



Science Progression

Early Years				
Biology			Chemistry	Physics
Animals, including Humans	Animals, including Humans	Plants	Everyday Materials	Seasonal Change
<ul style="list-style-type: none"> Name common animals Carnivores, etc 	<ul style="list-style-type: none"> Human body and senses 	<ul style="list-style-type: none"> Common plants Plant structure 	<ul style="list-style-type: none"> Properties of materials Grouping materials 	<ul style="list-style-type: none"> The four seasons Seasonal weather
<ul style="list-style-type: none"> Explore and name farm animals and their babies Categorise animals depending on where they live- sea, jungle and farm Describe features of minibeasts to a peer- I have wings. I have spots. What am I? 	<ul style="list-style-type: none"> Name the basic parts of the body that can be seen- head, eyes, ears nose, mouth, tongue, legs, arms, hands, fingers, feet, toes, knees, shoulders, elbows and neck Compare eye colour and height as a class Explore the 5 senses of the body and use them to explore the world around them- texture, smell, noise etc. Show some understanding that good practices with regard to exercise, eating, sleeping and hygiene can contribute to good health ELG: Understand the importance of healthy food choices 	<ul style="list-style-type: none"> Describe simple features of plants- stem, petal, and leaves Discuss what plants need to survive- water and light 	<ul style="list-style-type: none"> Explore and use correct vocabulary to describe the texture of different materials- soft, hard, rough, smooth Explore solid and liquids when predicting and observe cause and effect when freezing and melting Experiment with different materials when building homes for the Three Little Pigs- Can you blow them down? Explore which objects float and sink Sort magnetic and non-magnetic materials: plastic, wood, metal 	<ul style="list-style-type: none"> Look closely at similarities, differences, patterns and change during class discussions about the four seasons and when on seasonal walks ELG: Understand the effect of the changing seasons on the natural world around them

Biology

- Comment and ask questions about aspects of their familiar world such as the place where they live or the natural world
- Talk about why things happen and how things work
- Develop an understanding of growth, decay and changes over time by exploring the life cycle of frogs and butterflies through close observation
- Show care and concern for living things and the environment by creating safe homes for minibeasts, creating bird feeders, planting beans and caring for plants in the outside environment
- Talk about some of the things they have observed, such as plants, animals, natural and found objects- Paxton Pitts Nature reserve trip for Reception classes
- **ELG: Explore the natural world around them, making observations and drawing pictures of animals and plants.**

Working Scientifically

- Ask questions such as:
 - Why is there a rainbow in the sky?
 - Who has the same coloured eyes as me?
 - Which material is the strongest- plastic or paper?
 - How do frogs grow?
- Record their findings, using marks that they can interpret and explain
- Identify and classify or group things according to a given criteria, e.g. legs/no legs, habitats
- Conduct simple tests. For example, set up a test to see which materials are strongest when building homes for the Three Little Pigs or which materials float and sink
- Make relevant observations and use observations to suggest answers to questions

Year 1

Biology			Chemistry	Physics
Animals, including Humans	Animals, including Humans	Plants	Everyday Materials	Seasonal Change
<ul style="list-style-type: none"> Name common animals Carnivores, etc 	<ul style="list-style-type: none"> Human body and senses 	<ul style="list-style-type: none"> Common plants Plant structure 	<ul style="list-style-type: none"> Properties of materials Grouping materials 	<ul style="list-style-type: none"> The four seasons Seasonal weather
<ul style="list-style-type: none"> Identify and name common animals Know how to classify a range of animals by amphibian, reptile, mammal, fish and birds Know and classify animals by what they eat (carnivore, herbivore and omnivore) Know how to sort by living and non living things 	<ul style="list-style-type: none"> Know the name of parts of the human body that can be seen 	<ul style="list-style-type: none"> Know and name a variety of common wild and garden plants Know and name the petals, stem, leaves and root of a plant Know and name the roots, trunk, branches and leaves of a tree 	<ul style="list-style-type: none"> Know the name of the materials an object is made from Identify, name and describe the simple physical properties of a variety of everyday materials Compare and group everyday materials 	<ul style="list-style-type: none"> Name the seasons and know about the type of weather in each season Observe changes across the four seasons
Working Scientifically				
<ul style="list-style-type: none"> Ask questions such as: <ul style="list-style-type: none"> Why are flowers different colours? Why do some animals eat meat and others do not? 				
<ul style="list-style-type: none"> Suggest ways of answering a question 				
<ul style="list-style-type: none"> Conduct simple tests for example set up a test to see which materials keeps things warmest, know if the test has been successful and can say what has been learned 				
<ul style="list-style-type: none"> Make relevant observations and use observations to suggest answers to questions 				
<ul style="list-style-type: none"> 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 				
<ul style="list-style-type: none"> Gather and record data and take measures (within Year 1 mathematical limits) to help find out more about the investigations undertaken 				

Year 2

Biology			Chemistry	
All living things and their habitats	Animals, including Humans	Plants	Everyday Materials	
<ul style="list-style-type: none"> • <i>Alive or dead</i> • <i>Habitats</i> • <i>Adaptations</i> • <i>Food chains</i> 	<ul style="list-style-type: none"> • <i>Animal reproduction</i> • <i>Healthy living</i> • <i>Basic needs</i> 	<ul style="list-style-type: none"> • <i>Plant and seed growth</i> • <i>Plant reproduction</i> • <i>Keeping plants healthy</i> 	<ul style="list-style-type: none"> • <i>Identify different materials</i> • <i>Name everyday materials</i> • <i>Properties of materials</i> 	<ul style="list-style-type: none"> • <i>Compare the use of different materials</i> • <i>Compare movement on different surfaces</i>
<ul style="list-style-type: none"> • Classify things by living, dead or never lived • Know how a specific habitat provides for the basic needs of things living there (plants and animals) • Match living things to their habitat • Name some different sources of food for animals • Know about and explain a simple food chain 	<ul style="list-style-type: none"> • Know the basic stages in a life cycle for animals, (including humans) • Find out about and describe the basic needs of animals, including humans, for survival • Know why exercise, a balanced diet and good hygiene are important for humans 	<ul style="list-style-type: none"> • Know and explain how seeds and bulbs grow into plants • Know what plants need in order to grow and stay healthy (water, light & suitable temperature) 	<ul style="list-style-type: none"> • Know how materials can be changed by squashing, bending, twisting and stretching 	<ul style="list-style-type: none"> • Know why a material might or might not be used for a specific job
Working Scientifically				
<ul style="list-style-type: none"> • Ask questions such as: <ol style="list-style-type: none"> Why do some trees lose their leaves in Autumn and others do not? How long are roots of tall trees? Why do some animals have underground habitats? 				
<ul style="list-style-type: none"> • Use equipment such as thermometers and rain gauges to help observe changes to local environment as the year progresses 				
<ul style="list-style-type: none"> • Suggest answers to questions by observing, gathering and recording data 				
<ul style="list-style-type: none"> • Know how to set up a fair test and do so when finding out about how seeds grow best or comparing materials 				
<ul style="list-style-type: none"> • Identify and classify or group things according to a given criteria, e.g. deciduous and coniferous trees 				
<ul style="list-style-type: none"> • Draw conclusions from fair tests and explain what has been found out 				
<ul style="list-style-type: none"> • Use measures (within Year 2 mathematical limits) to help find out more about the investigations they are engaged with 				
<ul style="list-style-type: none"> • Record and communicate findings using simple scientific language 				

Year 3

Biology		Chemistry	Physics		
Animals, including humans	Plants	Plants	Rocks	Forces	Light
<ul style="list-style-type: none"> <i>Skeleton and muscles</i> <i>Nutrition</i> <i>Exercise and health</i> 	<ul style="list-style-type: none"> <i>Plant life</i> <i>Basic structure and functions</i> 	<ul style="list-style-type: none"> <i>Life cycle</i> <i>Water transportation</i> 	<ul style="list-style-type: none"> <i>Fossil formation</i> <i>Compare and group rocks</i> <i>Soil</i> 	<ul style="list-style-type: none"> <i>Different Forces</i> <i>Magnets</i> 	<ul style="list-style-type: none"> <i>Reflections</i> <i>Shadows</i>
<ul style="list-style-type: none"> Know about the importance of a nutritious, balanced diet Know how nutrients, water and oxygen are transported within animals and humans Know about the skeletal and muscular system of a human 	<ul style="list-style-type: none"> Know the function of different parts of flowering plants and trees 	<ul style="list-style-type: none"> Know how water is transported within plants Know the plant life cycle, especially the importance of flowers Explore the requirements of specific plants for life and growth 	<ul style="list-style-type: none"> Compare and group rocks based on their appearance and physical properties, giving reasons Recognise that soils are made from rocks and organic matter Describe how fossils are formed when things that have lived are trapped in rock Know about and explain the difference between sedimentary, metamorphic and igneous rock 	<ul style="list-style-type: none"> Know about and describe how objects move on different surfaces Know how a simple pulley works and use to on to lift an object Know how some forces require contact and some do not, giving examples Know about and explain how magnets attract and repel Predict whether magnets will attract or repel and give a reason 	<ul style="list-style-type: none"> Know that dark is the absence of light Know that light is needed in order to see and is reflected from a surface Know and demonstrate how a shadow is formed and explain how a shadow changes shape Know about the danger of direct sunlight and describe how to keep protected

Working Scientifically

<ul style="list-style-type: none"> • Ask questions such as: <ul style="list-style-type: none"> ○ Why does the moon appear as different shapes in the night sky? ○ Why do shadows change during the day? ○ Where does a fossil come from? 	<ul style="list-style-type: none"> • Use a thermometer to measure temperature and know there are two main scales used to measure temperature
<ul style="list-style-type: none"> • Observe at what time of day a shadow is likely to be at its longest and shortest 	<ul style="list-style-type: none"> • Make systematic observations and gather and record information using a chart, matrix or tally chart, depending on what is most sensible
<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. 	<ul style="list-style-type: none"> • Group information according to common factors e.g. plants that grow in woodlands or plants that grow in gardens
<ul style="list-style-type: none"> • Use research to find out how reflection can help us see things that are around the corner 	<ul style="list-style-type: none"> • Use bar charts and other statistical tables (in line with Year 3 mathematics statistics) to record findings
<ul style="list-style-type: none"> • Use research to find out what the main differences are between sedimentary and igneous rocks 	<ul style="list-style-type: none"> • Know how to use a key to help understand information presented on a chart
<ul style="list-style-type: none"> • Test to see which type of soil is most suitable when growing two similar plants 	<ul style="list-style-type: none"> • Be confident to stand in front of others and explain what has been found out, for example about how the moon changes shape
<ul style="list-style-type: none"> • Test to see if their right hand is as efficient as their left hand 	<ul style="list-style-type: none"> • Present findings using written explanations and include diagrams when needed
<ul style="list-style-type: none"> • Set up a fair test with different variables e.g. the best conditions for a plant to grow 	<ul style="list-style-type: none"> • Make sense of findings and draw conclusions which help them to understand more about scientific information
<ul style="list-style-type: none"> • Explain to a partner why a test is a fair one e.g. lifting weights with right and left hand, etc. 	<ul style="list-style-type: none"> • Suggest conclusions, possible improvements or further questions
<ul style="list-style-type: none"> • Measure carefully (taking account of mathematical knowledge up to Year 3) and add to scientific learning 	<ul style="list-style-type: none"> • Amend predictions according to findings • Be prepared to change ideas as a result of what has been found out during a scientific enquiry

Year 4

Biology		Chemistry	Physics	
Animals, including humans	All living things and their habitats	States of Matter	Electricity	Sound
<ul style="list-style-type: none"> • Digestive system • Teeth • Food chains 	<ul style="list-style-type: none"> • Grouping living things • Classification keys • Adaptation of living things 	<ul style="list-style-type: none"> • Compare and group materials • Solids, liquids and gases • Changing state • Water cycle 	<ul style="list-style-type: none"> • Uses of electricity • Simple circuits and switches • Conductors and insulators 	<ul style="list-style-type: none"> • How sounds are made • Sound vibrations • Pitch and Volume
<ul style="list-style-type: none"> • Identify and name the parts of the human digestive system • Know the functions of the organs in the human digestive system • Identify and know the different types of human teeth • Know the functions of different human teeth • Use and construct food chains to identify producers, predators and prey 	<ul style="list-style-type: none"> • Use classification keys to group, identify and name living things • Know how changes to an environment could endanger living things • Group materials based on their state of matter (solid, liquid, gas) 	<ul style="list-style-type: none"> • Compare and group materials as solids, liquids or gases • Know the temperature at which materials change state • Know about and explore how some materials can change state • Know the part played by evaporation and condensation in the water cycle 	<ul style="list-style-type: none"> • Identify and name appliances that require electricity to function • Construct a series circuit • Identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers) • Predict and test whether a lamp will light within a circuit • Know the function of a switch • Know the difference between a conductor and an insulator; giving examples of each 	<ul style="list-style-type: none"> • Know how sound is made, associating some of them with vibrating • Know how sound travels from a source to our ears • Know the correlation between pitch and the object producing a sound • Know the correlation between the volume of a sound and the strength of the vibrations that produced it • Know what happens to a sound as it travels away from its source

Working Scientifically

<ul style="list-style-type: none"> • Ask relevant questions and plan scientific enquiries to answer them, such as: <ul style="list-style-type: none"> ○ Why are steam and ice the same thing? ○ Why is the liver important in the digestive systems? ○ What do we mean by 'pitch' when it comes to sound? 	<ul style="list-style-type: none"> • Identify differences, similarities or changes related to simple scientific ideas and processes
<ul style="list-style-type: none"> • Use research to find out how much time it takes to digest most of our food 	<ul style="list-style-type: none"> • Gather and record information using a chart, matrix or tally chart, depending on what is most sensible
<ul style="list-style-type: none"> • Use research to find out which materials make effective conductors and insulators of electricity 	<ul style="list-style-type: none"> • Group information according to common factors e.g. materials that make good conductors or insulators
<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Use bar charts and other statistical tables (in line with Year 4 mathematics statistics) to record findings
<ul style="list-style-type: none"> • Set up a fair test with more than one variable e.g. using different materials to cut out sound 	<ul style="list-style-type: none"> • Present findings using written explanations and include diagrams, when needed
<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Write up findings using a planning, doing and evaluating process
<ul style="list-style-type: none"> • Measure carefully (taking account of mathematical knowledge up to Year 4) and add to scientific learning 	<ul style="list-style-type: none"> • Make sense of findings and draw conclusions which helps them understand more about the scientific information that has been learned
<ul style="list-style-type: none"> • Use a data logger to check on the time it takes ice to melt to water in different temperatures 	<ul style="list-style-type: none"> • When making predictions there are plausible reasons as to why they have done so
<ul style="list-style-type: none"> • Use a thermometer to measure temperature and know there are two main scales used to measure temperature 	<ul style="list-style-type: none"> • Able to amend predictions according to findings
<ul style="list-style-type: none"> • Use a thermometer to measure temperature and know there are two main scales used to measure temperature 	<ul style="list-style-type: none"> • Prepared to change ideas as a result of what has been found out during a scientific enquiry

Year 5

Biology		Chemistry	Physics	
All living things and their habitats	Animals, including humans	Properties and changes in materials	Forces	Earth and Space
<ul style="list-style-type: none"> • <i>Life cycles – plants and animals</i> • <i>Reproductive processes</i> • <i>Famous naturalists</i> 	<ul style="list-style-type: none"> • <i>Changes as humans develop from birth to old age</i> 	<ul style="list-style-type: none"> • <i>Compare properties of everyday materials</i> • <i>Soluble/ dissolving</i> • <i>Reversible and irreversible substances</i> 	<ul style="list-style-type: none"> • <i>Gravity</i> • <i>Friction</i> • <i>Forces and motion of mechanical devices</i> 	<ul style="list-style-type: none"> • <i>Movement of the Earth and the planets</i> • <i>Movement of the Moon</i> • <i>Night and day</i>
<ul style="list-style-type: none"> • Know the life cycle of different living things e.g. mammal, amphibian, insect and bird • Know the differences between different life cycles • Know the process of reproduction in plants • Know the process of reproduction in animals 	<ul style="list-style-type: none"> • Create a timeline to indicate stages of growth in humans 	<ul style="list-style-type: none"> • Compare and group materials based on their properties (e.g. hardness, solubility, transparency, conductivity, [electrical & thermal], and response to magnets • Know and explain how a material dissolves to form a solution • Know and show how to recover a substance from a solution • Know and demonstrate how some materials can be separated (e.g. through filtering, sieving and evaporating) • Know and demonstrate that some changes are reversible and some are not • Know how some changes result in the formation of a new material and that this is usually irreversible 	<ul style="list-style-type: none"> • Know what gravity is and its impact on our lives • Identify and know the effect of air and water resistance • Identify and know the effect of friction • Explain how levers, pulleys and gears allow a smaller force to have a greater effect • Identify the effects of forces that act between moving surfaces • Recognise that some mechanisms allow a smaller force to have a greater effect 	<ul style="list-style-type: none"> • Know about and explain the movement of the Earth and other planets relative to the Sun • Know about and explain the movement of the Moon relative to the Earth • Know and demonstrate how night and day are created • Describe the Sun, Earth and Moon (using the term spherical) • Know the effects of the Earth's rotation

Working Scientifically

<ul style="list-style-type: none"> • Set up an investigation when it is appropriate e.g. finding out which materials dissolve or not 	<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
<ul style="list-style-type: none"> • Set up a fair test when needed e.g. which surfaces create most friction? 	<ul style="list-style-type: none"> • Report and present findings from enquiries using diagrams, as and when necessary, to support writing
<ul style="list-style-type: none"> • Set up an enquiry based investigation e.g. find out what adults / children can do now that they couldn't when a baby 	<ul style="list-style-type: none"> • Identify that not all results may be trustworthy and evaluate these when explaining findings from scientific enquiry
<ul style="list-style-type: none"> • Know what the variables are in a given enquiry and can isolate each one when investigating e.g. finding out how effective parachutes are when made with different materials 	<ul style="list-style-type: none"> • Clear about what has been found out from recent enquiry and can relate this to other enquiries, where appropriate
<ul style="list-style-type: none"> • Use all measurements as set out in Year 5 mathematics (measurement), including capacity and mass 	<ul style="list-style-type: none"> • Their explanations set out clearly why something has happened and its possible impact on other things, suggesting how evidence can support conclusions
<ul style="list-style-type: none"> • Use other scientific instruments as needed e.g. thermometer, rain gauge, spring scales (for measuring Newtons) 	<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Keep an on-going record of new scientific words that they have come across for the first time
<ul style="list-style-type: none"> • Make predictions based on information gleaned from investigations 	<ul style="list-style-type: none"> • Able to relate causal relationships when, for example, studying life cycles
<ul style="list-style-type: none"> • Create new investigations which take account of what has been learned previously 	<ul style="list-style-type: none"> • Frequently carry out research when investigating a scientific principle or theory

Year 6

Biology			Physics	
Animals, including humans	All living things and their habitats	Evolution and Inheritance	Electricity	Light
<ul style="list-style-type: none"> <i>The circulatory system</i> <i>Water transportation</i> <i>Impact of exercise on body</i> 	<ul style="list-style-type: none"> <i>Classification of living things and the reasons for it</i> 	<ul style="list-style-type: none"> <i>Identical and non identical off-spring</i> <i>Fossil evidence and evolution</i> <i>Adaptation and evolution</i> 	<ul style="list-style-type: none"> <i>Electrical components</i> <i>Simple circuits</i> <i>Fuses and voltage</i> 	<ul style="list-style-type: none"> <i>How light travels</i> <i>Reflection</i> <i>Ray models of light</i>
<ul style="list-style-type: none"> Identify and name the main parts of the human circulatory system Know the function of the heart, blood vessels and blood Know the impact of diet, exercise, drugs and lifestyle on health Know the ways in which nutrients and water are transported in animals, including humans 	<ul style="list-style-type: none"> Classify living things into broad groups according to observable characteristics and based on similarities and differences Know how living things have been classified Give reasons for classifying plants and animals in a specific way 	<ul style="list-style-type: none"> Know how the Earth and living things have changed over time Know how fossils can be used to find out about the past Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents) Know how animals and plants are adapted to suit their environment Link adaptation over time to evolution Know about evolution and can explain what it is 	<ul style="list-style-type: none"> Compare and give reasons for why components work and do not work in a circuit Draw circuit diagrams using correct symbols Know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer 	<ul style="list-style-type: none"> Know how light travels and that light appears to travel in straight lines Know and demonstrate that, to see, light travels from light sources, reflects from objects then to our eyes Know why shadows have the same shape as the object that casts them Know how simple optical instruments work e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.

Working Scientifically

<ul style="list-style-type: none"> • Know which type of investigation is needed to suit particular scientific enquiry e.g. looking at the relationship between pulse and exercise 	<ul style="list-style-type: none"> • Plan scientific enquiries to answer questions, controlling variables where necessary
<ul style="list-style-type: none"> • Set up a fair test when needed e.g. does light travel in straight lines? 	<ul style="list-style-type: none"> • Use a range of written methods to report findings, including focusing on the planning, doing and evaluating phases
<ul style="list-style-type: none"> • Know how to set up an enquiry based investigation e.g. what is the relationship between oxygen and blood? 	<ul style="list-style-type: none"> • Clear about what has been found out from their enquiry and can relate this to others in class
<ul style="list-style-type: none"> • Know what the variables are in a given enquiry and can isolate each one when investigating 	<ul style="list-style-type: none"> • Explanations set out clearly why something has happened and its possible impact on other things
<ul style="list-style-type: none"> • Justify which variable has been isolated in scientific investigation 	<ul style="list-style-type: none"> • Aware of the need to support conclusions with evidence
<ul style="list-style-type: none"> • Use all measurements as set out in Year 6 mathematics (measurement), including capacity, mass, ratio and proportion 	<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Use diagrams, as and when necessary, to support writing and be confident enough to present findings orally in front of the class
<ul style="list-style-type: none"> • Make accurate predictions based on information gleaned from their investigations and create new investigations as a result 	<ul style="list-style-type: none"> • Able to give an example of something they have focused on when supporting or refute a scientific theory e.g. classifying vertebrate and invertebrate creatures or why certain creatures choose their unique habitats
<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, animoto and iMovie 	<ul style="list-style-type: none"> • Frequently carry out research when investigating a scientific principle or theory