



Year 6 LTP

BIOLOGY	CHEMISTRY	PHYSICS
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Y5 objectives

These must be taught discreetly at the start of the year, before you move on to your Y6 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) Properties and Changes of Materials unit- curriculum statements:
 - a) use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating (1)
 - b) demonstrate that dissolving, mixing and changes of state are reversible changes (1)
 - c) 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 (2)
- 2) Forces unit- curriculum statement: recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect (1)

Autumn 1 Science will be dedicated to teaching these Y5 objectives over weekly 1 hour lessons. Y6 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 1-7 will be dedicated to teaching the discreet Y5 objectives above	WEEK 8	WEEK 9	WEEK 10	WEEK 11	WEEK 12
Science unit		Animals, including humans		Living things and their habitats		

Scientist(s)		Willian Harvey Explained blood circulation for the first time, showing there is a complete circuit beginning and ending in the heart.	Carl Linnaeus Carl Linnaeus was a Swedish botanist, physician, and zoologist who formalised the modern system of naming organisms. He is known as the "father of modern taxonomy".
Scientific knowledge	•	<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 AIH1 (A,B) recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function describe the ways in which nutrients and water are transported within animals, including humans AIH3 	<ul style="list-style-type: none"> Y5 Objective Living Things and their habitats unit-curriculum statement: describe the life process of reproduction in some plants and animals (2) 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 LTATH1 (A,B) give reasons for classifying plants and animals based on specific characteristics LTATH2

<u>Spring Term</u>	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	Light			Evolution and inheritance			Electricity		Animals, including humans			
Scientist(s)	Albert Einstein Einstein's theories of special & general relativity delivered a remarkable transformation in our understanding of light, gravity, and time, while special relativity yielded the most famous equation in history, $E = mc^2$.			Charles Darwin Authored one of the most famous books in history, <i>On the Origin of Species</i> , in which he described and provided evidence for the theory of evolution by natural selection.			Nikola Tesla Serbian-American engineer and physicist Nikola Tesla (1856-1943) made dozens of breakthroughs in the production, transmission and application of electric power. He invented the first alternating current (AC) motor and developed AC generation and transmission technology.		Willian Harvey Explained blood circulation for the first time, showing there is a complete circuit beginning and ending in the heart.			
Scientific knowledge	<ul style="list-style-type: none"> recognise that light appears to travel in straight lines 			<ul style="list-style-type: none"> recognise that living things have changed over time and that 			<ul style="list-style-type: none"> associate the brightness of a lamp or the volume of a 		<ul style="list-style-type: none"> identify and name the main parts of the human 			

	<p>L1</p> <ul style="list-style-type: none"> 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 <p>L2</p> <ul style="list-style-type: none"> 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 <p>L3</p> <ul style="list-style-type: none"> use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them <p>L4 (A,B)</p>	<p>fossils provide information about living things that inhabited the Earth millions of years ago</p> <ul style="list-style-type: none"> recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution <p>E13 (A,B)</p>	<p>buzzer with the number and voltage of cells used in the circuit</p> <ul style="list-style-type: none"> 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 <p>E2</p> <ul style="list-style-type: none"> use recognised symbols when representing a simple circuit in a diagram 	<p>circulatory system, and describe the functions of the heart, blood vessels and blood</p> <p>AIH1 (A,B)</p> <ul style="list-style-type: none"> recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function describe the ways in which nutrients and water are transported within animals, including humans <p>AIH3</p>
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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	Living things and their habitats			Light			Evolution and inheritance			Electricity		
Scientist(s)	<p>Carl Linnaeus Carl Linnaeus was a Swedish botanist, physician, and zoologist who formalised the modern system of naming organisms. He is known as the "father of modern taxonomy".</p>			<p>Albert Einstein Einstein's theories of special & general relativity delivered a remarkable transformation in our understanding of light, gravity, and time, while special relativity yielded the most famous equation in history, $E = mc^2$.</p>			<p>Charles Darwin Authored one of the most famous books in history, <i>On the Origin of Species</i>, in which he described and provided evidence for the theory of evolution by natural selection.</p>			<p>Nikola Tesla Serbian-American engineer and physicist Nikola Tesla (1856-1943) made dozens of breakthroughs in the production, transmission and application of electric power. He invented the first alternating current (AC) motor and developed AC generation and transmission technology.</p>		
Scientific	<ul style="list-style-type: none"> Y5 Objective Living Things and 			<ul style="list-style-type: none"> recognise that light appears 			<ul style="list-style-type: none"> recognise that living things have 			<ul style="list-style-type: none"> associate the brightness of a 		

<p>knowledge</p>	<p>their habitats unit- curriculum statement: describe the life process of reproduction in some plants and animals (2)</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 LTATH1 (A,B) give reasons for classifying plants and animals based on specific characteristics LTATH2 	<p>to travel in straight lines L1</p> <ul style="list-style-type: none"> 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 L2 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 L3 use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them L4 (A,B) 	<p>changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</p> <ul style="list-style-type: none"> recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution E13 (A,B) 	<p>lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</p> <ul style="list-style-type: none"> 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 E2 use recognised symbols when representing a simple circuit in a diagram
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<p>Working scientifically skills</p>	<p>During Year 6, 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
<p>Investigation Opportunities: which Working Scientifically</p>	<p>Animals Including Humans AIH1 identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</p>

<p>skills can they show?</p> <p>Taken from Hamilton Trust</p>	<p>a) See supporting docs: Create a clay/ playdough structure of the heart and explain where blood flows to/from in which direction (write on tables and photo? WS SKILLS 1,5,6</p> <p>b) See supporting docs: Blood scientists WS SKILL 6- create a recipe/ratio for blood using different coloured beads in coloured water and sketch findings.</p> <p>AIH2 recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</p> <p>AIH3 describe the ways in which nutrients and water are transported within animals, including humans</p> <p>See supporting docs: Absorption of nutrients investigation WS SKILLS 1,5,6</p> <p>Living Things and their Habitats</p> <p>LTATH1 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</p> <p>A) See supporting docs: Classify plants from the allotment- sketch and create key WS SKILLS 3,5</p> <p>B) See supporting docs: classifying unusual animals WS SKILLS 5,6</p> <p>LTATH2 give reasons for classifying plants and animals based on specific characteristics</p> <p>See supporting docs: Classify animals and plants and create classification keys WS SKILLS 3,5,6</p> <p>Light</p> <p>L1 recognise that light appears to travel in straight lines</p> <p>L2 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</p> <p>L3 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</p> <p>L1-L3: Crime lab investigation and resources WS SKILLS 1,2,3,5</p> <p>L4 use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them</p> <p>A) objects and their shadows WS SKILLS 1,2,3,4,5 – USE INVESTIGATION TEMPLATE</p> <p>B) STEM making shadows WS SKILLS 1,2,3,4,5 – USE INVESTIGATION TEMPLATE</p> <p>Evolution and Inheritance</p> <p>E11 recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</p> <p>E12 recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</p> <p>E13 identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</p> <p>A) Match the variations to habitats WS SKILLS 5,6</p> <p>B) Design your own survivor WS SKILLS 5,6</p>
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	<p>Electricity</p> <p>E1 associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</p> <p>E2 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</p> <p>Simple circuit investigation that children create themselves e.g. will an extra wire increase the power and make the bulb brighter? USE INVESTIGATION TEMPLATE WS SKILLS 1,2,3,4,5</p> <p>Complete two/three more investigations e.g. changing position of a switch to be near the battery or adding an extra buzzer, what will this affect? WS SKILLS 1,2,3,4,5- USE INVESTIGATION TEMPLATE</p> <p>E3 use recognised symbols when representing a simple circuit in a diagram</p>				
Scientific vocabulary	Circulatory, Heart, Blood Vessels, Veins, Arteries, Oxygenated, Deoxygenated, Valve, Exercise, Respiration	Classification, Vertebrates, Invertebrates, Micro-organisms, Amphibians, Reptiles, Mammals, Insects	Refraction, Reflection, Light, Spectrum, Rainbow, Colour	Fossils, Adaptation, Evolution, Characteristics, Reproduction, Genetics	Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators, Amps, Volts, Cell

Spiral rationale:

7 weeks discreet catch-up

Animals including Humans= 6 weeks over the year (3 objectives)

Living Things and Their Habitats = 6 weeks over the year (1 Y5 and 2 Y6 objectives = 3 objectives)

Light = 6 weeks over the year (4 objectives)

Evolution and Inheritance = 6 weeks over the year (3 objectives)

Electricity = 5 weeks over the year (3 objectives)