



Hopton CE Primary Academy - Two Year Cycle Science Map

Our curriculum follows the strands of physics, biology and chemistry

RECEPTION	1	2	3	4	5	6
Repeats Each Year	All About Me	Terrific Tales	Amazing Animals	Come Outside	Ticket to Ride	Fun at the Seaside
Science	<p>ELG: Children explore the natural world around them, making observations and drawing pictures of animals and plants. Children 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. Children understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</p>					



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Years 1/2	1 (Autumn)		2 (Spring)	3 (Summer)
Year 1 (Cycle A)	Animals including humans Seasonal change		Materials and states of matter	Animals including humans
Domain of Knowledge	Biology	Physics	Chemistry	Biology
Key Concepts	<ul style="list-style-type: none"> describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene 	<ul style="list-style-type: none"> Observe and describe weather associated with the seasons and how day length varies. 	<ul style="list-style-type: none"> 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 compare and group together a variety of everyday materials on the basis of their simple physical properties identify and compare the suitability of a variety of everyday materials, including wood, 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 	<ul style="list-style-type: none"> 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) find out about and describe the basic needs of animals, including humans, for survival (water, food and air)
End Points	To describe the changes as humans develop to old age. To identify and name the main parts of the	To describe the movement of the Earth, and other planets, relative to the Sun in the solar system.	To compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, conductivity (electrical and thermal) and response to magnets. To understand how some materials will dissolve into liquid to form	To describe the changes as humans develop to old age. To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. To recognise the importance of diet, exercise, drugs and lifestyle on the way the human body



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	<p>human circulatory system, and describe the functions of the heart, blood vessels and blood. To recognise the importance of diet, exercise, drugs and lifestyle on the way the human body functions. To describe the ways in which nutrients and water are transported within animals, including humans</p>	<p>To describe the movement of the Moon relative to the Earth. To describe the Sun, Earth and Moon as approximately spherical bodies. To use the idea of the Earth's rotation to explain day and night, the apparent movement of the sun across the sky and how seasons change across the year.</p>	<p>a solution and describe how to recover a substance from a solution. To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. To give reasons based on evidence from comparative and fair tests for the particular uses of everyday materials, including metals, wood and plastic. To demonstrate that dissolving, mixing and changes of state are reversible changes. To 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, oxidation and the action of acid on bicarbonate of soda.</p>	<p>functions. To describe the ways in which nutrients and water are transported within animals, including humans.</p>
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Years 1/2	1 (Autumn)		2 (Spring)	3 (Summer)
Year 2 (Cycle B)	Animals including humans Seasons		Living things and habitats	Plants
Domain of Knowledge	Biology	Physics	Biology	Biology
Key Concepts	<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 notice that animals, including humans, have offspring which grow into adults 	<ul style="list-style-type: none"> Observe changes across the four seasons. 	<ul style="list-style-type: none"> explore and compare the differences between things that are living, dead, and things that 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 microhabitats 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 	<ul style="list-style-type: none"> identify and name a variety of common wild and garden plants, including deciduous and evergreen trees identify and describe the basic structure of a variety of common flowering plants, including trees observe and describe how seeds and bulbs grow into mature plants find out and describe how plants need water, light and a suitable temperature to grow and stay healthy
End Points	To describe the changes as humans develop to old age. To identify and name the main parts of the human circulatory system, and describe	To describe the movement of the Earth, and other planets, relative to the Sun in the solar system. To describe the movement of the	To 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. To describe how living things are classified into broad groups according to common observable characteristics. To give reasons for classifying plants and animals based on specific characteristics.	To identify and describe the functions of different parts of flowering plants. To explore the requirements of plants for life and growth and how they vary from plant to plant. To investigate the way in which water is transported within plants. To explore the role of flowers in the life cycle of flowering plants, including pollination,



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	<p>the functions of the heart, blood vessels and blood. To recognise the importance of diet, exercise, drugs and lifestyle on the way the human body functions. To describe the ways in which nutrients and water are transported within animals, including humans.</p>	<p>Moon relative to the Earth. To describe the Sun, Earth and Moon as approximately spherical bodies. To use the idea of the Earth's rotation to explain day and night, the apparent movement of the sun across the sky and how seasons change across the year.</p>		<p>seed formation and seed dispersal.</p>
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Years 3/4	1 (Autumn)		2 (Spring)		3 (Summer)	
Year 1 (Cycle A)	Living Things and Habitats Rocks and Fossils		States of Matter		Forces and Magnets Light	
Domain of Knowledge	Biology	Chemistry	Chemistry	Chemistry	Physics	Physics
Key Concepts	<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 	<ul style="list-style-type: none"> compare and group together different kinds of rocks on the basis of their appearance and simple physical properties 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 	<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) identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature 	<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) identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature 	<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 	<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. Recognise that shadows are formed when the light from a light source is blocked by a solid object. Find patterns in the way that the size of shadows change.



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				poles are facing.	
End Points	To 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. To describe how living things are classified into broad groups according to common observable characteristics. To give reasons for classifying plants and animals based on specific characteristics.	To compare and group together different kinds of rocks on the basis of their simple, physical properties. To relate the simple physical properties of some rocks to their formation (igneous or sedimentary). To describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rocks. To recognise that soils are made from rocks and organic matter.	To compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, conductivity (electrical and thermal) and response to magnets. To understand how some materials will dissolve into liquid to form a solution and describe how to recover a substance from a solution. To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. To give reasons based on evidence from comparative and fair tests for the particular uses of everyday materials, including metals, wood and plastic. To demonstrate that dissolving, mixing and changes of state are reversible changes. To 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, oxidisation and the action of acid on bicarbonate of soda.	To describe magnets as having two poles and predict whether two magnets will attract or repel each other, depending on which poles are facing. To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. To identify the effect of drag forces, such as air resistance, water resistance and friction that act between moving surfaces. To understand that some mechanisms including levers, pulleys and gears, allow a smaller force to have a greater effect.	To understand that light appears to travel in straight lines. To use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eyes. To use the idea that light travels in straight lines to explain why shadows have the same shape as the object that cast them, and to predict the size of shadows when the position of the light source changes. To 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.



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Years 3/4	1 (Autumn)	2 (Spring)		3 (Summer)
Year 2 (Cycle B)	Electricity	Plants	Animals including Humans	Sound
Domain of Knowledge	Physics	Biology		Physics
Key Concepts	<ul style="list-style-type: none"> 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 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. 	<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 investigate the way in which water is transported within plants explore the part that flowers play in the life cycle of flowering plants, including 	<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 identify that humans and some other animals have skeletons and muscles for support, protection and movement 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 	<ul style="list-style-type: none"> 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 strength of the vibrations that produced it. Recognise that sounds get fainter as the distance from the sound source increases.



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		<p>pollination, seed formation and seed dispersal</p> <ul style="list-style-type: none"> plants can be grouped into categories such as flowering plants (including grasses) and non-flowering plants, for example ferns and mosses. 	<ul style="list-style-type: none"> construct and interpret a variety of food chains, identifying producers, predators and prey 	
End Points	<p>To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of calls used in the circuit. To 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. To use recognised symbols when representing a simple circuit in a diagram.</p>	<p>To identify and describe the functions of different parts of flowering plants. To explore the requirements of plants for life and growth and how they vary from plant to plant. To investigate the way in which water is transported within plants. To explore the role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p>	<p>To describe the changes as humans develop to old age. To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. To recognise the importance of diet, exercise, drugs and lifestyle on the way the human body functions. To describe the ways in which nutrients and water are transported within animals, including humans.</p>	<p>To find patterns between the pitch of a sound and features of the object that produced it. To find patterns between the volume of a sound and the strength of the vibrations that produced it. To recognise that sounds get fainter as the distance from the sound source increases.</p>



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Years 5/6	1 (Autumn)		2 (Spring)		3 (Summer)
Year 1 (Cycle A)	Space and Forces		Electricity and Light		Living things and their Habitat
Domain of Knowledge	Physics	Physics	Physics	Physics	Biology
Key Concepts	<ul style="list-style-type: none"> Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. 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 	<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 effect of drag forces, such as air resistance, water resistance and friction that act between moving surfaces. Understand that some mechanisms including levers, pulleys and gears, allow a smaller force to have a 	<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. 	<ul style="list-style-type: none"> Understand 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 eyes. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them, and to predict the size of shadows when the position of the light 	<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 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



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	the sky.	greater effect.		<p>source changes.</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. 	
End Points	<p>To describe the movement of the Earth, and other planets, relative to the Sun in the solar system. To describe the movement of the Moon relative to the Earth. To describe the Sun, Earth and Moon as approximately spherical bodies. To use the idea of the Earth's rotation to explain day and night, the apparent movement of the sun across the sky and how seasons change across the</p>	<p>To describe magnets as having two poles and predict whether two magnets will attract or repel each other, depending on which poles are facing. To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. To identify the effect of drag forces, such as air resistance, water resistance and friction that act between moving surfaces. To understand that some mechanisms</p>	<p>To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. To 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. To use recognised symbols when representing a simple circuit in a diagram.</p>	<p>To understand that light appears to travel in straight lines. To use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eyes. To use the idea that light travels in straight lines to explain why shadows have the same shape as the object that cast them, and to predict the size of shadows when the position of the light source changes. To explain that we see things because light travels from light sources to our eyes or from light sources to objects and</p>	<p>To 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. To describe how living things are classified into broad groups according to common observable characteristics. To give reasons for classifying plants and animals based on specific characteristics.</p>



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	year.	including levers, pulleys and gears, allow a smaller force to have a greater effect.		then to our eyes.	
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Years 5/6	1 (Autumn)	2 (Spring)	3 (Summer)
Year 2 (Cycle B)	Materials and States of Matter	Evolution	Animals including Humans
Domain of Knowledge	Chemistry	Biology	Biology
Key Concepts	<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, and describe how to recover a substance from a solution use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic 	<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 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 	<ul style="list-style-type: none"> describe the changes as humans develop to old age identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood 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



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	<ul style="list-style-type: none">• 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		
End Points	<p>To compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, conductivity (electrical and thermal) and response to magnets. To understand how some materials will dissolve into liquid to form a solution and describe how to recover a substance from a solution. To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. To give reasons based on evidence from comparative and fair tests for the particular uses of everyday materials, including metals, wood and plastic. To demonstrate that dissolving, mixing and changes of state are reversible changes. To 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, oxidation and the action of acid on bicarbonate of soda.</p>	<p>To recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. To identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>	<p>To describe the changes as humans develop to old age. To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. To recognise the importance of diet, exercise, drugs and lifestyle on the way the human body functions. To describe the ways in which nutrients and water are transported within animals, including humans.</p>