



St Mary's - Science Knowledge and Skills Progression



	Chemistry	Biology	Physics
F1	<p>Everyday Materials:</p> <ul style="list-style-type: none"> • Talk about the differences between materials and changes they notice <ul style="list-style-type: none"> - Natural melting (ice, melting, sun, salt) - cooking (combining): hot (cooking), cooling - torches and materials/shadows: light, shadow • Explore, using all of their senses, collections of materials with similar and/or different properties and talk about what they see– leaves/seeds/shells 	<p>Animals, Including Humans:</p> <ul style="list-style-type: none"> • Begin to understand the key features of the life cycle of an animal – caterpillar, chrysalis, egg • Identify, name and begin to describe some farm animals – cow, pig, sheep, horse. • Identify and name basic body parts – eyes, mouth, ears, nose, head, arm, and leg. <p>Plants:</p> <ul style="list-style-type: none"> • Understand that plants grow and decay – grow, cress/apple, mouldy • Understand the key features of the life cycle of a plant – sunflower, plant, leaf, seed, vegetables (potatoes, tomato, bean – edible school). 	<p>Seasonal Changes:</p> <ul style="list-style-type: none"> • Talk about what they see and feel: the weather – sun, rain, cloud, wind, snow. <p>Exploring Forces</p> <ul style="list-style-type: none"> • Explore how things work <ul style="list-style-type: none"> - Wind-up toys: turn, wind - Cogs: twist, turn • Explore and talk about different forces they can feel <ul style="list-style-type: none"> - Water pushes up when pushing an object down: water, up, down
Skills	<p>Working Scientifically</p> <ul style="list-style-type: none"> • Explore the properties of everyday materials. • Begin to talk about what they have observed using their senses. 	<p>Working Scientifically</p> <ul style="list-style-type: none"> • Experience different types of science enquiries and practical activities. • Comments and asks questions about their familiar world and why things happen. • Builds up vocabulary and talks about what they observe. 	<p>Working Scientifically</p> <ul style="list-style-type: none"> • Observe and make simple comments about their observations. • Begin to observe similarities and differences. • Begin to have their own ideas and carry them out. • Begin to use tools and equipment carefully.
CoEL	<p>Characteristics of Effective Learning.</p> <ul style="list-style-type: none"> • Playing and exploring and Creating & Thinking Critically. • Show curiosity about objects, events and people. • Take a risk, engage in new experiences and open-ended activities. 		<p>Characteristics of Effective Learning continued:</p> <ul style="list-style-type: none"> • Use senses to explore the world around them. • Find ways to solve problems and find new ways to do things. • Make links and notice patterns in their experience.
	ice, melting, sun, salt, cooling, hot, light, shadow, leaves/seeds/shells/mud/twigs - rough, smooth, crunchy, squelchy, hard	Egg, Caterpillar, Cow, Pig, Sheep, Horse, Eyes, Mouth, Ears, Nose, Head, Arm, Leg, Grow, Cress, Apple, Mouldy, Sunflower, Plant, Leaf, Seed, Vegetable, Potatoes, Tomatoes, Beans	sun, rain, cloud, wind, snow, turn, wind, twist, turn, water, up, down
F2	<p>Knowledge - Everyday Materials: (F1)</p> <p>Describe what they see and feel.</p> <ul style="list-style-type: none"> - Fabrics – how they look and feel: soft, smooth, furry, rough, shiny - Natural materials – leaves, shells, mud, rocks, seeds, twigs - Natural melting: ice/frost, melting, sun, warmer, changing 	<p>Animals, Including Humans: (F1)</p> <ul style="list-style-type: none"> • Describe what they see, feel and hear <ul style="list-style-type: none"> - Recognise, name and describe animals: cat, dog, bird, fish, lizard – paw, tail, wing, scales, fin - Recognise, name and describe mini-beasts, including their habitats: habitat, worm, ladybird, snail, caterpillar, butterfly, spider • Understand the key features of the life cycle of an animal – frog, tadpole, frogspawn • Understand the key features of the life cycle of a human – baby, toddler, child, teenager, adult, elderly person <p>Plants: (F1)</p> <ul style="list-style-type: none"> • Describe what they see, feel and hear <ul style="list-style-type: none"> - Recognise, name and describe familiar plants: daffodils, lavender, rosemary, root, leaf, stem - Recognise, name and describe familiar trees in our environment: silver birch, oak, sycamore, pine tree 	<p>Seasonal Changes: (F1)</p> <ul style="list-style-type: none"> • Understand the effect of changing seasons on their natural world - weather, hot, cold, warm, hibernate, Autumn, Winter, Spring and Summer <p>Forces</p> <ul style="list-style-type: none"> • Explore the natural world around them: (F1) <ul style="list-style-type: none"> - To explore with water and begin to group objects into those that float and those that sink – float, sink, wood, paper, plastic, metal - To investigate magnets and how they attract some objects and not others- attract, not attract, magnetic, metal, magnet

	Skills	Working Scientifically <ul style="list-style-type: none"> Investigate the properties of everyday materials. With support, test which materials are waterproof. Begin to sort and group materials. Begin to ask and answer questions about why things happen. Record findings using simple drawings. 	Working Scientifically <ul style="list-style-type: none"> Answer and ask simple questions about their experiences. Make visual observations of animals and plants and comment on what they see and talk about changes. Identify similarities and differences in relation to living things. Notice differences between objects including size and length. Record observations by drawing and simple labelling. 	Working Scientifically <ul style="list-style-type: none"> Begin to question why things happen. With support, carry out an investigation and make comments. Record using simple weather charts and drawings. Choose the resources they need for their chosen activities. Handle equipment and tools effectively (e.g. magnifying glasses, magnets). Begin to connect ideas or events. Measure using simple tools (e.g. sand timers).
	CoEL	Characteristics of effective Learning Develop ideas of grouping, sequences, cause and effect		
		soft, smooth, furry, rough, shiny, leaves, shells, mud, rocks, seeds, twigs, rough, crunchy, squelchy, hard, bendy, hard, ice/frost, melting, sun, warmer, changing	cat, dog, bird, fish, lizard, paw, tail, wing, scales, fin habitat, worm, ladybird, snail, caterpillar, butterfly, spider frog, tadpole, frogspawn baby, toddler, child, teenager, adult, elderly daffodils, lavender, rosemary, bean, root, leaf, stem silver birch, oak, sycamore, pine tree	weather, hot, cold, warm, hibernate, Autumn, Winter, Spring, Summer, float, sink, wood, paper, plastic, attract, not attract, magnetic, metal, magnet
		Chemistry	Biology	Physics
Y1	Knowledge	Knowledge - Everyday Materials: (F2) <ul style="list-style-type: none"> To distinguish between an object and the material from which it is made. To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. To describe the simple physical properties of a variety of everyday materials. To compare and group together a variety of everyday materials on the basis of their simple physical properties. 	Animals, Including Humans: (F2) To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. To identify and name a variety of common animals that are carnivores, herbivores and omnivores. To describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. Plants: (F2) To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. To identify and describe the basic structure of a variety of common flowering plants, including trees. Seasonal Changes: (F2) To observe changes across the four seasons. To observe and describe weather associated with the seasons and how day length varies.	Seasonal Changes: (F2) <ul style="list-style-type: none"> To observe and name changes across the four seasons. To observe and describe weather associated with the seasons and how day length varies.

	Skills	<p>Working Scientifically</p> <ul style="list-style-type: none"> • Set up a test to see which materials are waterproof, know if the test has been successful and can say what has been learned. (F2) • Explain to someone what has been learned from an investigation they have been involved with and draw conclusions from the answers to the questions asked. (F2) • Measures (within Year 1 mathematical limits) to help find out more about the investigations undertaken. (F2) • Keep an on-going record of new scientific words that they have come across for the first time. (F2) 	<p>Working Scientifically</p> <ul style="list-style-type: none"> • Ask questions such as: • <i>Why are flowers different colours? Why do some animals eat meat and others do not?</i> (F2) • Use magnifying glasses to find out more about plants. . (F2) • Keep an on-going record of new scientific words that they have come across for the first time. (F2) 	<p>Working Scientifically</p> <ul style="list-style-type: none"> • Ask questions such as: <ul style="list-style-type: none"> • <i>How do we know which season we are in?</i> (F2) • Explain to someone what has been learned from an investigation they have been involved with and draw conclusions from the answers to the questions asked. (F2) • Measures (within Year 1 mathematical limits) to help find out more about the investigations undertaken. (F2) • Perform a simple investigation in order to understand that the Earth moves and as a consequence the sun changes position in the sky. (F2) • Keep an on-going record of new scientific words that they have come across for the first time. (F2)
	Vocabulary	<p>(NB. Only group using the words below) Materials, fabric, Stretchy, Stiff, Shiny, Dull, Rough, Smooth, Bendy, waterproof</p>	<p>Amphibian, reptile, bird, mammal, fish, herbivore, omnivore, carnivore, seed, petal, leaf / leaves, roots, stem, trunk, branch, (twig?), bark, bulb</p>	<p>Autumn, Winter, Spring, Summer, Temperature, Season</p>

		Chemistry	Biology	Physics
Y2	Knowledge	<p>Uses of Everyday Materials: (Y1)</p> <ul style="list-style-type: none"> To know the uses of everyday materials and their properties and suitability. To observe materials and record findings about how they can be changed. To classify materials and sort according to different criteria. 	<p>Animals, Including Humans: (Y1)</p> <ul style="list-style-type: none"> To understand the human life cycle. To understand the importance of food, exercise and hygiene. To recognize what a healthy lifestyle is. To describe animal life cycles and how they survive. <p>Living Things and their Habitats: (Y1)</p> <ul style="list-style-type: none"> To identify and name a variety of plants and animals in their habitats, including microhabitats. To understand how animals obtain their food. To describe a variety of food chains. To identify different sources of food. To identify things that are alive, never alive and died. To describe what plants and animals need to survive and their habitat features. <p>Plants: (Y1)</p> <ul style="list-style-type: none"> To recognise and name plants and their parts. To observe how plants grow in the local environment. To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. To observe and describe how seeds and bulbs grow into mature plants. To understand the requirements of plants for germination, growth and survival, as well as the processes of reproduction and growth in plants. 	<p>Forces: (F2)</p> <p>To consolidate prior learning using the STEM experiments (egg rolling and paper cup towers) throughout the year.</p>
	Skills	<p>Working Scientifically</p> <ul style="list-style-type: none"> Draw conclusions from fair tests and explain what has been found out. (Y1) Use measures (within Year 2 mathematical limits) to help find out more about investigations they are engaged with. (Y1) Know how to set up a fair test and do so when finding out the best way to absorb water. (Y1) Ask questions such as: (Y1) <i>Why aren't teapots made of chocolate?</i> What is a suitable material to use for making a rabbit hutch and why? To gather and record data to help in answering questions. Classify or group things according to a given criteria. Keep an on-going record of new scientific words that they have come across for the first time. (Y1) Performing simple tests. (Y1) 	<p>Working Scientifically</p> <ul style="list-style-type: none"> Ask questions such as: (Y1) <ul style="list-style-type: none"> <i>Do all plants need water to grow? Is light necessary for plants to grow? Can you describe the life cycle of a flowering plant? How can we keep our bodies healthy? How does my body change as I grow up? How do animals adapt to their habitats? Why do some animals have underground habitats? What do all living things need to survive?</i> Know how to set up a comparative test to show that plants need light and water to stay healthy. (Y1) Use magnifying glasses to find out more about small creatures and plants. (Y1) Classify or group things according to a given criteria, e.g. seed or bulb/ carbohydrates, proteins/ alive, never alive, dead. Observe and record, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb. (Y1) Using their observations and ideas to suggest answers to questions. Gathering and recording data to help in answering questions. (Y1) Keep an on-going record of new scientific words that they have come across for the first time. (Y1) 	
	Vocabulary	<p>Natural, Manmade, Absorbent, Opaque, Transparent, Squash, Bend, Twist, Stretch</p>	<p>Growth, Survival, Mature, Germination, Environment Habitat, Micro-habitat, Producer, Consumer, Predator, Prey, Species, Respiration, Sensitivity, Excretion, Lifecycle, Offspring, Adults, Egg, Tadpole, Froglet, Hatchling, Pupa, Healthy, Balanced diet, Hygiene, Carbohydrates, Proteins, Fats, Vitamins, Minerals</p>	

		Chemistry	Biology	Physics
Y3	Knowledge	<p>Rocks:</p> <ul style="list-style-type: none"> To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. To describe in simple terms how fossils are formed when things that have lived are trapped within rock. To recognise that soils are made from rocks and organic matter. 	<p>Animals, Including Humans: (Y2)</p> <ul style="list-style-type: none"> To 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. To identify that humans and some other animals have skeletons and muscles for support, protection and movement. <p>Plants: (Y2)</p> <ul style="list-style-type: none"> To identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. To 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. To investigate the way in which water is transported within plants. To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. 	<p>Light:</p> <ul style="list-style-type: none"> To recognise that they need light in order to see things and that dark is the absence of light. To notice that light is reflected from surfaces. To recognise that light from the sun can be dangerous and that there are ways to protect their eyes. To recognise that shadows are formed when the light from a light source is blocked by an opaque object. To find patterns in the way that the sizes of shadows change. <p>Forces and Magnets: (F2 – Floating & Sinking)</p> <ul style="list-style-type: none"> To compare how things move on different surfaces. To notice that some forces need contact between two objects, but magnetic forces can act at a distance. To observe how magnets attract / repel each other & attract some materials & not others. To 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. To describe magnets as having two poles. To predict whether two magnets will attract or repel each other, depending on which poles are facing.
	Skills	<p>Working Scientifically</p> <ul style="list-style-type: none"> Ask questions such as: (Y2) <ul style="list-style-type: none"> Where does a fossil come from? Use research to find out what the main differences are between sedimentary and igneous rocks. Gather and record information using a chart, matrix or tally chart, depending on what is most sensible. (Y2) Present findings using written explanations and include diagrams when needed. Know how to use a key to help understand information presented on a chart. Keep an on-going record of new scientific words that they have come across for the first time. 	<p>Working Scientifically</p> <ul style="list-style-type: none"> Observe which type of plants grow in different places e.g. bluebells in woodland, roses in domestic gardens, etc. (Y2) Test to see which type of soil is most suitable when growing two similar plants. Set up a fair test with different variables e.g. the best conditions for a plant to grow. Explain to a partner why a test is a fair one Gather and record information using a chart, matrix or tally chart depending on what is most sensible. (Y2) Group information according to common factors e.g. plants that grow in woodlands or plants that grow in gardens. (Y2) Present findings using written explanations and include diagrams when needed. (Y2) Make sense of findings and draw conclusions which help them to understand more about scientific information. (Y2) Amend predictions according to findings. Be prepared to change ideas as a result of what has been found out during a scientific enquiry Keep an on-going record of new scientific words that they have come across for the first time. 	<p>Working Scientifically</p> <ul style="list-style-type: none"> Ask questions such as: (Y2) <ul style="list-style-type: none"> Does the sun move? Why do shadows change during the day? Observe at what time of day a shadow is likely to be at its longest and shortest. Use research to find out how reflection can help us see things that are around the corner. Explain to a partner why a test is a fair one. Measure carefully (taking account of mathematical knowledge up to Year 3) and add to scientific learning. (Y2) Gather and record information using a chart, matrix or tally chart, depending on what is most sensible. (Y2) Use bar charts and other statistical tables (in line with Year 3 mathematics statistics) to record findings. To explain what has been found out, for example about how the shadow changes over the course of the day. Present findings using written explanations & include diagrams. (Y2) Make sense of findings and draw conclusions which help them to understand more about scientific information. (Y2) Amend predictions according to findings. Be prepared to change ideas as a result of what has been found out during a scientific enquiry. Keep an on-going record of new scientific words that they have come across for the first time. Be confident to stand in front of others and explain what has been found out.

	Vocab	Metamorphic, Igneous, Sedimentary, Fossil, Soil, Erosion	Seed dispersal, Seed formation, Life-cycle, Transport, Absorbs, Nutrients , Ballistic , Nutrition, Contract, Relax, Endoskeleton, Exoskeleton, Hydrostatic, Vertebrate, Invertebrate	Force, Friction, Magnet, Magnetic force, Attract, Repel, Poles, Magnetic fields, Shadows, Light source, Reflection, Opaque , Block
		Chemistry	Biology	Physics
Y4	Knowledge	<p>States of Matter: (Y2)</p> <ul style="list-style-type: none"> To know what a solid, liquid and gas is and can describe the features of each. To explain how they can each exchange state. To understand the importance of heating and cooling. To know the freezing point and boiling point of certain materials. To explain the water cycle and the various scientific processes it involves (precipitation, cooling, evaporation). 	<p>Animals, Including Humans: (Y3)</p> <ul style="list-style-type: none"> To describe the simple functions of the basic parts of the digestive system. To identify the different types of teeth in humans and their functions. To know what a food chain, a producer, a predator and prey are. To know what the features of carnivores, omnivores and herbivores are. <p>Living Things and their Habitats: (Y2)</p> <ul style="list-style-type: none"> To recognise that living things can be grouped in different ways (fish, amphibians, reptiles, birds, mammals, plant, non-flowering plants). To know the difference between vertebrates and invertebrates and name examples. To use a classification key and use it to identify living things in their local and wider environment. To recognise that climates can change which can pose dangers to living things. To understand what deforestation is & the impact it can have on wildlife. 	<p>Electricity:</p> <ul style="list-style-type: none"> To identify that common appliances run on electricity. To be able to construct a simple series electric circuit. To identify, name and know the symbols for its basic parts (cells, wires, bulbs, switches, buzzers). To know the difference between an open and a closed circuit. To know what a conductor / insulator are and can give e.g.s of each. <p>Sound:</p> <ul style="list-style-type: none"> To identify how sounds are made. To understand what vibration is. To know the difference between pitch and amplitude. To recognise that vibrations from sound travel through a medium to the ear. To be able to experiment with instruments to create sounds and vary their pitch and amplitude. To understand volume & the impact on the distance from source.

	<p>Skills</p> <p>Working Scientifically</p> <ul style="list-style-type: none"> • Ask questions such as: (Y3) <ul style="list-style-type: none"> - <i>What connects steam and ice?</i> • Carry out tests to see, for example, which of two instruments make the highest or lowest sounds and to see if a glass of ice weighs the same as a glass of water. (Y3) • Explain to others why a test that has been set up is a fair one e.g. discover how fast ice melts in different temperatures. (Y3) • Measure carefully (taking account of mathematical knowledge up to Year 4) and add to scientific learning. (Y3) • Use a thermometer to measure temperature and know there are two main scales used to measure temperature. • Gather and record information using a chart, matrix or tally chart, depending on what is most sensible. (Y3) • Use bar charts and other statistical tables (in line with Year 4 mathematics statistics) to record findings. (Y3) • Present findings using written explanations and include diagrams, when needed. (Y3) • Write up findings using a planning, doing and evaluating process. • Make sense of findings and draw conclusions which help them understand more about the scientific information that has been learned. (Y3) • When making predictions there are plausible reasons as to why they have done so. • Able to amend predictions according to findings. • Prepared to change ideas as a result of what has been found out during a scientific enquiry. (Y3) • Keep an on-going record of new scientific words that they have come across for the first time. 	<p>Working Scientifically</p> <ul style="list-style-type: none"> • Ask questions such as: (Y3) <ul style="list-style-type: none"> - <i>Why is the liver important in the digestive systems? Why do animals share certain characteristics?</i> • Use research to find out how much time it takes to digest most of our food. • Measure carefully (taking account of mathematical knowledge up to Year 4) and add to scientific learning. (Y3) • Gather and record information using a chart, matrix or tally chart, depending on what is most sensible. (Y3) • Present findings using written explanations and include diagrams, when needed. (Y3) • Keep an on-going record of new scientific words that they have come across for the first time. 	<p>Working Scientifically</p> <ul style="list-style-type: none"> • Group information according to common factors e.g. materials that make good conductors or insulators. (Y2) • Use bar charts and other statistical tables. (Y3) • Present findings using written explanations and include diagrams, when needed. (Y3) • Make sense of findings and draw conclusions which help them understand more about the scientific information that has been learned. (Y3) • When making predictions there are plausible reasons as to why they have done so. • Able to amend predictions according to findings. • Prepared to change ideas as a result of what has been found out during a scientific enquiry. (Y3) • Use research to find out which materials make effective conductors and insulators of electricity. (Y3) • What do we mean by 'pitch' when it comes to sound? • Carry out tests to see, for example, which of two instruments make the highest or lowest sounds. (Y3) • Set up a fair test with more than one variable e.g. using different materials to cut out sound. (Y3) • Measure carefully (taking account of mathematical knowledge up to Year 4) and add to scientific learning. (Y3) • Gather and record information using a chart, matrix or tally chart, depending on what is most sensible. (Y3) • Keep an on-going record of new scientific words that they have come across for the first time.
	<p>Vocab</p> <p>Evaporation, Condensation, Precipitation, Solid, Liquid, Gas, Water vapour, Matter, Particles</p>	<p>Classification key, Environmental change, Climate change, Natural disaster, Incisors, Molars, Canines, Salivary gland, Oesophagus, Pancreas, Intestines, Predator (Y2), Prey (Y2), Producer (Y2), Primary consumer, Secondary consumer, Tertiary consumer, Decomposer</p>	<p>Series circuit, Cell, Wire, Bulb, Appliance, Buzzer, Switch, Conductor, Insulator, Pitch, Volume, Vibrations, Ear drum, Cochlea, Auditory</p>

		Chemistry	Biology	Physics
Y5	Knowledge	<p>Properties and Changing Materials: (Y4)</p> <ul style="list-style-type: none"> To understand materials can be grouped according to their properties. To know Irreversible changes cannot be undone, but reversible changes can be changed back again. To know examples of reversible and irreversible changes. To investigate how mixtures can be separated out by methods like filtering and evaporating. 	<p>Animals, Including Humans: (Y4)</p> <ul style="list-style-type: none"> To know that gestation periods differ in mammals & that an embryo is formed. To identify that the early years/toddler (0-3) of life are very important for building the baby's brain. It's a time of rapid cognitive, linguistic, social, emotional and motor development. To understand that middle childhood and early adolescence/puberty (6-14) is a time of important developmental advances that establish identity. To recognise that humans have many more stages of growth and development in contrast to other mammals. <p>Living things and their Habitats: (Y4)</p> <ul style="list-style-type: none"> To recognise that many insects have four stages in their life cycle: egg or the unborn stage; larva – young stage; pupa – inactive (no feeding) stage; and adult stage. To understand that in general, the life cycles of plants and animals have three basic stages including a fertilised egg or seed, immature juvenile, and adult. However, some organisms may have more than three life cycle stages, and the exact names of each stage can slightly differ depending on the species. To describe the differences in the life cycles of a mammal (household pet), an amphibian (frog), an insect (butterfly) and a bird (blackbird/robin). To describe how plants can reproduce sexually & asexually and know the process for both. To understand that animals can only reproduce sexually and know the process. 	<p>Forces: (Y3)</p> <ul style="list-style-type: none"> To know that Galileo and Newton discovered forces and gravity. To understand that gravity is the pulling force acting between the Earth and a falling object. To know what: Frictional force, surface force, air resistance, water resistance and magnetic force is. To recognise that levers, pulleys and gears allow a smaller force to have a greater effect. <p>Earth and Space: (Y3 Light & Y1)</p> <ul style="list-style-type: none"> To explain that the Earth rotates on an axis that takes 24 hrs for 1 full rotation. To know the Earth orbits the sun which takes 365 days to complete 1 orbit. To know the sun is stationary. To recognise that the Earth is 1 of 8 planets in the Solar System, but the only planet known to support life. To explain that the moon orbits the Earth (takes approx. 28 days = complete 1 orbit) To know the 8 main phases of the moon, including the vocabulary – waning, waxing, gibbous and crescent. To understand that the sun, Earth and moon are spherical bodies but that wasn't always believed throughout history. To explain the Earth's rotation creates day and night. To recognise that the sun appears to move across the sky but it is the rotation and orbit that cause the movement.

Skills	<p>Scientific Knowledge</p> <ul style="list-style-type: none"> • Set up an investigation when it is appropriate e.g. finding out which materials dissolve or not. (Y4) • Able to record data and present them in a range of ways including diagrams, labels, classification keys, tables, scatter graphs and bar and line graphs. (Y4) • Make predictions based on information gleaned from investigations. (Y4) • Create new investigations which take account of what has been learned previously. • Use diagrams, as and when necessary, to support writing. (Y4) • Is evaluative when explaining findings from scientific enquiry. (Y4) • Clear about what has been found out from recent enquiry and can relate this to other enquiries, where appropriate. • Their explanations set out clearly why something has happened and its possible impact on other things. • Keep an on-going record of new scientific words that they have come across for the first time. (Y4) 	<p>Scientific Knowledge</p> <ul style="list-style-type: none"> • Set up an enquiry-based investigation e.g. find out what adults/chn can do now that they couldn't when a baby. • Use diagrams, as and when necessary, to support writing. (Y4) • Able to relate causal relationships when, for example, studying life cycles. • Keep an on-going record of new scientific words that they have come across for the first time. (Y4) 	<p>Scientific Knowledge</p> <ul style="list-style-type: none"> • Able to present information related to scientific enquiries in a range of ways including using IT such as power-point and iMovie. • Use diagrams, as and when necessary, to support writing. (Y4) • Able to give an example of something focused on when supporting a scientific theory e.g. how much easier it is to lift a heavy object using pulleys. • Set up a fair test when needed e.g. which materials create most friction? (Y4) • Know what the variables are in a given enquiry and can isolate each one when investigating e.g. finding out how effective brakes are when made with different materials. • Use all measurements as set out in Year 5 mathematics (measurement), including capacity and mass. (Y4) • Use other scientific instruments as needed e.g. thermometer, rain gauge, spring scales (for measuring Newtons). (Y4) • Make predictions based on information gleaned from investigations. (Y4) • Create new investigations which take account of what has been learned previously. • Is evaluative when explaining findings from scientific enquiry. (Y4) • Clear about what has been found out from recent enquiry and can relate this to other enquiries, where appropriate. • Their explanations set out clearly why something has happened and its possible impact on other things. • Frequently carry out research when investigating a scientific principle or theory. • Keep an on-going record of new scientific words that they have come across for the first time
	Vocab	<p>Soluble, Insoluble, Translucent , Filter, Sieve, Conductivity, Irreversible , Reversible</p>	<p>Larva, Nymph, Molt, Hatchling, Fledgling, Calf , Gills, Metamorphosis, Germination, Fertilisation, Anther, Filament, Receptacle, Ovary, Ovule, Sepal, Style, Stigma, Cognitive, Linguistic, Social, Emotional, Motor, Gestation period, Foetus , Puberty, Adolescence, Life Expectancy</p>

		Chemistry	Biology	Physics
Y6	Knowledge	<p>Properties and Changing Materials:(Y5)</p> <p>To consolidate prior learning using experiments throughout the year.</p>	<p>Animals, including humans: (Y5)</p> <ul style="list-style-type: none"> To understand that the heart is a muscle that pumps blood around your body to carry oxygen & nutrients to muscles in the circulatory system. To recognise that exercise increases HR. To know ways to look after body – don't smoke, don't eat too many fatty foods, exercise & the direct impact of these on health of heart. To understand the impact of drugs on the body (covered mostly by DARE in Summer term). To describe the ways in which nutrients and water are transported within animals, including humans <p>Evolution and Inheritance:</p> <ul style="list-style-type: none"> To understand that offspring inherit characteristics from their parents but are not identical to them. To recognise that 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. To know that fossils provide evidence of evolution. <p>Living things and their habitats: (Y5)</p> <ul style="list-style-type: none"> To classify living things into broad groups according to observable characteristics and based on similarities and differences. To know how living things have been classified. To synthesise reasons for classifying plants and animals based on specific characteristics. 	<p>Electricity: (Y4)</p> <p>To know that the brightness of a bulb is associated with the voltage. To compare and give reasons for variations in how components function. To use recognised symbols when representing a simple circuit in a diagram. To construct simple series circuits. To be able to answer questions about what happens when they try different components, for example; switches, bulbs, buzzers and motors.</p> <p>Light: (Y3)</p> <p>To know that light travels in straight lines. To understand that because light travels in straight lines objects are seen because they give out or reflect light into the eye. To know that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. To know that light travels in straight lines and therefore shadows have the same shape as the objects that cast them.</p>

	Skills	<p>Working Scientifically</p> <ul style="list-style-type: none"> • Be clear about what has been found out from their enquiry and can relate this to others in class. (Y5) • Explanations set out clearly as to why something has happened and its possible impact on other things. (Y5) • Keep an on-going record of new scientific words that they have come across for the first time and use these regularly in future scientific write ups. (Y5) • Able to give an example of something they have focused on when supporting a scientific theory e.g. classifying vertebrate and invertebrate creatures or why certain creatures choose their unique habitats. (Y5) • Frequently carry out research when investigating a scientific principle or theory. (Y5) • Able to record data and present them in a range of ways including diagrams, labels, classification keys, tables, scatter graphs and bar and line graphs. (Y5) • Keep an on-going record of new scientific words that they have come across for the first time 	<p>Working Scientifically</p> <ul style="list-style-type: none"> • Set up a fair test when needed e.g. <i>does light travel in straight lines?</i> (Y5) • Know what the variables are in a given enquiry and can isolate each one when investigating. (Y5) • Justify which variable has been isolated in scientific investigation. • Use all measurements as set out in Year 6 mathematics (measurement), including capacity, mass, ratio and proportion. (Y5) • Able to record data and present them in a range of ways including diagrams, labels, classification keys, tables, scatter graphs and bar and line graphs. (Y5) • Make accurate predictions based on information gleaned from their investigations and create new investigations as a result. (Y5) • Able to present information related to scientific enquiries in a range of ways including using IT such as power-point, animoto and iMovie. (Y5) • Use a range of written methods to report findings, including focusing on the planning, doing and evaluating phases. (Y5) • Clear about what has been found out from their enquiry and can relate this to others in class. (Y5) • Explanations set out clearly why something has happened and its possible impact on other things. (Y5) • Aware of the need to support conclusions with evidence. • Keep an on-going record of new scientific words that they have come across for the first time and use these regularly in future scientific write ups. (Y5) • Use diagrams, as and when necessary, to support writing and be confident enough to present findings orally in front of the class. (Y5) • Frequently carry out research when investigating a scientific principle or theory. (Y5) • Keep an on-going record of new scientific words that they have come across for the first time
	vocab	<p>Inheritance, Evolution, Adaptation, Offspring, Scientific theory, Natural selection, Naturalist , Micro-organism, Arteries, Veins, Capillaries, Atriums, Ventricles, Pulse, Oxygenated, De-oxygenated, Nicotine, Caffeine, Alcohol</p>	<p>Volts, Filament, Short circuit, Decibels, Correlation, Periscope, refraction, Pupil, Lens, Cornea, Retina, Optic nerve, cast</p>