ST JOHN OF JERUSALEM SCIENCE OVERVIEW

	Autumn Term	Spring Term	Summer Term
EYFS	**All About Me** • To identify and name facial features • To name and label parts of the human body • To understand the importance of eating healthy food • To understand the importance of exercise • To find out how to brush teeth properly • To learn about hygiene and the importance of washing our hands well **Transport** • To understand that most vehicles need an engine in order to move • To understand that road or rail vehicles need wheels • To explore the concept of floating and sinking	**Space** • To know that the Sun is a star which gives us light and warmth • To know that the Earth revolves around the sun which determines day and night • To know the names of the planets • To compare Earth to the other planets • To know that rockets need very powerful engines to go into space • To understand that astronauts need special suits with oxygen as there is no air in space **People Who Help Us** • To understand that people in many jobs rely on Science to help them do their job properly	**Plants** • To be able to name the basic parts of a flowering plant • To plant different types of seeds and know what they need to grow • To understand that plants have a life cycle • To understand that we can grow plants for the purpose of eating them **Animals** • To be able to name and describe a range of animals • To look at the markings on animal fur and understand that this helps them to camouflage in the wild • To understand that animals need particular environments to survive • To know that animals can be carnivores or herbivores
	Science Week: **Changes: Looking at colour and texture**		

Y1	**Everyday Materials: Identifying and Sorting** • To identify and sort a variety of common materials. • To compare and sort a variety of everyday materials on the basis of their simple physical properties. • To distinguish between an object and a material. • To describe materials according to their properties. • To describe why some materials suit certain objects better than others. • To carry out an experiment to find out which materials are waterproof and report my findings. **Autumn & Everyday Materials: What are toys made from?** • To find out what the weather is like in Autumn. • Educational Visit: Materials Workshop • To identify and name a variety of everyday materials used to make toys. • To explore and describe wooden toys and their properties. • To explore and describe plastic toys and their properties. • To explore and describe fabric toys and their properties.	**Winter & Animals Including Humans: Comparing and Sorting Animals** • I can describe the weather in winter. • To identify and name common animals and explain how some animals adapt to winter. • To describe and compare the structure of different animals, including birds, amphibians, reptiles, mammals and insects. • To find out which minibeasts live in our school habitat • To identify and name the basic parts of the human body. • To name the five senses and perform simple tests to find out more about them. **Spring & Animals Including Humans: Identifying and Naming Animals** • To know that days start to get longer again when spring arrives. To know that plants start to grow again. • To find out what sort of creatures live in the school pond and try to identify them using pictures of UK pond life. • To identify, name and sort animals that are herbivores, carnivores and omnivores. • To identify and name a variety of common UK mammals. • To identify and name a variety of common UK birds, reptiles, fish & amphibians. • To find out how to take care of animals.	**Plants: Growing a Bean and Naming Plants and trees** • Looking at plants & trees around the school grounds. • To plant a bean and observe its growth over time. • To understand and explain what plants need to be able to grow well. • To record their observations of how their bean grew. • To identify and describe the parts of plants and trees. • To identify and name some garden plants. **Summer & Plants: Looking Closely at Plants and Seeds** • To know that days start to get longer again when Summer arrives and that there is much less rain and the temperature is hotter in Summer. • To identify trees by their leaves • To look at different trees in the local area and find out what animals like or live in them. • To look at different flowering plants in the local area and find out what animals like or live in them. • Dissect a flower and look at the different parts. • Look at different seeds and match them to the plants they will grow into. Is there a correlation between colour or size when comparing the seed to the plant?
	Science Week: **Changes: Looking at the weather**		

Y2	**Living Things and Their Habitats: Life Processes in Plants and Animals** • To learn about the 7 life processes. • To know that things are living, dead or never been alive. • To identify and name a variety of plants and animals in our local habitat as well as record observations. • To learn about the school habitat, looking at different plants and animals within the school grounds. • To learn about some world habitats. • To 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. **Animals Including Humans: Diet and Changes as Animals Grow** • To find out the baby names of animals and know that these offspring will grow into adults. • To find out how different animals have babies. • To know how humans change as they get older. • To find out what animals need to survive. • To find out how to eat a healthy and balanced diet. • To understand that exercise is important to keep our bodies healthy.	**Everyday Materials: Uses of Different Materials** • To know that some materials are natural and some are man-made. • To know why glass, wood, plastic, brick, metal or paper are suitable and used for different purposes. • To understand that some materials can be squashed, twisted or bent according to need. • To know that some materials can be recycled and that plastic is non-biodegradable. • To know about the lives of important people who have developed useful new materials. • To find out which materials are good for making tea bags **The Environment: Looking After Our Planet** • To find out how much water can be saved if we turn the tap off when brushing out teeth. • To be able to explain what climate change is and understand that climate change is happening in our world. • To know how some animals are becoming endangered because of climate change. • To learn how we can help the environment through recycling and creating less waste. • To observe how the greenhouse effect changes the temperature. • Educational Visit: Recycling Workshop	**Plants: What Do Bulbs and Seeds Need to Grow?** • To find out about the plants that grow in the local area. • To observe and describe how seeds and bulbs grow into mature plants. • To understand the life cycle of plants. • To observe how different types of plants grow. • To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. • To find out and explain how plants are suited to their habitats. **Living Things and their Habitats: Micro and Seaside Habitats** • To know that most living things live in habitats to which they are suited and to describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. • To identify and name a variety of plants and animals that live in a pond microhabitat. • To learn the names of different types of creatures that live in the sea. • To identify the different habitats that we find in the sea environment and find out which creatures live in these. • To recap work about food chains and apply these to specifically to sea creatures.
	Science Week: **Changes: Looking at how materials change when they are heated or cooled**		

Y3	**Animals Including Humans: Skeletons and Muscles** • To sort foods into food groups and find out about the nutrients that different foods provide. • To explore the nutritional values of different foods. • To be able to sort animals based on their skeletons. • To be able to explain the main function of skeletons and identify and name bones. • To identify that humans and some other animals have skeletons for support, protection and movement. • To identify that humans and some other animals have muscles for movement. **Light: Reflection and Shadows** • To recognise that we need light in order to see things and that dark is the absence of light. • To notice that light is reflected from surfaces. • To explore different materials to find out if they are reflective or not. • To recognise that light from the sun can be dangerous and that there are ways to protect our eyes. • To recognise that shadows are formed when the light from a light source is blocked by a solid object. • To find patterns in the ways that the size of shadows changes.	**Rocks, Fossils and Soils** • To compare different types of rocks based on their appearance. • To make systematic and careful observations of rocks. • To identify naturally occurring rocks and explore their uses. • To explore soil and how it is formed. • Educational Visit: Rocks and Weathering Workshop • To explore what fossils there are and how they are formed. **Forces and Magnets** • To observe how magnets attract or repel each other (magnetic poles) and attract some materials and not others. • To explore the magnetic poles of a magnet. • To investigate the effects of friction on different surfaces. • To notice that some forces need contact between two objects. • To identify magnetic and non-magnetic materials. • To explain that magnets attract some materials.	**Plants: Functions of Parts of Plants** • To find out about the plants that grow in our local environment and about what they need to grow well. • To be able to identify and describe the function of the roots of flowering plants. • To investigate the way in which water is transported within plants. • To identify and describe the function of leaves in flowering plants; Chlorophyll, oxygen and carbon dioxide. • To understand the structure of seeds and their importance as a food source. • Educational Visit: Wildflower Workshop **Plants: Pollination and Seed Dispersal** • Honey Bee Workshop at school • To explore the part that flowers play in the life cycle of flowering plants. • To find out about pollination and the role of bees and other insects. • To look at dandelions and how they spread their seeds. • To explore some of the ways in which plants disperse their seeds. • Looking at time lapse videos of plants dispersing seeds and germinating.
	Science Week: **Changes: Looking at changes in the environment**		

Y4	**States of Matter: Solids, Liquids and Gases** • To compare and group materials together, according to whether they are solids, liquids or gases. • To compare and group materials together, according to whether they are solids, liquids or gases. • To compare and group materials together, according to whether they are solids, liquids or gases. • To 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). • To associate the rate of evaporation with temperature. • To identify the part played by evaporation and condensation in the water cycle. **Electricity: Simple Electrical Circuits** • To identify common appliances that run on electricity. • To identify and name different circuit components and explain what they do and to construct a simple series electrical circuit, including cells, wires, bulbs, switches and buzzers. • To 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. • To recognise some common conductors and insulators, and associate metals with being good conductors. • Educational Visit: Electricity Workshop • To recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.	**Living Things and their Habitats: Classification of Living Things** • To understand that there are many different types of habitats in the world. • To understand that different habitats support different types of wildlife. • To understand that living things within a certain habitat have an effect on each other. • To know that changes to an environment can affect the living things within it. • To know the features of warm blooded vertebrates. • To know the features of cold blooded vertebrates. • To understand that there are many different types of invertebrates. • Educational Visit: Classification of Minibeasts • To be able to use Venn diagrams to sort animals according to their features. • To be able to use Carroll diagrams to sort animals according to their features. • To explore and use classification keys to help group a variety of vertebrates that can be found in our local area. • To explore and use classification keys to help group a variety of vertebrates that can be found in the wider world.	**Sound: Vibrations** • To identify how sounds are made, associating some of them with something vibrating through identifying and explaining sound sources around the school. • To understand how different sounds travel through materials and to our ears. • To investigate how sounds can be different pitches and volumes. • To find out that some materials are effective in preventing vibrations from sound sources reaching the ear. • To recognise that vibrations from sounds travel through a medium to the ear. • To recognise that vibrations from sounds travel through a medium to the ear. **Animals Including Humans: Diets and Effects** • Educational Visit: Food Chains, teeth and diets • To identify the different types of teeth in humans and their simple functions. • To identify differences and similarities between human and animal teeth. • To understand what causes tooth decay by setting up a simple practical enquiry including comparative and fair tests. • To make careful observations, appropriately record results and use them to make conclusions • To construct and interpret a variety of food chains, identifying producers, predators and prey.
	Science Week: **Changes: Looking at changes in light**		

Y5	**Forces in Action** • To understand what constitutes a force and to be able to name some of these. • To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. • To identify the effects of air resistance. • To identify the effects of water resistance. • To identify the effects of friction. • Educational Visit: Forces Workshop • To design and build a rocket that will go as high as possible. • To design and make a wind up band roller. • To understand the use of levers and how they work. • To understand the use of pulleys and how they work. • To understand the use of gears and how they work. • To be able to create a simple mechanism to lift or move a weight using levers, pulleys and / or gears.	**Living Things and Habitats:** **Sexual and Asexual Reproduction** • To understand that plants produce new plants in different ways. • To be able to explain the difference between sexual and asexual reproduction in plants. • To identify advantages and disadvantages to sexual and asexual reproduction in plants and investigate asexual reproduction using a cutting from a living plant. • To be able to compare and describe the life cycles of different mammals. • To be able to compare and describe the life cycles of amphibians and insects. • To compare the life cycles of plants, mammals, amphibians, insects and birds. **Earth and Space** • To learn the names and the order of the planets and how they move in the solar system. • To describe the movement of the Earth, and other planets, relative to the Sun in the solar system. • To describe the Sun, Earth and Moon as approximately spherical bodies. • To use the idea of the Earth's rotation to explain day and night. • To describe the movement of the Moon relative to the Earth. • To predict night and day in other places in the world and compare these to night and day in the UK.	**Properties and Changes of Materials:** **Reversible and Irreversible Changes** • To compare and group together everyday materials on the basis of their properties, including their hardness, transparency and response to magnets. • To compare and group together everyday materials on the basis of their thermal conductivity. • To compare and group together everyday materials on the basis of their electrical conductivity. • To demonstrate that dissolving, mixing and changes of state are reversible changes. • To describe how to recover a substance from a solution. • To be able to explain that some changes result in the formation of new materials and that this kind of change is not usually reversible. **Animals Including Humans:** **The Human Life-Cycle** • To describe the stages of human development. • To explain the development of babies in their first year. • To compare the gestation periods for animals, including humans. • To describe and explain the main changes that occur during puberty. • To examine humans as they develop to old age. • To explore the relationship between gestation periods and the life expectancies of animals. • Educational Visit: Dino Dig Workshop
	Science Week: **Changes: Looking at how sound changes as it travels through different materials.**		

Y6	**Animals Including Humans: Circulation and Nutrients** • To know the three main parts of the circulatory system and describe the job of the heart. • To describe the important jobs of the blood vessels and blood. • To be able to describe the importance of exercise and how it affects the heart. • To understand that regular exercise is important for a healthy body • To recognise the impact of diet and lifestyle on the way our bodies function. • To be able to recognise the impact of drugs and alcohol on the way bodies function. **Electricity: Changing Circuits** • To identifying scientific evidence that has been used to support or refute ideas or arguments. • To use recognised symbols when representing a simple circuit in a diagram. • To associate the brightness of a bulb or the volume of a buzzer with the number and voltage of cells used in the circuit. • To 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. • To report and present 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. • To use test results to make predictions to set up further comparative and fair tests.	**Light: Reflection and Colours in White Light** • To recognise that light appears to travel in straight lines. • To 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. • To investigate how refraction changes the direction in which light travels. • To investigate how a prism changes a ray of light to show the spectrum. • To investigate how light enables us to see colours. • To explain why shadows have the same shape as the objects that cast them. **Evolution and Inheritance** • To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents in the context of inheritance. • To identify how animals and plants are adapted to suit their environment in different ways. • Identifying scientific evidence that has been used to support or refute ideas or arguments on how adaptation may lead to evolution. • To recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.	**Evolution and Inheritance (cont'd)** • Virtual Workshop: Darwin's Finches • To understand how human beings have evolved. • To understand how adaptations can result in both advantages and disadvantages and how human intervention affects evolution. **Living Things and Habitats: Characteristics including Micro-organisms** • To group organisms found in the local habitat. • To give reasons for classifying animals based on specific characteristics. • To 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. • To identify the characteristics of different types of animals. • To identify and describe micro-organisms. • To think about birds and how they build their nests
	Science Week: **Changes: Looking at the changes different types of forces make and at how these can be created**		