Science Progression of skills and knowledge				Animals Including Humans		
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Naming parts of the body and participating in P.E. sessions to run, jump, balance and move with increased control. Observe the hatching of chicks from eggs first hand. Share non-fiction texts to learn about Lifecycles and animals. Encourage the children to explain the stages of development using correct terminology and new vocabulary; metamorphosis, amphibians, mammals etc. Observe the butterfly lifecycle first hand and comment on what they see at each stage.	Identify, name draw and label the basic parts of the human body and say which parts of the body is associated with each sense	Notice that animals, including humans, have offspring which grow into adults. Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat Identify that humans and some animals have skeletons and muscles for support, protection and movement.	Identify the different types of teeth and their function. Compare human and animal teeth. Describe the functions of the digestive system.	Describe the changes as humans develop throughout their life. Describe the changes as humans develop to old age in the context of the development of babies in their first year. Report findings in the context of the gestation period for animals. Explain reproduction, fertilisation and seed dispersal.	Identify and name the main features of the human circulatory system. Describe the function of the heart, blood vessels and blood. Understand how the exchange of gases occurs in the alveoli in the lungs. Understand how nutrients and water are absorbed into the small intestine. Be able to explain the positive impact of regular exercise on the human body. Understand that drugs, alcohol and tobacco have negative effects on the body.

Progression of skills and knowledge — Seasonal Changes

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Play and explore outside in all seasons and in different weather. Observe living things throughout the year.	Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.					

Progression of skills and knowledge						Materials
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Explore a range of materials, including natural materials. Make objects from different materials, including natural materials. Observe, measure and record how materials change when heated and cooled. Compare how materials change over time and in different conditions. Moulding clay to create diva lamps and hedgehogs. Explore 'air' through inflating and deflating balloons.	Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, water and rock. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their physical properties.	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	Compare how things move on different surfaces. Observe how magnets attract or repel each other and attract some materials and not others. Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials	What are different states of matter? Properties of water – investigation, melting Understanding boiling and the evaporation process.	Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Understand that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials,	

					including metals, wood and plastic. Demonstrate that dissolving, mixing and changes of state are reversible changes. Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible	

Progression of skills and knowledge						Plants
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Identify spring bulbs and produce direct observational drawings. Plant sunflower seeds and make observations. What do they need to grow?	Identify and name a variety of common plants, including garden plants, wild plants and trees, and those classified as deciduous and evergreen. Identify and describe the basic structure of a variety of common plants including roots, stem/trunk, leaves and flowers.	Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	Identify and describe the functions of different parts of plants; roots, stem, leaves and flowers. Explore the requirements of plants for life and growth and how they vary from plant to plant. Investigate the ways in which water is transported within plants. Explore the role of flowers in the life cycle of flowering plants (pollination, seed formation and seed dispersal).		Describe the life process of reproduction in some plants and animals. Explain reproduction, fertilisation and seed dispersal.	Use classification keys to identify animals and plants in their immediate environments. Explain that animals and plants produce offspring which is similar but not identical to them. Explain that there is variation between parents and their offspring and within a species as well. Understand that adaptive traits are characteristics that are influenced by the environment such as climate and food; and that inherited traits are from parents.

Progression of skills and knowledge				Living things in their habitat		
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Explore the plants in the surrounding natural environment. Explore the animals in the surrounding natural environment. Explore plants and animals in a contrasting natural environment. Learn all about penguins and identify different types. Describe the climate in which they live in the Antarctic.		Explore and compare the differences between things that are living, dead, and things that have never been alive. Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including microhabitats. Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food		Explain what makes things living. Grouping living things into different categories. Differences and similarities between vertebrates and invertebrates. Write a fact file about an invertebrate. Complete a bug hunt around the school grounds. How do environmental changes affect living creatures?	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals	Classify into three broad groups. Understand the eight levels of classification and at each level the number of living things in a group gets smaller group. Explain what a taxonomist is. Classify further into vertebrates and invertebrates and identify characteristics. Use classification keys to identify animals and plants in their immediate environments.

Progression of skills and knowledge						Forces
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Explore how to change how things work. Explore how the wind can move objects. Explore how objects move in water. Explore floating and sinking through making boats from different materials for the boy and the penguin to return to the Antarctic. Explore 'air' through inflating and deflating balloons.		Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	Compare how things move on different surfaces. Notice that some forces need contact between two objects, but magnetic forces can act at a distance. Observe how magnets attract or repel each other and attract some materials and not others. Describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing. 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.		Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	

Progression of skills and knowledge				Electricity and Light		
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Explore shadows Explore rainbows			Recognise that they need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Recognise that shadows are formed when the light from a light source is blocked by a solid object. Find patterns in the way that the sizes of shadows change.	Where do we get electricity from? Dangers of electricity. Research project about Elon Musk (electric cars). How do you make a complete circuit? Comparing conductors and insulators. Making our own switches to add to a circuit.		Understand what light is, the way it travels in straight lines and how we use it to be able to see objects. Explain the law of reflection and the angle of incidence and refraction. Explain how shadows are formed and how they can be elongated and or shortened. Be able to explain the vocabulary related to the topic of light. Understand the workings of a series circuit and what happens when the circuit is broken. Explain why the brightness of a bulb

						becomes dimmer if more batteries are added. Be able to recognise and draw the components of a circuit. Understand what will make a bulb brighter/dimmer and a buzzer louder/quieter. Be able to explain the key vocabulary related to electricity.

Progression of skills and knowledge				Earth and Space		
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Learn about the Earth, Sun, Moon, planets and stars. Learn about space travel.					Line of scientific enquiry: Research Identifying and classifying Describe the movement of the Earth, and other planets, relative to the Sun in the solar system Identify and describe features of the planets in our solar system Describe the movement of the Moon relative to the Earth, explaining the different phases of the Moon Describe the Sun, Earth and Moon as approximately spherical bodies Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky Galileo	

					and Caroline Herschel – Planets orbiting the Sun and first woman to discover a comet. Biographies & explanations TechniQuest	

Progression of skills and knowledge						Sound
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Listen to sounds outside and identify the source. Make sounds.				Identify how sounds are made. What changes to make the sound louder and quieter? Workings of the inner ear. Changing the pitch of sound. Making our own musical instruments.		

Progression of skills and knowledge					Observation	
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Observing closely, using simple equipment. Children explore the world around them. They make careful observations to support identification, comparison and noticing change. They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations. They begin to take measurements, initially by comparisons, then using non-standard units. The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They make observations over time.		Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. The children make systematic and careful observations. They use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements. The children select from a range of practical resources to gather evidence to answer questions generated by themselves or the teacher. They follow their plan to carry out: observations and tests to classify and observations over time.		Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. The children select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale. During an enquiry, they make decisions e.g. whether they need to: take repeat readings (fair testing); increase the sample size (pattern seeking); adjust the observation period and frequency (observing over time); or check further secondary sources (researching); in order to get accurate data.	

Progression of skills and knowledge				Identifying and classifying	
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Performing simple tests. Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting. They use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing. The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out tests to classify.		Setting up simple practical enquiries. The children select from a range of practical resources to gather evidence to answer questions generated by themselves or the teacher. They follow their plan to carry out observations and tests to classify.		Planning different types of scientific enquiries to answer questions.	

Progression of skills and knowledge					Fair Testing	
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Performing simple tests The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out comparative tests.		Setting up simple practical enquiries, comparative and fair tests. The children select from a range of practical resources to gather evidence to answer questions generated by themselves or the teacher. They follow their plan to carry out comparative and simple fair tests.		Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. The children select from a range of practical resources to gather evidence to answer their questions. They carry out fair tests, recognising and controlling variables. They decide what observations or measurements to make over time and for how long.	

Progression of skills and knowledge				Pattern Seeking	
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out pattern seeking enquiries.		The children select from a range of practical resources to gather evidence to answer questions generated by themselves or the teacher. They follow their plan to carry out observations over time; and pattern seeking.		The children select from a range of practical resources to gather evidence to answer their questions. They look for patterns and relationships using a suitable sample.	

Progression of skills and knowledge					Research	
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions. The children answer questions developed with the teacher often through a scenario. The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to recognise that there are different ways.	Using their research to suggest answers to questions: Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. information they have gained from secondary sources. Watching videos and sharing books to find out about: scientists linked to their topics; the seasons; recycling; the impact of plastic pollution on habitats.		Using straightforward scientific evidence to answer questions or to support their findings: Children answer their own and others' questions based on information they have gained from secondary sources. The answers are consistent with the evidence. Reading given books and safely using given internet sites to find out about: scientists linked to their topics; the dangers of UV light; electric cars; different invertebrates; the stages of the water cycle.		Identifying scientific evidence that has been used to support or refute ideas or arguments: Children answer their own and others' questions based on information they have gained from secondary sources. When doing this, they discuss whether other evidence e.g. from secondary sources and their scientific understanding, supports or refutes their answer. They talk about how their scientific ideas change due to new evidence that they have gathered. They talk about how new discoveries change scientific understanding. Finding books to read with relevant information and safely searching the internet to find out about: scientists linked to their topics; earth and space; lifecycle of various animals; The effect of drugs and alcohol; Evolution, adaptation and natural selection.	

Progression of skills and knowledge			Recording and presenting evidence		
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Gathering and recording data to help in answering questions. The children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing. They record their measurements e.g. using prepared tables, pictograms, tally charts and block graphs. They classify using simple prepared tables and sorting rings.		Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and table. The children sometimes decide how to record and present evidence. They record their observation e.g. using photographs, videos, pictures, labelled diagrams or writing. They record their measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings). They record classifications e.g. using tables, Venn diagrams, Carroll diagrams. Children are supported to present the same data in different ways in order to help with answering the question.		Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. The children decide how to record and present evidence. They record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing. They record measurements e.g. using tables, tally charts, bar charts, line graphs and scatter graphs. They record classifications e.g. using tables, Venn diagrams, Carroll diagrams and classification keys. Children present the same data in different ways in order to help with answering the question.	