**Science**

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| **Key Stage** | **Pathway** | **Topics** | **Description**  | **Key Stage End Point (KSEP)** |
| KS1&2 | 1 | Health and Growth, Habitats, Pushes and Pulls, Forces and Movements, Senses, Rocks and Soils, Answering Scientific Questions, Minibeasts, Magnets, Materials, Electricity, Growing Plants, Light and Dark, Animals, Sound and Hearing, Helping Plants Grow Well*How Science Works ‘Practical and investigative skills are developed across the year in all topics’* | I can demonstrate one way of being safe during simple investigations. I can carry out simple instructions. I can answer questions about what has happened with a yes or no response. I can cooperate with routines and activities to promote a healthy body. I can identify key body parts. I will explore common habitats in a multisensory way and name some familiar features. I can identify some common animals. I can identify some common insects. I can experience and react to pushes and pulls. I can use my senses to experience the world around me. I will explore rocks and soil and identify some key characteristics. I can explore different materials and their characteristics. I can sort materials according to one criterion. I will explore the magnetic properties of materials in a hands-on way. I can operate the switches on electrical appliances to explore cause and effect. I can experience caring for a plant. I can communicate an awareness of change between light and dark. I can have fun exploring different light sources. I can listen for environmental sounds and identify some I hear. I can copy and make sounds using my voice, body and instruments. | Age 11 |
| KS1&2 | 2 | Health and Growth, Rocks and Soils, Pushes and Pulls, Forces and Movements, Electricity, Minibeasts, Materials, Magnets, Animals, History of Science, Growing Plants, Light and Dark, Sound and Hearing, Habitats, Helping Plants Grow Well*How Science Works ‘Practical and investigative skills are developed across the year in all topics’* | I can choose the equipment I have used in an investigation from pictures and use this equipment safely during practical activities. I can make a simple prediction about an experiment based on something I have observed before. I am beginning to use observations to describe what has changed verbally or using symbols when observing objects, living things or events. I can give examples of how science has changed the world around us. I can draw a person and label / name the key features. I can draw a plant and label / name the key features. I can describe key characteristics of animals in simple terms using verbal skills or symbol selection. I can describe key characteristics of plants in simple terms using verbal skills or symbol selection. I can sort animals by one common characteristic. I know that animals live in different places and eat different foods and make plausible suggestions at what these could be. I can make something move in different directions using my hands or a physical prop, e.g. a ramp, magnet. I can identify things that move fast and slow using words or symbols. I can use the terms push, pull and turn, and carry these actions out. I can indicate different objects in my environment that use electricity and I know that some objects are plugged in and some use batteries. I can indicate different sources of light, and I can find a shadow. I can identify some common sounds and describe them as loud or quiet. I can name simple common materials and use one adjective to describe them. I know that some materials can change shape. I can sort materials by colour or hard/ soft. I can notice the differences between a selection of rocks and soils and I can describe key characteristics of rocks.  | Age 11 |
| KS1&2 | 3 | Health and Growth, Electricity, Pushes and Pulls, Forces and Movements, Materials, Habitats, Rocks and Soils , Magnets, Animals, History of Science, Growing Plants, Light and Dark, Sound and Hearing, Minibeasts, Helping Plants Grow Well*How Science Works ‘Practical and investigative skills are developed across the year in all topics’* | I can use and begin to read scales on a variety of measuring equipment e.g. Newton metres, beakers, rulers, stopwatches, syringes and data loggers. I can record my results and findings using pictures, words and tables of information. I can recognise when a scientific enquiry is unfair. I can say what I have found out and give an explanation for observations and simple patterns based on everyday experiences. I can describe how scientific knowledge and theories change over time and give examples how this has changed the world we live in. I know what a plant, animal or human needs to survive and can identify living and non-living things. I know that living things (plants humans and animals) reproduce and I can order the stages of this process. I can sort animals and plants by different characteristics, which I can then explain. I can describe different habitats and the adaptations animals or plants may have to live there e.g. gills and fins. I can sort physical phenomena such as fast/slow, light/dark, loud/quiet and high/low then give examples and explain similarities and differences. I can sort magnetic and non-magnetic materials and I can identify magnets in my environment. I can track a shadow as it moves. I can create a basic circuit to light a bulb. I can describe materials and their characteristics in more detail and can use this to sort them. I am aware that some materials can be transformed and have investigated this with common foods and objects, e.g. ice lolly, candle. I know which changes are reversible. I can discuss where rocks are found. I know some of the uses of rocks and their differences. I can identify man-made and natural items. I can examine the structure of different soils and have investigated decomposition, e.g. Plants, fruits. | Age 11 |
| KS3 | 1 | Structure of the Earth and Climate, Universe, Variation, Reproduction, Human Body, Movement, Particles and Mixtures, Forces, Acids and Alkalis, Habitats and Ecosystems, Elements and the Periodic Table, Energy, Light and Sound, Electricity, Speed, Breathing, Food and Digestion, Plants, Plant Reproduction, Chemical Energy, Heating and Cooling, Earth's Resources, Metals, Waves, Magnets, Inheritance, Evolution, Chemical Reactions*How Science Works ‘Practical and investigative skills are developed across the year in all topics’* | I can demonstrate at least one way of being safe during scientific investigations. I can begin to make simple predictions. I can show what happened and what equipment was used in an investigation using visual resources. I can identify changes to my body as I grow and develop. I can recognise several parts of the human body including some organs. I know some of my physical characteristics. I can match common animals to their habitat. I can sort animals by one criterion. I can recognise key features of animals and plants. I can sort concrete examples or pictorial representations of solids and liquids and recognise the terms melting and freezing. I can identify metals from real-life objects, pictures or symbols. I can take part in activities to help look after the planet. I can investigate different materials. I can use magnets to investigate materials and show that magnets attract and repel. I can identify objects that give out light. I can find out which common household chemicals are acid and which are alkali. I can identify objects that are fast and slow and react if their speed changes. I can experience and label pushing and pulling actions. I can identify key features in the sky. I can begin to describe sounds I hear using appropriate vocabulary. | Age 14 |
| KS3 | 2 | Structure of the Earth and Climate, Universe, Variation, Reproduction, Cells, Movement, Particle Model, Separating Mixtures, Forces and Pressure, Acids and Alkalis, Interdependence, Elements and Periodic Table, Energy, Light and Sound, Electricity, Gravity, Speed, Breathing and Respiration, Digestion, Photosynthesis, Plant Reproduction, Chemical Energy, Heating and Cooling, Earth's Resources, Metals, Waves, Magnetism and Electromagnets, Inheritance, Evolution, Chemical Reactions*How Science Works ‘Practical and investigative skills are developed across the year in all topics’* | I can plan an investigation and show what I have found out. I can demonstrate ways of being safe during practical activities and can understand some hazard symbols and identify precautions relating to them. I can name solids, liquids and gases and I can identify if something is melting or freezing. I can separate mixtures using different techniques. I can name some elements. I can identify at least 1 part of the Earths structure and name some different types of rock. I can find out if common household chemicals are acids or alkalis. I can describe some properties of metals and how the resources of the Earth are used. I can name different parts of the body and demonstrate how the body moves.  I can identify healthy and unhealthy food and can name some parts of the digestive system. I can identify different characteristics and know that some characteristics come from parents. I can state some of the main changes that take place during puberty and name at least one part of the male and female reproductive system. I can put food chains in the correct order and identify some things that animals and plants compete for. I can name an effect of climate change. I can name some forces and measure forces using a newton meter. I can sort luminous and non-luminous objects and know that shadows are where light is blocked. I can describe sounds using loud, soft, high and low. I can name some stores of energy. I can set up a simple circuit, and name some of the components. I can name some objects in the solar system and say how we see planets. I know that magnets can attract and repel.  | Age 14 |
| KS3 | 3 | Structure of the Earth and Climate, Universe, Variation, Reproduction, Cells, Movement, Particle Model, Separating Mixtures, Contact Forces and Pressure, Acids and Alkalis, Interdependence, Elements and Periodic Table, Energy, Light and Sound, Electricity, Gravity, Speed, Breathing and Respiration, Digestion, Photosynthesis, Plant Reproduction, Chemical Energy, Heating and Cooling, Earth's Resources, Metals, Waves, Magnetism and Electromagnets, Inheritance, Evolution, Chemical Reactions*How Science Works ‘Practical and investigative skills are developed across the year in all topics’* | I can say what I am trying to find out in my experiment, make a prediction and I can describe what the results of my experiment show. I can identify control variables in an investigation, safely carry out an investigation and can understand hazard symbols and safety precautions. I can describe melting and freezing and can draw particle diagrams of solids, liquids and gases. I can state what a mixture is and can name some separation techniques. I can classify elements, compounds, and atoms and use the periodic table to find symbols for elements. I can find out if common household chemicals are acids or alkalis and describe what an indicator is. I can describe some properties of metals and how the resources of the Earth are used. I can describe the impact of climate change. I can draw food chains, identify what animals and plants compete for and record data from sampling an ecosystem. I can state that variation is inherited or environmental. I can describe the main changes that take place during puberty and name some structures of the male and female reproductive system. I can identify the components of a healthy diet and simply describe the process of digestion. I can name different parts of the body and demonstrate how the body moves. I can describe how different organisms reproduce and the adaptations they have to compete with their own and other species. I can identify balanced and unbalanced forces and measure forces using a newton meter. I can draw simple ray diagrams to show how we see light and know what amplitude and frequency are. I can name stores of energy and can identify energy transfers between stores. I can name a variety of objects in the solar system and describe how we see planets. I can set up, draw a simple circuit, and name the components. I can describe how magnets interact and can know the main features of an electromagnet.   | Age 14 |
| 14-19 | 1 | - Human Body - Environment, Evolution and Inheritance- Energy, Forces and the Structure of Matter- Chemistry in our World- Elements, Mixtures and Compounds- Electricity, Magnetism and Waves  | I can demonstrate at least one way of being safe when handling household chemicals. I can make a realistic prediction. I can share what happened in an investigation using my preferred method of communication. I know the health benefits of regular exercise and physical activity. I know parts of my body can be targeted by specific exercises. I understand the importance of good hygiene for my own health. I can follow practical measures to reduce the spread of illness. I can sort known foods into healthy and unhealthy. I can actively participate in recycling materials and conserving energy. I can identify and use a range of common electrical appliances and tools. I will demonstrate good safety practice when using electrical equipment. I know plants need sunlight and water. I know seasonal changes impact plants and their growth. I can take part in a conservation project to help protect local wildlife. I know one way of extinguishing a fire ignited from solid materials. I can demonstrate mixing and separation using simple techniques. I can use a simple chemical reaction to create a non-toxic cleaning product. I can observe physical and chemical changes during cooking and food preparation. I will use a simple mechanism to support the movement and leverage of a load. I can identify appropriate materials for a specified purpose. | Age 18 |
| 14-19 | 2 | - How Science Works - Human Body - Elements Mixtures and Compounds- Energy Forces and the Structure of Matter - Chemistry in Our World - Environment Evolution and Inheritance - Electricity Magnetism and Waves  | I can identify pieces of equipment I have used in an experiment. I can record my results in a table provided for me. I can perform chemical reactions safely with some support. I understand that our bodies are made of cells and can identify and locate some organs of the human body. I understand that a balanced diet and exercise contribute to a healthy heart. I know that pathogens cause disease and can state ways that disease can spread. I know that elements are made of one type of atom and can find symbols of elements on the periodic table with support. I can separate mixtures using different techniques with support. I can name at least one store of energy. I can say what affects a driver’s ability to stop quickly in an emergency. I can name at least 1 gas in the Earth's atmosphere. I can name at least 1 way that humans are polluting the Earth. I know what plants need to survive. I can name producers and consumers. I know that reproduction can be sexual or asexual. I know that genes give us our characteristics. I can construct a simple circuit and name some components. I can name some electrical appliances found in the home and can name the different coloured wires in a plug. I can describe waves on an oscilloscope in simple terms, e.g. short, tall. I can name some waves on the electromagnetic spectrum.  | Age 18 |
| 14-19 | 3 | - How Science Works - Human Body - Elements Mixtures and Compounds- Energy Forces and the Structure of Matter - Chemistry in Our World - Environment Evolution and Inheritance - Electricity Magnetism and Waves  | I can make a prediction about an investigation. I can draw a bar chart of my results with minimal support. I can write a simple conclusion about an investigation. I can describe the function of some of the main organs of the human body. I understand how a balanced diet and exercise contribute to a healthy heart. I know that white blood cells destroy pathogens that cause disease. I know that elements are made of one type of atom and can name subatomic particles in an atom. I can find symbols of elements on the periodic table and know the periodic table is organised into groups and periods. I know that mixtures can be separated and I can separate mixtures using a number of different techniques. I can identify ways energy is stored. I can recall the difference between contact and non-contact forces. I can safely perform and describe different chemical reactions and I can identify at least 1 way of increasing the rate of reaction. I can identify one of the products of combustion and understand how it can cause pollution. I can describe 1 way the Earth’s atmosphere has changed over time. I can order the word equation for photosynthesis and can identify at least 1 factor that affects the rate. I can describe some adaptations that animals and plants use the help them survive. I understand that microorganisms cause decay. I know that reproduction can be sexual or asexual and that sexual reproduction causes variation. I can describe waves on an oscilloscope using frequency, amplitude and wavelength. I can construct a simple circuit and describe how it works. | Age 16-18 |