Progress in Science: EYFS, Key Stage 1 and 2

At Friarage we believe that a high-quality Science education is fundamental to developing a child's understanding of the world through the key disciplines of biology, chemistry, and physics. Scientific advancements are happening every day and are key to the world's future prosperity, so it is vital for children to understand essential aspects of the knowledge, methods, processes, and uses of science. We provide children with a solid understanding of key foundational knowledge and concepts, immersing them in a vocabulary-rich environment that allows them to build their understanding of the topic being studied as well as the diverse planet we live on. We ensure that all children are exposed to high-quality teaching and learning experiences that provide them with opportunities to develop their scientific enquiry and investigative skills through exploring their outdoor environment and locality. Children are encouraged to make predictions and observations, to question what they see and offer possible explanations for events and causes.

SCIENCE SUBJECT PROGRESSION - EYFS		
	Nursery	Reception
Key Questions	Do they know the names of body parts: heads, arms, hands, legs, feet, neck? Can they talk about the weather? Can they plant and grow a fruit/vegetable/herb? Can they investigate and talk about natural materials? Do they know materials change when cooking, cooling, and heating? Can they tell you a caterpillar turns into a butterfly? Can they talk about animals where they live and the noises they make?	Do they know the names of body parts: shoulders, elbows, knees, ankles? Can they name the 5 senses? Do they know the names of the 4 seasons and weather associated with them.? Do they know what material a magnet picks up? Do they know the difference between floating and sinking? Do they know that there are 8 planets in the solar system? Can they talk about the lifecycle of a butterfly? Do they know how to care for a plant?

	SCIENCE SUBJECT PROGRESSION SCIENTIFIC ENQUIRY					
	KS1 Year A	**KS1 Year B**	**LKS2 Year A**	**LKS2 Year B**	**YEAR 5**	**YEAR 6**
Observation/Planning	Can they talk about what they see, touch, smell, hear or taste? Can they use simple equipment to help them make observations?	Can they use (see, touch, smell, hear or taste) to help them answer questions? Can they use some scientific words to describe what they have seen and measured? Can they compare several things?	Can they use different ideas and suggest how to find something out? Can they make and record a prediction before testing? Can they plan a fair test and explain why it was fair? Can they set up a simple fair test to make comparisons? Can they explain why they need to collect information to answer a question?	Can they set up a simple fair test to make comparisons? Can they plan a fair test and isolate variables, explaining why it was fair and which variables have been isolated? Can they suggest improvements and predictions? Can they decide which information needs to be collected and decide which is the best way for collecting it? Can they use their findings to draw a simple conclusion?	Can they plan and carry out a scientific enquiry to answer questions, including recognising and controlling variables where necessary? Can they make a prediction with reasons? Can they use test results to make predictions to set up comparative and fair tests? Can they present a report of their findings through writing, display and presentation?	Can they explore different ways to test an idea, choose the best way, and give reasons? Can they vary one factor whilst keeping the others the same in an experiment? Can they explain why they do this? Can they plan and carry out an investigation by controlling variables fairly and accurately? Can they make a prediction with reasons? Can they use information to help make a prediction? Can they use test results to make further predictions and set up further comparative tests? Can they explain, in simple terms, a scientific idea and what evidence supports it? Can they present a report of their findings through writing, display and presentation?

Obtaining and presenting evidence	Can they perform a simple test? Can they tell other people about what they have done? Can they identify and classify things they observe? Can they think of some questions to ask? Can they answer some scientific questions? Can they give a simple reason for their answers? Can they explain what they have found out?	Can they carry out a simple fair test? Can they explain why it might not be fair to compare two things? Can they say whether things happened as they expected? Can they suggest how to find things out? Can they use prompts to find things out? Can they organise things into groups? Can they find simple patterns (Or associations)? Can they identify animals and plants by a specific criteria, e.g., lay eggs or not; have feathers or not?	Can they measure using different equipment and units of measure? Can they record their observations in different ways? (Labelled diagrams, charts etc) Can they describe what they have found using scientific language? Can they make accurate measurements using standard units?	Can they take measurements using different equipment and units of measure and record what they have found in a range of ways? Can they make accurate measurements using standard units? Can they explain their findings in different ways (display, presentation, writing)?	Can they take measurements using a range of scientific equipment with increasing accuracy and precision? Can they take repeat readings when appropriate? Can they record more complex data and results using scientific diagrams, labels, classification keys, tables, scatter graphs, bar, and line graphs?	Can they explain why they have chosen specific equipment? (incl. ICT based equipment) Can they decide which units of measurement they need to use? Can they explain why a measurement needs to be repeated? Can they record their measurements in different ways? (incl. bar charts, tables, and line graphs) Can they take measurements using a range of scientific equipment with increasing accuracy and precision?

Considering evidence and evaluating processes	Can they show their work using pictures, labels, and captions? Can they record their findings using standard units? Can they put some information into a table?	Can they use text, diagrams, pictures, charts, tables to record their observations? Can they measure using simple equipment?	Can they explain what they have found out and use their measurements to say whether it helps to answer their question? Can they use a range of equipment (including a data-logger) in a simple test?	Can they find any patterns in their evidence or measurements? Can they make a prediction based on something they have found out? Can they evaluate what they have found using scientific language, drawings, labelled diagrams, bar charts and tables? Can they use straightforward scientific evidence to answer questions or to support their findings? Can they identify differences, similarities or changes related to simple scientific ideas or processes?	Can they report and present findings from enquiries through written explanations and conclusions? Can they use a graph to answer scientific questions?	Can they find a pattern from their data and explain what it shows? Can they use a graph to answer scientific questions? Can they link what they have found out to other science? Can they suggest how to improve their work and say why they think this? Can they record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models? Can they report findings from investigations through written explanations and conclusions? Can they identify scientific evidence that has been used to support to refute ideas or arguments? Can they 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?

Plants	Can they identify and name a variety of common wild and garden plants, including deciduous and evergreen trees? Can they identify and describe the basic structure of a variety of common flowering plants, including trees?	Can they observe and describe how seeds and bulbs grow into mature plants? Can they find out and describe how plants need water, light and a suitable temperature to grow and stay healthy?	Can they identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers? Can they explore 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? Can they investigate the way in which water is transported within plants? Can they explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal?			

Animals including Humans	Can they identify and name a variety of common animals including fish, amphibians, reptiles, birds, and mammals? Can they identify and name a variety of common animals that are carnivores, herbivores, and omnivores? Can they describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds, and mammals, including pets)? Can they identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense?	Do they notice that animals, including humans, have offspring which grow into adults? Can they find out about and describe the basic needs of animals, including humans, for survival (water, food, and air)? Can they describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene?	Can they 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? Can they identify that humans and some other animals have skeletons and muscles for support, protection, and movement?	Can they describe the simple functions of the basic parts of the digestive system in humans? Can they identify the different types of teeth in humans and their simple functions? Can they construct and interpret a variety of food chains, identifying producers, predators, and prey?	Can they describe the changes as humans develop to old age?	Can they identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood? Can they recognise the impact of diet, exercise, drugs, and lifestyle on the way their bodies function? Can they describe the ways in which nutrients and water are transported within animals, including humans?

Living Things and Their Habitats		Can they explore and compare the difference between things that are living, dead, and things that have never been alive? Can they identify that most living things live in habitats to which they are suited and describe how different habitats provide the basic needs of different kinds of animals and plants, and how they depend on each other? Can they identify and name a variety of plants and animals in their habitats, including micro-habitats? Can they 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?		Can they recognise that living things can be grouped in a variety of ways? Can they explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment? Can they recognise that environments can change and that this can sometimes pose dangers to living things?	Can they describe the differences in the life cycles of a mammal, an amphibian, an insect, and a bird? Can they describe the life process of reproduction in some plants and animals?	Can they 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? Can they give reasons for classifying plants and animals based on specific characteristics?

Light			Can they recognise that they need light in order to see things and that the dark is the absence of light? Do they notice that light is reflected from surfaces? Can they recognise that light from the sun can be dangerous and that there are ways to protect their eyes? Can they recognise that shadows are formed when the light from a light source is blocked by a solid object? Can they find patterns in the way that the size of shadows changes?			Can they recognise that light appears to travel in straight lines? Can they 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? Can they 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? Can they use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them?

Forces and Magnets			Can they compare how things move on different surfaces? Do they notice that some forces need contact between two objects, but magnetic forces can act at a distance? Can they observe how magnets attract or repel each other and attract some materials and not others? Can they compare and group together a variety of everyday materials on the basis on whether they are attracted to a magnet, and identify some magnetic materials? Can they describe magnets as having two poles? Can they predict whether two magnets will attract or repel each other, depending		Can they explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object? Can they identify the effects of air resistance, water resistance and friction, that act between moving surfaces? Can they recognise that some mechanisms, including levers, pulleys, and gears, allow a smaller force to have a greater effect?	

			on which poles are facing?			
Seasonal Change	Can they observe changes across the four seasons? Can they observe and describe weather associated with the seasons and how day length varies?					

Materials and Their Properties	Everyday Materials Can they distinguish between an object and the material from which it is made? Can they identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock? Can they describe the simple physical properties of a variety of everyday materials? Can they compare and group together a variety of everyday materials on the basis of their simple physical properties?	Uses of Everyday Materials Can they identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper, and cardboard for particular uses? Can they find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting, and stretching?	Rocks Can they compare and group together different kinds of rocks on the basis of their appearance and simple physical properties? Can they describe in simple terms how fossils are formed when things that have lived are trapped within rock? Can they recognise that soils are made from rocks and organic matter?		Can they 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? Do they know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution? Can they use knowledge of solids, liquids, and gases to decide how mixtures might be separated, including through filtering, sieving, and evaporating? Can they give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including	

					metals, wood, and plastic? Can they demonstrate that dissolving, mixing and changes of state are reversible changes? Can they 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?	

Evolution and Inheritance						Can they recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago? Can they recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents? Can they identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution?

States of Matter				Can they compare and group materials together, according to whether they are solids, liquids, or gases? Can they 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)? Can they identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature?		

Earth and Space					Can they describe the movement of the Earth, and other planets, relative to the Sun? Can they describe the movement of the Moon relative to the Earth? Can they describe the Sun, Earth, and Moon as approximately spherical bodies? Can they use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky?	

Sound				Can they identify how sounds are made, associating some of them with something vibrating? Can they recognise that vibrations from sounds travel through a medium to the ear? Can they find patterns between the pitch of a sound and features of the object that produced it? Can they find patterns between the volume of a sound and the strength of the vibrations that produced it? Can they recognise that sounds get fainter as the distance from the sound source increases?		

Electricity				Can they identify common appliances that run on electricity? Can they construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches, and buzzers? Can they 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? Can they recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit? Can they recognise some common conductors and insulators, and associate metals with being good conductors?		Can they associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit? Can they 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? Can they use recognised symbols when representing a simple circuit in a diagram?

	VOCABULARY PROGRESSION					
	YEAR 1	YEAR 2	YEAR .3	YEAR 4	YEAR 5	YEAR 6
	Working Scientifically question, answer, observe, observing, equipment, identify, sort, group, compare, differences, similarities, describe, measurements, test, results, secondary sources record – diagram, chart		Working Scientifically oral and written explanations, conclusion, predictions, criteria, classify, changes, data, contrast, evidence, improve, secondary sources, guides, keys, construct, interpret research – relevant question equipment – thermometer, data – gather, standard units, record, classify, present record – drawings, labelled diagrams, keys, bar charts, tables		Working Scientifically plan, variables, measurements, accuracy, precision, repeat readings, predictions, further comparative and fair test, identify, classify and describe, patterns, report data scientific diagrams, labels, classification keys, tables, scatter graphs, bar graph and line graphs report and present – conclusions, explanations, oral and written display and presentation evidence – support, refute, ideas or arguments biology, physics, chemistry	
	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	MATERIALS Bend Shiny Hard Soft Smooth Stretch Stiff dull	MATERIALS Flexible Squash Stretch Twist Rigid Opaque transparent absorbent waterproof	ROCKS Impermeable Absorbent Igneous Sedimentary Metamorphic Fossil Soil Bedrock	STATES OF MATTER Gas Solid Liquid Evaporation Condensation Precipitation Particle Freezing Heating temperature	PROPERTIES & CHANGES OF MATERIALS Hardness Solubility Transparency Conductivity Magnetic Filter Evaporation Dissolving Mixing Reversible Irreversible Thermal insulate	EVOLUTION AND INHERITANCE Fossils Adaptation Evolution Characteristics Reproduction Genetics survival

	YEAR 1	YEAR 2	YEAR .3	YEAR 4	YEAR 5	YEAR 6
	PLANTS deciduous, evergreen, tree, leaf, flower (blossom), petals, fruit, bulb, seed, roots, stem, trunk, branches	PLANTS growth, germinate, light, temperature reproduce, lifecycle, seeds, water, bulbs,	PLANTS Anther, fertiliser, nutrients, pollination, roots, seed dispersal, seed formation, stem, stigma, reproduction, transportation		PLANTS Sexual Asexual Reproduction Life cycle	
	SEASONAL CHANGE season, spring, summer, autumn, winter, month, year, day, night, sun, moon, light, dark, temperature	LIVING THINGS AND THEIR HABITATS Living Dead Habitat Micro-habitat Food chain Predator Prey Energy		LIVING THINGS AND THEIR HABITATS vertebrates, invertebrates environment, habitat, classification key, amphibians, fish, reptiles, birds, mammals	LIVING THINGS AND THEIR HABITATS life process, reproduction, offspring, mammals, insect, amphibian, bird, life cycle	LIVING THINGS AND THEIR HABITATS classification, organism, micro-organism
	YEAR 1	YEAR 2	YEAR .3	YEAR 4	YEAR 5	YEAR 6
	ANIMALS amphibians, fish, reptiles, mammals, birds, herbivore, omnivore, carnivore head, nose, ear, neck, shoulder, arm, elbow, wrist, hand, back, chest, hip, leg, knee, ankle, foot wing, beak,	ANIMALS INC HUMANS survival, water, air, food, reproduce, adult, baby, offspring, exercise, hygiene, balanced diet	ANIMALS INC HUMANS skeleton, skull, bones, muscles, movement, support, protection, nutrition	ANIMALS INC HUMANS mouth, tongue, teeth, oesophagus, stomach, small intestine, large intestine, nutrients, absorb, canine, incisor, molar producer, consumer, apex predator,	ANIMALS INC HUMANS womb, foetus, embryo, gestation, baby, toddler, teenager, elderly growth, development, puberty	ANIMALS INC HUMANS function, circulatory system, heart, valve, blood vessel, vein, artery, oxygenated, deoxygenated lifestyle, drug, health, exercise, diet

	tail, fin sight, smell, touch, taste, hearing			herbivore, carnivore, omnivore		
			LIGHT light source, mirror, reflect, reflective, reflection, shadow, blocked, transparent, translucent, opaque, light, dark	SOUND vibration, wave, volume, pitch, tone, insulation	EARTH AND SPACE Earth, sun, moon, solar system, axis of rotation, day, night, phases of the moon, star, spherical	LIGHT refraction, reflection, spectrum, colour, eye, pupil, straight line, shadows
	YEAR 1	**YEAR 2**	**YEAR .3**	**YEAR 4**	**YEAR 5**	**YEAR 6**
			FORCES AND MAGNETS force, contact, surface, magnetic, attract, repel, poles	ELECTRICITY appliance, battery power, mains power, circuit, cell, battery, wire, bulb, switch, conductor, insulator, energy	FORCES air resistance, water resistance, friction, gravity lever, gear, pulley, Newtons	ELECTRICITY circuit - series, parallel voltage, volts, amps