Strand		Year 3	Year 4	Year 5	Year 6
Biology	Plants	• Identify and describe the functions of different parts of flowering plants. • Investigate what plants need to grow. • Explain how requirements for growth can vary from plant to plant. • Explain why leaves are important in the life cycle of a plant. • Explore the role of flowers in the life cycle of flowering plants – seed dispersal.	***(Taught in Animals Including Humans)*** • Identify and classify leaves. • Know the role of the leaf. • Discuss characteristics of leaves.	***(Taught in Living Things and Their Habitat)*** • Understand the reproduction of plants. • Asexual reproduction in plants.	***(Taught in Living Things and Their Habitat)*** • Plantae kingdom (5 kingdoms). ***(Taught within Evolution)*** • Adaptation of plants in different climates.
	Animals Including Humans	• To understand that animals including humans need nutrients in their diet. • To compare animals by their diet. • To design a healthy meal. • Identify and name bones in the human body. • Identify and explain the three main function of the skeleton.	• To identify and name parts of the human digestive system. • To explain the function of the mouth and stomach in digestion. • Investigate the presence of fat in our diet. • To identify different teeth in humans and their functions. • To investigate tooth decay • To compare the human diet to other animals.	• To describe the stages of human development. • To explain how babies, grow and develop. • Describe the main changes that occur during puberty. • Identify the changes that take place in old age. • Compare gestational periods of vertebrates and invertebrates. • To investigate the relationship between	• To explain the function of the heart. • To know the function of blood and what it is made up of. • To be able to describe ways in which nutrients are transported within animals, including humans. • To recognise the impact of drugs and alcohol on the way the body functions.

			• To construct and interpret food chains/webs.	gestational periods and life expectancy.	
	Living Things and their Habitat		• To group, sort and classify living things. • Recognise that living things can be grouped in a variety of ways. • MRS NERG – 7 living process. • To use and create classification keys. • identify vertebrates by observing their similarities and differences. • To group organisms according to their observable features. Describe how changes in the environment can be a danger to living things.	• MRS NERG – 7 living process. • To explain how mammals, reproduce. • Explain reproduction in plants. • Describe different life cycles, of mammals, amphibians, insects and birds. •	• Understand the importance of classification. • Know how animals are classified (5 kingdoms). • Use and create classification keys (vertebrates and invertebrates). • To understand how microorganisms can be helpful and harmful.
	Evolution				• To know what evolution is and why it occurs. • Recognise that living things change over time. • Recognise that fossils provide information about the past. • Understand Darwin's theory of evolution.

					• Recognise that living things produced offspring of the same kind. • Dominant and recessive genes. • Identify how animals have adapted to suit their environment. • Identify how plants have adapted to suit their environment.
Strand		**Year 3**	**Year 4**	**Year 5**	**Year 6**
Physics	**Forces**	• Identify forces acting upon an object (Push and Pull). • Investigate the effect of friction on different surfaces. • Sort magnetic and non-magnetic materials. • Investigate the strength of magnets. • Explore magnetic poles.		• Identifying forces acting upon an object (air resistance, gravity, friction, buoyancy). • Investigate and explain the effect of gravity on unsupported objects. • Investigate the effects of air resistance. • Investigate the effects of friction. • Understand how mechanisms work.	
	Sound		• Know that sound is caused by a vibration. • Sound travels in sound waves. • To find patterns between the pitch of a sound and features of the object that produced it.		

			• Explain how and why sounds change over distance. • Investigate different ways to absorb sound.		
	States of Matter	***(Taught within Rocks)*** • Properties of rocks – solids.	• Compare and group materials based on properties of solids/liquids and gasses. • To understand that solids, liquids and gases are made up of particles. • To understand that some solids can change state when they are heated or cooled. • Observe and explain how water can change from one state to another. • To understand the effect of temperature on evaporation rates. • To understand the Water Cycle.	***(Taught within Properties of Materials)*** • Reversable and irreversible changes. • Recap solids, liquids and gases.	
	Electricity		• To identify electrical appliances and the different types of electricity that they use. • To construct simple electrical circuits, identify and naming parts. • To identify complete and incomplete circuits. • Recognise common conductors and inulators.	***(Taught within Properties of Materials)*** • Electrical conductors and insulators.	• Revise understanding of circuits and electrical components. • Investigate how the voltage of a cell affects a circuit. • To measure and calculate the current within a series circuits.

			• Recognise that a switch completes or breaks a circuit. • Electrical safety.		• To understand the difference between series and parallel circuits. • To apply our understanding of electrical components in life situation.
	Light	• To investigate the properties of light. • *To know how light can be reflected.* • *To notice that light is reflected in different ways.* • *To recognise that light from the sun can be dangerous.* • *To understand why the size of shadows change.* • *Investigate which materials make better shadows.*			• Understand that light travels in straight line. • To explain how we see. • Understand how mirrors reflect like and how this helps us to see objects. • Investigate how refraction changes the direction of light. • To investigate how a prism changes a ray of light to show spectrum. • To investigate how light enables us to see colour.
	Earth and Space	•		• Explain how we know that the Sun, Earth and Moon are spherical. • Name and describe all of the planets. • Explain how planets move in the solar system. • Explain the concept of day and night. Describe the phases of the moon and its movement relative to Earth.	•

Chemistry	Rocks	• Compare and group different types of rocks, • Investigate the properties of rocks. • To describe how fossils are formed. • To recognise that soils are made from rocks and organic matter. • Investigate the permeability of different soils.		***(Taught within Properties of Materials)*** • Properties of rocks compared with other materials	***(Taught within Evolution)*** • Revise the fossilisation process and explain how this tells us about the past.
	Properties of Materials	***(Taught within Light)*** • Shadow puppet/different properties of materials		• Compare materials according to their properties. • To identify thermal conductors and insulators. • To know that some substances dissolve in liquids and describe how to recover a substance from a solution. • Use knowledge of solids, liquids and gases to decide how to separate mixtures. • Explore reversible and irreversible changes.	

Working Scientifically	Year 3	Year 4	Year 5	Year 6
	Because working scientifically is at the heart of science, every science topic plans for children to work scientifically in most lessons. Children are continually revisiting working scientifically skills to embedded this knowledge and flourish as young scientists. We ensure that across each topic children have an opportunity to undertake a range of investigations: observation over time,		**Because working scientifically is at the heart of science, every science topic plans for children to work scientifically in most lessons. Children are continually revisiting working scientifically skills to embedded this knowledge and flourish as young scientists. We ensure that across each topic children have an opportunity to undertake a range of investigations:**	

	comparative and fair testing, pattern seeking, identify and classifying and researching using secondary resources. • Ask questions around the scientific topic that is being discussed. • To make a prediction based on their current understanding of their world. • Select appropriate equipment from a selection of resources. • To make systematic and careful observations *eg labelled diagrams.* • To gather and start to decide how to present results clearly *eg tables and bar charts.* • Use labelled diagrams and clear scientific explanations to share our method. • Use results to draw a simple conclusion. • Use scientific evidence to support a conclusion *eg My results show that….* • To start to use standard measurements when recording results. • To begin to understand how to carry out a fair test by only changing one variable.	**observation over time, comparative and fair testing, pattern seeking, identify and classifying and researching using secondary resources.** • *Plan different types of scientific enquiries to answer questions.* • *Recognise and control variables where necessary.* • *To make evidence based predictions, drawing on their wider scientifc understanding.* • *Decide which variable to measure and how.* • *Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.* • *Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.* • *Use test results to make predicitions to set up further comparative and fair tests.* • *Report and present findings from enquiries, including conclusions, casual relationships in oral and written forms such as displays and other presentations.* • *Explanations of the degree of trust/reliability in results eg are children able to suggest ways to improve reaibility?* • *Identify scientific evidence that has been used to support or refute ideas or arguments.*