

Science Curriculum Map

2020/2021 2022/2023 2024/2025	Autumn	Spring		Summer		
	<u>Dig it</u> <small>By the end of this unit all children should be able to...</small>	<u>Bright Sparks</u> <small>By the end of this unit all children should be able to...</small>		<u>What a wonderful World</u> <small>By the end of this unit all children should be able to...</small>		
Diamond Class (Year 1)	<p>Everyday materials Distinguish between an object and the material from which it is made.</p> <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</p> <p>Describe the simple physical properties of a variety of everyday materials.</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties.</p>	<p>Seasonal Changes Autumn/Winter</p> <p>Observe changes across the four seasons.</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p>	<p>Plants</p> <p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees.</p>	<p>Seasonal Changes Winter/spring</p> <p>Observe changes across the four seasons.</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p>	<p>Animals (including Humans):</p> <p>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p> <p>Recognise that humans are animals.</p> <p>Compare and describe differences in their own features (eye, hair, skin colour, etc.).</p> <p>Recognise that humans have many similarities.</p> <p>Seasonal Changes Spring/Summer</p> <p>Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.</p>	<p>Animals</p> <p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p>
Working Scientifically	<p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> ▪ performing simple tests to explore questions, for example: - 'What is the best material for an umbrella? ...for lining a dog basket? ...for curtains? ...for a bookshelf? ...for a gymnast's leotard?' 	<p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> ▪ Making tables and charts about the weather ▪ Making displays of what happens in the world around them, including day length, as the seasons change. 	<p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> ▪ Observing closely, perhaps using magnifying glasses. ▪ Comparing and contrasting familiar plants. ▪ Describing how they were able to identify and group them, and ▪ Drawing diagrams showing the parts of different plants including trees. ▪ Keeping records of how plants have changed over time, for example the leaves falling off trees and buds opening. ▪ Comparing and contrasting what they have found out about different plants. 	<p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> ▪ Performing simple tests e.g. using data logging equipment to record temperatures 	<p>Pupils might work scientifically by using their observations to:</p> <ul style="list-style-type: none"> ▪ Compare and contrast animals (humans) at first hand or through videos and photographs. ▪ Using their senses to compare different textures, sounds and smells. 	<p>Pupils might work scientifically by using their observations to:</p> <ul style="list-style-type: none"> ▪ Compare and contrast animals at first hand or through videos and photographs. ▪ Describing how they identify and group them. ▪ Grouping animals according to what they eat. ▪ Using their senses.

<p style="text-align: center;">Ruby Class</p>	<p>Y1-Everyday materials 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.</p> <p>Y2- Materials and their 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 Some materials can be found naturally; others have to be made</p>	<p>Y1- Seasonal change Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.</p> <p>Y2- Animal survival & growth (Standalone unit- 1 week-Start-Habitats topics) Notice that animals, have offspring which grow into adults. Find out about and describe the basic needs of animals, for survival (water, food and air).</p>	<p>Y1- Animals 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) Y2- Living things and their habitats 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 micro-habitats 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.</p>	<p>Y1-Animals- Humans Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. Recognise that humans are animals. Compare and describe differences in their own features (eye, hair, skin colour, etc.). Recognise that humans have many similarities.</p> <p>Seasonal Changes Winter/spring (Forest School)</p> <p>Y2-Health- How we grow and stay healthy Notice that animals, including humans, have offspring which grow into adults. 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.</p>	<p>Plants 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.</p> <p>Y2 Plants (Plant Growth) 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. Plants are living and eventually die</p>	<p>Y1- Seasonal Change Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.</p> <p>Y2- Revisit/Observe change <i>Observe plant growth, changes in habitats across the seasons and life cycles of a variety of different animals (for example: chicks/other birds, tadpoles/frogs, caterpillars/butterflies, other mini-beasts, other young animals.</i></p>
<p style="text-align: center;">Working Scientifically</p>	<p>Y1 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> performing simple tests to explore questions, for example: 'What is the best material for an umbrella? ...for lining a dog basket? ...for curtains? ...for a bookshelf? ...for a gymnast's leotard?' <p>Y2 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Comparing the uses of everyday materials in and around the school with materials found in other places Observing closely, Identifying and classifying the uses of different materials, and Recording their observations. Thinking about unusual and creative uses for everyday materials. 	<p>Y1 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Making tables and charts about the weather Making displays of what happens in the world around them, including day length, as the seasons change. using data logging equipment to record temperatures <p>Y2 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing, through video or first-hand observation and measurement, how different animals grow; Asking questions about what things animals need for survival suggesting ways to find answers to their questions. 	<p>Y1 Pupils might work scientifically by using their observations to:</p> <ul style="list-style-type: none"> Compare and contrast animals at first hand or through videos and photographs. Describing how they identify and group them. Grouping animals according to what they eat. Using their senses. <p>Y2 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Sorting and classifying things as to whether they are living, dead or were never alive. Exploring questions such as: 'Is a flame alive? Is a deciduous tree dead in winter?' Talking about ways of answering their questions. Constructing a simple food chain that includes humans (e.g. grass, cow, human); 	<p>Y1 Pupils might work scientifically by using their observations to:</p> <ul style="list-style-type: none"> Compare and contrast animals (humans) at first hand or through videos and photographs. Using their senses to compare different textures, sounds and smells. <p>Y2 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing, through video or first-hand observation and measurement, how humans grow. Recording their findings using charts. Asking questions about what things animals [humans]. need for survival and what humans need to stay healthy. Suggesting ways to find answers to their questions. 	<p>Y1 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing closely, perhaps using magnifying glasses. Comparing and contrasting familiar plants. Describing how they were able to identify and group them, and Drawing diagrams showing the parts of different plants including trees. <p>Y2 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or Observing similar plants at different stages of growth; Setting up a comparative test to show that plants need light and water to stay healthy. 	<p>Y1 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Making tables and charts about the weather Making displays of what happens in the world around them, including day length, as the seasons change. using data logging equipment to record temperatures <p>Y2 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> <i>Observing, through video or first-hand observation and measurement, how different animals grow;</i> <i>Asking questions about what things animals need for survival suggesting ways to find answers to their questions.</i>

<p>Topaz Class</p>	<p>Y2- Materials and their 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. Some materials can be found naturally; others have to be made.</p> <p>Y3-Rocks 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.</p>	<p>Y2- Observe change <i>Observe plant growth, changes in habitats across the seasons and life cycles of a variety of different animals (for example: chicks/other birds, tadpoles/frogs, caterpillars/butterflies, other mini-beasts, other young animals.</i></p> <p>Y3- Light & Astronomy 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.</p> <ul style="list-style-type: none"> 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. 	<p>Y2- Plants (Plant Growth) 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. Plants are living and eventually die</p> <p>Y3 Plants (Parts & Functions) 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 pollination, seed formation and seed dispersal.</p>	<p>Y2- Animal survival & growth (Standalone unit- 1 week-Start-Habitats topics) Notice that animals, have offspring which grow into adults. Find out about and describe the basic needs of animals, for survival (water, food and air).</p> <p>Y3- Forces & Magnets Compare how some 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.</p>	<p>Y2- Living things and their habitats 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 micro-habitats 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.</p> <p>Y3- Animals (Skeletons and Movement) Identify that humans and some other animals have skeletons and muscles for support, protection and movement. (+vertebrates and invertebrates- See KLIPS)</p>	<p>Y2- Health- How we grow and stay healthy Notice that animals, including humans, have offspring which grow into adults. 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.</p> <p>Y3: Health and Nutrition 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.</p>
<p>Working Scientifically</p>	<p>Y2 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Comparing the uses of everyday materials in and around the school with materials found in other places (at home, the journey to school, on visits, and in stories, rhymes and songs); Identifying and classifying the uses of different materials, and Recording their observations. Thinking about unusual and creative uses for everyday materials. <p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing rocks, including those used in buildings and gravestones. Identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them. Research and discuss the different kinds of living things whose fossils are found in sedimentary rock. Explore how fossils are formed. Explore different soils. Identify similarities and differences between them. 	<p>Y2 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing, through video or first-hand observation and measurement, how different animals grow; Asking questions about what things animals need for survival suggesting ways to find answers to their questions. <p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Looking for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes. 	<p>Y2 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, Observing similar plants at different stages of growth; Setting up a comparative test to show that plants need light and water to stay healthy. <p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Comparing the effect of different factors on plant growth, for example the amount of light, the amount of fertiliser; Discovering how seeds are formed by Observing the different stages of plant cycles over a period of time; Looking for patterns in the structure of fruits that relate to how the seeds are dispersed. Observing how water is transported in plants, for example, by putting cut, white carnations into coloured water. Observing how water travels up the stem to the flowers. 	<p>Y2 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing, through video or first-hand observation and measurement, how different animals grow; Asking questions about what things animals need for survival suggesting ways to find answers to their questions. <p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Comparing how different things move and grouping them. Raising questions and carrying out tests to find out how far things move on different surfaces. Gathering and recording data to find answers to their questions. Looking for patterns in the way that magnets behave in relation to each other and what might affect this, for example, the strength of the magnet or which pole faces another. 	<p>Y2 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Sorting and classifying things as to whether they are living, dead or were never alive. Recording their findings using charts Describing how they decided where to place things, Exploring questions such as: 'Is a flame alive? Is a deciduous tree dead in winter?' . Constructing a simple food chain that includes humans (e.g. grass, cow, human); <p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Identifying and grouping animals with and without skeletons. Observing and comparing their movement. Exploring ideas about what would happen if humans did not have skeletons. 	<p>Y2 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing, through video or first-hand observation and measurement, how humans grow. Recording their findings using charts. Asking questions about what things animals [humans]. need for survival and what humans need to stay healthy. <p>Suggesting ways to find answers to their questions.</p> <p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Comparing and contrasting the diets of different animals (including their pets). Decide ways of grouping them according to what they eat. Researching different food groups and how they keep us healthy. Designing meals based on what they find out.

<p style="text-align: center;">Emerald Class</p>	<p>Y3-Rocks 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.</p> <p>Y4- States of Matter (S, L, G) Solids, liquids and gases can be identified by their observable properties. Solids have a fixed size and shape Liquids can pour and take the shape of the container in which they are put. Liquids form a pool not a pile. Solids in the form of powders can pour as if they were liquids but make a pile not a pool. Gases fill the container in which they are put. Gases escape from an unsealed container. Gases can be made smaller by squeezing/pressure. Liquids and gases can flow.</p>	<p>Y3 Plants (Parts & Functions) 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 pollination, seed formation and seed dispersal. Y4-States of Matter (Water cycle) 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. <i>Solids, liquids, gasses (taught separately)</i></p>	<p>Y3- Light & Astronomy 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. Y4-Electricity 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. Electricity dangers and sources.</p>	<p>Y3- Forces & Magnets Compare how some 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. Y4- Sound 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.</p>	<p>Y3- Animals (Skeletons and Movement) Identify that humans and some other animals have skeletons and muscles for support, protection and movement. (+vertebrates and invertebrates- See KLIPS)</p> <p>Y4- Living Things & their Habitats 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.</p>	<p>Y3: Health and Nutrition 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. Y4- Teeth, eating and digestion 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. Describe how teeth and gums have to be cared for in order to keep them healthy.</p>
<p style="text-align: center;">Working Scientifically</p>	<p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing rocks, including those used in buildings/ gravestones. Identify and classify rocks Research and discuss the different kinds of living things whose fossils are found in sedimentary rock. Explore how fossils are formed. <p>Y4 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Grouping and classifying a variety of different materials. Exploring the effect of temperature on substances such as chocolate, butter, cream (for example, to make food such as chocolate crispy cakes and ice-cream for a party). Researching the temperature at which materials change state, for example, when iron melts or when oxygen condenses into a liquid. 	<p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Comparing the effect of different factors on plant growth, for example the amount of light, the amount of fertiliser; Discovering how seeds are formed by Observing the different stages of plant cycles over a period of time; Looking for patterns in the structure of fruits that relate to how the seeds are dispersed. <p>Y4 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing and recording evaporation over a period of time, such as a puddle in the playground or washing on a line. Investigating the effect of temperature on washing drying or snowmen melting. 	<p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Looking for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes. <p>Y4 Pupils might work scientifically by: Observing patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.</p>	<p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Comparing how different things move and grouping them. Raising questions and carrying out tests to find out how far things move on different surfaces. Gathering and recording data to find answers to their questions. Looking for patterns in the way that magnets behave in relation to each other and what might affect this, for example, the strength of the magnet or which pole faces another. <p>Y4 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Finding patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses. 	<p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Identifying and grouping animals with and without skeletons. Observing and comparing their movement. Exploring ideas about what would happen if humans did not have skeletons. <p>Y4 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Using and making simple guides or keys [sorting, grouping, comparing, classifying] to explore and identify local plants and animals. Making a guide [sorting, grouping, comparing, classifying] to local living things. Raising and answering questions based on their observations of animals. 	<p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Comparing and contrasting the diets of different animals (including their pets). Decide ways of grouping them according to what they eat. Researching different food groups and how they keep us healthy. Designing meals based on what they find out. <p>Y4 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Comparing the teeth of carnivores and herbivores. Suggesting reasons for differences. Finding out what damages teeth and how to look after them. Drawing and discussing their ideas about the digestive system..

<p style="text-align: center;">Sapphire Class</p>	<p>Y4-Electricity 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. Electricity dangers and sources Y5- Material Properties (testing) Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity and response to magnets. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Compare a variety of materials and measure their effectiveness</p>	<p>Y4- States of Matter (S, L, G) Solids, liquids and gases can be identified by their observable properties. Solids have a fixed size and shape Liquids can pour and take the shape of the container in which they are put. Liquids form a pool not a pile. Solids in the form of powders can pour as if they were liquids but make a pile not a pool. Gases fill the container in which they are put. Gases escape from an unsealed container. Gases can be made smaller by squeezing/pressure. Liquids and gases can flow. Y5- Reversible and Irreversible changes 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. 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.</p>	<p>Y4-States of Matter (Water cycle) 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. <i>Solids, liquids, gasses (taught separately)</i> Y5 Light & Astronomy (Earth and Space) 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 Sun/Earth/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.</p>	<p>Y4- Sounding 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. Y5- Forces Effects on movement 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. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. There are different types of forces (push, pull, friction, air resistance, water resistance, magnetic forces, gravity).</p>	<p>Y4- Teeth, eating and digestion 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. Describe how teeth and gums have to be cared for in order to keep them healthy. Y5- Animals (including humans) Human life cycles Describe the changes as humans develop to old age.</p>	<p>Y4- Living Things & their Habitats 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. Y5-Living Things & their Habitats (life cycles) 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</p>
<p style="text-align: center;">Working Scientifically</p>	<p>Y4 Pupils might work scientifically by: Observing patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit. Y5 Pupils might work scientifically by: <ul style="list-style-type: none"> ▪ Carry out tests to answer questions such as 'Which </p>	<p>Y4 Pupils might work scientifically by: <ul style="list-style-type: none"> ▪ Grouping and classifying a variety of different materials. ▪ Exploring the effect of temperature on substances such as chocolate, butter, cream (for example, to make food such as chocolate crispy cakes and ice-cream for a party). ▪ Researching the temperature at which materials change state, e.g. when iron melts or when oxygen condenses into a liquid. Y5 Pupils might work scientifically by: <ul style="list-style-type: none"> ▪ Observing and comparing the changes that take place, for </p>	<p>Y4 Pupils might work scientifically by: <ul style="list-style-type: none"> ▪ Observing and recording evaporation over a period of time, such as a puddle in the playground or washing on a line. ▪ Investigating the effect of temperature on washing drying or snowmen melting. Y5 Pupils might work scientifically by: <ul style="list-style-type: none"> ▪ Comparing the time of day at different places on the Earth through internet links and direct communication. </p>	<p>Y4 Pupils might work scientifically by: <ul style="list-style-type: none"> ▪ Finding patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses. Y5 Pupils might work scientifically by: <ul style="list-style-type: none"> ▪ Exploring falling paper cones or cup-cake cases. ▪ Designing and making [exploring] a variety of parachutes. </p>	<p>Y4 Pupils might work scientifically by: <ul style="list-style-type: none"> ▪ Comparing the teeth of carnivores and herbivores. ▪ Suggesting reasons for differences. ▪ Finding out what damages teeth and how to look after them. ▪ Drawing and discussing their ideas about the digestive system. ▪ Comparing them with models or images. Y5 Pupils might work scientifically by: <ul style="list-style-type: none"> ▪ Researching the gestation periods other animals and comparing them with humans. </p>	<p>Y4 Pupils might work scientifically by: <ul style="list-style-type: none"> ▪ Using and making simple guides or keys [sorting, grouping, comparing, classifying] to explore and identify local plants and animals. ▪ Making a guide [sorting, grouping, comparing, classifying] to local living things. ▪ Raising and answering questions based on their observations of animals. Y5 Pupils might work scientifically by: <ul style="list-style-type: none"> ▪ Observing and comparing the life cycles of plants and animals in </p>

	<p>materials would be the most effective for making a warm jacket, for wrapping ice cream to stop it melting, or for making blackout curtains?’</p> <ul style="list-style-type: none"> Compare materials in order to make a switch in a circuit. 	<p>example, when burning different materials or baking bread or cakes.</p> <ul style="list-style-type: none"> Researching and discussing how chemical changes have an impact on our lives, for example cooking. Discuss [research] the creative use of new materials such as polymers, super-sticky and super-thin materials. 	<ul style="list-style-type: none"> Creating simple models of the solar system. <p>Constructing simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day</p>	<ul style="list-style-type: none"> Carrying out fair tests to determine which designs are the most effective. Exploring resistance in water by making and testing boats of different shapes. 	<ul style="list-style-type: none"> By finding out and recording the length and mass of a baby as it grows. 	<p>their local environment with other plants and animals around the world (in the rainforest, in the oceans, in desert areas and in prehistoric times).</p> <ul style="list-style-type: none"> Asking pertinent questions. Suggesting reasons for similarities & differences.
<p>Amethyst Class Could the Y5's be taught together???</p>	<p>Y5- Material Properties (testing) Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity and response to magnets. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Compare a variety of materials and measure their effectiveness</p> <p>Y6- Environment-Inheritance and evolution 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.</p>	<p>Y5- Reversible and Irreversible changes 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. 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.</p> <p>Y6: Animals (including humans) 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. (Does this need to be taught in Au2 rather than Summer 2?)</p>	<p>Y5 Light & Astronomy (Earth and Space) 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 Sun/Earth/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.</p> <p>Y6 Light & Astronomy (How Light Travels) 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 the light that 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.</p>	<p>Y5- Forces Effects on movement 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. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. There are different types of forces (push, pull, friction, air resistance, water resistance, magnetic forces, gravity).</p> <p>Y6- Electricity 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. Circuit diagrams can be used to construct a variety of more complex circuits predicting whether they will 'work'.</p>	<p>Y5-Living Things & their Habitats (life cycles) 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</p> <p>Y6: Living Things & their Habitats - Classification 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. Vertebrates & Invertebrates</p>	<p>Y5- Animals (including humans) Human life cycles Describe the changes as humans develop to old age.</p> <p>Y6- Revision and consolidation</p>
<p>Working Scientifically</p>	<p>Y5 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Carrying out tests to answer questions such as 'Which materials would be the most effective for making a warm jacket, for wrapping ice cream to stop it melting, or for making blackout curtains?' Compare materials in order to make a switch in a circuit. 	<p>Y5 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing and comparing the changes that take place, for example, when burning different materials or baking bread or cakes. Researching and discussing how chemical changes have an impact on our lives, for example cooking. 	<p>Y5 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Comparing the time of day at different places on the Earth through internet links and direct communication. Creating simple models of the solar system. Constructing simple shadow clocks and sundials, calibrated to 	<p>Y5 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Exploring falling paper cones or cup-cake cases. Designing and making [exploring] a variety of parachutes. Carrying out fair tests to determine which designs are the most effective. 	<p>Y5 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing and comparing the life cycles of plants and animals in their local environment with other plants and animals around the world (in the rainforest, in the oceans, in desert areas and in prehistoric times). Asking pertinent questions. 	<p>Y5 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Researching the gestation periods other animals and comparing them with humans. By finding out and recording the length and mass of a baby as it grows.

	<p>Y6 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing and raising questions about local animals and how they are adapted to the environment. Comparing how some living things adapt to survive in extreme conditions, e.g. cactuses, penguins and camels. <p>Analysing the advantages and disadvantages of specific adaptations, such as being on two feet rather than four, having a long or a short beak, having gills or lungs, tendrils on climbing plants, brightly coloured and scented flowers.</p>	<ul style="list-style-type: none"> Discuss [research] the creative use of new materials such as polymers, super-sticky and super-thin materials. <p>Y6 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Exploring the work of scientists. Scientific research about the relationship between diet, exercise, drugs, lifestyle and health. 	<p>show light and the start and end of the school day</p> <p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Deciding [observe/explore] where to place rear-view mirrors on cars. Designing and making a periscope and using the idea that light appears to travel in straight lines to explain how it works. Investigating the relationship between light sources, objects and shadows by using shadow puppets. <p>Extend their experience [explore and observe] of light by looking at a range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water and coloured filters</p>	<ul style="list-style-type: none"> Exploring resistance in water by making and testing boats of different shapes. <p>Y6 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Systematically identifying the effect of changing one [thing] component at a time in a circuit. Designing and making a set of traffic lights, a burglar alarm or some other useful circuit. 	<ul style="list-style-type: none"> Suggesting reasons for similarities & differences. <p>Y6 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Using classification systems and keys. Identifying some animals and plants in the immediate environment. <ul style="list-style-type: none"> Researching unfamiliar animals and plants from a broad range of other habitats and decide where they belong in the classification system.
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Science two year rolling programme Year B



2021/2022 2023/2024 2025/2026	Autumn		Spring		Summer	
	<u>Travel Through Time</u> <small>By the end of this unit all children should be able to...</small>		<u>Infinity and Beyond</u> <small>By the end of this unit all children should be able to...</small>		<u>All the Worlds a stage</u> <small>By the end of this unit all children should be able to...</small>	
Diamond Class						
Ruby Class Year 1	<p>Y1-Animals- Humans Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. Recognise that humans are animals. Compare and describe differences in their own</p>	<p>Y1-Everyday materials 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.</p>	<p>Y1- Animals 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</p>	<p>Y1- Seasonal Change Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.</p>	<p>Plants 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.</p>	<p>Y1- Seasonal Change Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.</p>

	<p>features (eye, hair, skin colour, etc.). Recognise that humans have many similarities.</p>	<p>Describe the simple physical properties of a variety of everyday materials.</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties</p> <p>Y1- Seasonal change Observe changes across the four seasons.</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p>	<p>animals (fish, amphibians, reptiles, birds and mammals, including pets)</p>			
<p>Working Scientifically</p>	<p>Y1 Pupils might work scientifically by using their observations to:</p> <ul style="list-style-type: none"> Compare and contrast animals (humans) at first hand or through videos and photographs. Using their senses to compare different textures, sounds and smells. 	<p>Y1 Pupils might work scientifically by using their observations to:</p> <ul style="list-style-type: none"> Compare and contrast animals at first hand or through videos and photographs. Describing how they identify and group them. Grouping animals according to what they eat. Using their senses. 	<p>Y1 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing closely, perhaps using magnifying glasses. Comparing and contrasting familiar plants. Describing how they were able to identify and group them, and Drawing diagrams showing the parts of different plants including trees. <p>Y1 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing closely, perhaps using magnifying glasses. Comparing and contrasting familiar plants. Describing how they were able to identify and group them, and Drawing diagrams showing the parts of different plants including trees. 	<p>Y1 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Making tables and charts about the weather Making displays of what happens in the world around them, including day length, as the seasons change. using data logging equipment to record temperatures 	<p>Y1 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> performing simple tests to explore questions, for example: 'What is the best material for an umbrella? ...for lining a dog basket? ...for curtains? ...for a bookshelf? ...for a gymnast's leotard?' 	<p>Y1 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Making tables and charts about the weather Making displays of what happens in the world around them, including day length, as the seasons change. using data logging equipment to record temperatures
<p>Topaz Class Year 2/3</p>	<p>Y2- Materials and their 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. Some materials can be found naturally; others have to be made.</p> <p>Y3-Rocks Compare and group together different kinds of rocks on the</p>	<p>Y2- Health- How we grow and stay healthy Notice that animals, including humans, have offspring which grow into adults. 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.</p> <p>Y3: Health and Nutrition Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own</p>	<p>Y2- Observe change <i>Observe plant growth, changes in habitats across the seasons and life cycles of a variety of different animals (for example: chicks/other birds, tadpoles/frogs, caterpillars/butterflies, other mini-beasts, other young animals.</i></p> <p>Y3- Light & Astronomy 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.</p>	<p>Y2- Animal survival & growth (Standalone unit- 1 week-Start-Habitats topics) Notice that animals, have offspring which grow into adults. Find out about and describe the basic needs of animals, for survival (water, food and air). Y3- Forces & Magnets Compare how some 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</p>	<p>Y2- Living things and their habitats 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 micro-habitats Describe how animals obtain their food from plants and other</p>	<p>Y2 Plants (Plant Growth) 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. Plants are living and eventually die</p> <p>Y3 Plants (Parts & Functions) 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.</p>

	<p>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.</p> <p>Recognise that soils are made from rocks and organic matter.</p>	<p>food; they get nutrition from what they eat. Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p>	<ul style="list-style-type: none"> 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. 	<p>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.</p>	<p>animals, using the idea of a simple food chain, and identify and name different sources of food.</p> <p>Y3- Animals (Skeletons and Movement) Identify that humans and some other animals have skeletons and muscles for support, protection and movement. (+vertebrates and invertebrates- See KLIPS)</p>	<p>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.</p>
<p>Working Scientifically</p>	<p>Y2 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Comparing the uses of everyday materials in and around the school with materials found in other places (at home, the journey to school, on visits, and in stories, rhymes and songs); Identifying and classifying the uses of different materials, and Recording their observations. Thinking about unusual and creative uses for everyday materials. <p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing rocks, including those used in buildings and gravestones. Identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them. Research and discuss the different kinds of living things whose fossils are found in sedimentary rock. Explore how fossils are formed. Explore different soils. <p>Identify similarities and differences between them.</p>	<p>Y2 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing, through video or first-hand observation and measurement, how humans grow. Recording their findings using charts. Asking questions about what things animals [humans]. need for survival and what humans need to stay healthy. <p>Suggesting ways to find answers to their questions.</p> <p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Comparing and contrasting the diets of different animals (including their pets). Decide ways of grouping them according to what they eat. Researching different food groups and how they keep us healthy. <p>Designing meals based on what they find out.</p>	<p>Y2 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing, through video or first-hand observation and measurement, how different animals grow; Asking questions about what things animals need for survival suggesting ways to find answers to their questions. <p>Y3 Pupils might work scientifically by:</p> <p>Looking for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes.</p>	<p>Y2 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing, through video or first-hand observation and measurement, how different animals grow; Asking questions about what things animals need for survival suggesting ways to find answers to their questions. <p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Comparing how different things move and grouping them. Raising questions and carrying out tests to find out how far things move on different surfaces. Gathering and recording data to find answers to their questions. Looking for patterns in the way that magnets behave in relation to each other and what might affect this, for example, the strength of the magnet or which pole faces another. 	<p>Y2 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Sorting and classifying things as to whether they are living, dead or were never alive. Recording their findings using charts Describing how they decided where to place things, Exploring questions such as: 'Is a flame alive? Is a deciduous tree dead in winter?' . Constructing a simple food chain that includes humans (e.g. grass, cow, human); <p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Identifying and grouping animals with and without skeletons. Observing and comparing their movement. Exploring ideas about what would happen if humans did not have skeletons. 	<p>Y2 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, Observing similar plants at different stages of growth; Setting up a comparative test to show that plants need light and water to stay healthy. <p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Comparing the effect of different factors on plant growth, for example the amount of light, the amount of fertiliser; Discovering how seeds are formed by Observing the different stages of plant cycles over a period of time; Looking for patterns in the structure of fruits that relate to how the seeds are dispersed. Observing how water is transported in plants, for example, by putting cut, white carnations into coloured water. <p>Observing how water travels up the stem to the flowers.</p>
<p>Emerald Class Year 3/4</p>	<p>Y3: Health and Nutrition 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.</p> <p>Y4- Teeth, eating and digestion 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.</p>	<p>Y3- Animals (Skeletons and Movement) Identify that humans and some other animals have skeletons and muscles for support, protection and movement. (+vertebrates and invertebrates- See KLIPS)</p> <p>Y4- Living Things & their Habitats Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and</p>	<p>Y3- Light & Astronomy 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.</p> <p>Y4-Electricity Identify common appliances that run on electricity.</p>	<p>Y3- Forces & Magnets Compare how some 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.</p>	<p>Y3-Rocks 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.</p> <p>Y4- States of Matter (S, L, G)</p>	<p>Y3 Plants (Parts & Functions) 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 pollination, seed formation and seed dispersal.</p>

	<p>Construct and interpret a variety of food chains, identifying producers, predators and prey. Describe how teeth and gums have to be cared for in order to keep them healthy.</p>	<p>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.</p>	<p>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. Electricity dangers and sources.</p>	<p>Predict how two magnets will attract or repel each other, depending on which poles are facing. Y4- Sound 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.</p>	<p>Solids, liquids and gases can be identified by their observable properties. Solids have a fixed size and shape. Liquids can pour and take the shape of the container in which they are put. Liquids form a pool not a pile. Solids in the form of powders can pour as if they were liquids but make a pile not a pool. Gases fill the container in which they are put. Gases escape from an unsealed container. Gases can be made smaller by squeezing/pressure. Liquids and gases can flow.</p>	<p>Y4-States of Matter (Water cycle) 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. <i>Solids, liquids, gasses (taught separately)</i></p>
<p>Working Scientifically</p>	<p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Comparing and contrasting the diets of different animals (including their pets). Decide ways of grouping them according to what they eat. Researching different food groups and how they keep us healthy. Designing meals based on what they find out. <p>Y4 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Comparing the teeth of carnivores and herbivores. Suggesting reasons for differences. Finding out what damages teeth and how to look after them. <p>Drawing and discussing their ideas about the digestive system..</p>	<p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Identifying and grouping animals with and without skeletons. Observing and comparing their movement. Exploring ideas about what would happen if humans did not have skeletons. <p>Y4 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Using and making simple guides or keys [sorting, grouping, comparing, classifying] to explore and identify local plants and animals. Making a guide [sorting, grouping, comparing, classifying] to local living things. <p>Raising and answering questions based on their observations of animals.</p>	<p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Looking for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes. <p>Y4 Pupils might work scientifically by: Observing patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.</p>	<p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Comparing how different things move and grouping them. Raising questions and carrying out tests to find out how far things move on different surfaces. Gathering and recording data to find answers to their questions. Looking for patterns in the way that magnets behave in relation to each other and what might affect this, for example, the strength of the magnet or which pole faces another. <p>Y4 Pupils might work scientifically by: Finding patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses.</p>	<p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing rocks, including those used in buildings/ gravestones. Identify and classify rocks Research and discuss the different kinds of living things whose fossils are found in sedimentary rock. Explore how fossils are formed. <p>Y4 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Grouping and classifying a variety of different materials. Exploring the effect of temperature on substances such as chocolate, butter, cream (for example, to make food such as chocolate crispy cakes and ice-cream for a party). <p>Researching the temperature at which materials change state, for example, when iron melts or when oxygen condenses into a liquid.</p>	<p>Y3 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Comparing the effect of different factors on plant growth, for example the amount of light, the amount of fertiliser; Discovering how seeds are formed by Observing the different stages of plant cycles over a period of time; Looking for patterns in the structure of fruits that relate to how the seeds are dispersed. <p>Y4 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing and recording evaporation over a period of time, such as a puddle in the playground or washing on a line. <p>Investigating the effect of temperature on washing drying or snowmen melting.</p>
<p>Sapphire Class Year 4/5</p>	<p>Y4-Electricity 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.</p>	<p>Y4- States of Matter (S, L, G) Solids, liquids and gases can be identified by their observable properties. Solids have a fixed size and shape. Liquids can pour and take the shape of the container in which they are put. Liquids form a pool not a pile. Solids in the form of powders can pour as if they were liquids but make a pile not a pool. Gases fill the container in which they are put. Gases escape from an unsealed container.</p>	<p>Y4-States of Matter (Water cycle) 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.</p>	<p>Y4- Sound 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.</p> <p>Y5- Forces</p>	<p>Y4- Teeth, eating and digestion 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. Describe how teeth and gums have to be cared for in order to keep them healthy.</p>	<p>Y4- Living Things & their Habitats 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.</p> <p>Y5-Living Things & their Habitats (life cycles)</p>

	<p>Recognise some common conductors and insulators, and associate metals with being good conductors.</p> <p>Electricity dangers and sources</p> <p>Y5- Material Properties (testing)</p> <p>Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity and response to magnets.</p> <p>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p> <p>Compare a variety of materials and measure their effectiveness</p>	<p>Gases can be made smaller by squeezing/pressure.</p> <p>Liquids and gases can flow.</p> <p>Y5- Reversible and Irreversible changes</p> <p>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</p> <p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>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.</p>	<p>Y5 Light & Astronomy (Earth and Space)</p> <p>Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</p> <p>Describe the movement of the Moon relative to the Earth.</p> <p>Describe Sun/Earth/Moon as approximately spherical bodies.</p> <p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p> <p><i>Solids, liquids, gasses (taught separately)</i></p>	<p>Effects on movement</p> <p>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</p> <p>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.</p> <p>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p> <p>There are different types of forces (push, pull, friction, air resistance, water resistance, magnetic forces, gravity).</p>	<p>Y5- Animals (including humans) Human life cycles</p> <p>Describe the changes as humans develop to old age.</p>	<p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>Describe the life process of reproduction in some plants and animals</p>
<p>Working Scientifically</p>	<p>Y4 Pupils might work scientifically by:</p> <p>Observing patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.</p> <p>Y5 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Carry out tests to answer questions such as 'Which materials would be the most effective for making a warm jacket, for wrapping ice cream to stop it melting, or for making blackout curtains?' <p>Compare materials in order to make a switch in a circuit.</p>	<p>Y4 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Grouping and classifying a variety of different materials. Exploring the effect of temperature on substances such as chocolate, butter, cream (for example, to make food such as chocolate crispy cakes and ice-cream for a party). Researching the temperature at which materials change state, e.g. when iron melts or when oxygen condenses into a liquid. <p>Y5 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing and comparing the changes that take place, for example, when burning different materials or baking bread or cakes. Researching and discussing how chemical changes have an impact on our lives, for example cooking. <p>Discuss [research] the creative use of new materials such as polymers, super-sticky and super-thin materials.</p>	<p>Y4 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing and recording evaporation over a period of time, such as a puddle in the playground or washing on a line. Investigating the effect of temperature on washing drying or snowmen melting. <p>Y5 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Comparing the time of day at different places on the Earth through internet links and direct communication. Creating simple models of the solar system. <p>Constructing simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day</p>	<p>Y4 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Finding patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses. <p>Y5 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Exploring falling paper cones or cup-cake cases. Designing and making [exploring] a variety of parachutes. Carrying out fair tests to determine which designs are the most effective. Exploring resistance in water by making and testing boats of different shapes. 	<p>Y4 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Comparing the teeth of carnivores and herbivores. Suggesting reasons for differences. Finding out what damages teeth and how to look after them. Drawing and discussing their ideas about the digestive system. Comparing them with models or images. <p>Y5 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Researching the gestation periods other animals and comparing them with humans. By finding out and recording the length and mass of a baby as it grows. 	<p>Y4 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Using and making simple guides or keys [sorting, grouping, comparing, classifying] to explore and identify local plants and animals. Making a guide [sorting, grouping, comparing, classifying] to local living things. Raising and answering questions based on their observations of animals. <p>Y5 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing and comparing the life cycles of plants and animals in their local environment with other plants and animals around the world (in the rainforest, in the oceans, in desert areas and in prehistoric times). Asking pertinent questions. Suggesting reasons for similarities & differences.
<p>Amethyst Class Year 6</p>	<p>Y6: Animals (including humans)</p> <p>Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</p>	<p>Y6- Environment-Inheritance and evolution</p> <p>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>Y6 Light & Astronomy (How Light Travels)</p> <p>Recognise that light appears to travel in straight lines.</p> <p>Use the idea that light travels in straight lines to explain that objects are seen because they</p>	<p>Y6- Electricity</p> <p>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>Compare and give reasons for variations in how components function, including the brightness</p>	<p>Y6: Living Things & their Habitats - Classification</p> <p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and</p>	<p>Revision and consolidation</p>

	<p>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>	<p>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>	<p>give out or reflect light into the eye. Explain that we see things because the light that 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.</p>	<p>of bulbs, the loudness of buzzers and the on/off position of switches. Use recognised symbols when representing a simple circuit in a diagram. Circuit diagrams can be used to construct a variety of more complex circuits predicting whether they will 'work'.</p>	<p>differences, including micro-organisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics. Vertebrates & Invertebrates</p>	
<p>Working Scientifically</p>	<p>Y6 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Exploring the work of scientists. Scientific research about the relationship between diet, exercise, drugs, lifestyle and health. 	<p>Y6 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing and raising questions about local animals and how they are adapted to the environment. Comparing how some living things adapt to survive in extreme conditions, e.g. cactuses, penguins and camels. <p>Analysing the advantages and disadvantages of specific adaptations, such as being on two feet rather than four, having a long or a short beak, having gills or lungs, tendrils on climbing plants, brightly coloured and scented flowers.</p>	<p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Deciding [observe/explore] where to place rear-view mirrors on cars. Designing and making a periscope and using the idea that light appears to travel in straight lines to explain how it works. Investigating the relationship between light sources, objects and shadows by using shadow puppets. <p>Extend their experience [explore and observe] of light by looking at a range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water and coloured filters</p>	<p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Deciding [observe/explore] where to place rear-view mirrors on cars. Designing and making a periscope and using the idea that light appears to travel in straight lines to explain how it works. Investigating the relationship between light sources, objects and shadows by using shadow puppets. <p>Extend their experience [explore and observe] of light by looking at a range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water and coloured filters</p>	<p>Y6 Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Using classification systems and keys. Identifying some animals and plants in the immediate environment. Researching unfamiliar animals and plants from a broad range of other habitats and decide where they belong in the classification system. 	