

John Keble CE School

Science Curriculum



Rooted together in love, growing without limits.

Believing in the worth of every individual, we are a nurturing, Christian sanctuary of learning, where all can flourish. We aspire for everyone to achieve heights of success, to deepen courage and to experience breadth of creativity, knowing the joy of God's love.

Whole school curriculum intent

Our ambitious, knowledge-rich curriculum has been sequenced to equip our pupils with the knowledge and skills to ensure they are happy, healthy global citizens, ready to take their place in modern Britain. The broad and balanced curriculum is creative, coherent and inclusive and, together with our Christian values, enables the pupils to be self-motivated, independent learners.

Subject specific curriculum intent: science

At John Keble, we desire to give every pupil to develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics. They will develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them. Finally, pupils will be equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future. Teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all children can achieve high standards in science.

Implementation and impact:

Science will be taught as set out by the year group requirements of the National Curriculum. This is a strategy to enable the accumulation of knowledge and allows progress in repeated topics through the years. Pupils will concentrate on one science skill per term. Term 1 will be dedicated to planning investigations, Term 2 to results gathering and analysis, and Term 3 will be spent evaluating practical work. Although each skill is related and there are links between them, there is minimum crossover as they are taught, so each becomes firmly embedded. Through our planning, we involve problem solving opportunities, allowing children to find out for themselves how to answer questions in a variety of practical means. Children are encouraged to ask their own questions and be given appropriate equipment to use their scientific skills to discover the answers. Engaging lessons are created with each lesson having both practical and knowledge elements. Teachers use precise questioning in class to test conceptual knowledge and skills and children are regularly assessed to identify those children with gaps in learning, so that all children keep up. We build upon the learning and skill development of previous years. As the children's knowledge and understanding increases, and they become more proficient in selecting and using scientific equipment, collating and interpreting results, they become increasingly confident in their growing ability to come to conclusions based on real evidence. Working Scientifically skills are explicit in lessons to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the theme of the lesson. Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding.

The impact of our science curriculum is that our pupils develop a deep and secure understanding of scientific concepts and can apply and communicate their knowledge and skills with confidence. Our pupils are curious, engaged, and well-prepared for further study in science. They can demonstrate their practical skills and have a keen awareness of how science is relevant beyond the classroom, for example, in their everyday lives and in relation to global issues. The impact of our science curriculum is also evident in our pupils' progress and outcomes and their evaluations of their learning experiences in science.

Nursery

Lesson objectives Pupils will be able to:	Working scientifically	Where covered in the curriculum	Vocabulary
<ol style="list-style-type: none"> 1. Name types of weather 2. Name the 4 seasons 		A2 (UTW) A1, A2, Sp1, Su1 (UTW)	
<ol style="list-style-type: none"> 1. Name parts of the body 2. Identify their function 		A1 (UTW)	
<ol style="list-style-type: none"> 1. Name common domestic and wild animals 2. Understand key features of the life cycle of an animal 		Su2 (UTW)	
<ol style="list-style-type: none"> 1. Pupils can recognise that substances can be changed using heat (cooking and ice). 2. Pupils can describe the characteristics of substances. 		A2 (UTW) Cooking - throughout	
<ol style="list-style-type: none"> 1. Identify materials 2. Uses sense in exploration of materials 		Su1 (UTW) A1, A2, Sp1 (UTW)	
<ol style="list-style-type: none"> 1. Explore collections of materials with similar and / or different properties 2. Choose materials for a specific purpose. 		A2 (EAD)	
<ol style="list-style-type: none"> 1. Know what exercise is. 2. Explain why exercise is good for you 		Su1 (PSED)	
<ol style="list-style-type: none"> 1. Name the food they eat. 2. Identify if the food is healthy 3. use the toilet independently 4. wash and dry their hands thoroughly 		Sp2 (PSED) Sp1 (PSED)	
<ol style="list-style-type: none"> 1. Plant seeds and identify what they need to grow 2. Name key features of a plant: Petals, leaf, stem, roots. 		Sp2 (UTW)	Petals, leaf, stem, roots.
<ol style="list-style-type: none"> 1. Identify where an animal lives. 		Su2 (UTW)	

Reception overview

Lesson number Pzaz	Lesson objectives	Working scientifically	Where covered in the curriculum	Vocabulary
1	<ol style="list-style-type: none"> Pupils should be able to name the seasons and put them in the correct order from any starting point. Pupils are able to describe some of the features of the seasons, such as hotter in the summer, shorter day in the winter etc 	<p>Asking Questions Discussing Similarities and Differences Examine and Describe Objects and Events Working in a Team</p>	A1/2 Sp1, Su2 (UTW)	
2	<ol style="list-style-type: none"> Pupils can identify different types of weather. Pupils can make suggestions for the most suitable clothing for certain types of weather and suggest the materials they could be made from. Pupils can identify the weather in some places around the world including deserts, mountains, the polar regions, and rain forests. 	<p>Asking Questions Examine and Describe Objects and Events Working in a Team</p>	A1/2 Sp1, Su2 (UTW)	
3	<ol style="list-style-type: none"> Pupils can identify some parts of the body. Pupils can write the names of some parts of the body. Pupils can identify a part of the body with one of the senses. 	<p>Studying Patterns Discussing Similarities and Differences People, Creatures and Plants</p>	A1 (UTW)	
4	<ol style="list-style-type: none"> Pupils should be able to name some animals and identify them as living things. Pupils could identify the diet of some animals 	<p>Discussing Similarities and Differences Identifying and/or Classifying People, Creatures and Plants</p>	Su2 (UTW)	
8	<ol style="list-style-type: none"> Pupils can recognise that substances can be changed using heat. Pupils can describe the characteristics of substances. 	<p>Asking Questions Examining Changes Similarities and Differences</p>	A2 (UTW)	
9	<ol style="list-style-type: none"> Pupils should be able to identify the materials from which objects 	<p>Similarities and Differences Explaining Why It Works</p>	A1 (UTW)	

	are made. 4. Pupils could describe some of the characteristics of materials.	Asking Questions Examine and Describe objects		
10	3. Pupils should be able to describe some of the properties of different materials, including metals and elastic materials.	Similarities and Differences Describing How It Works Asking Questions Examine and Describe objects	Su1 (UTW)	
11	1. Pupils should be able to describe magnetic attraction as a push and repulsion as a pull. 2. Pupils can identify that certain metals are attracted to magnets, and non-metals are not.	Describing How It Works Explaining Why It Works Asking Questions Examine and Describe objects	A1, Su1 (UTW)	
12	1. Pupils should recognise that changing conditions in an experiment can change the result. 2. Pupils can describe a throw as a push.	Studying Patterns Explaining Why It Works Asking Questions	Sp1 (UTW)	
13	3. Pupils can describe the short-term effects of exercise on their bodies. 4. Pupils know that regular exercise is needed to make individuals stronger and fitter.	Examine and Describe objects Similarities and Differences Asking Questions People, Creatures and Plants	A1 (PSED)	
14	1. Pupils should be able to recognise foods as either meat, fruit, vegetables, and dairy. 2. Pupils can describe the journey of food through the body. 3. Pupils can describe some of the things they need to do to remain healthy and hygienic.	Similarities and Differences Asking Questions People, Creatures and Plants	Sp2 (PSED)	
15	3. Pupils can recognise a plant and describe some of the common features of plants. 4. Pupils can describe some of the conditions needed for plants to grow.	Asking Questions Studying Patterns Discussing Similarities and Differences People, Creatures and Plants Working as a Team	Sp2 (UTW)	
16	2. Pupils need to be able to	Examining Changes	Su2 (UTW)	

	<p>describe the environment in which living things exist is called a habitat.</p> <p>3. Pupils can name different types of habitats.</p> <p>4. Pupils can associate some living things with a particular habitat.</p>	<p>Similarities and Differences</p> <p>Asking Questions</p> <p>People, Creatures and Plants</p>		
18	<p>1. Pupils can name some parts of a plant including leaves, flowers, and petals.</p> <p>2. Pupils can identify a plant by leaf shape.</p> <p>3. Pupils know that trees are types of plants.</p>	<p>Studying Patterns</p> <p>Discussing Similarities and Differences</p> <p>Asking Questions</p> <p>People, Creatures and Plants</p>	Sp2 (UTW)	

Introduction to John Keble's key stage 1 and 2 science curriculum

Year Group	Term	Unit Title	Year Group	Term	Unit Title
1	Autumn 1	Seasonal Changes	2	Autumn 1	Animals including Humans
	Autumn 2	Seasonal Changes / Everyday Materials		Autumn 2	Animals including Humans
	Spring 1	Seasonal Changes / Everyday Materials		Spring 1	Uses of Everyday Materials
	Spring 2	Animals including Humans		Spring 2	Uses of Everyday Material and Living Things and their Habitats
	Summer 1	Plants / Animals including Humans		Summer 1	Living Things and their Habitats / Plants
	Summer 2	Plants / seasonal changes		Summer 2	Plants / Living Things and their habitats
3	Autumn 1	Rocks	4	Autumn 1	Electricity
	Autumn 2	Rocks / Forces		Autumn 2	Animals including Humans
	Spring 1	Forces / Light		Spring 1	States of Matter
	Spring 2	Animals including Humans		Spring 2	States of Matter
	Summer 1	Plants		Summer 1	Living Things and their Habitats / Sound
	Summer 2	Plants		Summer 2	Sound
5	Autumn 1	Forces	6	Autumn 1	Electricity / Renewable Energy
	Autumn 2	Forces		Autumn 2	Global Warming / Animals including humans
	Spring 1	Properties and changes of materials		Spring 1	Animals including humans / Living things and their habitats
	Spring 2	Properties and changes of materials		Spring 2	Humans and Animals Over Time
	Summer 1	Space		Summer 1	Animals including humans / Light
	Summer 2	Animals including Humans and Living things and their habitats		Summer 2	History of science

Key stage 1 and 2 science working scientifically links

Links to the statutory requirements for working scientifically have been made explicit for each unit. Generic statements have been used for simplicity:

Observing Over Time; Noticing Patterns; Identifying, Grouping and Classifying; Comparative and Fair Testing (Controlled Investigations); and Researching Using Secondary Resources

Year	Unit	Working scientifically links	Year	Unit	Working scientifically links
1	Seasonal Changes	Observing over time Noticing patterns Researching using secondary resources Comparative Testing	2	Animals including humans	Observing Over Time Noticing Patterns Grouping and Classifying Comparative Testing Researching Using Secondary Resources
	Seasonal Changes / Everyday Materials	Observing over time Noticing patterns Comparative Testing Grouping and Classifying		Animals including Humans	Observing Over Time Noticing Patterns Grouping and Classifying Comparative Testing Researching Using Secondary Resources
	Seasonal Changes / Everyday Materials	Noticing patterns Comparative Testing Grouping and Classifying		Uses of Everyday Materials	Noticing Patterns Grouping and Classifying Comparative Testing
	Animals including Humans	Researching using secondary resources Noticing patterns Grouping and Classifying Comparative Testing		Uses of Everyday Material and Living Things and their Habitats	Noticing Patterns Comparative Testing Researching Using Secondary Resources
	Plants / Animals including Humans	Observing Over Time Noticing Patterns Grouping and Classifying Comparative Testing Researching Using Secondary Resources		Living Things and their Habitats / Plants	Observing Over Time Grouping and Classifying Researching Using Secondary Resources
	Plants / Seasonal Changes	Observing over time Noticing patterns Comparative Testing Grouping and Classifying		Plants / Living Things and their habitats	Observing Over Time Noticing Patterns Grouping and Classifying Comparative Testing Researching Using Secondary Resources
3	Rocks	Observing Over Time Noticing Patterns Grouping and Classifying Comparative and Fair Testing (Controlled Investigations) Researching Using Secondary Resources	4	Electricity	Noticing Patterns Identifying, Grouping and Classifying Comparative and Fair Testing (Controlled Investigations) Researching Using Secondary Resources

	Rocks / Forces	Noticing Patterns Identifying, Grouping and Classifying Comparative and Fair Testing (Controlled Investigations) Researching Using Secondary Resources		Animals including Humans	Observing Over Time Noticing Patterns Grouping and Classifying Comparative and Fair Testing (Controlled Investigations) Researching Using Secondary Resources
	Forces / Light	Noticing Patterns Identifying, Grouping and Classifying Comparative and Fair Testing (Controlled Investigations) Researching Using Secondary Resources		States of Matter	Noticing Patterns Grouping and Classifying Comparative and Fair Testing (Controlled Investigations) Researching Using Secondary Resources
	Animals including Humans	Observing Over Time Noticing Patterns Identifying, Grouping and Classifying Comparative and Fair Testing (Controlled Investigations) Researching Using Secondary Resources		States of Matter	Observing Over Time Noticing Patterns Grouping and Classifying Comparative and Fair Testing (Controlled Investigations) Researching Using Secondary Resources
	Plants	Observing Over Time Noticing Patterns Identifying, Grouping and Classifying Comparative and Fair Testing (Controlled Investigations) Researching Using Secondary Resources		Living Things and their Habitats / Sound	Noticing Patterns Grouping and Classifying Comparative and Fair Testing (Controlled Investigations) Researching Using Secondary Resources
	Plants	Observing Over Time Noticing Patterns Comparative and Fair Testing (Controlled Investigations) Researching Using Secondary Resources		Sound	Noticing Patterns Grouping and Classifying Comparative and Fair Testing (Controlled Investigations) Researching Using Secondary Resources
5	Forces	Noticing Patterns Grouping and Classifying Comparative and Fair Testing (Controlled Investigations) Researching Using Secondary Resources	6	Electricity / Renewable Energy	Observing Over Time Noticing Patterns Identifying, Grouping and Classifying Comparative and Fair Testing (Controlled Investigations)
	Forces	Noticing Patterns Grouping and Classifying Comparative and Fair Testing (Controlled Investigations) Researching Using Secondary Resources		Global Warming / Animals including humans	Observing Over Time Noticing Patterns Identifying, Grouping and Classifying Comparative and Fair Testing (Controlled Investigations) Researching Using Secondary Resources
	Properties and changes of materials	Noticing Patterns Grouping and Classifying Comparative and Fair Testing (Controlled Investigations) Researching Using Secondary Resources		Animals including humans / Living things and their habitats	Observing Over Time Noticing Patterns Identifying, Grouping and Classifying Comparative and Fair Testing (Controlled Investigations) Researching Using Secondary Resources
	Properties and changes of materials	Noticing Patterns Grouping and Classifying Comparative and Fair Testing (Controlled Investigations)		Humans and Animals Over Time	Noticing Patterns Identifying, Grouping and Classifying Comparative and Fair Testing (Controlled Investigations)

		Researching Using Secondary Resources			Researching Using Secondary Resources
	Space	Noticing Patterns Grouping and Classifying Researching Using Secondary Resources		Animals including humans / Light	Noticing Patterns Identifying, Grouping and Classifying Comparative and Fair Testing (Controlled Investigations) Researching Using Secondary Resources
	Animals including Humans and Living things and their habitats	Observing Over Time Noticing Patterns Identifying, Grouping and Classifying Comparative and Fair Testing (Controlled Investigations) Researching Using Secondary Resources		History of science	Observing Over Time Noticing Patterns Identifying, Grouping and Classifying Comparative and Fair Testing (Controlled Investigations)

National Curriculum – Key Stage 1

Year	Unit	National Curriculum objectives	Where covered
KS1	Working scientifically	<ul style="list-style-type: none"> ● asking simple questions and recognising that they can be answered in different ways ● observing closely, using simple equipment ● performing simple tests ● identifying and classifying ● using their observations and ideas to suggest answers to questions ● gathering and recording data to help in answering questions. 	See table above
1	Plants	<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. 	Su1, Su2 Su2
1	Animals including humans	<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) ● identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. 	Sp2 Sp2 Sp2 Sp2, Su1
1	Everyday materials	<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. 	A1, Sp1 A1, Sp1 A1, Sp 1 A1, Sp1
1	Seasonal changes	<ul style="list-style-type: none"> ● observe changes across the four seasons ● observe and describe weather associated with the seasons and how day length varies. 	A1, A2, Sp1, Su2 A1, A2, Sp1, Su2
2	Living things and their habitats	<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. 	Sp2 Su1 Su1 Su2
2	Plants	<ul style="list-style-type: none"> ● 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. 	Su2 Su2
2	Animals including humans	<ul style="list-style-type: none"> ● 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. 	A1 A1 A2
2	Uses of everyday materials	<ul style="list-style-type: none"> ● 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. 	Sp1, Sp2 Sp1,

National Curriculum – Key Stage 2

Year	Unit	National Curriculum objectives	Where covered
3 / 4	Working scientifically	<ul style="list-style-type: none"> • asking relevant questions and using different types of scientific enquiries to answer them • setting up simple practical enquiries, comparative and fair tests • making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • identifying differences, similarities or changes related to simple scientific ideas and processes • using straightforward scientific evidence to answer questions or to support their findings. 	See table above
3	Plants	<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 pollination, seed formation and seed dispersal. 	Su1 Su2 Su1 Su2
3	Animals, including humans	<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. 	Sp1 Sp1
3	Rocks	<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. 	A1 A2 A2
3	Light	<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 an opaque object • find patterns in the way that the size of shadows change. 	Sp1 Sp1 Sp1 Sp1 Sp1
3	Forces and magnets	<ul style="list-style-type: none"> • compare how things move on different surfaces • notice that some forces need contact between two objects, but magnetic forces can act at a distance • observe how magnets attract or repel each other and attract some materials and not others • compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials • describe magnets as having two poles • predict whether two magnets will attract or repel each other, depending on which poles are facing 	A2 A2, Sp1 Sp1 Sp1 Sp1 Sp1

4	Living things and their habitats	<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 	Su1 Su1 Su1
4	Animals, including humans	<ul style="list-style-type: none"> ● 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 	A2 A2 A2
4	States of 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. 	Sp 1 Sp2 Sp2
4	Sound	<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 	Su1 Su2 Su2 Su2 Su2
4	Electricity	<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. 	A1 A1 A1 A1 A1
5 / 6	Working scientifically	<ul style="list-style-type: none"> ● planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ● taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate ● recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs ● using test results to make predictions to set up further comparative and fair tests ● reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations ● identifying scientific evidence that has been used to support or refute ideas or arguments. 	See table above
5	Living things and their habitats	<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. 	Su2 Su2

5	Animals including humans	<ul style="list-style-type: none"> describe the changes as humans develop to old age. 	Su2
5	Properties and changes of materials	<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 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>Sp1, Sp2, Yr6 Su2</p> <p>Sp1, Yr6 Su2</p> <p>Sp1, Yr6 Su2</p> <p>Sp2, Yr6 Su2</p> <p>Sp1, Yr6 Su2</p> <p>A2, Sp1, Yr6 Su2</p>
5	Earth and space	<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 the sky. 	<p>Su1</p> <p>Su1</p> <p>Su1</p> <p>Su1</p>
5	Forces	<ul style="list-style-type: none"> explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object identify the effects of air resistance, water resistance and friction, that act between moving surfaces recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. 	<p>A1, Yr6 Su2</p> <p>A1, A2, Yr6 Su2</p> <p>A2, Yr6 Su2</p>
6	Living things and their habitats	<ul style="list-style-type: none"> describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals give reasons for classifying plants and animals based on specific characteristics. 	<p>Sp1</p> <p>Sp1</p>
6	Animals including humans	<ul style="list-style-type: none"> identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood 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>Su1</p> <p>A2</p> <p>Sp1</p>
6	Evolution and inheritance	<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. 	<p>Sp2</p> <p>Sp2</p> <p>Sp2</p>
6	Light	<ul style="list-style-type: none"> recognise that light appears to travel in straight lines use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes 	<p>Su1</p> <p>Su1</p> <p>Su1</p>

		<ul style="list-style-type: none"> ● use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. 	Su1
6	Electricity	<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. 	A1 A1 A1

Year 1 - Autumn 1 – Seasonal Changes

NC objectives:			
<ul style="list-style-type: none"> ● observe changes across the four seasons ● observe and describe weather associated with the seasons and how day length varies. 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To observe changes across the four seasons	<ul style="list-style-type: none"> ● be introduced to the seasons. ● complete a comprehension activity about the seasons. ● play a game that matches the seasons to words on the cards. ● explore how trees change across the seasons 	Celsius, Temperature, Thermometer, Season, Change, Rainfall, Centimetres.
2	To observe changes across the four seasons	<ul style="list-style-type: none"> ● explore the meaning of hot and cold. ● use a thermometer to measure the temperature. ● make the link between hot and cold and the seasons. 	
3	To observe changes across the four seasons	<ul style="list-style-type: none"> ● contribute to a class chart of what season they were born in. ● create a rain gauge. - This WILL be used throughout the year. ● begin to measure the rainfall and temperature throughout the year. 	
4	Observe and describe how day length varies	<ul style="list-style-type: none"> ● complete a comprehension activity about the seasons ● explore the different hemispheres ● understand that different countries will have day light at different times 	Hemisphere, Globe, Equator, Day, Night, Clockwise, Anticlockwise, Axis, Sunrise, Sunset
5	To observe and describe weather associated with the seasons	<ul style="list-style-type: none"> ● investigate the length of days across various countries and continents across the world on June 21st and December 21st ● investigate why it is warmer in the daytime 	
6	Observe and describe how day length varies	<ul style="list-style-type: none"> ● explore how time is measured. ● create their own hourglass ● make predictions about the time taken for sand to travel ● take repeat readings 	

Optional additional activity - local walk to Roundwood Park to collect pinecones (if possible) and complete Pinecones and Water experiment from lesson 1.14 plants.

Year 1 - Autumn 2 - Seasonal Changes and Everyday Materials

NC objectives:			
<ul style="list-style-type: none"> ● Observe and describe weather associated with the seasons and how day length varies. ● Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. ● Compare and group together a variety of everyday materials on the basis of their simple physical properties. ● Describe the simple physical properties of a variety of everyday materials. ● Distinguish between an object and the material from which it is made. 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To observe weather associated with the seasons	<ul style="list-style-type: none"> ● explore how rain forms ● carry out an experiment to create rain ● optional - look at the effect of the sun and rain 	Annual, Average, Temperature, Rainfall, Weather, Climate.
2	To describe weather associated with the seasons	<ul style="list-style-type: none"> ● optional - carry out an experiment to see how rain disappears as a result of wind or temperature. ● investigate the rainfall, average temperature and sunshine hours in the uk ● make predictions about the wettest / sunniest / warmest month over a year 	
3	To Identify and name a variety of everyday materials	<ul style="list-style-type: none"> ● complete a comprehension activity about materials ● explore various types of materials, making observations ● identify objects in the classroom and what material they are made from 	Transparent, Waterproof, Absorbent, Material, Solid, Property.
4	To describe the simple physical properties of a variety of everyday materials.	<ul style="list-style-type: none"> ● revisit types of materials ● design a house and identify the materials used ● justify why that material was chosen. ● suggest alternative materials that could use that have a similar property. 	
5	To compare the simple physical properties of a variety of everyday materials.	<ul style="list-style-type: none"> ● complete a comprehension activity about materials ● sort objects based on their properties ● identify whether an object is transparent or opaque ● identify whether an object is waterproof or not ● identify whether an object is absorbent or not 	
6	To use knowledge of a material's property to design and make a waterproof structure.	<ul style="list-style-type: none"> ● revisit types of materials ● design an underwater base that is waterproof ● justify why they used specific materials for their underwater base 	

Year 1 – Spring 1 - Seasonal Changes / Everyday Materials

NC objectives:			
<ul style="list-style-type: none"> ● Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. ● Compare and group together a variety of everyday materials on the basis of their simple physical properties. ● Describe the simple physical properties of a variety of everyday materials. ● Distinguish between an object and the material from which it is made. ● Observe changes across the four seasons 			
Lesson number	Learning objective	Pupils will learn	Vocabulary
1	To describe the simple physical properties of a variety of everyday materials.	<ul style="list-style-type: none"> ● complete a comprehension activity about materials ● explore the effect of stretching a rubber band has ● take recordings of the distance a band can travel based on the amount it is stretched. ● identify if there is a relationship between the amount stretched and the distance travelled. 	Stretchy, Bouncy, Material, Solid, Property, Elasticity, Plasticity.
2	To describe the simple physical properties of a variety of everyday materials.	<ul style="list-style-type: none"> ● revisit types of materials ● sort objects based on their properties ● identify whether an object is stretchy or not ● investigate the stretch of different types of rubber bands. 	
3	To describe the simple physical properties of a variety of everyday materials.	<ul style="list-style-type: none"> ● revisit types of materials ● sort objects based on their properties ● identify whether an object is bouncy or not 	
4	To observe changes across the four seasons	<ul style="list-style-type: none"> ● revisit what children know about the seasons ● complete a comprehension activity ● review the rainfall data that has been collected since A1 ● convert the data into a bar chart. ● answer questions about the charts they have created 	Celsius, Temperature, Thermometer, Season, Change, Rainfall, Centimetres, Anemometer, Windspeed, static
5	To observe changes across the four seasons	<ul style="list-style-type: none"> ● use the data collected and analysed to create a weather report ● write a simple script that includes the analysed data ● use green screens to record the weather reports. 	
6	To observe changes across the four seasons	<ul style="list-style-type: none"> ● revisit the four seasons. ● explore what types of weather are associated with the seasons. ● investigate lightning and how it can create an electrical charge ● investigate wind and wind speed. 	

Optional additional activity - local walk to Roundwood Park to collect pinecones (if possible) and complete Pinecones and Water experiment from lesson 1.14 plants.

Year 1 – Spring 2 - Animals Including Humans

NC objectives:			
<ul style="list-style-type: none"> ● identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals ● describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) ● identify and name a variety of common animals that are carnivores, herbivores and omnivores ● identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. 			
Lesson number	Learning objective	Pupils will learn	Vocabulary
1	To identify and name a variety of common animal	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● identify the features of various animals, paws, fur etc ● collect data about the pets in the class ● create a chart of the collected data - as a class ● create a poster of their favourite animal identifying its features. 	Fin, Flipper, Tail, Fur, Milk, Classify, Scale, Features,
2	To describe and compare the structure of a variety of common animal	<ul style="list-style-type: none"> ● sort and name animals ● classify the animal as either a fish, mammal, bird, amphibian, reptile or invertebrate ● create a fact file about two animals ● Optional - local walk to Roundwood Park to identify any of the animals from the previous task 	
3	To identify teeth and their function	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● investigate their teeth ● investigate animal teeth and explain their function ● create a model tooth. 	Carnivore, Herbivore, Omnivore, Diet, Nutrition.
4	To identify and name a variety of common animals that are carnivores, herbivores and omnivores	<ul style="list-style-type: none"> ● be introduced to words omnivore, carnivore and herbivore. ● sort animals deciding if they are an omnivore, carnivore and herbivore. ● present findings about an animal and its diet to the class. 	
5	To investigate if smell affects taste	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● identify and name the parts of a human body ● explore taste buds and identify their purpose ● explore whether smell affects taste. 	Sense, Taste, Smell, Touch, Sight, Hearing
6	To investigate if sight affects taste	<ul style="list-style-type: none"> ● revisit the senses ● complete an investigation about if sight affects taste 	

Year 1 – Summer 1 - Plants / Animals Including Humans

NC objectives:			
<ul style="list-style-type: none"> Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To identify the difference between seeds and bulbs	<ul style="list-style-type: none"> complete a comprehension activity about the topic discuss what plants need to grow create a mini greenhouse to be used in the next lesson explore seeds and bulbs and identify the difference between them 	Seed, Bulb, Tuber, Germination, Growth, Stem, Leaf, Flower, Root.
2	To observe plants growing over time.	<ul style="list-style-type: none"> revisit what plants need to grow plant the following things Seeds, Bulbs (both from the previous lesson) Onions, Carrots, Tomatoes (cuttings of plants). Half need to be in sunlight, half in a cupboard. record the data of the growth of plants under the different circumstances over the term. 	
3	To explore what sight is	<ul style="list-style-type: none"> complete a comprehension activity about the topic optional - explore their peripheral vision identify the colours of a rainbow create a newton wheel explore what an optical illusion is 	Eyesight, Hearing, Ear, Eye, Sight, Sense.
4	To explore how we hear	<ul style="list-style-type: none"> revisit what our senses are identify what we hear explore sound vibrations identify how sound is a vibration and those vibrations can travel. 	
5	To investigate the senses	<ul style="list-style-type: none"> complete a comprehension activity about the topic explore three different activities 1- hot and cold 2 - heavier and lighter 3 - identify what something is by touch and hearing 	
6	To investigate the senses	<ul style="list-style-type: none"> recap on the senses explore skin sensitivity and understand why it's important to be able to feel something. optional - explore how blind people read optional - investigate how smells travel use the sense of smell to identify items of food in mystery boxes 	Mass, Weight, Perception, Smell, Touch.

Year 1 – Summer 2 - Plants / Seasonal Changes

NC objectives:			
<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 changes across the four seasons 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To identify and name a variety of common wild and garden plants	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● participate in a nature walk to Roundwood Park to collect samples of leaves / take pictures of plants, bushes etc ● identify what tree the leaves come from. 	Seed, Bulb, Tuber, Germination, Growth, Stem, Leaf, Flower, Root, Annual, Perennial
2	To identify and describe the basic structure of a variety of common flowering plants, including trees	<ul style="list-style-type: none"> ● revisit plants ● identify the parts of a flower and understand the function ● explore the difference between deciduous and evergreen ● sort the trees by their properties. 	
3	To organise items of foods based on if they are fruits or vegetables	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● explore what a fruit and vegetable is ● organise and sort food items into fruit of vegetables ● review the plants that were grown last term and the plants that were grown and answer questions about them 	Seed, Bulb, Tuber, Germination, Growth, Stem, Leaf, Flower, root
4	To observe changes across the four seasons	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● review what children know about the seasons ● review the rainfall and temperature that has been collected across the year ● display the data collected on a bar graph 	Celsius, Temperature, Thermometer, Season, Change, Rainfall, Centimetres.
5		<ul style="list-style-type: none"> ● additional lesson to be used as necessary 	
6		<ul style="list-style-type: none"> ● additional lesson to be used as necessary 	

Year 2 - Autumn 1 Animals including humans

NC objectives:			
<ul style="list-style-type: none"> 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) 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To describe the lifecycle of a living thing	<ul style="list-style-type: none"> complete a comprehension activity about the topic order the human lifecycle sort and order the life cycle of an animal optional - research and create a poster about the lifecycle of an insect 	Life Cycle, Gestation, Adult, Adolescent.
2	To make a bird feeder	<ul style="list-style-type: none"> make a bird feeder in this lesson and collect data over the next four weeks which will be analysed in lesson 6 (resource 2.2) and begin the chart 	X
3*	To know that animals have offspring	<ul style="list-style-type: none"> learn that animals have offspring understand that different animals have different gestation periods collect data for different animals and produce a bar chart to show the results *measure the food in the bird feeder 	Life Cycle, Gestation, Adult, Adolescent.
4	To collect data about ourselves	<ul style="list-style-type: none"> measure their height, arm length, leg length, foot length contribute the data to a class spreadsheet identify any patterns in the collected data *measure the food in the bird feeder 	
5	To know what is needed to survive	<ul style="list-style-type: none"> complete a comprehension activity about the topic discuss what is needed to survive create a pet care guide *measure the food in the bird feeder 	Survival, Necessary, Nutrition.
6	To know what is needed to survive	<ul style="list-style-type: none"> as a class create a solar island solar sill and measure over the day before the science lesson organise items in to things that are needed, wanted or desired and justify their decisions *measure the food in the bird feeder analyse the collected data from the bird feeder analyse the collected data from the desert island solar sill 	

* start the pushup challenge that will be looked at in A2 lesson 3

Year 2 - Autumn 2 Animals including Humans

NC objectives:			
<ul style="list-style-type: none"> describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. 			
Lesson number	Learning objective	Pupils will learn	Vocabulary
1	To understand the different food groups	<ul style="list-style-type: none"> complete a comprehension activity about the topic classify food types in to the different food groups explore what happens when stomachs become too gassy 	Protein, Carbohydrate, Fat, Vitamins, Minerals, Fibre, Water.
2	To understand what a balanced diet is	<ul style="list-style-type: none"> recap the previous learning explore what happens if we eat too much / too little design a balanced meal using their knowledge 	
3	To understand why exercise is important	<ul style="list-style-type: none"> complete a comprehension activity about the topic compare the difference of bodies in two athletes - one body builder and on marathon runner review the push up challenge data 	Cardiovascular, Resistance, Strength, Stamina, Health, Benefit, Long-term.
4	To describe the importance of exercise	<ul style="list-style-type: none"> review the previous learning complete the star jump challenge and record the data optional - research how exercise effects the body 	
5	To understand how germs spread	<ul style="list-style-type: none"> complete a comprehension activity about the topic observe how germs spread observe the importance of good hygiene 	Hygiene, Germ, Bacteria, Virus, Health, Antibacterial, Health, Dental, Oral.
6	To understand the importance of good hygiene	<ul style="list-style-type: none"> review the previous learning create posters explaining the importance of good hygiene and how germs spread optional - create an assembly about good hygiene 	

Year 2 – Spring 1 Uses of Everyday Materials

NC objectives:			
<ul style="list-style-type: none"> ● 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. 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To find out shapes of materials can be changed	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● investigate if a material can twist, bend, stretch, squash, snap and tear ● complete a further investigation using air drying clay, plasticine and playdough 	Stretchy, Bouncy, Material, Solid, Property, Elasticity, Plasticity.
2	To explain the suitability of certain materials	<ul style="list-style-type: none"> ● revisit properties of materials ● make a model out of clay ● explain why it's a good material to make a model out of ● suggest materials that would not be suitable and why 	
3	To investigate the strength of a material	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● carry out an experiment to see why eggs are as strong as they are ● explain why the egg shape contributes to strength 	Compress, Strength, Stretch, Bend, Flexibility, Elasticity, Plasticity, Rigid
4	To investigate the strength of a material	<ul style="list-style-type: none"> ● Revisit the previous lesson ● compare the strength of paper and cardboard ● create a bridge to test the strength of the materials ● optional - produce a report on the uses of materials in engineering and building, including these in the report: steel, sandstone, limestone and brick 	
5	To investigate materials that float and sink	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● investigate materials that float and sink ● suggest ways to prevent a sinking object to float 	Float, Buoyancy, Density, Mass, Weight, Submerged.
6	To investigate materials that float and sink	<ul style="list-style-type: none"> ● recap the previous lesson ● build boat of different sizes and investigate their suitability for floating ● investigate what can make a can of pop float / sink 	

Year 2 – Spring 2 Uses of Everyday Material and Living Things and their Habitats

NC objectives:			
<ul style="list-style-type: none"> • identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses • explore and compare the differences between things that are living, dead, and things that have never been alive 			
Lesson number	Learning objective	Pupils will	Vocabulary
1*	To link the properties of a material to its suitability for a particular use	<ul style="list-style-type: none"> • *make plant maze for lesson 6 lesson 2.11 • complete a comprehension activity about the topic • research siege engines • produce a report about them including: drawing pictures, explanation of the materials from which they are made, how they work and what they were used to do. 	Springy, Elastic, Plastic, Material, Property.
2		<ul style="list-style-type: none"> • revisit the information gained in the previous lesson • make a catapult • investigate the distance a catapult can throw • suggest reasons why the wood is a suitable material 	
3		<ul style="list-style-type: none"> • revisit the information gained in the previous lessons • make a trebuchet • investigate the distance the trebuchet can throw • compare this to the catapult and suggest reasons why the trebuchet is more effective 	
4		<ul style="list-style-type: none"> • explore what plastic is • make plastic from milk • discuss the positive and negatives to plastic 	
5	To classify things as alive, dead or never been alive	<ul style="list-style-type: none"> • complete a comprehension activity about the topic • learn what MRSGREN stands for • categorise living things • organise leaves deciding if they are alive, dead or never been alive 	Dead, Alive, Animate, Inanimate, Sensitive, Respiration, Excretion, Reproduction.
6	To explain some of the differences between something that is alive, dead, or never been alive	<ul style="list-style-type: none"> • Resvisit the previous learning • go on a living walk in the outdoor classroom • complete the plant maze activity that was started in week 1 	

Year 2 – Summer 1 Living Things and their Habitats / plants

NC objectives:			
<ul style="list-style-type: none"> ● 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 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To observe and describe how seeds and bulbs grow into mature plants	<ul style="list-style-type: none"> ● set up the following activities to observe over the term: <ul style="list-style-type: none"> ○ What Conditions Do Seeds and Bulbs Need to Germinate? ○ Bulb and Seed Growth ○ Investigating Water, Light and Temperature on Plant Growth 	
2	To describe how different habitats provide for the basic needs of different kinds of animals	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● discuss what is meant by a habitat ● sort animals into habitats and explain how they are suited to living in that area ● collect data for plant lesson 	Habitat, Adaption, Insect, Organism, Classify.
3	To create a microhabitat	<ul style="list-style-type: none"> ● revisit the requirements for what living things need to stay alive ● collect data for plant lesson ● make microhabitats 	
4	to identify and name a variety of plants and animals in their habitats,	<ul style="list-style-type: none"> ● place microhabitats in the outdoor classroom, allotment and orchard ● go on a nature walk to Roundwood Park ● complete a habitat survey ● collect data for plant lesson 	
5	To identify and name a variety of plants and animals in their habitats, including microhabitats	<ul style="list-style-type: none"> ● go on a nature walk to visit the microhabitats ● complete a habitat survey ● collect data for plant lesson 	
6	To describe how different habitats provide for the basic needs of different kinds of animals	<ul style="list-style-type: none"> ● revisit the previous learning ● make an information leaflet about the different types of habitats and things they have found there and why they are suited to that habitat ● collect data for plant lesson 	

Year 2 – Summer 2 Plants / Living Things and their habitats

NC objectives:			
<ul style="list-style-type: none"> ● describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. ● 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. 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To describe how animals obtain their food from plants and other animals	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● learn about carnivores, herbivores and omnivores ● sort animals into the above categories ● explore what animals eat and what eats them 	Food Chain, Predator, Prey, Producer, Carnivore, Herbivore, Omnivore, Hunter, Apex.
2	describe how animals obtain their food from plants and other animals	<ul style="list-style-type: none"> ● recap the previous lesson ● identify what is a predator and what is a prey ● explore the relationship between both ● produce a graph that examines the difference ● be introduced to food chains 	
3	To create a food chain	<ul style="list-style-type: none"> ● recap the previous lesson ● interpret a food chain ● create a food chain 	
4	To report our observations	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● collect data from the growing activity last term ● analyse and report their findings. 	Growth, Nutrients, Sunlight, Warmth.
5 6	To describe what plants need to stay healthy	<ul style="list-style-type: none"> ● recap the previous lesson ● produce a guide for the growth and care for plants that will include: <ul style="list-style-type: none"> ○ the conditions needed for germination and healthy growth. ○ include drawings and photographs in their guide as well as information. 	

Year 3 - Autumn 1 Rocks

NC objectives: <ul style="list-style-type: none"> compare and group together different kinds of rocks on the basis of their appearance and simple physical properties 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To describe the features of different rocks	<ul style="list-style-type: none"> complete a comprehension activity about the topic explore sedimentary, igneous and metamorphic rocks explore common characteristics and differences between the rocks 	Sedimentary, Igneous, Metamorphic, Characteristic, Geology, Geologist, Lava, Solidify
2	To classify rocks based on their features	<ul style="list-style-type: none"> revisit previous learning examine a collection of unknown rocks classify the rocks explain and justify their choices 	
3	To describe how sedimentary rocks are formed	<ul style="list-style-type: none"> complete a comprehension activity about the topic research how sedimentary rocks are formed write an explanation of the stages including: <ul style="list-style-type: none"> weathering, transport; deposition; sedimentation, compaction and cementation investigate rock porosity of sandstone, limestone and mudstone 	Sedimentary, Metamorphic, Characteristic, Geology, Geologist, Chalk, Limestone, Mudstone, Marble, Gneiss
4	To describe how metamorphic rocks are formed	<ul style="list-style-type: none"> revisit previous learning research how metamorphic rocks are formed create 'metamorphic' rock compare their creation to real metamorphic rock samples 	
5	To describe how igneous rocks are formed	<ul style="list-style-type: none"> complete a comprehension activity about the topic research how intrusive and extrusive igneous rocks are formed investigate the size of crystal formation in igneous rocks sort rocks into intrusive and extrusive igneous rocks 	Igneous, Characteristic, Geology, Geologist, Granite, Basalt, Pumice, Obsidian, Volcano, Intrinsic, Extrinsic, Mineral
6	To describe some of the features of igneous rocks	<ul style="list-style-type: none"> revisit previous learning describe the characteristics of some minerals and discover in which rock they are formed become geologists and research the hardness of the minerals based on Moh's Scale investigate the hardness of minerals 	

Year 3 - Autumn 2 Rocks and Forces

NC objectives:			
<ul style="list-style-type: none"> 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. compare how things move on different surfaces notice that some forces need contact between two objects, but magnetic forces can act at a distance 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To describe what a fossil is	<ul style="list-style-type: none"> complete a comprehension activity about the topic make their own fossil which they will 'excavate' next lesson examine a set of fossils draw each in their books and discuss the features of each fossil. classify the specimens as a plant or animal, along with their reasons 	Fossilisation, compaction, sediment, petrification, mineral, resin
2	To describe how a fossil is formed	<ul style="list-style-type: none"> revisit previous learning research how fossils are formed and report findings become palaeontologists and 'excavate' their fossils 	
3	To state that soil is made up of rocks and organic matter	<ul style="list-style-type: none"> complete a comprehension activity about the topic explore ways of separating soil identifying three different layers research soil produce a labelled diagram showing the layers of soil, along with a brief description of each layer give descriptions of the soil types 	Topsoil, Humus, Filtration, Drainage, Loam, Sand, Silt, Clay, Saline
4	To list some of the properties of soil	<ul style="list-style-type: none"> revisit previous learning plan an investigation to look at drainage in soil carry out the investigation 	
5	To investigate friction	<ul style="list-style-type: none"> complete a comprehension activity about the topic explore the force friction investigate friction 	
6	To plan an investigation into friction	<ul style="list-style-type: none"> revisit previous learning plan an investigation into friction carry out the investigation 	Friction, Lubricant, Surface, Rough, Smooth, Force

Year 3 – Spring 1 Forces and light

NC objectives:			
<ul style="list-style-type: none"> 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. 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 an opaque object find patterns in the way that the size of shadows change. 			
Lesson number	Learning objective	Pupils will learn	Vocabulary
1	To investigate which type of materials are attracted to magnets	<ul style="list-style-type: none"> complete a comprehension activity about the topic explore what a magnet is investigate what happens when magnets are repelled investigate what materials are magnetic 	Magnet, Magnetic Field, Magnetic Field Strength, Attraction, Repulsion, Pole, Non-metal, Distance
2	To investigate the strength of a magnets magnetic field	<ul style="list-style-type: none"> revisit previous learning investigate different types of magnets and their magnetic fields 	
3	To investigate reflection	<ul style="list-style-type: none"> complete a comprehension activity about the topic explore how brightness is measured in Lux investigate reflection 	Darkness, Reflection, Angle of Incidence, Angle of Reflection, Lux
4	To describe why the Sun can be dangerous to our eyes and how to protect them	<ul style="list-style-type: none"> revisit previous learning discuss the dangers of the sun investigate what material is best for sunglasses 	
5	To investigate how shadows are formed	<ul style="list-style-type: none"> complete a comprehension activity about the topic discuss what a shadow investigate if everything casts a shadow 	Transparent, Translucent, Opaque, Cast, Light Source, Reflection
6	To investigate how to change the size of a shadow	<ul style="list-style-type: none"> revisit previous learning explore shapes made by shadows investigate the size of shadows 	

Year 3 – Spring 2 Animals including humans

NC objectives:			
<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. 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To explore different food groups	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● discuss the functions of the nutrient groups and how that function serves the health of the individual ● classify the food types according to the information on the cards ● determine what function the food types will contribute to 	Protein, Carbohydrate, Fat, Vitamin, Minerals, Fibre, Water, Calorie, Energy, Diet, Vegetarian, Vegan, Carnivore, Herbivore, Omnivore
2	To investigate the amount of vitamin C in juices	<ul style="list-style-type: none"> ● revisit previous learning ● explore what vitamin C is and why the body needs it ● investigate the amount of vitamin c in different juices 	
3	To identify bones in the body	<ul style="list-style-type: none"> ● *make root farms - and collect weekly data - lesson 1 Summer 1 ● complete a comprehension activity about the topic ● explore the skeletal system ● explore xrays and identify the animals 	Skeleton, Bone, Spine, Humerus, Radius, Ulna, Femur, Fibula, Tibia, Cranium, Ribs, Calcium, X-Rays, Internal, Vertebrate
4	To investigate bones	<ul style="list-style-type: none"> ● revisit the previous learning ● investigate what bones are made of and how strong they are ● make a model skeleton and identify the bones 	
5	To name some muscles in the body	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● explore muscles in the body ● investigate muscles that are used in the body for jumping 	
6	To describe how some muscles work	<ul style="list-style-type: none"> ● revisit the muscles in the body ● investigate muscles in the insects such as grasshoppers, flea and praying mantis ● compare the muscles in animals 	Biceps, Triceps, Quadriceps, Calf, Muscle, Tendon, Antagonistic, Skeletal Muscle, Smooth Muscle, Cardiac Muscle, Contract, Relax

Year 3 – Summer 1 Plants

NC objectives:			
<ul style="list-style-type: none"> ● identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers ● investigate the way in which water is transported within plants 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To describe how water and nutrients are taken up by the plant through the root	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● analyse the root results collected last term ● investigate the movement of water in roots 	Root, Tap Root, Fibrous Roots, Capillary Action, Root Hairs, Osmosis
2	To explain the importance of roots	<ul style="list-style-type: none"> ● *planting for Su 2- lesson 3 (3.17) ● revisit previous learning ● research roots ● produce a report about roots 	
3	To identify that the surfaces of a leaf are different from each other	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● examine leaves under a microscope ● investigate how leaves can control what water it keeps 	Microscope, leaf, vein, stomata, photosynthesis, carbon dioxide, water, oxygen, glucose, starch, stomata
4	To identify the function of the stomata	<ul style="list-style-type: none"> ● revisit previous learning ● investigate from what surface water is lost on a leaf ● report findings ● optional - investigation with holly leaves 	
5	To name the structures in the stem in which water and nutrients are transported	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● investigate how water travels through the stem of a flower and through celery 	Stem, Xylem, Transpiration, Capillary Action
6	To describe the journey of water through a plant	<ul style="list-style-type: none"> ● revisit the previous learning ● investigate how water travels in a plant 	

Year 3 – Summer 2 Plants

NC objectives:			
<ul style="list-style-type: none"> ● 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 ● explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal 			
Lesson number	Learning objective	Pupils will learn	Vocabulary
1	To name some the parts of a flower and their function	<ul style="list-style-type: none"> ● *planting for Su 2- lesson 5 (3.18) and lesson 4 (3.17) ● complete a comprehension activity about the topic ● identify the parts of a flower 	Pollen, Ovum, Pollination, Fertilisation, Fuse, Dispersal, Stigma, Style, Ovary, Anther, Filament
2	To explain how pollination works	<ul style="list-style-type: none"> ● investigate how wind supports pollination ● research the methods of seed dispersal including gravity, wind, water, animal and explosion 	
3	To name some of the nutrients that plants need	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● explore why venus fly traps are a carnivorous plant ● investigate what nutrients plants need - data collected last term 	Carnivorous, Nutrients, Mineral, Potassium, Phosphorous, Nitrogen, Magnesium, Calcium, Sulphur, Growth Rate, Deficiency
4	To identify some of the health problems plant will have if they do not get the minerals they need	<ul style="list-style-type: none"> ● revisit previous learning ● research what happens if plants don't have the minerals needed ● investigate germination of seeds - data collected throughout this term 	
5	To explore the requirements of plants for life and growth	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● explore photosynthesis ● investigate the effect of light on plant growth - data collected last term ● report findings 	Photosynthesis, carbon dioxide, water, glucose, oxygen
6	To explore the requirements of plants for life and growth	<ul style="list-style-type: none"> ● revisit the previous learning ● investigate the effect of different liquids on plant growth - data collected last term ● report findings 	

Year 4 - Autumn 1 Electricity

NC objectives:			
<ul style="list-style-type: none"> ● 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. ● Identify common appliances that run on electricity 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To construct a circuit so that the components work	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● discuss with the class the components needed to build a circuit. ● match the symbols to the components. ● explore how to build a circuit 	Component, Circuit, Loudness, Brightness, Buzzer, Cell, Battery, Crocodile Clip, Voltage, Current
2	To explain how a switch works	<ul style="list-style-type: none"> ● revisit previous learning ● explore how to draw circuits ● investigate switches 	
3	To use a buzzer in a circuit	<ul style="list-style-type: none"> ● revisit previous learning ● create a circuit buzzer game. 	
4	To define what an electrical conductor or insulator is	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● investigate materials that are insulators and conductors 	Component, Circuit, Loudness, Brightness, Buzzer, Cell, Battery, Crocodile Clip, Voltage, Current
5	To identify common appliances that run on electricity	<ul style="list-style-type: none"> ● revisit previous learning ● sort appliances based on if they run on electricity or not ● research uses of circuits in devices 	
6	To use knowledge of circuits to build a burglar alarm	<ul style="list-style-type: none"> ● revisit previous learning ● build a burglar alarm 	

Year 4 - Autumn 2 Animals including Humans

NC objectives:			
<ul style="list-style-type: none"> 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. 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To describe the functions of the significant parts of the digestive system.	<ul style="list-style-type: none"> complete a comprehension activity about the topic label parts of the body research the following parts to the digestive system and produce a report on their function: Mouth, Oesophagus, Stomach, Liver, Pancreas, Small Intestine, Large Intestine, Rectum, Anus explore how long the intestine is 	Mouth, Oesophagus, Stomach, Intestine, Colon Rectum, Anus, Faeces, Digestion, Nutrients
2	To define what digestion is and why it is necessary	<ul style="list-style-type: none"> *set up the 'What stains teeth' activity for the following week revisit previous learning investigate where digestion starts create a model of the digestive system 	
3	To describe the functions of each tooth type with reference to the tooth's shape	<ul style="list-style-type: none"> complete a comprehension activity about the topic research the types of human teeth and then label their diagrams correctly write the features of each tooth including its shape, size etc. evaluate the results of the 'what stains teeth' experiment. 	Canine, Incisor, Molar, Pre-molar, Plaque, Decay
4	To discuss problems that may arise from not brushing teeth regularly	<ul style="list-style-type: none"> revisit previous learning investigate the most effective toothpaste research why we must brush our teeth *optional - plaque on teeth investigation 	
5	To classify organisms as producers, predators or prey	<ul style="list-style-type: none"> complete a comprehension activity about the topic classify organisms into predator and prey investigate what I ate and what eats me 	Producer, Predator, Prey, Food Chain, Habitat, Carnivore, Herbivore, Omnivore
6	To construct food chains from information	<ul style="list-style-type: none"> Revisit previous learning use food chain cards to identify organisms as predators, prey or producers construct food chains design an imaginary predator 	

Year 4 – Spring 1 States of Matter

NC objectives:			
<ul style="list-style-type: none"> Compare and group materials together, according to whether they are solids, liquids or gases 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To draw and interpret particle diagrams of solids, liquids and gases	<ul style="list-style-type: none"> complete a comprehension activity about the topic explore what a particle is produce a report showing what the particle diagrams of solids, liquids and gases look like, with an explanation of some of the properties of each 	Solid, Liquid, Gas, State of Matter, Fluid, Compressed, Particle
2	To identify a substance as either a solid, a liquid or a gas	<ul style="list-style-type: none"> Revisit previous learning identify an object, the material from which it is made, and classify it as solid, liquid or gas change a liquid to a solid through adding heat (energy) 	
3	To investigate the viscosity of liquids	<ul style="list-style-type: none"> complete a comprehension activity about the topic observe what happens when liquids are added together investigate the viscosity of liquids 	Solid, Liquid, Gas, State of Matter, Fluid, Compressed, Particle.
4	To investigate the viscosity of liquids	<ul style="list-style-type: none"> Revisit previous learning investigate what happens when some liquids are combined order liquids based on their viscosity 	
5	To identify a substance as a gas	<ul style="list-style-type: none"> complete a comprehension activity about the topic investigate if air has mass explore how some gases are produced 	Solid, Liquid, Gas, State of Matter, Fluid, Compressed, Particle.
6	To investigate which carbonate produces the most CO ₂	<ul style="list-style-type: none"> Revisit previous learning investigate which carbonate produces the most CO₂ 	

Year 4 – Spring 2 States of Matter

NC objectives:			
<ul style="list-style-type: none"> ● 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 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To explain that changes in temperature are required to cause changes in state of a substance	<ul style="list-style-type: none"> ● *prepare the rates of evaporation demonstration ready for next lesson ● complete a comprehension activity about the topic ● investigate the rate of freezing for different types of water ● change a liquid to a solid 	Solid, Liquid, Gas, State of Matter, Fluid, Compressed, Particle, Evaporation, Condensation, Boiling, Melting, Freezing
2	To investigate the rate of evaporation	<ul style="list-style-type: none"> ● revisit previous learning ● investigate the rate of evaporation ● investigate evaporation and diffusion 	
3	To classify substances as a solid, liquid or gas.	<ul style="list-style-type: none"> ● revisit previous learning ● decide whether a substance is a solid, liquid or gas at room temperature (20°C) ● write a report explaining the differences between solids, liquids and gases 	
4	To identify the stages of evaporation, condensation and precipitation in the water cycle	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● explore how clouds work ● research the water cycle 	Evaporation, Precipitation, Condensation, Liquid, Gas, Vapour
5	To explain the effect of temperature and wind on the evaporation rate	<ul style="list-style-type: none"> ● revisit previous learning ● investigate evaporation ● make a water cycle in a bag -to be used in the following lesson 	
6	To describe how rain is formed	<ul style="list-style-type: none"> ● revisit previous learning ● make a rain model ● write up findings from the water cycle activity from the previous lesson 	

Year 4 – Summer 1 Living things and their habitats / Sound

NC objectives:			
<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 ● identify how sounds are made, associating some of them with something vibrating 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To classify living things based on their characteristics	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● explore what classification means and classify a variety of things by their properties ● create a set of criteria in order to classify something. 	Classification, Mammal, Reptile, Amphibian, Bird, Fish, Vertebrate, Invertebrate, Key
2	To use a classification key to classify living things	<ul style="list-style-type: none"> ● revisit previous learning ● use a classification key to identify different aliens ● Produce a classification key to classify the animals 	
3	To identify some of the natural phenomena that contribute to changing land and seascapes.	<ul style="list-style-type: none"> ● *tell children to bring in boxes for lesson 6 - making in instrument ● complete a comprehension activity about the topic ● explore word maps and note their change over time. ● explore how tectonic plates move. ● investigate how the impact of asteroids on the Earth 	Extinction, Volcano, Earthquake, Asteroid, Crater, Environment, Endangered, Plate Tectonics, Adaption
4	To describe why sudden changes to the environment can adversely affect living things	<ul style="list-style-type: none"> ● revisit previous learning ● research 3 animals that are extinct and write a report of why they became extinct. 	
5	To investigate that sounds are made when materials vibrate	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● investigate the difference in sound between different materials when a force is applied to them ● observe the difference in frequency and musical notes when using different tuning forks 	Pitch, frequency, loudness, volume
6	To link the quality of sound to the physical properties of the material vibrating	<ul style="list-style-type: none"> ● Revisit previous learning ● Create their own musical instrument. ● Investigate the effect a pencil has on elastic band to change the pitch, duration of vibration and sounds 	

Year 4 – Summer 2 Sound

NC objectives:			
<ul style="list-style-type: none"> ● 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 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To describe how sound travels by vibrations being passed on from particle to particle	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● participate in a Sound Circus to complete the following investigations: <ul style="list-style-type: none"> ○ soundwave machine ○ sound through liquids 1 ○ sound through liquids 2 ○ sounds through gases 1 ○ sounds through gases 2 ○ sounds through solids 1 ○ sounds through solids 2 	Pitch, frequency, loudness, volume, solid, liquid, gas, particle, vibration, dissipate, propagate
2	To find patterns between the pitch of a sound and features of the object that produced it	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● investigate that the higher the frequency, the higher the pitch of the sound made through making panpipes and experimenting with straws. ● Investigate if the size of a glass and the amount of water held in the glass affects the pitch. 	Pitch, frequency, loudness, volume
3	To state the relationship between the energy used to make the sound and the loudness of the sound	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● investigate if the size of an ear affects the volume of sound. ● investigate if the height of an object being dropped or the size / material of an object affects the volume 	Loudness, volume, vibration, impact
4	To state the relationship between the energy used to make the sound and the loudness of the sound	<ul style="list-style-type: none"> ● revisit previous learning ● investigate the best materials to create a set of ear defenders. 	
5	To investigate if sounds get fainter as the distance from the sound source increases	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● create a noise maker and investigate the distance the sound will travel 	Loudness, volume, vibration, distance, energy, dissipate
6	To use secondary resources to investigate a scientific question.	<ul style="list-style-type: none"> ● revisit previous learning ● research and produce a report about animals that can be heard over long distances with an attempt to explain why the noises they make travel so far. 	

Year 5 – Autumn 1 Forces

NC objectives:			
<ul style="list-style-type: none"> ● explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object ● identify the effects of air resistance, water resistance and friction, that act between moving surfaces 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To understand what gravity is	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● explore gravity ● plan and carry out an investigation into gravity ● report findings 	Gravity, Descend, Newton, Air-Resistance, Mass, Weight
2	To calculate weight	<ul style="list-style-type: none"> ● revisit previous learning ● investigate the mass and weight (N) of objects ● research what 100 kg would be on various planets 	
3	To explore friction	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● explore friction ● investigate if mass affects friction 	Friction, Decelerate, Smooth, Rough, Surface
4	To investigate what affects friction	<ul style="list-style-type: none"> ● revisit previous learning ● investigate if the surface of the floor affects friction ● optional if extra time allows - further investigation to see if mass affects friction (balloon cars are needed for lesson 6 which is also an optional task) 	
5	To describe the effects of air resistance	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● explore air resistance ● investigate air resistance ● collect and analyse data 	Gravity, Descend, Newton, Air-Resistance, Mass, Weight
6	To suggest ways of increasing or decreasing air resistance	<ul style="list-style-type: none"> ● revisit previous learning ● optional - balloon car race ● create a rocket ● investigate if the shape of the rocket affects how much air resistance there is on it. 	

Year 5 - Autumn 2 Forces

NC objectives:				
<ul style="list-style-type: none"> ● 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 ● 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 				
Lesson number	Learning objective	Pupils will learn	Vocabulary	
1	To describe the effects of water resistance	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● explore water resistance ● plan and investigate the effect a boat shape has on water resistance 	Friction, Water Resistance, Surface Area, Decelerate, Water Particles, Drag, Float, Sink	
2	To suggest ways of increasing or decreasing water resistance	<ul style="list-style-type: none"> ● revisit the previous learning ● plan and investigate what shape would make the best for a submarine 		
3	To explore a lever	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● explore what is meant by a lever ● investigate the effort needed for lifting something 		Effort, Load, Energy, Fulcrum, Pivot, Lever, Mechanical, Pulley, Gears, Cog, Rotate
4	To explore a pulley	<ul style="list-style-type: none"> ● revisit previous learning ● explore a pulley ● explain why pulleys are useful ● link to DT - cars project 		
5	To explore a gear	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● revisit previous learning ● explore a gear ● investigate gears ● link to DT - cars project 		
6	To write a scientific report	<ul style="list-style-type: none"> ● revisit previous learning ● produce a short report on simple machines including: <ul style="list-style-type: none"> ○ the lever, the wheel and axle, the pulley, the inclined plane, the wedge and the screw. They should include pictures of each, how they work, and an example of how they were used to make life easier for the people in ancient times. 		

Year 5 – Spring 1 Properties and changes of materials

NC objectives:			
<ul style="list-style-type: none"> ● 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 ● 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 ● 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 ● demonstrate that dissolving, mixing and changes of state are reversible changes 			
Lesson number	Learning objective	Pupils will learn	Vocabulary
1	To explore what is needed for a fire to burn	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● explore what fire needs to burn ● investigate what happens when there is no oxygen for a fire ● investigate how the mass of a candle changes when lit ● classify substances as fuels or not fuels 	Fire, burning, combustion, oxygen, carbon dioxide, fuel, mass
2	To classify substances as acids, alkalis or neutral	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● classify substances ● investigate how to neutralise an acid 	Irreversible, Acid, Alkali, pH scale, Neutral, Carbon Dioxide, Neutralisation
3	To identify some of the signs that tell a chemical reaction has occurred	<ul style="list-style-type: none"> ● revisit the previous lesson ● investigate the reaction between an acid and an alkaline 	
4	To identify a solution as a type of mixture	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● make a solution and classify it as soluble or insoluble ● investigate the saturation point of of a solute ● investigate if the temperature affects solubility 	
5	To investigate reversible changes	<ul style="list-style-type: none"> ● revisit previous learning ● explore the reversible changes with water ● explain how melting and freezing are reversible processes 	Solute, Solvent, Solution, Dissolving, Soluble, Insoluble, Saturated, Mixture, Reversible
6	To analyse a solution and decide how best to separate the component parts	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● investigate how to separate materials via sieving ● investigate how to separate materials via filtration 	

Year 5 – Spring 2 Properties and changes of materials

NC objectives:			
<ul style="list-style-type: none"> ● give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic ● 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 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To explain the process of evaporation and how it can be used to separate the solute from the solvent	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● investigate evaporation ● investigate how to separate solutes from solvents using evaporation 	Solute, Solvent, Solution, Dissolving, Soluble, Insoluble, Saturated, Mixture, Reversible, Evaporation
2	To compare everyday materials on the basis of their properties	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● be introduced to the Mohs Scale ● Investigate the hardness of materials ● be introduced to alloys ● investigate how adding something to a material can change its properties 	Hardness, Mohs Scale, Mineral, Flexible, Elastic, Stretchy, Brittle
3	To classify materials as transparent, translucent or opaque	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● plan and carry out an investigation into the transparency of a material ● present results 	Transparent, Translucent, Opaque, Magnetic, Attract
4	To classify materials based on whether they are attracted to magnets	<ul style="list-style-type: none"> ● revisit the previous leaning ● investigate what materials are magnetic ● plan and carry out an investigation to test the strength of a magnet 	
5	To investigate which types of material make the best thermal conductors/insulators	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● investigate what makes the best thermal / electrical insulator 	Conductor, Insulator, Thermal, Heat, Deformed
6	To investigate which types of material make the best electrical conductors/insulators	<ul style="list-style-type: none"> ● revisit previous learning ● recap how to make a circuit ● investigate what material is an electrical conductor ● optional - produce a report in to properties of materials 	

Year 5 - Summer 1 Space

NC objectives:			
<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 the sky. 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To classify planets as either rocky or gas giant	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● explore how the planets orbit ● investigate the relationship between distance from the Sun and the surface temperature of the planet 	Earth, Sun, Moon, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, Planets, Solar System, Orbit, Geocentric, Heliocentric, Anticlockwise, Clockwise
2	To explore the sizes of the planets	<ul style="list-style-type: none"> ● revisit previous learning ● Explore the sizes of the planets ● make planets 	
3	To sort the planets in order of distance from the Sun	<ul style="list-style-type: none"> ● revisit previous learning ● explore the sizes of the planets and their relative position to the sun ● create a report about the solar system using their learning. 	
4	To explain why we have day and night on Earth and why this is cyclical	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● explore why we have day and night ● produce a report comparing the geocentric and heliocentric theories and why the apparent movement of the Sun across the sky caused confusion about Earth's place in the cosmos 	Earth, Sun, Moon, Orbit, Geocentric, Heliocentric, Anticlockwise, Clockwise, Phase, Axis, Cyclical
5	To explore the phases of the moon	<ul style="list-style-type: none"> ● revisit previous learning ● investigate the phases of the moon 	
6	To investigate why the Sun, Moon and Earth are only roughly spherical	<ul style="list-style-type: none"> ● revisit previous learning ● investigate the question: Are the Planets, Sun and Moon Spherical? 	

Year 5 – Summer 2 Animals including Humans and Living things and their habitats

NC objectives:			
<ul style="list-style-type: none"> describe the changes as humans develop to old age. 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. 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To explain some of the changes that occur in humans from when they are born	<ul style="list-style-type: none"> *plant things ready for lesson 6 (5.18) complete a comprehension activity about the topic discuss and research the life stages of humans explore puberty 	Aging, puberty, elderly, osteoporosis, bone density
2	To describe some of the characteristics that occur as humans get older	<ul style="list-style-type: none"> revisit previous learning investigate how eye sight change as we get older investigate what happens to bones as they get older optional - produce a report showing some of the diseases that affect bones, their effect on the bones and treatments 	
3	To describe the differences in the life cycles	<ul style="list-style-type: none"> complete a comprehension activity about the topic compare the lifecycle of various living things write descriptions of the similarities and differences between each group 	Sexual, reproduction, mating, hatch, birth, offspring
4	To describe the life process of reproduction in some animals	<ul style="list-style-type: none"> revisit previous learning research the life cycle of their chosen animal and produce a poster containing the following information: whether born or hatched, gestation period, how long each stage of the life cycle is, how old the animal has to be before it can reproduce, the name of its young and how long the animal will live for, plus any other pertinent information 	
5	To describe the life process of reproduction in some plants	<ul style="list-style-type: none"> complete a comprehension activity about the topic produce a report with explanations of the difference between sexual and asexual reproduction in plants. The report could also include several of the types of asexual reproduction including budding, spores, fragmentation, and regeneration 	Sexual, asexual, reproduction, regeneration, cutting, spores
6	To describe the life process of reproduction in some plants	<ul style="list-style-type: none"> revisit previous learning analyse data collected over the past 6 weeks 	

Year 6 - Autumn 1 Electricity and renewable energy

NC objectives:			
<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. 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To use recognised symbols when representing a simple circuit in a diagram	<ul style="list-style-type: none"> • complete a comprehension activity about the topic • identify the components of a circuit and their symbols • build a circuit • investigate the brightness of a bulb in a circuit 	Component, Circuit, Loudness, Switch Brightness, Buzzer, Cell, Battery, Crocodile Clip, Voltage, Current
2	To investigate the volume of a buzzer when changing the voltage of cells	<ul style="list-style-type: none"> • Recap on the components of a circuit • complete a science investigation and written account of the experiment • investigate loudness of a buzzer with different voltages • draw accurate scientific diagrams 	
3	To identify types of energy	<ul style="list-style-type: none"> • complete a comprehension activity about the topic • identify types of renewable and non renewable energy • identify the pros and cons for renewable energy 	Renewable, non-renewable, generate, electricity, wind, solar, carbon dioxide, hydroelectric, tidal
4	To investigate wind turbines and the energy they produce	<ul style="list-style-type: none"> • recap on renewable and non renewable energy sources • build a wind turbine • investigate how the number of blades on a turbine can create different amounts of energy • create a written report about wind turbines - in writing 	
5 *start 6.3 activity	To investigate solar power and the energy they produce	<ul style="list-style-type: none"> • complete a comprehension activity about the topic • recap on renewable and non renewable energy sources • create a solar power circuit • investigate solar powered calculators 	Energy, Renewable, Solar, Photovoltaic, Cell, Panel, Reflection, Watt
6		<ul style="list-style-type: none"> • Spare lesson to allow for carry over or further learning to take place 	

*Note from 6.3

Pupils will need to exercise 3 times per week for 6 weeks prior to this lesson. It is suggested that this happens for 1 minute on Monday, Wednesday and Friday. The data will be recorded on Fridays only.

Year 6 - Autumn 2 Global Warming and Animals including humans

NC objectives:			
<ul style="list-style-type: none"> recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function 			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To explore global warming	<ul style="list-style-type: none"> complete a comprehension activity about the topic explore the greenhouse gas effect investigate the greenhouse gas effect Investigate how water can hold heat Discuss why rising sea temperatures can affect global warming 	Global warming, Carbon Dioxide, Temperature, Climate Change, Greenhouse Effect, Polar, Ice Cap
2	To investigate what effect global warming has on sea levels	<ul style="list-style-type: none"> recap on global warming. explore how the polar ice caps are melting investigate how melting ice caps contribute to rising sea levels 	
3	To recognise the impact of an unhealthy diet on the body	<ul style="list-style-type: none"> complete a comprehension activity about the topic explore healthy and unhealthy diets investigate the fat content in crisps and the effect that has on the body 	Diet, Exercise, Calorie, Fat, Carbohydrate, Protein, Medicine, Drug, Lifestyle.
4	To explore sugar content in food	<ul style="list-style-type: none"> recap on the previous learning investigate the effect sugar has on the body explore the sugar content in food produce a class presentation about the sugar content in snacks 	
5	To recognise the impact of exercise on the body	<ul style="list-style-type: none"> complete a comprehension activity about the topic analyse and present the data collected from the past 6 weeks stamina challenge find the mean stamina for girls and mean for boys explore the relationship between heart rate and exercise 	Medicine, Drug, Lifestyle, Cardiovascular, Resistance Training.
6	To recognise the impact of drugs on the body	<ul style="list-style-type: none"> classify substances into drugs and medicine analyse diary entries of two people and present their findings suggest ways people can improve / maintain a healthy lifestyle 	

Start collecting cereal boxes and plastic bottles for the next unit

Year 6 – Spring 1 Animals including humans and Living things and their habitats

NC objectives: describe the ways in which nutrients and water are transported within animals, including humans. describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals give reasons for classifying plants and animals based on specific characteristics.			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To describe the ways in which nutrients and water are transported	<ul style="list-style-type: none"> complete a comprehension activity about the topic investigate salt water being absorbed by a potato over time (osmosis) and how this represents how nutrients and water move into every part of the body research the function of the kidneys 	Osmosis, Nutrients, Kidney, Urination, Filtration.
2	To describe the ways in which nutrients and water are transported	<ul style="list-style-type: none"> Recap the function of the kidneys recreate a model of the kidney explore how the kidneys filter the blood and remove excess water 	
3*	To classify microorganisms	<ul style="list-style-type: none"> complete a comprehension activity about the topic classify the 5 types of microorganisms create a diagram of microorganism 	Bacteria, Fungi, Algae, Virus, Protozoa, Microorganism, Microbe, Flagellum, Germ.
4	To investigate the growth of microorganisms	<ul style="list-style-type: none"> recap on previous lesson explore how microorganisms can spread investigate the rate of growth of bacteria on bread. 	
5	To classify organisms	<ul style="list-style-type: none"> complete a comprehension activity about the topic create a whole class classification tree using shoes classify various organisms based on their common characteristics extract and examine DNA from fruit 	Classification, Kingdom, Species, Taxonomy, Animal, Plant, Mammal
6	To classify mammals	<ul style="list-style-type: none"> recap on previous learning classify mammals investigate if humans are primates and present findings 	

*Pupils need to be reminded to bring into school a piece of footwear for Lesson 5 (6.8 (School shoes don't count)).

Pupils will need to bring in 2 different items of footwear for this lesson. Encourage them to bring different colours, types, shoes for men, women, boys, girls – anything.

Year 6 – Spring 2 Humans and animals over time

NC objectives: 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.			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To identify how animals are adapted to suit their environment	<ul style="list-style-type: none"> complete a comprehension activity about the topic explore how animals have adapted to avoid being eaten by predators explore why animals can camouflage themselves investigate how polar bears keep warm in cold climates 	Adaption, Characteristic, Favourable, Survival, Evolution, Inherited, Camouflage.
2	To identify how the peppered moth adapted for survival	<ul style="list-style-type: none"> recap on previous learning investigate why the and how the peppered moth survived through adaptation 	
3	To understand how characteristics can be passed on	<ul style="list-style-type: none"> complete a comprehension activity about the topic identify what characteristics are passed on through their parents identify what parents produced what offspring based on their shared characteristics justify choices for the above activity 	Inheritance, Variation, Characteristic, Offspring, Parent, Heredity.
4	To understand that offspring have shared characteristics but are not identical to their parents	<ul style="list-style-type: none"> recap on previous learning create offspring insects based on specific characteristics from the parent insects investigate how characteristics can be passed on through the generations 	
5	To research how humans have evolved over time	<ul style="list-style-type: none"> complete a comprehension activity about the topic explore how characteristics are passed on but mutations can occur investigate how humans have evolved overtime 	Inheritance, Variation, Characteristic, Offspring, Parent, Heredity, Evolution, Fossil, Advantage, Extinction.
6	To explore how birds have adapted to survive	<ul style="list-style-type: none"> recap on previous learning be introduced to Darwin's work on the Galapagos Islands explore his work on Mockingbird's experiment with 'beaks' to investigate how the birds adapted and survived 	

Year 6 – Summer 1 Animals including humans and Light

<p>NC objectives: identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood recognise that light appears to travel in straight lines use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To identify and name the main parts of the human circulatory system,	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● create life size human circulatory systems ● explore the structure of the heart ● research blood: where it is made, what is it made of, what it carries around the body, blood groups and a drawing of a red blood cell ● present their findings 	Heart, Ventricle, Atrium, Vein, Artery, Blood, Circulatory, Muscle, Cardiac, Vessel.
2	To describe the functions of the heart	<ul style="list-style-type: none"> ● recap on previous learning ● create a model of the heart ● investigate how blood travels around the heart 	
3	To explore the effect of exercise on the heart	<ul style="list-style-type: none"> ● recap on previous learning ● identify their pulse point ● measure their heart rate whilst resting ● measure the heart rate during exercise and present finding 	
4		SATS	
5	To understand how light travels	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● explore how light travels ● classify materials as luminous and non luminous ● investigate shadows 	Light, Reflection, Visible, Ultraviolet, Lens, Convex, Concave, Diverge, Converge, Ray
6	To understand how we see	<ul style="list-style-type: none"> ● recap on previous learning ● draw ray diagrams ● investigate concave and convex lenses ● create a periscope 	

NC objectives: 1- The lesson reaffirms the knowledge pupils learned in year 5 – specifically the Forces and Properties and Changes of Materials Programs of Study 3-4 The lesson reaffirms the knowledge pupils learned in year 5 – specifically the Forces Program of Study			
Lesson number	Learning objective	Pupils will	Vocabulary
1	To identify key features of a rocket launch	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● watch a rocket launch and answer questions about it ● look at types of rocket fuel and find out what is best to use ● examine different rocket types 	Thrust, Air Resistance, Gravity, Launch, Fuel, Balanced, Unbalanced, Force, Propel, Propulsion.
2	To plan and carry out an experiment	<ul style="list-style-type: none"> ● recap on previous learning ● create their own simple ● plan and carry out an investigation in to the force used to launch the rocket 	
3	To plan and carry out an experiment	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● using previous learning, create an aerodynamic rocket ● plan and carry out an investigation to see how far their rocket can travel 	Projectile, Missile, Ballistics, Aerodynamic, Fins, Air Resistance, Gravity, Trajectory
4			
5	To describe some applications for useful materials	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● investigate sodium polyacrylate and how absorbent it is ● predict if something can be reversible and suggest ways to investigate this 	Absorbent, Soak, Chemical, Sodium Polyacrylate, Materials, Retention
6	To describe some signs a chemical reaction has taken place	<ul style="list-style-type: none"> ● complete a comprehension activity about the topic ● explore how iron oxide is produced ● investigate chemical reactions <ul style="list-style-type: none"> ○ exothermic - vinegar and iron wool ○ endothermic - bicarbonate of soda and citric acid 	Oxidation, Oxygen, Chemical Reaction, Substance, Exothermic, Rust, Iron Oxide