Davenham Church of England Primary School

'Working Together, Playing Together, Serving God and Serving Others'

'...encourage one another and build each other up...'

1 Thessalonians 5:11.

LONG TERM PLAN SCIENCE

SCIENCE YEAR A	Year 1 and 2	Year 3 and 4	Year 5 and 6
	Materials **Plants**	**Light** **Living Things and their Habitats** **Plants** **Electricity** **Forces and Magnets**	**Properties and changes of materials** **Living Things and their Habitats (Life Cycles)** **Earth and Space** **Forces**

EYFS SCIENCE END POINTS
I can explore the natural world around me, make observations and draw pictures of plants. (ELG) (The Natural World)
I can describe what I can see, hear and feel while outside
I know how to clean my teeth. I know why oral hygiene is important.
I can understand some important processes and changes in the natural world around me including states of matter. (ELG) (The Natural World)
I can understand some important processes and changes in the natural world around me including the seasons. (ELG) (The Natural World)
I can name some similarities and differences between the natural world around me and contrasting environments, drawing on my experiences and what has been read in class. (ELG) (The Natural World)
I can recognise some environments that are different to the one I live in.

SCIENCE KS1YEAR A MATERIALS		
END POINT SCIENTIFIC ENQUIRY	**END POINTS MATERIALS**	**ESSENTIAL KNOWLEDGE AND SKILLS**
EP 33 I can ask simple scientific questions.	**EP 16 I can distinguish between an object and the material it is made from.**	**Glass is used for windows to see through.**
EP 34 I can use simple equipment to make observations.	**EP 17 I can explain the materials that an object is made from.**	**Metal is used for strength in construction – cars, planes, buildings etc.**
EP 35 I can carry out simple tests.	**EP 18 I can name wood, plastic, glass, metal, water and rock.**	**Wood is used for doors and furniture. It also burns well and can be used to make fires.**
EP 36 I can identify and classify things.	**EP 19 I can describe the properties of everyday materials.**	**Plastic can be moulded.**
EP 37 I can suggest what I have found out.	**EP 20 I can group objects based on the materials they are made from.**	
EP 38 I can use simple data to answer questions.	**EP 21 I can identify and name a range of materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard.**	
EP 33 I can ask simple scientific questions.	**EP 22 I can suggest why a material might or might not be used for a specific job.**	
	EP 23 I can explore how shapes can be changed by squashing, bending, twisting and stretching.	
		VOCAB materials, wood, plastic, metal, liquid, gas, stretch, stiff, bend, waterproof, shiny, squash, bend, twist, stretch
		ASSESSMENT ACTIVITY Design and make a boat to take a message.

SCIENCE KS1YEAR A PLANTS		
END POINT SCIENTIFIC ENQUIRY	**END POINTS PLANTS**	**ESSENTIAL KNOWLEDGE AND SKILLS**
EP 33 I can ask simple scientific questions.	**EP 1 I can name a variety of common wild and garden plants (including deciduous and evergreen trees).**	Plants take in water and carbon dioxide and give out oxygen.
EP 34 I can use simple equipment to make observations.	**EP 2 I can name the petals, stem, leaf and root of a plant.**	Trees have roots. The roots carry food and water from the ground through the trunk and branches to the leaves.
EP 35 I can carry out simple tests.	**EP 3 I can name the roots, trunk, branches and leaves of a tree.**	The trunk is the main body of the tree. It is covered with bark which protects it from damage.
EP 36 I can identify and classify things.	**EP 4 I can describe how seeds and bulbs grow into plants**.	As a tree grows it usually makes growth rings as new wood grows around the old wood.
EP 37 I can suggest what I have found out.	**EP 5 I can describe what plants need in order to grow and stay healthy (water, light & suitable temperature).**	
EP 38 I can use simple data to answer questions.	**EP 6 I know that seeds and bulbs need water to grow but most do not need light because seeds and bulbs have a store of food inside them.**	
EP 33 I can ask simple scientific questions.		
		VOCAB roots, crown, deciduous, evergreen, blossom, bulb, trunk, stem, woodland, habitat, oxygen
		ASSESSMENT ACTIVITY Sketch the tree. Name and label with key features**.**

SCIENCE LKS2 YEAR A LIGHT		
END POINTS SCIENTIFIC ENQUIRY	**END POINTS LIGHT**	**ESSENTIAL KNOWLEDGE AND SKILLS**
EP53 I can ask relevant scientific questions.	**EP 28 I can describe what dark is (the absence of light).**	Light travels from sources and reflects off surfaces.
EP54 I can use observations and knowledge to answer scientific questions.	**EP 29 I can explain that light is needed in order to see.**	In order to see light is reflected off a surface and into our eyes.
EP55 I can set up a simple enquiry to explore a scientific question.	**EP 30 I can explain that light is reflected from a surface**.	Opaque objects create shadows by blocking the light.
EP56 I can set up a fair test and explain why it is fair.	**EP 31 I can explain and demonstrate how a shadow is formed (when light from a source is blocked by an opaque object**).	You should NEVER look directly at the sun.
EP57 I can make careful and accurate observations, including the use of standard units.	**EP 32 I can explore shadow size and explain changes.**	
EP58 I can use equipment, including thermometers and data loggers to make measurements.	**EP 33 I can explain the danger of direct sunlight and describe how to keep protected.**	
EP59 I can gather, record, classify and present data in different ways to answer scientific questions.		
EP60 I can use diagrams, keys, bar charts and tables; using scientific language.		
EP61 I can use findings to report in different ways, including oral and written explanations, presentation.		
EP62 I can draw conclusions and suggest improvements.		
EP63 I can make a prediction with a reason.		
		VOCAB light, shadows, mirror, reflective, dark, reflection, light source, cast
		ASSESSMENT ACTIVITY Create a shadow puppet show. What will you be able to do to affect the shadows?

SCIENCE LKS2 YEAR A LIVING THINGS AND THEIR HABITATS		
END POINTS SCIENTIFIC ENQUIRY	**END POINTS LIVING THINGS AND THEIR HABITATS**	**ESSENTIAL KNOWLEDGE AND SKILLS**
EP53 I can ask relevant scientific questions.	**EP 20 I can group living things in different ways.**	Animals can be grouped into vertebrate and non-vertebrates.
EP54 I can use observations and knowledge to answer scientific questions.	**EP 21 I can use classification keys to group, identify and name living things.**	Humans belong to the mammal group.
EP55 I can set up a simple enquiry to explore a scientific question.	**EP 22 I can create classification keys to group, identify and name living things (for others to use).**	Plants can be grouped into flowering and non-flowering plants.
EP56 I can set up a fair test and explain why it is fair.	**EP 23 I can describe how changes to an environment could endanger living things.**	Humans can have both positive and negative effects on the environment.
EP57 I can make careful and accurate observations, including the use of standard units.		
EP58 I can use equipment, including thermometers and data loggers to make measurements.		
EP59 I can gather, record, classify and present data in different ways to answer scientific questions.		
EP60 I can use diagrams, keys, bar charts and tables; using scientific language.		
EP61 I can use findings to report in different ways, including oral and written explanations, presentation.		
EP62 I can draw conclusions and suggest improvements.		
EP63 I can make a prediction with a reason.		
		VOCAB vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, snails, slugs, worms, spiders, insects, environment, habitats
		ASSESSMENT ACTIVITY Design a leaflet for Chester Zoo about an animal of your choice. Include classification and adaptations.

SCIENCE LKS2 YEAR A PLANTS		
END POINTS SCIENTIFIC ENQUIRY	**END POINTS PLANTS**	**ESSENTIAL KNOWLEDGE AND SKILLS**
EP53 I can ask relevant scientific questions.	**EP 1 I can describe the function of different parts of flowering plants and trees.**	The main parts of a flowering plant are the roots, stem, leaves and flowers.
EP54 I can use observations and knowledge to answer scientific questions.	**EP 2 I can explore and describe the needs of different plants for survival.**	Plants need air, light, water and nutrients for growth.
EP55 I can set up a simple enquiry to explore a scientific question.	**EP 3 I can explore and describe how water is transported within plants**.	Seeds can be dispersed in a variety of ways including by wind, water and animals.
EP56 I can set up a fair test and explain why it is fair.	**EP 4 I can describe the plant life cycle, especially the importance of flowers (pollination, seed formation and seed dispersal).**	
EP57 I can make careful and accurate observations, including the use of standard units.		
EP58 I can use equipment, including thermometers and data loggers to make measurements.		
EP59 I can gather, record, classify and present data in different ways to answer scientific questions.		
EP60 I can use diagrams, keys, bar charts and tables; using scientific language.		
EP61 I can use findings to report in different ways, including oral and written explanations, presentation. EP62 I can draw conclusions and suggest improvements.		
EP63 I can make a prediction with a reason.		
		VOCAB photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal – wind dispersal, animal dispersal, water dispersal
		ASSESSMENT ACTIVITY Images of plants and settings that have been mixed up. Place in the correct environment. Choose 1 setting e.g. rainforest. Design a new plant for this environment. Label its parts. How would it reproduce?

SCIENCE LKS2 YEAR A ELECTRICITY		
END POINTS SCIENTIFIC ENQUIRY	**END POINTS ELECTRICITY**	**ESSENTIAL KNOWLEDGE AND SKILLS**
EP53 I can ask relevant scientific questions.	**EP 46 I can identify and name appliances that require electricity to function.**	Electronic devices need electricity to work.
EP54 I can use observations and knowledge to answer scientific questions.	**EP 47 I can construct a series circuit.**	A switch can open and close a circuit
EP55 I can set up a simple enquiry to explore a scientific question.	**EP 48 I can identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers).**	A circuit needs to be complete in order for electricity to flow.
EP56 I can set up a fair test and explain why it is fair.	**EP 49 I can draw a circuit diagram.**	
EP57 I can make careful and accurate observations, including the use of standard units.	**EP 50 I can predict and test whether a lamp will light within a circuit (whether the lamp is part of a complete loop with a battery).**	
EP58 I can use equipment, including thermometers and data loggers to make measurements.	**EP 51 I can describe the function of a switch in a circuit. (open and closes a circuit and whether or not a lamp light in a simple circuit)**	
EP59 I can gather, record, classify and present data in different ways to answer scientific questions.	**EP 52 I can describe the difference between a conductor and insulators; giving examples of each (*associate metals with being good conductor*s).**	
EP60 I can use diagrams, keys, bar charts and tables; using scientific language.		
EP61 I can use findings to report in different ways, including oral and written explanations, presentation.		
EP62 I can draw conclusions and suggest improvements.		
EP63 I can make a prediction with a reason.		
		VOCAB cells, wires, bulbs, switches, buzzers, battery, circuit, series, conductors, insulators, brightness
		ASSESSMENT ACTIVITY Draw and label a diagram to show how your torch will operate. Links to DT unit.

SCIENCE LKS2 YEAR A FORCES AND MAGNETS		
END POINTS SCIENTIFIC ENQUIRY	**END POINTS FORCES AND MAGNETS**	**ESSENTIAL KNOWLEDGE AND SKILLS FORCES AND MAGNETS**
EP53 I can ask relevant scientific questions.	**EP 34 I can explore and describe how objects move on different surfaces.**	Items move differently depending on the surface.
EP54 I can use observations and knowledge to answer scientific questions.	**EP 35 I can explain how some forces require contact and some do not, giving examples.**	Some forces like push and pull need contact, while magnetic forces can act at a distance.
EP55 I can set up a simple enquiry to explore a scientific question.	**EP 36 I can explore and explain how objects attract and repel in relation to objects and other magnets.**	Magnets will attract or repel depending on which poles are facing.
EP56 I can set up a fair test and explain why it is fair.	**EP 37 I can predict whether objects will be magnetic and carry out an enquiry to test this out.**	Magnets only attract certain types of metals, other materials such as glass, plastic and wood aren't attracted.
EP57 I can make careful and accurate observations, including the use of standard units.	**EP 38 I can describe how magnets work. (*and have 2 poles*).**	A magnet always has north and south poles.
EP58 I can use equipment, including thermometers and data loggers to make measurements.	**EP 39 I can predict whether magnets will attract or repel and give a reason.**	
EP59 I can gather, record, classify and present data in different ways to answer scientific questions.		
EP60 I can use diagrams, keys, bar charts and tables; using scientific language.		.
EP61 I can use findings to report in different ways, including oral and written explanations, presentation.		
EP62 I can draw conclusions and suggest improvements.		
EP63 I can make a prediction with a reason.		
		VOCAB magnetic, force, contact, attract, repel, friction, poles, push, pull
		ASSESSMENT ACTIVITY Create a car journey board game. What might make you slow down? What might make you speed up?

SCIENCE UKS2 YEAR A PROPERTIES AND CHANGES OF MATERIALS		
END POINTS SCIENTIFIC ENQUIRY UKS2	**END POINTS MATERIALS**	**ESSENTIAL KNOWLEDGE AND SKILLS**
EP45 I can plan different types of enquiry.	**EP 7 I can compare and group materials based on their properties**	Irreversible changes, like burning, cannot be undone. Reversible changes, like melting and dissolving, can be changed back again.
EP46 I can control variables in an enquiry.	**EP 8 I can describe how a material dissolves to form a solution; explaining the process of dissolving.**	Mixtures can be separated out by methods like filtering and evaporating. A change is called irreversible if it cannot be changed back again.
EP47 I can measure accurately and precisely using a range of equipment.	**EP 9 I know and can demonstrate that some changes are reversible and some are not. (*dissolving, mixing and changes of state*).**	Examples of reversible changes: Melting is when a solid converts into a liquid after heating.
EP48 I can set up a fair test and explain why it is fair.	**EP 10 I can describe and show how to recover a substance from a solution**.	A cooked egg cannot be changed back to a raw egg again. Mixing substances can cause an irreversible change. Burning is an example of an irreversible change.
EP49 I can record data using scientific diagrams and labels, classification keys, scatter graphs, bar and line graphs.	**EP 11 I can demonstrate how materials can be separated (e.g. through filtering, sieving and evaporating**).	
EP50 I can use the outcomes of tests to set up a further comparative test.	**EP 12 I can describe how a material dissolves to form a solution; explaining the process of dissolving.**	
EP51 I can report findings from enquiries in a variety of ways.	**EP 13 I can explain how some changes result in the formation of a new material and that this is usually irreversible.**	
EP52 I can write a conclusion from an enquiry.	**EP 14 I can discuss reversible and irreversible changes.**	
EP53 I can explain causal relationships from an enquiry.	**EP 15 I can give evidenced reasons why materials should be used for specific purposes.**	
EP54 I can relate the scientific outcome from an enquiry in order to state whether evidence supports or refutes an argument or a theory.		
EP55 I can read, spell and pronounce scientific vocabulary accurately.		
		VOCAB soluble, conductivity, transparency, evaporation, dissolve, bicarb of soda, thermal, filtering, melting, separate
		ASSESSMENT ACTIVITY Create a board game to reflect learning.

SCIENCE UKS2 YEAR A LIVING THINGS AND THEIR HABITATS (Life Cycles)		
END POINTS SCIENTIFIC ENQUIRY UKS2	**END POINTS LIVING THINGS**	**ESSENTIAL KNOWLEDGE AND SKILLS**
EP45 I can plan different types of enquiry.	**EP 19 I can describe the life cycle of different living things, e.g. mammal, amphibian, insect bird.**	The human lifecycle is split into baby, toddler, child, adolescence, and adult. Puberty takes place during adolescence.
EP46 I can control variables in an enquiry.	**EP 20 I can describe the differences between different life cycles.**	Can name the 4 main stages in the life cycle of a frog, butterfly or bird
EP47 I can measure accurately and precisely using a range of equipment.	**EP 21 I can describe the process of reproduction in plants.**	Can name the main stages in the life cycle of a plant
EP48 I can set up a fair test and explain why it is fair.	**EP 22 I can describe the process of reproduction in animals.**	Can identify sexual and asexual reproduction in plants
EP49 I can record data using scientific diagrams and labels, classification keys, scatter graphs, bar and line graphs.	**EP3 I can create a timeline to indicate stages of growth in humans.**	Puberty prepares our bodies for being adults, and to reproduce.
EP50 I can use the outcomes of tests to set up a further comparative test.		Hormones control the changes, associated with puberty. These can be physical and/or emotional.
EP51 I can report findings from enquiries in a variety of ways.		
EP52 I can write a conclusion from an enquiry.		
EP53 I can explain causal relationships from an enquiry.		
EP54 I can relate the scientific outcome from an enquiry in order to state whether evidence supports or refutes an argument or a theory.		.
EP55 I can read, spell and pronounce scientific vocabulary accurately.		
		VOCAB puberty, gestation, classification, reproduction, teenager, toddler, embryo
		ASSESSMENT ACTIVITY David Attenborough style programme.

SCIENCE UKS2 YEAR A EARTH AND SPACE		
END POINTS SCIENTIFIC ENQUIRY UKS2	**END POINTS EARTH AND SPACE**	**ESSENTIAL KNOWLEDGE AND SKILLS**
EP45 I can plan different types of enquiry.	**EP 35 I can describe and explain the movement of the Earth and other planets relative to the Sun.**	One million Earths could fit inside the sun.
EP46 I can control variables in an enquiry.	**EP 36 I can describe and explain the movement of the Moon relative to the Earth.**	The sun is considered an average-sized star.
EP47 I can measure accurately and precisely using a range of equipment.	**EP 37 I can explain and demonstrate how night and day are created (using idea of the earth's rotation and the apparent movement of the sun across the sky).**	Stars, planets and moons have so much mass that they attract other things, including each other due to a force called gravity. Gravity works over distance.
EP48 I can set up a fair test and explain why it is fair.	**EP 38 I can describe the Sun, Earth and Moon (using the term spherical).**	Objects with larger masses exert bigger gravitational forces.
EP49 I can record data using scientific diagrams and labels, classification keys, scatter graphs, bar and line graphs.		Earth is the third planet from the sun and the only world known to support an atmosphere with free oxygen, oceans of liquid water on the surface, and life.
EP50 I can use the outcomes of tests to set up a further comparative test.		There is no atmosphere in space, which means that sound has no medium or way to travel to be heard.
EP51 I can report findings from enquiries in a variety of ways.		
EP52 I can write a conclusion from an enquiry.		
EP53 I can explain causal relationships from an enquiry.		
EP54 I can relate the scientific outcome from an enquiry in order to state whether evidence supports or refutes an argument or a theory.		.
EP55 I can read, spell and pronounce scientific vocabulary accurately.		
		VOCAB orbit, solar system, time zones, planet, rotation, spherical, crescent moon, gibbous moon, eclipse, lunar
		ASSESSMENT ACTIVITY Was Galileo right? Answer chosen way.

SCIENCE UKS2 YEAR A FORCES		
END POINTS SCIENTIFIC ENQUIRY UKS2	**END POINTS FORCES**	**ESSENTIAL KNOWLEDGE AND SKILLS**
EP45 I can plan different types of enquiry.	**EP 27 I can explain what gravity is and its impact on our lives.**	Friction is a force against motion caused by two surfaces rubbing against each other.
EP46 I can control variables in an enquiry.	**EP 28 I can identify and explain the effect of air resistance.**	Gravity is the pulling force acting between the Earth and a falling object.
EP47 I can measure accurately and precisely using a range of equipment.	**EP 29 I can identify and explain the effect of water resistance.**	Air resistance and water resistance are forces against motion caused by objects having to move air and water out of their way.
EP48 I can set up a fair test and explain why it is fair.	**EP 30 I can identify and explain the effect of friction.**	Any kind of force is either a push or a pull.
EP49 I can record data using scientific diagrams and labels, classification keys, scatter graphs, bar and line graphs.	**EP 31 I can explain how levers, pulleys and gears allow a smaller force to have a greater effect.**	Some objects require large forces to make them move; gears, pulley and levers can reduce the force needed to make things move
EP50 I can use the outcomes of tests to set up a further comparative test.		Magnetic force is an invisible force created by electrons.
EP51 I can report findings from enquiries in a variety of ways.		
EP52 I can write a conclusion from an enquiry.		
EP53 I can explain causal relationships from an enquiry.		
EP54 I can relate the scientific outcome from an enquiry in order to state whether evidence supports or refutes an argument or a theory.		.
EP55 I can read, spell and pronounce scientific vocabulary accurately.		
		VOCAB friction, gravity, air resistance, water resistance, levers, pulleys, gears, parachute, Galileo, Newton
		ASSESSMENT ACTIVITY Open a museum to show your learning about forces to the partner Year 6 class. Create your stand for the exhibition and prepare your script when a visitor comes to your stand.

SCIENCE YEAR B	Year 1 and 2	Year 3 and 4	Year 5 and 6
	Living things and their habitats **Animals, including humans** **Seasonal changes**	**Materials (States of Matter)** **Animals including humans** **Sound** **Rocks**	**Animals, including humans** **Living things in their habitats (classification)** **Evolution and inheritance** **Light** **Electricity**

EYFS SCIENCE END POINTS
I can explore the natural world around me, make observations and draw pictures of plants. (ELG) (The Natural World)
I can describe what I can see, hear and feel while outside
I know how to clean my teeth. I know why oral hygiene is important.
I can understand some important processes and changes in the natural world around me including states of matter. (ELG) (The Natural World)
I can understand some important processes and changes in the natural world around me including the seasons. (ELG) (The Natural World)
I can name some similarities and differences between the natural world around me and contrasting environments, drawing on my experiences and what has been read in class. (ELG) (The Natural World)
I can recognise some environments that are different to the one I live in.

SCIENCE KS1YEAR B LIVING THINGS AND THEIR HABITATS		
END POINT SCIENTIFIC ENQUIRY	**END POINTS LIVING THINGS AND THEIR HABITATS**	**ESSENTIAL KNOWLEDGE AND SKILLS**
EP 33 I can ask simple scientific questions.	**EP 26 I can identify things that are living, dead and never lived.**	A habitat is a place that an animal lives. It provides the animal with food, water and shelter.
EP 34 I can use simple equipment to make observations.	**EP 27 I can describe how a specific habitat provides for the basic needs of things living there (plants and animals).**	There are many different sorts of habitats around the world from forests to grasslands and from mountain slopes to deserts.
EP 35 I can carry out simple tests.	**EP 28 I can identify and name plants and animals in a range of habitats, including micro habitats.**	On earth, matter can be described as living, dead and non-living.
EP 36 I can identify and classify things.	**EP 29 I can match living things to their habitat.**	Identify and name a variety of plants and animals in their habitats, including micro-habitats.
EP 37 I can suggest what I have found out.	**EP 30 I can describe how animals find their food.**	
EP 38 I can use simple data to answer questions.	**EP 31 I can name some different sources of food for animals.**	
EP 33 I can ask simple scientific questions.	**EP 32 I can explain a simple food chain.**	
		VOCAB rivers, woodland, ponds, sea, desert, species
		ASSESSMENT ACTIVITY Design an animal or plant to live in a hot or cold place. What features will it have and why?

SCIENCE KS1 YEAR B ANIMALS		
END POINT SCIENTIFIC ENQUIRY KS1	**END POINTS ANIMALS**	**ESSENTIAL KNOWLEDGE AND SKILLS**
EP 33 I can ask simple scientific questions.	**EP 7 I can name a variety of animals including fish, amphibians, reptiles, birds and mammals**.	Keeping healthy means caring for your body so you have enough energy to learn, play and grow.
EP 34 I can use simple equipment to make observations.	**EP 8 I can classify and name animals by what they eat (carnivore, herbivore and omnivore).**	All foods contain nutrients which your body needs to stay active throughout the day. Some foods have more nutrients than others.
EP 35 I can carry out simple tests.	**EP 9 I can sort animals into categories (including fish, amphibians, reptiles, birds and mammals) and can describe and compare the structure of a variety of common animals.**	Everyone should have their '5 a day' – this means five portions of fruit and vegetables, to get the right amount of nutrients.
EP 36 I can identify and classify things.	**EP 10 I can sort living and non-living things and can describe the difference between things that are living, dead and things that have never been alive.**	It's important not to eat too much sugar and salt.
EP 37 I can suggest what I have found out.	**EP 11 I can explain the basic stages in a life cycle for animals, including humans and know that animals have offspring, which grow into adults.**	Keep your mouth healthy by brushing and flossing to have clean teeth and gums.
EP 38 I can use simple data to answer questions.	**EP 12 I can describe what animals and humans need to survive.**	Locate human body parts that can be seen.
EP 33 I can ask simple scientific questions.	**EP 13 I can name the parts of the human body that I can see.**	
	EP 14 I can link the correct part of the human body to each sense.	
	EP 15 I can describe why exercise, a balanced diet and good hygiene are important for humans.	
		VOCAB healthy, diet, exercise, proteins, fats, carbohydrates
		ASSESSMENT ACTIVITY Sorting hoops – sort animals by different categories.

SCIENCE KS1 YEAR B SEASONAL CHANGES		
END POINT SCIENTIFIC ENQUIRY KS1	**END POINTS SEASONAL CHANGES**	**ESSENTIAL KNOWLEDGE AND SKILLS**
EP 33 I can ask simple scientific questions.	**EP 24 I can observe and comment on changes in the seasons.**	In the UK we have four seasons: spring, summer, autumn and winter. Summer is the hottest season and winter the coldest.
EP 34 I can use simple equipment to make observations.	**EP 25 I can name the seasons and suggest the type of weather in each season and how the day length varies.**	Seasons change throughout the year because of the way the earth travels around the sun.
EP 35 I can carry out simple tests.		
EP 36 I can identify and classify things.		
EP 37 I can suggest what I have found out.		
EP 38 I can use simple data to answer questions.		
EP 33 I can ask simple scientific questions.		
		VOCAB autumn, winter, spring, summer, weather, temperature, thermometer weather symbol
		ASSESSMENT ACTIVITY Weather reports – guess the season.

SCIENCE LKS2 YEAR B MATERIALS – STATES OF MATTER		
END POINTS SCIENTIFIC ENQUIRY LKS2	**END POINTS MATERIALS**	**ESSENTIAL KNOWLEDGE AND SKILLS**
EP53 I can ask relevant scientific questions.	**EP 14 I can group materials based on their state of matter (solid, liquid, gas).**	Materials are found in three main states: solids, liquids and gases.
EP54 I can use observations and knowledge to answer scientific questions.	**EP 15 I can describe how some materials can change state.**	Water can exist in three forms: liquid (water), solid (ice) or gas (water vapour).
EP55 I can set up a simple enquiry to explore a scientific question.	**EP 16 I can explore how materials change state.**	At ground level water freezes at 0 degrees and boils at 100 degrees.
EP56 I can set up a fair test and explain why it is fair.	**EP 17 I can measure the temperature at which materials change state.**	The water cycle involves the evaporation and condensation or water.
EP57 I can make careful and accurate observations, including the use of standard units.	**EP 18 I can describe the water cycle.**	
EP58 I can use equipment, including thermometers and data loggers to make measurements.	**EP 19 I can explain the part played by evaporation and condensation in the water cycle.**	
EP59 I can gather, record, classify and present data in different ways to answer scientific questions.		
EP60 I can use diagrams, keys, bar charts and tables; using scientific language.		
EP61 I can use findings to report in different ways, including oral and written explanations, presentation.		
EP62 I can draw conclusions and suggest improvements.		
EP63 I can make a prediction with a reason.		
		VOCAB water vapour, condensation, precipitation, evaporation, matter, solid, liquid, gas
		ASSESSMENT ACTIVITY Crazy inventions! Invent something that would not work and then explain why it would not be suitable.

SCIENCE LKS2 YEAR B ANIMALS INCLUDING HUMANS		
END POINTS SCIENTIFIC ENQUIRY LKS2	**END POINTS ANIMALS INCLUDING HUMANS**	**ESSENTIAL KNOWLEDGE AND SKILLS**
EP53 I can ask relevant scientific questions.	**EP 5 I can use food chains to identify producers, predators and prey.**	Producers make their own food.
EP54 I can use observations and knowledge to answer scientific questions.	**EP 6 I can construct food chains to identify producers, predators and prey.**	The stomach has acids which start to break food down.
EP55 I can set up a simple enquiry to explore a scientific question.	**EP 7 I can identify and name the parts of the human digestive system.**	Incisors are cutting teeth. Molars are chewing teeth.
EP56 I can set up a fair test and explain why it is fair.	**EP 8 I can describe the functions of the organs in the human digestive system.**	Humans need to eat to get nutrition.
EP57 I can make careful and accurate observations, including the use of standard units.	**EP 9 I can identify and describe the different types of teeth in humans.**	The skeleton is needed to protect organs, support the body and for repair.
EP58 I can use equipment, including thermometers and data loggers to make measurements.	**EP 10 I can explain the importance of a nutritious, balanced diet and that humans cannot make their own food.**	
EP59 I can gather, record, classify and present data in different ways to answer scientific questions.	**EP 11 I can describe and explain the skeletal system of a human.**	
EP60 I can use diagrams, keys, bar charts and tables; using scientific language.	**EP 12 I can describe and explain the muscular system of a human.**	
EP61 I can use findings to report in different ways, including oral and written explanations, presentation.	**EP 13 I can describe the purpose of the skeleton in humans and animals.**	
EP62 I can draw conclusions and suggest improvements.		
EP63 I can make a prediction with a reason.		
		VOCAB digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, herbivore, carnivore, omnivore nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre
		ASSESSMENT ACTIVITY Create an encyclopaedia page to reflect learning from this unit.

SCIENCE LKS2 YEAR B ROCKS		
END POINTS SCIENTIFIC ENQUIRY LKS2	**END POINTS ROCKS**	**ESSENTIAL KNOWLEDGE AND SKILLS**
EP53 I can ask relevant scientific questions.	**EP 24 I can compare and group rocks based on their appearance and physical properties, giving a reason**.	There are different types of rock including sedimentary, igneous and metamorphic.
EP54 I can use observations and knowledge to answer scientific questions.	**EP 25 I can describe how fossils are formed**.	Fossils are formed when things that have lived are trapped within rock.
EP55 I can set up a simple enquiry to explore a scientific question.	**EP 26 I can describe how soil is made (*from rocks and organic matter*)**.	Sedimentary rock are formed in layers. Igneous rocks are formed when molten rock cools.
EP56 I can set up a fair test and explain why it is fair.	**EP 27 I can describe and explain the difference between sedimentary and igneous rock.**	.
EP57 I can make careful and accurate observations, including the use of standard units.		
EP58 I can use equipment, including thermometers and data loggers to make measurements.		
EP59 I can gather, record, classify and present data in different ways to answer scientific questions.		
EP60 I can use diagrams, keys, bar charts and tables, using scientific language.		
EP61 I can use findings to report in different ways, including oral and written explanations, presentation.		
EP62 I can draw conclusions and suggest improvements.		
EP63 I can make a prediction with a reason.		
		VOCAB fossils, soils, sandstone, granite, marble, pumice, crystals, sedimentary, metamorphic, igneous, absorbent/porous, durable, permeable, impermeable
		ASSESSMENT ACTIVITY Open a Rock Museum. Prepare your exhibit and what you will say when people visit your stand. Invite your classmates.

SCIENCE LSK2 YEAR B SOUND		
END POINTS SCIENTIFIC ENQUIRY LKS2	**END POINTS SOUND**	**ESSENTIAL KNOWLEDGE AND SKILLS**
EP53 I can ask relevant scientific questions.	**EP 40 I can describe how sound is made.**	Sound is made when objects vibrate.
EP54 I can use observations and knowledge to answer scientific questions.	**EP 41 I can explain how sound travels from a source to our ears.**	Sound travels in waves from an object to your ears.
EP55 I can set up a simple enquiry to explore a scientific question.	**EP 42 I can explain the place of vibration in hearing.**	Sounds get quieter as they move away from a source.
EP56 I can set up a fair test and explain why it is fair.	**EP 43 I can explore the correlation between pitch and the object producing a sound.**	Pitch is how high or low a sound is.
EP57 I can make careful and accurate observations, including the use of standard units.	**EP 44 I can explore the correlation between the volume of a sound and the strength of the vibrations that produced it.**	
EP58 I can use equipment, including thermometers and data loggers to make measurements.	**EP 45 I can describe what happens to a sound as it travels away from its source.**	
EP59 I can gather, record, classify and present data in different ways to answer scientific questions.		
EP60 I can use diagrams, keys, bar charts and tables; using scientific language.		
EP61 I can use findings to report in different ways, including oral and written explanations, presentation.		
EP62 I can draw conclusions and suggest improvements.		
EP63 I can make a prediction with a reason.		
		VOCAB volume, vibration, wave, pitch, tone, speaker
		ASSESSMENT ACTIVITY Invent a box that will make the alarm quieter to help your teacher sleep. Label your diagram and explain to the class.

SCIENCE UKS2 YEAR B ANIMALS		
END POINTS SCIENTIFIC ENQUIRY UKS2	**END POINTS ANIMALS**	**ESSENTIAL KNOWLEDGE AND SKILLS ANIMALS**
EP45 I can plan different types of enquiry.	**EP 1 I can describe the function of the heart, blood vessels and blood.**	Blood is what is used to transport oxygen, waste, nutrients, and more throughout the body.
EP46 I can control variables in an enquiry.	**EP 2 I can describe the ways in which nutrients and water are transported in animals, including humans.**	The circulatory system includes the heart, lungs blood vessels and blood.
EP47 I can measure accurately and precisely using a range of equipment.	**EP 4 I can identify and name the main parts of the human circulatory system.**	Because your heart is crucial to your survival, it's important to keep it healthy with a well-balanced diet and exercise, and avoiding things that can damage it, like smoking.
EP48 I can set up a fair test and explain why it is fair.	**EP 5 I can discuss the impact of diet, exercise, drugs and lifestyle on health.**	Your heart affects every part of your body. That also means that diet, lifestyle, and your emotional well-being can affect your heart.
EP49 I can record data using scientific diagrams and labels, classification keys, scatter graphs, bar and line graphs.		
EP50 I can use the outcomes of tests to set up a further comparative test.		
EP51 I can report findings from enquiries in a variety of ways.		
EP52 I can write a conclusion from an enquiry.		
EP53 I can explain causal relationships from an enquiry.		
EP54 I can relate the scientific outcome from an enquiry in order to state whether evidence supports or refutes an argument or a theory.		
EP55 I can read, spell and pronounce scientific vocabulary accurately.		
		VOCAB blood vessels, drugs, atriums, James Lind, cardiovascular, capillaries, pulse, ventricles
		ASSESSMENT ACTIVITY Create a leaflet to place in the waiting room of a Doctor's Surgery. How will we inform them of how their circulatory system works? How will we persuade them to look after their bodies?

SCIENCE UKS2 YEAR B LIVING THINGS IN THEIR HABITATS - CLASSIFICATION		
END POINTS SCIENTIFIC ENQUIRY UKS2	**END POINTS LIVING THINGS IN THEIR HABITATS**	**ESSENTIAL KNOWLEDGE AND SKILLS**
EP45 I can plan different types of enquiry.	**EP 16 I can classify living things into broad groups according to observable characteristics and based on similarities & differences, including micro-organisms, plants and animals.**	Know vertebrates tend to be much more intelligent than invertebrates.
EP46 I can control variables in an enquiry.	**EP 17 I can describe how living things have been classified.**	Know vertebrate animals can be either warm or cold-blooded. A cold-blooded animal cannot maintain a constant body temperature. The temperature of their body is determined by the outside surroundings.
EP47 I can measure accurately and precisely using a range of equipment.	**EP 18 I can give reasons for classifying plants and animals in a specific way.**	Know an invertebrate is an animal that does not have a backbone.
EP48 I can set up a fair test and explain why it is fair.		Know there are a wide variety of interesting ocean animals that are invertebrates.
EP49 I can record data using scientific diagrams and labels, classification keys, scatter graphs, bar and line graphs.		
EP50 I can use the outcomes of tests to set up a further comparative test.		
EP51 I can report findings from enquiries in a variety of ways.		
EP52 I can write a conclusion from an enquiry.		
EP53 I can explain causal relationships from an enquiry.		
EP54 I can relate the scientific outcome from an enquiry in order to state whether evidence supports or refutes an argument or a theory.		
EP55 I can read, spell and pronounce scientific vocabulary accurately.		
		VOCAB vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering, non-flowering
		ASSESSMENT ACTIVITY Computing link: Create a David Attenborough style programme (iMovie) to explain their learning. Ensure can be understood by older and younger audience

SCIENCE UKS2 YEAR B EVOLUTION AND INHERITANCE		
END POINTS SCIENTIFIC ENQUIRY UKS2	**END POINTS EVOLUTION AND INHERITANCE**	**ESSENTIAL KNOWLEDGE AND SKILLS**
EP45 I can plan different types of enquiry.	**EP 39 I can describe how the earth and living things have changed over time.**	Know evolution is a scientific theory used by biologists. It explains how living things changed over a long time, and how they have come to be the way they are.
EP46 I can control variables in an enquiry.	**EP 40 I can explain how fossils can be used to find out about the past.**	Know that living things have changed over time, because we can see their remains in the rocks.
EP47 I can measure accurately and precisely using a range of equipment.	**EP 41 I can explain about reproduction and offspring recognising that offspring normally vary and are not identical to their offspring.**	Know that the animals and plants of today are different from those of long ago.
EP48 I can set up a fair test and explain why it is fair.	**EP 42 I can explain how animals and plants are adapted to suit their environment.**	Know evolutionary questions are still being actively researched by biologists.
EP49 I can record data using scientific diagrams and labels, classification keys, scatter graphs, bar and line graphs.	**EP 43 I can link adaptation over time to evolution.**	
EP50 I can use the outcomes of tests to set up a further comparative test.	**EP 44 I can explain evolution. (study of Charles Darwin)**	
EP51 I can report findings from enquiries in a variety of ways.		
EP52 I can write a conclusion from an enquiry.		
EP53 I can explain causal relationships from an enquiry.		
EP54 I can relate the scientific outcome from an enquiry in order to state whether evidence supports or refutes an argument or a theory.		.
EP55 I can read, spell and pronounce scientific vocabulary accurately.		
		VOCAB fossils, adaptation, evolution, characteristics, reproduction, genetics
		ASSESSMENT ACTIVITY Debate – split the class in half. Balanced argument – what supports the theory of evolution? - cross curricula link to English writing and publish into science books.

SCIENCE UKS2 YEAR B LIGHT		
END POINTS SCIENTIFIC ENQUIRY UKS2	**END POINTS LIGHT**	**ESSENTIAL KNOWLEDGE AND SKILLS**
EP45 I can plan different types of enquiry.	**EP 23 I can explain how light travels (*in straight lines*).**	Light will travel in a completely straight line until it hits an object that will reflect it.
EP46 I can control variables in an enquiry.	**EP 24 I can explain and demonstrate how we see objects (*objects give out or* reflect light / light travels from light sources to our eyes or form light sources to objects and then to our eyes.**	Space does not have any light. We can see things in space due to light bouncing off from the objects in space.
EP47 I can measure accurately and precisely using a range of equipment.	**EP 25 I can explain why shadows have the same shape as the object that casts them.**	Light doesn't travel as fast when it has to pass through mediums that are different, such as air, water or glass.
EP48 I can set up a fair test and explain why it is fair.	**EP 26 I can explain how simple optical instruments work, e.g. periscope, telescope, binoculars, mirror, magnifying glass.**	The light that we see from the sun actually left the sun ten minutes before we see it.
EP49 I can record data using scientific diagrams and labels, classification keys, scatter graphs, bar and line graphs.		Light is used by plants to convert the light into energy as their 'food'. The process is called 'photosynthesis' and converts carbon dioxide through the energy of the light.
EP50 I can use the outcomes of tests to set up a further comparative test.		
EP51 I can report findings from enquiries in a variety of ways.		
EP52 I can write a conclusion from an enquiry.		
EP53 I can explain causal relationships from an enquiry.		
EP54 I can relate the scientific outcome from an enquiry in order to state whether evidence supports or refutes an argument or a theory.		.
EP55 I can read, spell and pronounce scientific vocabulary accurately.		
		VOCAB light source, reflect, shadow, cast, optical, instrument, periscope, telescope, binoculars, mirror, magnifying glass
		ASSESSMENT ACTIVITY Create a board game. What will go wrong to miss a turn? What will work well to move forward?

SCIENCE UKS2 YEAR B ELECTRICITY		
END POINTS SCIENTIFIC ENQUIRY UKS2	**END POINTS ELECTRICITY**	**ESSENTIAL KNOWLEDGE AND SKILLS**
EP45 I can plan different types of enquiry.	**EP 32 I can explain how the number & voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer.**	Electricity comes from the power station, the wind, the sun, water and even an animal's poo!
EP46 I can control variables in an enquiry.	**EP 33 I can compare and give reasons for why components work and do not work in a circuit. (*brightness of a bulb, loudness of a buzzer, on/off position of switches).***	Some materials conduct electricity.
EP47 I can measure accurately and precisely using a range of equipment.	**EP 34 I can draw circuit diagrams using correct symbols.**	Some materials insulate electricity.
EP48 I can set up a fair test and explain why it is fair.		A popular way of generating electricity is through hydropower. This is a process where electricity is made by water which spins turbines attached to generators.
EP49 I can record data using scientific diagrams and labels, classification keys, scatter graphs, bar and line graphs.		
EP50 I can use the outcomes of tests to set up a further comparative test.		
EP51 I can report findings from enquiries in a variety of ways.		
EP52 I can write a conclusion from an enquiry.		
EP53 I can explain causal relationships from an enquiry.		
EP54 I can relate the scientific outcome from an enquiry in order to state whether evidence supports or refutes an argument or a theory.		.
EP55 I can read, spell and pronounce scientific vocabulary accurately.		
		VOCAB voltage, cell, circuit, lamp, buzzer, components, symbols
		ASSESSMENT ACTIVITY Design a circuit to make your teacher wake up. Design, build and demonstrate to the class.