

Science overview

Term	2021 - 2022	2022 - 2023
Autumn 1	<p><u>Year 1: Identifying Materials</u></p> <p>In this unit children will have identified and named common types of materials including wood, metal, plastic, rubber, fur, towelling, nylon, wool, sponge, cotton wool, paper, card, brick, ceramics, rock and some liquids and powdered solids. They will have labelled, collected and grouped together objects made from the same material. They will state that different objects can be manufactured from the same materials. They will say why some materials are unsuitable for some objects.</p> <p>Working scientifically, children will have tested the properties of different liquids. They will have investigated which materials are good to wrap and protect a hollow chocolate object being sent through the post.</p> <p><u>Year 2: Changes of Shape</u></p> <p>In this unit children will work towards answering the Quest question 'How can we make art from changing the shape of materials?' They will create a piece of artwork that applies the skills and knowledge developed in the unit. Children will learn that the shape of materials can be changed by squashing, bending, twisting and stretching. They will also explore how twisting can be used to make threads stronger and identify which materials bend or squash most easily.</p> <p>Working Scientifically, children will investigate how materials can be grouped according to their properties. They will have the opportunity to perform simple tests to find the stretchiest material and observe how silly putty changes over time.</p>	<p><u>Year 1: Identifying Materials</u></p> <p>In this unit children will have identified and named common types of materials including wood, metal, plastic, rubber, fur, towelling, nylon, wool, sponge, cotton wool, paper, card, brick, ceramics, rock and some liquids and powdered solids. They will have labelled, collected and grouped together objects made from the same material. They will state that different objects can be manufactured from the same materials. They will say why some materials are unsuitable for some objects.</p> <p>Working scientifically, children will have tested the properties of different liquids. They will have investigated which materials are good to wrap and protect a hollow chocolate object being sent through the post.</p> <p><u>Year 2: Feeding and Exercise</u></p> <p>In this unit children will have described the importance of exercise, eating the right amounts of different types of food and hygiene. They will have found out about and described the basic needs of animals, including humans, for survival (water, food and air) and will have considered what humans need to live. Children will have identified different foods and have classified some of the foods that humans eat by plant or animal origins. Children will have described 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. They will have identified and created a simple food chain. Children will have been able to use ideas about feeding and exercise to learn about ways we need to look after ourselves to stay healthy. They will demonstrate understanding by making a diet and exercise plan and will have considered food safety and hygiene guidelines. Children will also have opportunities to consider ways in which science is relevant to their personal health and to relate science to aspects of their everyday life (food, exercise, hygiene),</p>

Year 3/4: Changes of State

In this unit children will have identified, grouped and described different materials as solids, liquids or gases. They will have described and actively modelled simple scientific ideas of solids, liquids and gases in terms of arrangement of particles. They will have recognised that the same material can exist in different states. Children will have developed their ideas about states of matter and changes of state which can be reversed. They will have used their understanding to describe and explain familiar phenomena. They will have observed that some materials change state when they are heated or cooled and they will have had the opportunity to measure or research the temperature at which this happens expressed in degrees Celsius (°C). They will have had the opportunity to investigate how materials can be changed by heating and cooling and will have investigated melting and freezing in everyday situations e.g. by melting chocolate to make crispy cakes. Children will have used their knowledge of changes of state to identify the part played by evaporation and condensation in the water cycle and will have associated the rate of evaporation of water with temperature.

Working scientifically, children will have had the opportunity to investigate how materials change when they are heated or cooled and they will have set up simple practical enquiries to investigate evaporation and condensation. They will have made systematic and careful observations and, where appropriate, have taken accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. They will have reported on their findings in a variety of ways including oral and written explanations.

and to recognise and control hazards and risks to themselves.

Children will work scientifically by using observable features and research to identify and classify foods into those of plant or animal origin. They will ask questions and use their observations and ideas to suggest answers to their questions. Children will have the opportunity to carry out an investigation into what garden birds prefer to eat where they can carry out simple comparative tests, gathering and recording data to help in answering questions.

This unit links to Types of Animals and Plants in Year 1 and have a basic understanding of the needs of plants and animals and that plants and animals grow. This unit will complement learning in Habitats in Year 2.

Year 3/4: Magnets and Forces

In this unit children will work towards answering the Quest question, 'can you make a tool that can move something on the floor far away from you?' They will be asked to make a tool that can pick up things made of a magnetic material and consider the use of a telescopic arm or a folding arm to enable them to reach an object far away. The lessons leading up to answering the Quest will enable children to explore the properties of magnets and magnetic materials. They will also be able to apply their knowledge of how things move on different surfaces to create a table top game.

Working scientifically, children will investigate how toys can be grouped according to how they move. They carry out a simple investigation into the way an elastic band catapult can move a toy car. They investigate the effect of different surfaces on the movement of a sliding coin. They will have the opportunity to identify which materials are magnetic and which are not. Children will also be able to carry out an investigation to identify the strength of different magnets. In the final lesson, children will be able to apply

This unit builds upon work in Year 1 Comparing Materials, Year 2 Uses of Materials and Year 2 Changing Shape.

Year 5/6: Evolution and Inheritance

In this unit children will have worked towards answering the Quest question 'How do living things evolve?' They will have investigated how living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. Children will have identified how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. They will have explored the principal of inheritance, recognising that living things produce offspring of the same kind, but that normally such offspring vary and are not identical to their parents. Children will have researched how plants and animals are adapted to suit their environment in different ways and they will have identified some beneficial adaptations that may lead to evolution. They will have explored natural selection through drama and designed their own species.

Working scientifically, children will have had the opportunity to use secondary sources to research and evaluate evidence about evolution and inheritance. Children will have identified scientific evidence that has been used to support or refute ideas or arguments by finding out about the fossil records used by pivotal scientists such as Mary Anning, Alfred Wallace and Charles Darwin.

This unit builds on previous work in Year 2 Habitats, Year 2 Living Things, Year 4 Dangers to Living Things, and Y5 Life Cycles.

their subject knowledge to design a magnetic tool that will pick up magnetic materials.

Year 5/6: Forces

In this unit children will have learnt about a variety of forces including gravity, air resistance, water resistance and friction. They will have explored how simple mechanisms can be used to make work easier. They will have observed and explained how gravity causes an unsupported object to fall towards the Earth. They will have researched the relative effects of the gravitational pull on other planets. Children will have carried out a range of activities to identify the effects of friction, air resistance, and water resistance and will consider ways of reducing water resistance through streamlining.

Working scientifically, children will have found out how to measure using force meters and will have used this knowledge to investigate which shoes has the best grip and which shoes are most slippery. They will have used their results to form conclusions about which shoes create the most friction. They will have planned how to carry out a fair test on a paper spinner and will have investigated which sails use air resistance most effectively. Children will also have investigated different shaped hulls on boats and will have measured the force needed to lift weights using a simple lever.

This unit builds on the work children did in Year 3 Magnets and Forces.

Autumn 2

Year 1: Types of Animals

In this unit children will observe and recognise some simple characteristics of animals. They will learn that animals are

Year 1: Types of Animals/Parts of Animals

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similar to each other in some ways and different in other ways. They will begin to start grouping animals by the key features of their appearance. They will work towards creating a plan of a zoo environment incorporating different types of animals in their design.

Working scientifically, children will have the opportunity of observing and classifying animals in the local environment and beyond. They will classify animals that are mammals, birds, reptiles, amphibians or fish using simple observable features. They will record data, with help, in charts and tables and use these to answer questions.

Year 2: Living Things

In this unit children will make comparisons between things that are alive, things that are not alive, and things that were once alive. They will sort and compare animals, plants and non-living things and will create a list of features of living things. Children will notice that living things have offspring which resemble their parents and that they themselves grow into adults which reproduce. Children will order the stages of growth of humans from birth to old age. They will complete their Quest by imagining they are curators of a museum where they will curate an exhibition on living things, and design an information board for an exhibit comparing living, not living and never living things.

Working Scientifically, children will use observable features to identify and classify living and non-living things. They will ask questions and use their observations and ideas to suggest answers to their questions.

This unit links to Types of Animals and Plants in Year 1.

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Working scientifically, children will have the opportunity of observing and classifying animals in the local environment and beyond. They will classify animals that are mammals, birds, reptiles, amphibians or fish using simple observable features. They will record data, with help, in charts and tables and use these to answer questions.

Year 2: Growing Plants

In this unit children will explore how seeds and bulbs grow into mature plants. They will investigate what plants need to grow and will find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. Children will discover where seeds come from by investigating fruits and seeds in their local environment. They will carefully observe and sort seeds and will also recognise how some plants are able to grow from bulbs. They will plant a variety of seeds, describing how they grow. Children will have the opportunity to plant seeds and to observe growth.

Working Scientifically, children will observe seeds and plants using simple equipment. They will ask simple questions about what plants need to grow and they will perform simple tests recognising that their questions can be answered in different ways. They will observe and measure the growth of the plants over time.

This unit builds on the work children have completed in Year 1 Plants.

Year 3/4: Grouping Living Things

In this unit children will have been introduced to classification keys. They will have found out why scientists need to use classification keys and will have learnt about some newly discovered species. They will have looked at different ways of grouping living things and will have built up their knowledge of making and using classification keys. They will have started by classifying and identifying familiar items such as classmates or maths shapes but will have gone on to develop keys to classify a wide variety of living things. They will have compared the living things in the northern and southern most parts of the British Isles and compared this to their own location.

Children will have collected data about living things in different areas of the school grounds or local area. They will have presented the information in a series of classification keys as a guide to the living things around them. They will have looked at different classification keys and decided which ones are most effective and explained why.

This unit builds on the work done in Year 2 Habitats.

Year 5/6: Classifying Living Things

In this unit children will learn how to classify living things using the major classification kingdoms defined by Carl Linnaeus. They will identify and describe the observable characteristics of a range of classification groups including micro-organisms, plants and animals. They will compare the similarities and differences between different species of flower and earthworm. Children will make careful observations to identify the characteristics that help scientists classify all living things, such as whether a living thing has a backbone and how they reproduce. Children will also be able to use their observations to construct classification

Year 3/4: Light and Shadow

In this unit children will explore the differences between light sources and light reflectors, and will sort these into two groups. They will be able to describe how shadows are formed and will explore the relationship between light, objects and the formation of shadows. They will work towards completing a Quest entitled, 'How Can We Make Shadows Change?' and they will create and change shadows in the context of a puppet shadow play. In this play they will explore the properties of materials that can cast shadows and use the scientific terms opaque, translucent and transparent to describe these materials. Finally, children will demonstrate an understanding of the possible dangers to health that the Sun, as a strong source of light, holds for them and others.

Working Scientifically, children will set up simple comparative and fair tests to compare materials, and they will make systematic and careful observations of shadows. They will make careful observations and measurements of shadows and record and report on their findings. They will have the opportunity to look for patterns in the way that the sizes of shadows change.

Year 3/4: Parts of Plants

In this unit children will have learned about the parts of flowering plants. Children will have identified and named the basic parts of flowering plants and recognised and described the functions of these parts, including the function of the flower in the plant life cycle. Children will have investigated the function of roots, stems, leaves and flowers and will have researched methods of seed dispersal. In addition, children will have learned about the process of pollination. They will also have investigated the way in which water is transported within plants and they will have constructed a terrarium to

	<p>keys of increasing complexity. They will use evidence from their investigation to predict and investigate how to accelerate the rate of decay in a mini-composter.</p> <p>Working Scientifically, children will carry out investigations to observe how moulds grow over time. They will use the evidence from previous investigations to investigate how to accelerate decomposition in a mini-composter. Children will use and construct classification keys to identify plants within their locality. They will identify specific species of buttercup and earthworm by closely observing the similarities and differences within each group.</p>	<p>demonstrate how plants recycle water in a closed system.</p> <p>Investigative work in this unit focuses on observing and communicating ideas about plant parts and their function and using straightforward evidence from enquiries to answer questions about the functions of parts of plants.</p> <p>This unit builds upon work completed in Year 1 Plants and Year 2 Growing Plants.</p> <p><u>Year 5/6: Separating Mixtures</u></p> <p>In this unit children will learn about the separation techniques of filtering, sieving and evaporation. They will use sieves to separate materials of different sizes. They will learn that some substances (such as candyfloss) dissolve in water whilst others (such as dried herbs) do not. They will learn that they can separate a dissolved solid from a solution through evaporation of the liquid. They will consolidate and apply their knowledge of the properties of solids, liquids and gases by separating different mixtures.</p> <p>Working Scientifically, children will formulate their own question about dissolving before planning how they will answer it, predicting possible outcomes and carrying out a fair test. They will record their results in a table and graph, and interpret the results using evidence to support or refute their predictions.</p> <p>This unit builds on Year 4 Changes of State.</p>
<p>Spring</p>	<p><u>Year 1: Plants</u></p> <p>This unit will introduce children to the idea of plants as living things which grow and change over time. Children will work towards answering the Quest question, 'How can we make a plant identification kit?' The unit will encourage children to recognise the common features, similarities and differences between plants. Children will learn about the basic structure of a variety of common flowering plants,</p>	<p><u>Year 1: Comparing Materials</u></p> <p>In this unit children will describe the physical properties of a variety of everyday materials. They will compare and group together a variety of everyday materials on the basis of their simple properties. They will describe the properties of different materials, for example wood, metal, plastic, rubber, fur, towelling, nylon, wool, sponge, cotton wool, paper, card, brick, ceramics and rock.</p>

including trees. They will identify, name and describe the main parts of plants, including trees. They will learn that trees are plants and will learn the meaning of 'evergreen' and 'deciduous' when describing and comparing trees. Children will describe and compare common plants and trees in their local environment and will learn specific vocabulary relating to trees, e.g. trunk, bark etc. They will have the opportunity to plant, grow and observe their own plants throughout the unit. Children will consider how to treat plants as living things with care. At the end of the unit, children will create a model plant, a record of local plants and an identification kit for plants in their local area.

Working Scientifically, children will focus on observing closely using simple equipment, naming and grouping and recognising similarities and differences between plants. Children will make and record their observations and will also have the opportunity to gather and record data in a simple way to help in answering questions.

This unit builds on any work children have done in the Foundation Stage. This is the introductory unit on plants and lays the foundations for future work in this area.

Comparing Materials

In this unit children will describe the physical properties of a variety of everyday materials. They will compare and group together a variety of everyday materials on the basis of their simple properties. They will describe the properties of different materials, for example wood, metal, plastic, rubber, fur, towelling, nylon, wool, sponge, cotton wool, paper, card, brick, ceramics and rock.

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Working Scientifically, children will ask questions related to the properties of materials. They will make close observations of the properties of these materials and group them according to similarities and differences. When carrying out simple comparative tests exploring different slimes, children will take simple measurements in uniform, non-standard units and record these.

This unit builds on any work children have done in the Foundation stage where they have observed and handled different materials in their immediate environment. This links to Year 1 Identifying Materials.

Year 2: Changing Shape

In this unit children will work towards answering the Quest question 'How can we make art from changing the shape of materials?' They will create a piece of artwork that applies the skills and knowledge developed in the unit. Children will learn that the shape of materials can be changed by squashing, bending, twisting and stretching. They will also explore how twisting can be used to make threads stronger and identify which materials bend or squash most easily.

Working Scientifically, children will investigate how materials can be grouped according to their properties. They will have the opportunity to perform simple tests to find the stretchiest material and observe how silly putty changes over time.

Uses of Materials

In this unit children will name, identify and hunt for everyday materials including wood, metal, plastic, glass, rubber, brick, rock, paper, fabric and card. They will list properties of different materials such as hardness, strength, flexibility and shininess. They will learn that the properties of materials are important to the object they are made from. They will identify suitable and unsuitable materials for different objects and will be able to explain why.

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This unit builds on any work children have done in the Foundation stage where they have observed and handled different materials in their immediate environment. This links to Year 1 Identifying Materials.

Year 2: Growing Plants

In this unit children will explore how seeds and bulbs grow into mature plants. They will investigate what plants need to grow and will find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. Children will discover where seeds come from by investigating fruits and seeds in their local environment. They will carefully observe and sort seeds and will also recognise how some plants are able to grow from bulbs. They will plant a variety of seeds, describing how they grow. Children will have the opportunity to plant seeds and to observe growth.

Working Scientifically, children will observe seeds and plants using simple equipment. They will ask simple questions about what plants need to grow and they will perform simple tests recognising that their questions can be answered in different ways. They will observe and measure the growth of the plants over time. This unit builds on the work children have completed in Year 1 Plants.

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Working Scientifically, children will classify materials sorting them into groups in a variety of ways. They will use reference materials to find out some fascinating facts about a type of material. They will compare the strength of different types of paper predicting which will rip when pulled by their hands. They will learn what absorbency means and explore the absorbency of different types of materials. They will examine different ways to record results and select an appropriate way to record the results of an investigation about waterproof materials. They will apply the findings from these investigations to design a nappy.

Year 3/4 What Plants Need

In this unit children will explore what plants need to grow well. They will compare how plants grow in different soils and explore how fertilisers can be used to improve growth. Children will investigate the amount of water needed to help a leafy pot plant grow well. They will also investigate how space affects plant growth by comparing how well grass seeds grow with more or less space. They will use what they have learned to grow a mystery plant from seed. Children will use the results from their investigations to produce a helpful hints and tips card to describe what helps plants grow better.

Working Scientifically, children will set up simple comparative tests to compare the effect of soil, water, fertilisers and space on plant growth. They will use a range of equipment to measure the amount of water, soil and seeds needed in different investigations. They will make careful observations and record how their plants change over time.

Year 5/6: Materials

In this unit children will have compared and grouped together everyday materials on the basis of their properties, including their hardness, solubility, transparency, response

shininess. They will learn that the properties of materials are important to the object they are made from. They will identify suitable and unsuitable materials for different objects and will be able to explain why.

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Year 3/4: Electricity

In this unit children will identify common appliances that run on battery and mains electricity, and name some appliances that do the same job but are operated manually. They will learn the names and functions of simple electrical components including batteries, bulbs, buzzers, wires and switches. They will understand the need for a complete loop for a bulb to light or a buzzer to buzz, and will construct simple circuits to light a bulb and make a buzzer buzz. They will then insert a switch into the circuit to turn the bulb/buzzer on and off.

Working Scientifically, children will raise questions related to electrical insulation and conductivity. They will plan and carry out investigations, make predictions, record results in appropriate ways and draw conclusions. They will apply knowledge about electrical circuits and conductors to design and make a switch.

to magnets and electrical and thermal conductivity. They will have given reasons, based on evidence from comparative and fair tests, for the particular use of everyday materials, including metals, wood and plastic.

Working scientifically, children will have classified materials in different ways explaining their classification criteria. They will have planned, carried out and interpreted an investigation in trying to answer a question about the most suitable material for a given function.

Types of Change

In this unit children will work towards answering the Quest question, 'How can you make a meal from a mixture?' Children will design a recipe and identify the types of change used throughout the menu. They will explore dissolving by seeing how many drops of water it takes to dissolve the same amount of different substances and will use the terms solute and solvent. They will use evaporation to recover dissolved solutes and will recognise that these are reversible changes. They will also recognise that mixing and changes of state are reversible changes. Children will be introduced to examples of irreversible changes such as burning candles and other fuels, heating some materials and mixing bicarbonate with acid. They will learn that in these changes new materials are made and that these new materials are often in the form of gases.

Working Scientifically, children will use evidence gathered from their own and others' investigations into dissolving and evaporation to draw conclusions and offer explanations. They will apply previous understanding about melting to predict and investigate which substances will melt. They will plan, carry out and review a complete investigation related to the action of acid on bicarbonate. This unit builds on Year 4 Changes of State and Year 5 Separating Mixtures.

Sound

In this unit children will work towards answering the Quest question, 'How can we make different sounds?' Children will identify and describe different sounds. They will learn that sounds are produced by vibrations and that these vibrations travel from the source of the sound through a variety of materials to the ear. Children will use musical instruments and household materials to investigate the range of ways of producing sounds and how the pitch and volume of a sound can be altered. They will have the opportunity to make sounds and will create a short soundtrack for a piece of film.

Working Scientifically, children will have the opportunity to investigate how sound travels through solids, liquids and gases. They will investigate changing the pitch of sounds and they will find patterns between the pitch of a sound and the features of the object that produced it. They will have the opportunity to investigate sound through creating their own instruments and they will investigate the pattern between the volume of a sound and the strength of vibrations which produced it. They have the opportunity to use data logging equipment to measure the volume of various sounds and to notice that sounds get fainter as the distance from the source of the sound increases. This Unit builds on Year 1 Parts of Animals which identifies and investigates the sense organs.

Year 5/6: Circuits

In this unit children will work towards answering the Quest question, 'How can we fix a broken score board?' They will recognise and use accepted scientific symbols in circuit diagrams. They will learn that altering the brightness of bulbs and the volume of a buzzer can be achieved in different ways, including changing the

number of components, battery voltage, or the properties of the wires in the circuits. They will apply their knowledge of complete circuits to make quiz cards and provide a solution to the score board Quest question.

Working Scientifically, children will have the opportunity to choose to investigate altering the brightness of bulbs and the volume of a buzzer in different ways, possibly including changing the number and/or type of components, battery voltage, or the properties of the wires in the circuits. They will predict outcomes relating to the arrangement in electrical circuits and record their results. This unit builds on Year 4 Electricity.

Light and Sight

In this unit children will learn about how light travels and that we see things because light travels from light sources to our eyes, or from light sources to objects and then to our eyes. They will learn that shiny or reflective surfaces alter the direction in which light travels. Children will have the opportunity to solve problems related to everyday life about how light travels and how we see. Children will also investigate and explain the shapes of shadows, and relate this to light travelling in straight lines.

Working Scientifically, children will have the opportunity to plan and carry out an investigation in the context of finding a reflective material for children's clothing. They may have the opportunity to use light sensors and data logging equipment to measure and record their observations and they will write a report detailing what they have concluded. This unit links to Y3 Light and Shadows.

Summer 1

Year 1: Seasons

Year 1: Seasons

In this unit children will learn that there are four seasons, the names for these seasons and that there are differences between them. They will identify and design weather symbols for the different types of weather they are likely to experience across the seasons.

Working scientifically, children will make observations and measurements over time throughout the seasons including day length, temperature, rain/snow fall, wind strength, cloud conditions and the accompanying changes to plants and animals in their local environment. They will describe and record their findings and compare them across the seasons.

Year 2: Habitats

In this unit children will have been introduced to the terms 'habitat' (a natural environment or home of a variety of plants and animals) and 'micro-habitat' (a very small habitat, for example for woodlice under stones, logs or leaf litter). They will have identified that most living things live in habitats to which they are suited and have described how different habitats provide for the basic needs of different kinds of animals and plants. Children will have explored their immediate local environments. They will have identified local and global habitats and recognised, in simple terms, those which are similar in scale or diversity. They will have recognised how differences between places close to each other result in a different range of plants and animals being found. They will have identified and named a variety of plants and animals in their habitats including micro-habitats and have described habitats in terms of their physical conditions.

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Year 2: Habitats

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Children will work scientifically by observing plants and animals closely in their local environment using simple equipment and by gathering and recording data to help answer questions they may have raised. Children will have had the opportunity to investigate and compare local habitats in detail, and also to

data to help answer questions they may have raised. Children will have had the opportunity to investigate and compare local habitats in detail, and also to compare animals in familiar habitats with animals found in less familiar habitats, for example, on the seashore, in woodland, in the ocean, in the rainforest. They will have the opportunity to conduct an investigation into worms and their habitat in their local environment.

They will have recognised that living things are found in many places and have been able to make a prediction about why living things are found in some places and not others.

This unit builds on the work children have completed in the Year 1 Identifying Plants, Types of Animals and Changing Seasons units.

Year 3/4: Dangers to Living Things

In this unit children will work towards answering the Quest question 'How can changes to the environment affect the things that live there?' They will construct and interpret food chains, identifying producer, prey, consumer and predator. They will realise that the availability of food is an important factor when considering how animals respond to change in the environment. Children will investigate the effect of a small change to an environment by placing carpet or other covering on the ground, and will consider the impact of larger changes to the environment such as fire and flood. They will consider how humans can reduce the impact of some environmental changes. They will finish by answering the Quest about the effects on pond life of diverting a river to build new houses, when the original course of the river feeds into the pond.

This links to the units in Y2 Feeding and Exercise and Y2 Habitats.

Year 5/6: Our Bodies

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This unit builds on the work children have completed in the Year 1 Identifying Plants, Types of Animals and Changing Seasons units.

Year 3/4: Rocks and Soils

In this unit children will recognise that below the surface of Earth is rock which they may not be able to see. They will understand that over time rocks have been broken down to form smaller rocks, pebbles, stones and eventually soils. They will recognise that there are different rocks and different soils which have different properties and appearances. Children will identify, name and describe different rocks. They will compare and group different rocks and soils based on appearance and properties, e.g. hardness, and they will examine the soil in their local area. They will consider the impact of worms in making soils. Children will also describe in simple terms how fossils are formed when living things have been trapped in rock. They will have the opportunity to make a model fossil and look at the work of early palaeontologists, such as Mary Anning.

Working Scientifically, children will have the opportunity to make close observations and detailed comparisons of rocks and soils and they will investigate the appearance and some properties of rocks and soils. They will have the opportunity to set up simple comparative and fair tests. They will investigate how soils are formed, how animals make their habitat in soils, and the constituents of soil. This unit also offers the

In this unit children will work towards answering the Quest question, 'How can we stay healthy?' They will present their findings in the form of a 'health roadshow' incorporating multi-media presentations which show that they will have recognised the impact of diet, exercise and lifestyle choices on the way their bodies function. Children will learn that there are many different but related aspects to keeping healthy. They will investigate the functions of the heart and circulatory system and will describe how nutrients and water are transported in human and animal bodies.

Working Scientifically, children will investigate how exercise and heart rate are related, and also to find out how scientific ideas about health have developed over time. They will plan an investigation and will take measurements with accuracy and precision. Children will present their findings in a number of ways, and will explain causal relationships emerging from their own data.

This unit builds upon children's existing knowledge of what their body parts are, and internal body systems such as the digestive system covered in Y4 Human Nutrition. They will develop their existing knowledge about the importance of diet and exercise to good health.

opportunity for children to consider risks and hazards involved in handling soils. This Unit builds on Year 1 Identifying Materials, Year 1 Comparing Materials and Year 2 Uses of Materials.

Year 5/6: Earth and Space

In this unit pupils will describe the movement of Earth, and other planets, relative to the Sun in our Solar System. They will describe the movement of the Moon relative to Earth and describe the Sun, Earth and the Moon as approximately spherical bodies. Pupils will use the idea of Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. They will also have the opportunity to find out about how ideas about the solar system have developed and changed over time.

Working Scientifically, children will have the opportunity to plan an enquiry using a shadow stick and look at changes over time. They will take accurate measurements of the shadows formed, decide how to record them and present their findings. They will also identify scientific evidence that has been used to support or refute changing ideas about the Solar System.

Summer 2

Year 1: Parts of Animals

In this unit children will learn about their senses and how they use them to describe the world. Children will identify and name the basic external parts of the human body and recognise the functions of some body parts, including the sense organs. Children will describe and compare common animals, and will recognise and name a variety of animals and their body parts. They will construct and label a map of the human body and will draw comparisons between human and animal body parts. They will consider how to treat other people and living things with care and

Year 1: Plants

This unit will introduce children to the idea of plants as living things which grow and change over time. Children will work towards answering the Quest question, 'How can we make a plant identification kit?' The unit will encourage children to recognise the common features, similarities and differences between plants. Children will learn about the basic structure of a variety of common flowering plants, including trees. They will identify, name and describe the main parts of plants, including trees. They will learn that trees are plants and will learn the meaning of 'evergreen' and 'deciduous' when describing

respect. At the end of the unit, children will create a song which compares the functions of various animals' body parts. Investigative work in this unit focuses on exploring the senses, observing and communicating ideas about their own body parts and those of animals, and recording their ideas in diagrams.

This unit builds on any work they have done in the Foundation stage where they have made observations about animals. This unit lays the foundations for future work on humans and other animals.

Year 2: Feeding and Exercise

In this unit children will have described the importance of exercise, eating the right amounts of different types of food and hygiene. They will have found out about and described the basic needs of animals, including humans, for survival (water, food and air) and will have considered what humans need to live. Children will have identified different foods and have classified some of the foods that humans eat by plant or animal origins. Children will have described 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. They will have identified and created a simple food chain. Children will have been able to use ideas about feeding and exercise to learn about ways we need to look after ourselves to stay healthy. They will demonstrate understanding by making a diet and exercise plan and will have considered food safety and hygiene guidelines. Children will also have opportunities to consider ways in which science is relevant to their personal health and to relate science to aspects of their everyday life (food, exercise, hygiene), and to recognise and control hazards and risks to themselves.

Children will work scientifically by using observable features and research to

and comparing trees. Children will describe and compare common plants and trees in their local environment and will learn specific vocabulary relating to trees, e.g. trunk, bark etc. They will have the opportunity to plant, grow and observe their own plants throughout the unit.

Children will consider how to treat plants as living things with care. At the end of the unit, children will create a model plant, a record of local plants and an identification kit for plants in their local area.

Working Scientifically, children will focus on observing closely using simple equipment, naming and grouping and recognising similarities and differences between plants. Children will make and record their observations and will also have the opportunity to gather and record data in a simple way to help in answering questions. This unit builds on any work children have done in the Foundation Stage. This is the introductory unit on plants and lays the foundations for future work in this area.

Year 2: Living Things

In this unit children will make comparisons between things that are alive, things that are not alive, and things that were once alive. They will sort and compare animals, plants and non-living things and will create a list of features of living things. Children will notice that living things have offspring which resemble their parents and that they themselves grow into adults which reproduce. Children will order the stages of growth of humans from birth to old age. They will complete their Quest by imagining they are curators of a museum where they will curate an exhibition on living things, and design an information board for an exhibit comparing living, not living and never living things.

Working Scientifically, children will use observable features to identify and classify living and non-living things. They will ask

identify and classify foods into those of plant or animal origin. They will ask questions and use their observations and ideas to suggest answers to their questions. Children will have the opportunity to carry out an investigation into what garden birds prefer to eat where they can carry out simple comparative tests, gathering and recording data to help in answering questions.

This unit links to Types of Animals and Plants in Year 1 and have a basic understanding of the needs of plants and animals and that plants and animals grow. This unit will complement learning in Habitats in Year 2.

Year 3/4: Food and Nutrition

In this unit children will develop their understanding of their personal health and how this is related to human nutrition, dentition and digestion. They will describe, sequence and investigate the simple functions and the basic parts of the digestive system in humans and they will identify and name the different types of teeth in humans and some other animals, and their simple functions. Children will understand how their teeth could decay and how they could keep teeth healthy.

Working Scientifically, children will have the opportunity to set up simple enquiries and fair tests, asking questions and using different types of scientific enquiries to answer them. They will have compared and contrasted human and other animal dentition. They will have conducted an investigation on tooth decay substituting eggshells as a close representation of human teeth. Children will have used their results to draw simple conclusions and raise further questions. Children will also have had the opportunity to make a comparison of the various qualities of toothpastes and they will have reported on their findings from their enquiries in

questions and use their observations and ideas to suggest answers to their questions. This unit links to Types of Animals and Plants in Year 1.

Year 3/4: Movement and Feeding

In this unit children will learn that animals including humans need the right types and amounts of nutrition to thrive and grow, and that eating the wrong types and amounts can lead to health problems. They will identify that we cannot make our own food and that we need to eat a varied diet including meat and fish, beans and lentils, fats, starchy foods, fruit and vegetables. They will construct a balanced food plate and describe what happens if we don't eat a balanced diet. Children will identify that animals have different dietary requirements and some foods that humans eat may be poisonous to animals. They will also explain the role of the muscles and skeleton and describe what would happen if we didn't have a skeleton.

Working Scientifically, children will identify similarities and differences between themselves and other children, and look for patterns between physical attributes and ability to perform tasks. They will work in groups to raise a question to investigate e.g. can children with longer legs jump further? They will carry out pattern-seeking investigations, take results and construct scatter graphs. They will use evidence to answer questions and draw simple conclusions.

This unit links to Y1 Parts of Animals and Y2 Feeding and Exercise.

Year 5/6: Life Cycles

In this unit children will learn that plants and animals have life cycles and that reproduction is a part of this cycle. They will recognise that each life cycle has distinct stages but that these can vary between species, for example

various ways including written and oral presentations.
This unit builds on Year 3 Movement and Feeding and Year 2 Feeding and Exercise.

Year 5/6: Our Bodies cont.

In this unit children will work towards answering the Quest question, 'How can we stay healthy?' They will present their findings in the form of a 'health roadshow' incorporating multi-media presentations which show that they will have recognised the impact of diet, exercise and lifestyle choices on the way their bodies function. Children will learn that there are many different but related aspects to keeping healthy. They will investigate the functions of the heart and circulatory system and will describe how nutrients and water are transported in human and animal bodies.

Working Scientifically, children will investigate how exercise and heart rate are related, and also to find out how scientific ideas about health have developed over time. They will plan an investigation and will take measurements with accuracy and precision. Children will present their findings in a number of ways, and will explain causal relationships emerging from their own data.

This unit builds upon children's existing knowledge of what their body parts are, and internal body systems such as the digestive system covered in Y4 Human Nutrition. They will develop their existing knowledge about the importance of diet and exercise to good health.

they may describe and contrast the stages of the human life cycle with three and four stage metamorphosis in insects and amphibians. They will understand the importance of reproduction for the survival of a species.

Working Scientifically, children will plan and carry out investigations and observe, measure and record the growth of animals and/or plants over time. They will use secondary research to develop their understanding of life cycles in different species. They will draw conclusions from their investigations, and present their conclusions in a variety of ways including written and oral presentations.

This unit builds on children's existing understanding of how plants grow and the basic structures and diversity of plants and animals in Y3 Parts of Plants and Y2 Living Things.