

Year 5

Plan Bee

Medium Term Planning and progression

Forces	Earth and Space	Properties and Changes of Materials	Living things and their habitats	Animals, including humans	Working Scientifically
<u>Overview:</u> 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.	<u>Overview:</u> 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	<u>Overview:</u> 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	<u>Overview:</u> 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.	<u>Overview:</u> Describe the changes as humans develop to old age.	I know how to plan different types of scientific enquiry. I know how to control variables in an enquiry. I know how to measure accurately and precisely using a range of equipment. I know how to record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. I know how to use the outcome of test results to make predictions and set up further comparative and fair tests. I know how to report findings from enquiries in a range of ways. I know how to explain a conclusion from an enquiry. I know how to relate the outcome from an enquiry to scientific knowledge in order to state

	of the sun across the sky.	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		whether evidence supports or refutes an argument or theory. I can read, spell and pronounce scientific vocabulary accurately.
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<u>Key Vocabulary</u>					
water resistance, force, streamline, investigation, fair test, conclusion metal, magnetic aluminium, attraction, repulsion, force gravity, retract, repel, force metre, newton's, surfaces contact, pushes, pulls, movement, direction	Earth, Sun, Moon, size, compare, planet, solar system, daylight, dusk, dawn, earlier, later, comparisons	substance, state, solid, liquid, gas, melt, condensation, freeze, heat, fridge, temperature, hot, cold, ice, evaporation, water, steam, change, degree Celsius (°C), steam, flow, atoms, particle, volume, matter, properties	mammal, amphibian, insect, young, life cycle, reproduction, naturalist, animal behaviourist, sexual, asexual, observe, compare, environment, similarities, differences, parent, young, hatch, grow.	Growth, development, adolescent, child, adult, elderly, mass, baby, teenager,	

Field Road Academy

<u>Topic</u>	<u>Knowledge - Children will learn</u>	<u>Children will be able to...</u>	<u>Prior Knowledge</u>	<u>Key Questions</u>
Forces in Action	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.	- 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 friction acting between moving surfaces. - To identify and explain the effects of air resistance. - To identify and explain the effects of water resistance. - To recognise that levers and pulleys allow a smaller force to have a greater effect. - To recognise that gears allow a smaller force to have a greater effect.	<u>Reception</u> Children can name different objects which are magnetic and non-magnetic. <u>Year 1</u> Children can distinguish between an object and the material from which it is made. Children can describe why some materials are more suited to certain objects. <u>Year 3:</u> Children can compare how things move on different surfaces. Children can notice that some forces need contact between two objects, but magnetic forces can act at a distance. Children can observe how magnets attract or repel each other and attract some materials and not others. Children can compare and group together a	What is gravity? What is air resistance? What is water resistance? What would happen if certain forces didn't exist? Why is there no gravity on the moon?

			variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. Children can describe magnets as having two poles. Children can predict whether two magnets will attract or repel each other, depending on which way the poles are facing.	
Properties and Changes of Materials	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,	- To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. - To know that some changes of state and dissolving and mixing processes can be reversed through filtering, sieving and evaporating. - To explain that some changes form new materials, and that these changes are not usually reversible. - To explain that some changes, caused by heating or cooling form new materials, and that these changes are often not	<u>Reception</u> Children can name different objects which float and sink. <u>Year 1</u> Children can identify a variety of common materials. Children can distinguish between an object and the material. Children can describe materials according to their properties. Children can describe why some materials are more suited to certain object. <u>Year 2</u> Children can describe how the shapes of solid objects made from some materials can be changed.	<u>Key Questions</u> Why do different materials have different properties? Why are some materials better suited than others? Which changes are reversible/irreversible?

	for the particular uses of everyday materials, including metals, wood and plastic. Demonstrate that dissolving, mixing and changes of state are reversible changes.	reversible. - To explain that changes caused by burning form new materials, and that these changes are not reversible. - To compare and group together everyday materials on the basis of their properties. - To give reasons based on evidence from comparative and fair tests, for the particular uses of everyday materials.	<u>Year 4:</u> Children can compare and group materials together, according to whether they are solids, liquids or gases. Children can 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). Children can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	
Life Cycles	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. Children can understand what asexual reproduction is. Children can compare species that reproduce in different ways and consider reasons why.	- To describe the process of sexual reproduction in flowering plants. - To describe the process of asexual reproduction in plants. - To describe the process of sexual reproduction in animals. - To observe and compare the life cycles of animals in our local environment with	<u>Reception</u> Children can talk about what a bean needs to grow. They have observed beans grow and can talk about some of the features. Children can name some of the features of trees and know that in Autumn the leaves change colours and fall off. <u>Year 1</u> Children can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.	<u>Key Questions</u> Can children name and describe the functions of the main parts of flowers? Can children describe the life process of sexual reproduction in flowering plants? Can children compare species that reproduce in different ways and consider reasons why?

	Using scientific vocabulary, children can explain some of the ways in which different animals reproduce.	other animals around the world. • To compare how different animals reproduce and grow. • To find out about the work of naturalists.	Children can observe and describe how seeds and bulbs grow into mature plants. <u>Year 2</u> Children can identify and describe the basic structure of a variety of common flowering plants, including trees. Children can find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. <u>Year 3:</u> Children can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Children can 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. Children can investigate the way in which water is transported within plants. Children can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	Can children compare the life cycles and methods of reproduction of different animals?
Changes and Reproduction	To describe the changes as humans develop to old age. Can name the main stages in the	• To recognise the stages of growth and development in humans.	<u>Reception</u> Children can through discussion talk about how our bodies change as we get older.	<u>Key Questions</u> Can children describe the needs of a new born

	life cycle of humans. To explain some of the physical changes that occur at different stages in the life cycle of humans. To explain how embryos and foetuses grow and develop in the womb. To describe how the needs of humans change at different points in their life cycle. To explain in simple terms the role played by hormones in the growth of humans and other animals.	• To know the stages in the gestation period of humans and compare them to other animals. • To recognise the stages of development during childhood and understand the needs of children at those stages. • To understand the initial changes inside and outside of the body during puberty. • To know the changes that occur during puberty and how they differ for boys and girls. • To understand how the body changes during adulthood and old age.	<u>Year 1</u> Children can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. <u>Year 3</u> Children can notice that animals, including humans, have offspring which grow into adults.	baby? Can they compare the needs of a human baby to those of other mammals? Can children remember some of the initial changes during puberty? Can children explain some of the ways in which boys' and girls' bodies start to differ during puberty?
<u>Topic</u> Earth and Space	<u>Knowledge - Children will learn</u> 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.	<u>Children will be able to...</u> • To describe the Sun, Earth and Moon as approximately spherical bodies. • To find out about the size of the Earth, Sun and Moon and how far away from each other	<u>Prior Knowledge</u> <u>Reception:</u> Children can talk about the features in Winter and Spring <u>Year 1:</u> Children can observe changes across the four seasons.	<u>Key Questions</u> How big is the sun? Is the sun a planet or a star? Is there life anywhere

	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.	they are. • To use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. • To use data to draw conclusions about the Sun at different times of the year. • To describe the movement of the Earth, and other planets, relative to the Sun in the Solar System. • To describe the movement of the Moon relative to the Earth.	Children can observe and describe weather associated with the seasons and how day length varies. <u>Year 3:</u> Children can recognise that they need light in order to see things and that dark is the absence of light. Children can notice that light is reflected from surfaces. Children can recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Children can recognise that shadows are formed when the light from a light source is blocked by an opaque object. Children can find patterns in the way that the size of shadows change	else in our solar system? Why do we have night and day? Why do we have seasons? Why is Pluto no longer considered a planet?
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