



Friars Primary School and Nursery Science Long Term Planning

Science						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery (EYFS: Understanding the World: The World)	Science is developed through exploration of the nursery inside and outside environment for example in the sand, water, mud kitchen and using appropriate tools such as funnels, cylinders, magnifying glasses, magnets and tweezers. Children learn about their world through direct experience, play, sharing books and sustained shared thinking. Throughout their time in nursery, children will be supported and encouraged to: • Notice detailed features of objects in their environment • Talk about some of the things they have observed such as plants, animals, natural and found objects • Comment and asks questions about aspects of their familiar world such as the place where they live or the natural world • Talk about why things happen and how things work • Develop an understanding of growth, decay and changes over time • Show care and concern for living things and the environment					



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Science Long Term Planning

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception (EYFS: Understanding the World: The World)	- Shows care and concern for living things and the environment - Knows about similarities and differences in relation to places, objects, materials and living things	- Knows about similarities and differences in relation to places, objects, materials and living things - Looks closely at similarities, differences, patterns and change in nature - Makes observations of animals and plants and explains why some things occur, and talks about changes	- Knows about similarities and differences in relation to places, objects, materials and living things - Looks closely at similarities, differences, patterns and change in nature - Makes observations of animals and plants and explains why some things occur, and talks about changes	- Knows about similarities and differences in relation to places, objects, materials and living things - Looks closely at similarities, differences, patterns and change in nature - Makes observations of animals and plants and explains why some things occur, and talks about changes	- Knows about similarities and differences in relation to places, objects, materials and living things - Makes observations of animals and plants and explains why some things occur, and talks about changes - Talks about the features of their own immediate environment and how environments might vary from one another	- Knows about similarities and differences in relation to places, objects, materials and living things - Looks closely at similarities, differences, patterns and change in nature
Year 1	Autumn 1 Animals including humans- All about me	Autumn 2 Animals including Humans – Animals	Spring 1 Seasons (+Across the year)	Spring 2 Plants throughout the year	Summer 1 Exploring Everyday Materials – 1	Summer 2 Exploring Everyday Materials - 2



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	- Identify, name, draw and label the basic parts of the human body - Say which part of the body is associated with each sense	- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals - Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) - Identify and name a variety of common animals that are carnivores, herbivores and omnivores	- Observe and describe weather associated with the seasons - Observe how day length varies	- Become familiar with common names of flowers and plant structures including seeds - Identify and describe the basic structure of a variety of common flowering plants, including trees - Identify and name a variety of deciduous and evergreen trees - Understand how plants change over time. - Observe the growth of planted flowers Become familiar with plant structures Keep records	- Identify, name and describe the physical features of a variety of everyday materials, including wood, plastic, glass, metal, water and rock - Distinguish between an object and the material it is made from - Compare and group together a variety of everyday materials on the basis of their simple physical properties	- Describe the simple physical properties of everyday materials - Compare and group together a variety of everyday materials on the basis of their simple physical properties
Working Scientifically	- Asking simple questions and recognise that they can be answered in different ways - Observe closely, using simple equipment - Perform simple tests - Identify and classify - Using their observations and ideas to suggest answers to questions - Gather and record data to help in answering questions					



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Year 2	Autumn 1 Uses of Everyday Materials	Autumn 2 Animals Including Humans <i>Health and Survival</i>	Spring 1 Animals Including Humans <i>Life Cycles</i>	Spring 2 Plants	Summer 1 Living Things and Their Habitats	Summer 2 Living Things <i>Habitats Around the World</i>
	- Identify and compare the suitability of a variety of everyday materials - Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching - Significant People- John McAdam/Charles Macintosh	- Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) - Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	- Notice that animals, including humans, have offspring which grow into adults <i>Lifecycles of chicken, frog and butterfly.</i>	- 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 - Understand the requirements of plants for germination, growth and survival, as well as, the processes of reproduction and growth in plants (Growing beans – recording growth over time))	- Explore and compare the differences between things that are living, dead, and things that have never been alive - Identify and name a variety of plants and animals in their habitats, including microhabitat - Describe how animals obtain their food from plants and other animals - Describe how animals obtain their food using the idea of a simple food chain - Identify and name different sources of food	- Identify that most living things live in habitats to which they are suited - Describe how different habitats provide for the basic needs of different kinds of animals and plants - Describe how they animals and plants depend on each other <i>(Year Group visit to Call of the Wild – adaptation to habitat talks)</i>
Working Scientifically	- Asking simple questions and recognise that they can be answered in different ways - Observe closely, using simple equipment - Perform simple tests - Identify and classify - Using their observations and ideas to suggest answers to questions - Gather and record data to help in answering questions					



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	Autumn 1 Forces and Magnets	Autumn 2 Animals including Humans	Spring 1 Rocks	Spring 2 Light	Summer 1 Plants	Summer 2 Scientific Enquiry Unit
Year 3	- 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.	- identify that animals, including humans, need the right types and amount of nutrition, - know that humans cannot make their own food and get nutrition from what they eat - identify that humans and some other animals have skeletons and muscles for support, protection and movement	- compare and group together different kinds of rocks on the basis of their appearance and simple physical properties - describe in simple terms how fossils are formed when things that have lived are trapped within rock - recognise that soils are made from rocks and organic matter.	- recognise that they 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 - recognise that shadows are formed when the light from a light source is blocked by an opaque object - find patterns in the way that the size of shadows change	- identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers - 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 - investigate the way in which water is transported within plants <i>explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</i>	- Using straightforward scientific evidence to answer questions or to support their findings - Setting up simple practical enquiries, comparative and fair tests - Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units. - Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables - Identifying differences, similarities or changes related to simple scientific ideas and processes - Reporting on findings from enquiries. - Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
Working Scientifically	- Ask relevant questions and using different types of scientific enquiries to answer them - Set up simple practical enquiries, comparative and fair tests - Make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers - Gather, record, classify and present data in a variety of ways to help in answering questions - Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables - Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions - Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions - Identify differences, similarities or changes related to simple scientific ideas and processes - Use straightforward scientific evidence to answer questions or to support their findings					



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	Autumn 1 Animals Including Humans	Autumn 2 Sound	Spring 1 Animals and their Habitats	Spring 2 Living Things and Habitats Conservation	Summer 1 Electricity	Summer 2 States of Matter
Year 4	- 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	- 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 - recognise that sounds get fainter as the distance from the sound source increases	- 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	- 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	- 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 the rate of evaporation with temperature
Working Scientifically	- Ask relevant questions and using different types of scientific enquiries to answer them - Set up simple practical enquiries, comparative and fair tests - Make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers - Gather, record, classify and present data in a variety of ways to help in answering questions - Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables - Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions - Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions - Identify differences, similarities or changes related to simple scientific ideas and processes - Use straightforward scientific evidence to answer questions or to support their findings					



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	Autumn 1 <i>Properties of Materials</i>	Autumn 2 <i>Earth and Space</i>	Spring 1 <i>Changing Materials</i>	Spring 2 <i>Forces</i>	Summer 1 <i>Living Things and their Habitats</i>	Summer 2 <i>Animals Including Humans</i>
Year 5	- 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	- 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	- Describe how to recover a substance from a solution - 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 - Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible e.g. rusting and burning	- explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object - 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	- describe the life process of reproduction in some plants and animals - Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird	- describe the changes as humans develop to old age - describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
Working Scientifically	- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary - 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 predictions to set up further comparative and fair tests - 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 - Identify scientific evidence that has been used to support or refute ideas or arguments					



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	Autumn 1 Electricity	Autumn 2 Light	Spring 1 Living Thing and their Habitats	Spring 2 Animals – Including Humans	Summer 1 Evolution and Inheritance	Summer 2 Looking After the Environment
Year 6	- use recognised symbols when representing a simple circuit in a diagram - 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	- 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 light travels in straight lines to explain why shadows have the same shape as the objects that cast them	- 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	- 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	- 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 & 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	- Explore the effects of climate change upon the Earth - Explore ways to reduce energy consumption, landfill etc - Explore the outcomes of COP26 - Compare data associated with weather
Working Scientifically	- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary - 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 predictions to set up further comparative and fair tests - 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 - Identify scientific evidence that has been used to support or refute ideas or arguments					