St. James
C. of E. PRIMARY SCHOOL

Science at St James aims to give all children a strong understanding of the world around them whilst acquiring specific skills and knowledge to help them to think scientifically, to gain an understanding of scientific processes and also and understanding of the uses and implications of science, today and for the future. Our curriculum aims to broaden the children's scientific view of, and respect for the world, whilst promoting a love for enquiry and wanting to explore new things.

We ensure that the Working Scientifically skills are developed year on year so that the children can plan and carry out investigations to answer questions that puzzle them; competently use scientific equipment to measure and record data accurately and have the necessary skills and vocabulary to confidently explain concepts and articulate their findings.

Early Years	Through knowledge of the world Explore natural materials. Talk about collections of natural materials. Talk about what they see using a wide vocabulary. Begin to understand their own life story. Explore how things work. Understand the need to respect and care for the natural environment and all living things. Talk about different forces. Explore how you can shine a light through some materials but not others. Understand that materials can change state eg cooking Talk about the difference they notice in people. To talk about and explore the 4 seasons. Observe changes over time. Observe patterns and changes. Can ask simple questions. Record observations in ways that are important to me.	Know ab They talk They make

	Autumn Term	Spring Term	Summer Term
Year 1	**Autumn 1** **Unit Title: The human body** **National curriculum coverage:** Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. **Autumn 2** **Unit Title: Seasons** *(Autumn/Winter is looked at this point and Spring/Summer is looked at later in the year)* **Materials** **National curriculum coverage:** Distinguish between an object and the material from which it is made Identify and name a variety of everyday materials, including wood, plastic, glass, metal, 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 simple physical properties. **National curriculum coverage:** Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies.	**Spring 1** **Unit Title : Materials cont…..** **National curriculum coverage:** Distinguish between an object and the material from which it is made Identify and name a variety of everyday materials, including wood, plastic, glass, metal, 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 simple physical properties. **Spring 2** **Unit Title: Animals** **National curriculum coverage:** Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals Identify and name a variety of common animals that are carnivores, herbivores and omnivores Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)	**Summer 1** **Unit Title : Plants** **National curriculum coverage:** Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Identify and describe the basic structure of a variety of common flowering plants, including trees. **Summer 2** **Unit Title : Animals in their environment** **National curriculum coverage:** Identify and name a variety of common animals including fish, mammals and birds Link with famous scientist Mary Anning **Unit Title: Seasons** *Spring/Summer* **National curriculum coverage:** Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies.
Year 2	**Autumn 1**	**Spring 1**	**Summer 1**

	Unit Title : Materials **National curriculum coverage:** 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. **Autumn 2** **Unit Title : A Famous Scientist Joan Procter** **National curriculum coverage:** To identify the habitats most suitable for various reptiles and how that habitat provides the reptile's basic needs. To notice that animals have offspring which grow into adults. To be introduced to the process and reproduction of animals.	**Unit Title : Healthy Living/Lifestyles** **National curriculum coverage:** Find out the basic needs of animals including humans for survival. Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. **Spring 2** **Unit Title : Habitats** **National curriculum coverage:** Explore and compare the differences between things that are living and dead and things that have never been alive. Describe how animals obtain their food from plants and other animals using the food chains and identify and name different sources of food. Identify and name a variety of plants and animals in their habitats. 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. Notice that animals have offspring that grow into adults. Find out about and describe the basic needs of animals including humans for survival.	**Unit Title : Plants** **National curriculum coverage:** 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. **Summer 2** **Unit Title : Microhabitats** **National curriculum coverage:** Identify that most living things live in habitats to which they are suited and describe how different habitats provide basic needs of different kinds of plants and animals. Identify and name a variety of plants and animals in their habitats including microhabitats. (Link with Geography for habitats eg Everest)
Year 3	**Autumn 1** **Unit Title : Animals including humans** **National curriculum coverage:** 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.	**Spring 1** **Unit Title : : Rocks and Soils** **National curriculum coverage:** Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties Describe in simple terms how fossil are formed when things thy have lived are trapped within rock	**Summer** **Unit Title : Light and Shadow** **National curriculum coverage:** Recognise that pupils 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

	Autumn 2 **Unit Title : Magnets and Forces** **National curriculum coverage:** 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, 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, describe magnets as having two poles, predict whether two magnets will attract or repel each other depending on which poles are facing.	Recognise that soils are made from rocks and organic matter **Spring 2** **Unit Title Plants** **National curriculum coverage:** Identify and describe the functions of different parts of flowering plants Investigate the way in which water is transported within plants Understand 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 Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	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 size of shadows change **Summer 2** **Unit Title Plants** **National curriculum coverage:** Identify and describe the functions of different parts of flowering plants Investigate the way in which water is transported within plants Understand 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 Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.
Year 4	**Autumn 1** **Unit Title : Living Things and their Habitats** **National curriculum coverage:** Recognise that living things can be grouped in a variety of ways Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Recognise that environments can change and that this can sometimes pose dangers to living things.	**Spring 1 + 2** **Unit Title ; States of Matter** **National curriculum coverage:** Compare and group materials together, according to whether they are solids, liquids or gases Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) Identify the part played by evaporation and condensation in the water cycle and associate	**Summer 1** **Unit Title : Sound** **National curriculum coverage:** Identify how sounds are made, associating some of them with something vibrating Recognise that vibrations from sounds travel through a medium to the ear Find patterns between the pitch of a sound and features of the object that produced it Find patterns between the volume of a sound and the strength of the vibrations that produced it

	Autumn 2 **Unit Title : Electricity** **National curriculum coverage:** Identify common appliances that run on electricity Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit Recognise some common conductors and insulators, and associate metals with being good conductors.	the rate of evaporation with temperature (Revisit during Rivers topic).	Recognise that sounds get fainter as the distance from the sound source increases. **Summer 2** **Unit Title : Animals Including Humans** **National curriculum coverage:** Describe the simple functions of the basic parts of the digestive system in humans Identify the different types of teeth in humans and their simple functions Construct and interpret a variety of food chains, identifying producers, predators and prey.
Year 5	**Autumn 1** **Unit Title : Living things and their habitats** **National curriculum coverage** 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. **Autumn 2** **Unit Title : Properties and changes of Materials** **National curriculum coverage:** Using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations	**Spring 1/2** **Unit Title : Forces** **National curriculum coverage:** Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object	**Summer** **Unit Title : Space** **National curriculum coverage:** Describe the movement of the Earth, and other planets, relative to the Sun in the solar system describe the movement of the Moon relative to the Earth 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. **Summer 2** **Unit Title ; Animals incl humans** **National Curriculum Coverage** describe the changes as humans develop to old age. Link to RSE

	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 Know 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, including changes associated with burning and the action of acid on bicarbonate of soda.	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 Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect	
Year 6	**Autumn** **Unit Title : Evolution and Inheritance** **Animals including humans** **National curriculum coverage:** Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals Give reasons for classifying plants and animals based on specific characteristics.	**Spring 1** **Unit Title : Electricity** **National curriculum coverage:** Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches use recognised symbols when representing a simple circuit in a diagram.	**Summer** **Unit Title Light** **National Curriculum coverage** Recognise that light appears to travel in straight lines use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes use the idea that

	Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function describe the ways in which nutrients and water are transported within animals, including humans. Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	**Spring 2** **Unit Title: Living things and their habitats** **Micro-organisms** **National curriculum coverage:** Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals Give reasons for classifying plants and animals based on specific characteristics Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals Give reasons for classifying plants and animals based on specific characteristics.	light travels in straight lines to explain why shadows have the same shape as the objects that cast them.