father of modern science, Galileo discovered the first moons ever known to orbit another planet and that the Milky Way is made	

		physics.	documentary Child of Our Time.	of stars. He rationalized how objects are affected by gravity, stated the principle of inertia, and proposed the first theory of relativity.
Scientific knowledge	<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 PCM1 know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution PCM2 use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating PCM3 give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic PCM4 (A,B) 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 	<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 F1 identify the effects of air resistance, water resistance and friction, that act between moving surfaces F2 (A,B) Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect 	<p>Y4 Objective: construct and interpret a variety of food chains, identifying producers, predators and prey (2)</p> <ul style="list-style-type: none"> describe the changes as humans develop to old age AIH1 (A,B,C) 	<ul style="list-style-type: none"> describe the movement of the Earth and other planets relative to the sun in the solar system and describe the sun, Earth and moon as approximately spherical bodies ES1 describe the movement of the moon relative to the Earth ES2 <p>use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky ES3</p>

Summer Term	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11	WEEK 12
Science unit	Earth and space	Living things and their habitats			Properties and changes of materials					Forces		
Scientist(s)	<p>Galileo Galilei The father of modern science, Galileo discovered the first moons ever known to orbit another planet and that the Milky Way is made of stars. He rationalized how objects are affected by gravity, stated the principle of inertia, and proposed the first theory of relativity.</p>	<p>Jane Goodall Dame Jane Morris Goodall, DBE, is an English primatologist and anthropologist.</p>			<p>Stephanie Kwolek Invented kevlar, the incredibly strong plastic used in applications ranging from body armour to tennis racquet strings.</p>					<p>Sir Isaac Newton Besides his work on universal gravitation (gravity), Newton developed the three laws of motion which form the basic principles of modern physics.</p>		
Scientific knowledge	<ul style="list-style-type: none"> describe the movement of the Earth and other planets relative to the sun in the solar system and describe the sun, Earth and moon as approximately spherical bodies ES1 describe the movement of 	<ul style="list-style-type: none"> Y4 Objective: recognise that environments can change and that this can sometimes pose dangers to living things (1) describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird LTATH1 describe the life process of reproduction in some plants and animals LTATH2 			<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 PCM1 know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution PCM2 use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through 					<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 F1 identify the effects of air resistance, water resistance and friction, that act between moving surfaces F2 (A,B) Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect 		

	<p>the moon relative to the Earth ES2</p> <ul style="list-style-type: none"> use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky ES3 		<p>filtering, sieving and evaporating PCM3</p> <ul style="list-style-type: none"> give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic PCM4 (A,B) 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 	
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Working scientifically skills	<p>During Year 5, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of all units in our spiral curriculum:</p> <ol style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests 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 identifying scientific evidence that has been used to support or refute ideas or arguments
Investigation Opportunities which Working Scientifically skills can	<p>Animals Including Humans</p> <p>AIH1 describe the changes as humans develop to old age</p> <ol style="list-style-type: none"> See supporting documents: Gestation gurus- excellent data for graphs and analysing patterns in size of animal/gestation/ number of young WS SKILLS 3,5,6 Foetal growth in humans- in depth study into first stage WS SKILLS 3,6 Create a human timeline planning and prompts WS SKILLS 3,6

<p>they show?</p> <p>Taken from Hamilton Trust</p>	<p>Earth and Space</p> <p>ES1 describe the movement of the Earth and other planets relative to the sun in the solar system and describe the sun, Earth and moon as approximately spherical bodies See supporting documents: Create a scale model of the solar system WS SKILLS 3,6 Create an orrery of the Solar System WS SKILLS 3,6</p> <p>ES2 describe the movement of the moon relative to the Earth Phases of the moon planning and resources WS SKILLS 1,3,5,6</p> <p>ES3 use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky Conduct a shadow investigation plan and resources WS SKILLS 1,2,3,5,6- use investigation template</p> <p>Living Things and Their Habitats</p> <p>LTATH1 describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Draw a life cycle of an amphibian or insect WS SKILLS 5,6 and a mammal or a bird WS SKILLS 5,6</p> <p>LTATH2 describe the life process of reproduction in some plants and animals dissect and sketch a flower investigation- plan and resources WS SKILLS 3,6 Both: WS SKILLS ALL LONGER-TERM EXPERIMENT, use tadpoles, chicks, insects and observe changes to them over a few weeks, document/draw changes.</p> <p>Properties and Changes of Materials</p> <p>PCM1 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 Become a chef for Bestival! WS SKILLS 1,2,3,4,5</p> <p>PCM2 know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution What is soluble and insoluble WS SKILLS 1,3,4,5- USE INVESTIGATION TEMPLATE</p> <p>PCM3 use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Separation circus planning WS SKILLS 1,4,5- USE INVESTIGATION TEMPLATE</p> <p>PCM4 give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p> <ul style="list-style-type: none"> a) Thermal investigation insulation resources and planning WS SKILLS 1,2,3,4,5- USE INVESTIGATION TEMPLATE. b) Cleaning Cloths investigation WS SKILLS 1,2,3,4,5 – USE INVESTIGATION TEMPLATE <p>PCM5 demonstrate that dissolving, mixing and changes of state are reversible changes</p> <p>PCM6 explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including</p>
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	<p>changes associated with burning and the action of acid on bicarbonate of soda</p> <p>Forces</p> <p>F1 explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</p> <p>Creating statements based on learning or research resources WS SKILL 6</p> <p>F2 identify the effects of air resistance, water resistance and friction, that act between moving surfaces</p> <p>a) Best parachute investigation WS SKILLS 1,2,3,4,5- USE INVESTIGATION TEMPLATE</p> <p>b) Friction investigation plan WS SKILLS 1,2,3,4,5 – USE INVESTIGATION TEMPLATE</p> <p>F3 Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect</p>				
Scientific vocabulary	Foetus, Embryo, Womb, Gestation, Baby, Toddler, Teenager, Elderly, Growth, Development, Puberty	Earth, Sun, Moon, Axis, Rotation, Day, Night, Phases of the Moon, star, constellation	Mammal, Reproduction, Insect, Amphibian, Bird, Offspring	Hardness, Solubility, Transparency, Conductivity, Magnetic, Filter, Evaporation, Dissolving, Mixing	Air resistance, Water resistance, Friction, Gravity, Newton, Gears, Pulleys

Spiral rationale:

6 weeks discreet catch-up

Animals including Humans= 5 weeks over the year (1 Y4 and 1 Y5 objective = 2 objectives)

Earth and Space= 5 weeks over the year (3 objectives)

Living Things and Their Habitats = 5 weeks over the year (1 Y4 and 2 Y5 objectives = 3 objectives)

Properties and Changes of Materials = 9 weeks over the year (6 objectives)

Forces= 6 weeks over the year (3 objectives)