Guided by God, we build a community of learners who flourish and are filled with hope.

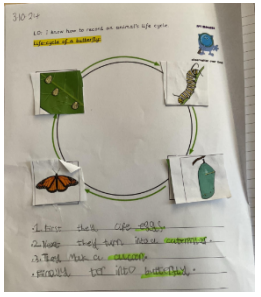
Keighley St Andrew's C of E Primary School

Science Progression Document

Intent

At Keighley St Andrew's we believe a high-quality science education lays the foundation for understanding the world. As a Church of England school, our vision, "Guided by God, we will create a community of learners who will flourish and be filled with hope"—is central to everything we do, including the teaching of science. We strive to foster a sense of wonder about the world while equipping our pupils with the essential knowledge, methods, and processes that underpin scientific discovery.





Our intent is to create a culture where both teachers and pupils are 'bothered'—where they care deeply about exploring the natural world, asking questions, and seeking answers. We aim to develop in our pupils not only a deep understanding of scientific concepts but also the curiosity and excitement that come with discovering how the world works. Pupils will be encouraged to recognize the power of rational explanation, using science to explain what is occurring, predict behaviours, and analyse causes.

Our curriculum ensures that pupils build a solid foundation of key scientific knowledge and concepts, empowering them to appreciate how science has transformed lives and is vital to the future prosperity of our world. As part of our wider school mission, our science lessons also nurture pupils' ability to reflect on the moral and ethical implications of scientific advancements, guided by our Christian values.

Through this approach, we aim for our learners to develop not only a mastery of science but also a sense of responsibility for the world they will inherit and shape.

Science in EYFS In EYFS science knowledge and skills are developed primarily through 'Understanding the world.'

Autumn 1	Spring 1	Summer 1
Me, my home, my town	The Universe	The pond and beyond
This topic looks at pupils' sense of identity within their world. It includes geographical exploration of the school and locality as well as historical aspects within living memory such as parents and grandparents. **Key Questions** What do I know about me? Who is in my family? Is everybody's home the same? **UTW – Science** Family photos, baby photos – How have you changed? Autumn – What colour are the leaves and how have they changed? **Experiences/observations** Walk in the locality Baby picture- observing changes	This topic widens children's perspective of their world to include beyond the planet in which they live. This also offers the opportunity to look at significant individuals throughout history. **Key Questions** How does an astronaut get to the moon? Who was first in space? **UTW - Science** People in Space: Mae Jemison, Neil Armstrong, Tim Peake – Who are these people and what did they do? Life in a Space Station – What is a space station and how did it get there? Facts about Earth and other planets – What are the differences between the planets? **Experiences/observations** Alien crash landing – Let's say	This topic allows children to develop their knowledge and understanding of life cycles and animals within the UK. The farm is a focus for learning exploring why farms are important. **Key Questions** Are minibeasts really scary? What is a life cycle? What animals live on the farm? **UTW – Science** Caring for minibeast – What do minibeasts need to survive? Investigating minibeasts and their habitats - Where do they live? Are their habitats all the same? Life cycles of tadpoles and caterpillars – What changes do you notice? How long does the full cycle take? **Experiences/observations** Minibeasts in school Lifecycle of tadpole, caterpillar, chicken and human Observing tadpoles and caterpillars
Autumn 2	**Spring 2**	**Summer 2**
Autumn, Winter and Celebrations	What can we grow?	My country and the world
This topic looks at developing children's noticing skills within the world around them looking for changes, making comparisons and beginning to explore seasonal change. **Key Questions** Why are there so many leaves on the ground? Which animals hibernate? Why is Christmas special? **UTW – Science** All about Autumn and Winter -How are the seasons different? Compare hot and cold places – What can survive in one place but not in another? What makes them warm or cold? Hibernating animals – What creatures are awake when we are asleep? What is asleep when we are awake? Our senses – What can you hear, see, touch and smell? **Experiences/observations** Visit to Cliffe Castle Senses carousel	This topic looks at growth including their own growth, plants and healthy living. This topic is Science driven. **Key Questions** What do living things need to grow? Who can I ask for help? What can I do to keep healthy? **UTW - Science** Growing beans and vegetables – What do plants need to grow? Why do we need to grow plants? **Experiences/observations** Visit to church Local heroes visit to school Potatoe and bean planting Cress growing	This topic explores life within the UK through the lens of the royal family. Pupils then explore how the UK is different to other places in the world understanding the impact that geography has on what can be produced there. **Key Questions** Who was the Queen? Who is the King? Where does milk come from? Where does fruit come from? How is Africa different to the UK? **UTW - Science** Compare climate of UK and Africa – What is the temperature like? Where is Africa compared to the UK? What are the key differences? Where does milk come from? – How is milk made? What animal produces milk? How do you get the milk? What else can be made from milk? Where does fruit come from? – Where does fruit grow? Can all fruit be grown in all places? **Experiences/observations** Trip to the shop Parents picnic and tea party Fruit tasting.

Cycle A: Science in KS1

Autumn 1	Spring 1	Summer 1
Plants and Seasonal changes	Animals including Humans (The Human Body) Seasonal Change	Materials Seasonal Change
National Curriculum Objectives Y1 Objectives ● identify and name a variety of common wild and garden plants, including deciduous and evergreen trees ● identify and describe the basic structure of a variety of common flowering plants, including trees ***Seasonal changes*** *Pupils should be taught to:* ● *observe changes across the 4 seasons* ● *observe and describe weather associated with the seasons and how day length varies* **Cross-curricular links:** Learning can take place within the wider context of the countryside (Geography – Town Mouse and Country Mouse). Children identify and compare common wild plants, garden plants and trees while exploring the local environment.	National Curriculum Objectives Y1: Identify, name, draw and label the basic parts of the human body. Y1: Identify which part of the body is associated with each sense. Y2: Describe the importance of hygiene. ***Seasonal changes*** *Pupils should be taught to:* ● *observe changes across the 4 seasons* ● *observe and describe weather associated with the seasons and how day length varies* **Cross-curricular links:** Learning can take place within the wider context of caring for people (History – Florence Nightingale). Children identify the basic parts of the human body and explore how our senses help us understand and interact with the world.	National Curriculum Objectives **Y1 objectives:** ● distinguish between an object and the material from which it is made ● identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock ● describe the simple physical properties of a variety of everyday materials ● compare and group together a variety of everyday materials on the basis of their simple physical properties [*Suggested focus properties: hard/soft, rough/smooth, shiny/dull, transparent/opaque*.] ***Seasonal changes*** *Pupils should be taught to:* ● *observe changes across the 4 seasons* ● *observe and describe weather associated with the seasons and how day length varies* ***Cross-curricular links:*** *Learning can take place within the wider context of buildings past and present (History – The Great Fire of London). Children investigate the materials used to construct buildings and compare their properties, considering why particular materials have been chosen.*
Autumn 2	**Spring 2**	**Summer 2**
Living Things and their Habitats and Seasonal changes	Animals including Humans (Keeping Healthy) Seasonal Change	Everyday materials
National Curriculum Objectives Y2 Objectives ● identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other ● identify and name a variety of plants and animals in their habitats, including microhabitats ***Seasonal changes*** *Pupils should be taught to:* ● *observe changes across the 4 seasons* ● *observe and describe weather associated with the seasons and how day length varies* *Cross-curricular links: Learning can take place within the wider context of contrasting habitats (Geography – Leaf). Children explore how plants and animals are suited to different environments and compare habitats from around the world.*	National Curriculum Objectives Y2: Describe the importance for humans of eating the right amounts of different types of food. Y2: Describe the importance of exercise. Y2: Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). ***Seasonal changes*** *Pupils should be taught to:* ● *observe changes across the 4 seasons* ● *observe and describe weather associated with the seasons and how day length varies* **Cross-curricular links:** Learning can take place within the wider context of healthy lifestyles (Science – *The Ferocious Chocolate Wolf*). Children investigate what humans need to stay healthy, making links to healthy eating, exercise and the basic needs for survival.	National Curriculum Objectives Y2 objectives ● identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses ● find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. ***Seasonal changes*** *Pupils should be taught to:* ● *observe changes across the 4 seasons* ● *observe and describe weather associated with the seasons and how day length varies* ***Cross-curricular links****: Learning can take place within the wider context of coasts (Geography – The Secret of Black Rock). Children apply their understanding of the suitability and properties of materials in a coastal context while investigating how materials can be changed by squashing, bending, twisting and stretching.*

Cycle A: Science in LKS2

Autumn 1	Spring 1	Summer 1
Electricity	States of matter	Animals including humas
National Curriculum Objectives **Y4 objectives** ● identify 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 ● recognise some common conductors and insulators, and associate metals with being good conductors	National Curriculum Objectives **Y4 objectives** ● 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	National Curriculum Objectives **Y4 objectives** ● 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
Autumn 2	**Spring 2**	**Summer 2**
Sound	Living things and their habitats	Living things and their habitats cont.
National Curriculum Objectives **Y4 objectives** ● 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	National Curriculum Objectives **Y4 objectives** ● 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.	National Curriculum Objectives **Y4 objectives** ● recognise that environments can change and that this can sometimes pose dangers to living things

Cycle A: Science in UKS2

Autumn 1	Spring 1	Summer 1
Light	Living things and their Habitats – Land animals	Evolution and Inheritance:
National Curriculum Objectives Y6 Objectives ● 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. *Cross curricular links: The use of light within WW2 can be explored within this unit. E.g illuminating enemy positions, blackouts, etc.*	National Curriculum Objectives Y6 Objectives ● describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals ● give reasons for classifying plants and animals based on specific characteristics. *Cross curricular links:*	National Curriculum Objectives Y6 Objectives ● 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 and are 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. *Cross curricular links:*
Autumn 2	**Spring 2**	**Summer 2**
Electricity	Animals including humans	Living things and habitats – Water animals
National Curriculum Objectives Y6 Objectives ● 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 ● use recognised symbols when representing a simple circuit in a diagram. *Cross curricular links:*	National Curriculum Objectives Y6 Objectives ● 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, including humans. *Cross curricular links:*	National Curriculum Objectives *These objectives are repeated from Spring 1 but focusing on water animals rather than land animals.* *The non-statutory elements could be addressed in this unit.* Y6 Objectives ● describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals ● give reasons for classifying plants and animals based on specific characteristics. **Notes and guidance (non-statutory)** Pupils should build on their learning about grouping living things in year 4 by looking at the classification system in more detail. They should be introduced to the idea that broad groupings, such as micro-organisms, plants and animals can be subdivided. Through direct observations where possible, they should classify animals into commonly found invertebrates (such as insects, spiders, snails, worms) and vertebrates (fish, amphibians, reptiles, birds and mammals). They should discuss reasons why living things are placed in one group and not another. Pupils might find out about the significance of the work of scientists such as Carl Linnaeus, a pioneer of classification. Pupils might work scientifically by: using classification systems and keys to identify some animals and plants in the immediate environment. They could research unfamiliar animals and plants from a broad range of other habitats and decide where they belong in the classification system. *Cross curricular links:*

Cycle B: Science in KS1

Autumn 1	Spring 1	Summer 1
Materials Seasonal Change	Animals including humans (Animals) Seasonal Change	Uses of everyday materials Seasonal Change
National Curriculum Objectives Y1 objectives: • distinguish between an object and the material from which it is made • identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock • describe the simple physical properties of a variety of everyday materials • compare and group together a variety of everyday materials on the basis of their simple physical properties [*Suggested focus properties: flexible/rigid, waterproof/not waterproof, absorbent/not absorbent.*] ***Seasonal changes*** *Pupils should be taught to:* • *observe changes across the 4 seasons* • *observe and describe weather associated with the seasons and how day length varies* ***Cross-curricular links**: Learning can take place within the wider context of toys (History – Traction Man). Children investigate the materials used to make familiar toys, comparing their properties and discussing why particular materials have been chosen.*	National Curriculum Objectives **Year 1** • identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • identify and name a variety of common animals that are carnivores, herbivores and omnivores • describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) **Year 2** • notice that animals, including humans, have offspring which grow into adults) ***Seasonal changes*** *Pupils should be taught to:* • *observe changes across the 4 seasons* • *observe and describe weather associated with the seasons and how day length varies* ***Cross-curricular links:** Learning can take place within the wider context of flight (History – The Wright Brothers). Children observe and compare birds, mammals and other animals, considering how scientists and inventors have been inspired by nature.*	National Curriculum Objectives **Y2 objectives** identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses ***Seasonal changes*** *Pupils should be taught to:* • *observe changes across the 4 seasons* • *observe and describe weather associated with the seasons and how day length varies* ***Cross-curricular links**: Learning can take place within the wider context of canals and waterways (History/Geography – Canals). Children investigate the suitability of materials for boats, bridges and canal structures, considering properties such as strength and waterproofing.*
Autumn 2	**Spring 2**	**Summer 2**
Living Things and their Habitats Seasonal Change	Plants Seasonal Change	Uses of everyday materials Seasonal Change
National Curriculum Objectives Y2 Objectives • explore and compare the differences between things that are living, dead, and things that have never been alive. • 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 ***Seasonal changes*** *Pupils should be taught to:* • *observe changes across the 4 seasons* • *observe and describe weather associated with the seasons and how day length varies* **Cross-curricular links**: Learning can take place within the wider context of contrasting habitats (Geography – Meerkat Mail). Children explore how animals and plants are suited to different environments and compare habitats from around the world.	National Curriculum Objectives Y1 objective • identify and describe the basic structure of a variety of common flowering plants Y2 objectives • 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. ***Seasonal changes*** *Pupils should be taught to:* • *observe changes across the 4 seasons* • *observe and describe weather associated with the seasons and how day length varies* ***Cross-curricular links**: Learning can take place within the wider context of gardens and growing (English – The Night Gardener). Children investigate how plants grow and what they need to survive through observations and practical enquiry.*	National Curriculum Objectives Y2 objectives: find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. ***Seasonal changes*** *Pupils should be taught to:* • *observe changes across the 4 seasons* • *observe and describe weather associated with the seasons and how day length varies* ***Cross-curricular links**: Learning can take place within the wider context of castles (History – Castles). Children explore how materials can be changed by squashing, bending, twisting and stretching, making links to textiles and materials used in castle life.*

Cycle B: Science in LKS2

Autumn 1	Spring 1	Summer 1
Animals including humans	Light	Plants
National Curriculum Objectives Year 3 Objectives • 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. • identify that humans and some other animals have skeletons and muscles for support, protection and movement. *Cross curricular links:*	National Curriculum Objectives Year 3 Objectives • 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 a solid object • find patterns in the way that the size of shadows changes. *Cross curricular links:*	National Curriculum Objectives Year 3 Objectives • 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 **Notes and guidance (non-statutory)** Pupils should be introduced to the relationship between structure and function: the idea that every part has a job to do. They should explore questions that focus on the role of the roots and stem in nutrition and support, leaves for nutrition and flowers for reproduction. Note: pupils can be introduced to the idea that plants can make their own food, but at this stage they do not need to understand how this happens. *Cross curricular links:*
Autumn 2	**Spring 2**	**Summer 2**
Rocks and Soils	Forces and Magnets	Plants
National Curriculum Objectives Year 3 Objectives • 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. *Cross curricular links:*	National Curriculum Objectives Year 3 Objectives • 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. *Cross curricular links:*	National Curriculum Objectives Year 3 Objectives • investigate the way in which water is transported within plants • explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. Pupils might work scientifically by: comparing the effect of different factors on plant growth, for example, the amount of light, the amount of fertiliser; discovering how seeds are formed by observing the different stages of plant life cycles over a period of time; looking for patterns in the structure of fruits that relate to how the seeds are dispersed. They might observe how water is transported in plants, for example, by putting cut, white carnations into coloured water and observing how water travels up the stem to the flowers. *Cross curricular links:*

Cycle B: Science in UKS2

Autumn 1	Spring 1	Summer 1
Forces	Earth and Space	Animals including Humans
National Curriculum Objectives Y5 objectives ● 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 *Cross curricular links:*	National Curriculum Objectives Y5 objectives ● 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. *Cross curricular links:*	National Curriculum Objectives Y 5 objectives ● describe the changes as humans develop to old age. **Notes and guidance (non-statutory)** Pupils should draw a timeline to indicate stages in the growth and development of humans. They should learn about the changes experienced in puberty. Pupils could work scientifically by researching the gestation periods of other animals and comparing them with humans; by finding out and recording the length and mass of a baby as it grows. *Cross curricular links:*
Autumn 2	**Spring 2**	**Summer 2**
Forces	Properties and changes of materials	Livings Things and their Habitats
National Curriculum Objectives Y 5 objectives ● recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. **Notes and guidance (non-statutory)** Pupils should explore the effects of levers, pulleys and simple machines on movement. They might design and make products that use levers, pulleys, gears and/or springs and explore their effects. *Cross curricular links:*	National Curriculum Objectives Y5 Objectives ● 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, 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 soda. *Cross curricular links:*	National Curriculum Objectives Y 5 objectives ● 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. *Cross curricular links:*

**Science Progression of skills **

STEM and PD lead alongside the Science lead are currently developing the progression of skills in line with the 5 types of enquiries

Substantive Knowledge (Sticky Knowledge)

	Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Biology – Plants (including evolution)	- To talk about some of the things they have observed, such as plants, animals, natural and found objects (30-50 months) - To develop an understanding of growth, decay and changes over time (30-50 months). - To look closely at similarities, differences, patterns and change (40-60 months).	- Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees - Identify and describe the basic structure of a variety of common flowering plants, including trees.	- 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.	- 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 - Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.			- 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 and are 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.
Biology – Animals including humans	- To observe the effects of physical activities on their bodies (30-50 months) - To talk about some of the things they have observed, such as plants, animals, natural and found objects (30-50 months) - To develop an understanding of growth, decay and changes over time (30-50 months). - To show care and concern for living things and their environment (30-50 months). - To eat a healthy range of foodstuffs and understand a need for variety in food (40-60 months). - To show some understanding that good practises with regard to exercise, eating, sleeping and hygiene can contribute to good health (40-60 months) - To look closely at similarities, differences, patterns and change (40-60 months).	- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals - Identify and name a variety of common animals that are carnivores, herbivores and omnivores - Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) - Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	- Notice that animals, including humans, have offspring which grow into adults - 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.	- 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 - Identify that humans and some other animals have skeletons and muscles for support, protection and movement.	- 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.	- Describe the changes as humans develop to old age.	- 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, including humans.

	- To know the importance for good health of physical exercise and a healthy diet, and talk about ways to keep healthy and safe (ELG).						
Biology – Living things and their habitats	- To comment and ask questions about aspects of their familiar world, such as the place where they live or the natural world (30-50 months). - To talk about some of the things they have observed, such as plants, animals, natural and found objects (30-50 months) - To develop an understanding of growth, decay and changes over time (30-50 months). - To show care and concern for living things and their environment (30-50 months). - To look closely at similarities, differences, patterns and change (40-60 months). - To know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe (ELG). - To know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another (ELG).		- Explore and compare the differences between things that are living, dead, and things that have never been alive - Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other - Identify and name a variety of plants and animals in their habitats, including micro-habitats - 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.		- 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.	- 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.	- 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.
Chemistry – Materials including rocks	- To talk about some of the things they have observed, such as plants, animals, natural and found objects (30-50 months) - To begin to be interested in and describe the texture of things (30-50 months) - To look closely at similarities, differences, patterns and change (40-60 months). - To know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another (ELG).	- Distinguish between an object and the material from which it is made - Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock - Describe the simple physical properties of a variety of everyday materials - Compare and group together a variety of everyday materials on the basis of their simple physical properties.	- Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses - Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	- 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.	- 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.	- 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, 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 soda.	
Physics – Light / Sound (including Seasonal changes / Earth and Space)	- To talk about why things happen and how things work (30 – 50 months). - To look closely at similarities, differences, patterns and change (40-60 months).	- Observe changes across the four seasons - Observe and describe weather associated with the seasons and how day length varies.		- 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 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.	- 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.	- 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.

Physics – Forces and magnets	- To talk about why things happen and how things work (30 – 50 months). - To look closely at similarities, differences, patterns and change (40-60 months).			- 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.		- 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.	
Physics – Electricity	- To talk about why things happen and how things work (30 – 50 months). - To look closely at similarities, differences, patterns and change (40-60 months).				- Identify 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 - Recognise some common conductors and insulators, and associate metals with being good conductors.		- 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 - Use recognised symbols when representing a simple circuit in a diagram.

Disciplinary Knowledge (Being a Scientist)	By the end of EYFS, pupils will be able to… •	**Pattern Seeking:** By the end of KS1 pupils will be able to… • Ask simple questions and recognising that they can be answered in different ways. • Use their observations and ideas to suggest answers to questions. **Identifying, Classifying and Grouping:** By the end of KS1 pupils will be able to… • Ask simple questions and recognise that they can be answered in different ways. • Use their observations and ideas to suggest answers to questions. **Observing closely using simple equipment:** By the end of KS1 pupils will be able to… • Identify and classify within the taught curriculum. **Comparative and Simple Testing:** By the end of KS1 pupils will be able to… • Ask simple questions and recognise that they can be answered in different ways. • Use their observations and ideas to suggest answers to questions. • Observe closely using simple equipment. • Perform simple tests. • Gather and record data to help in answering questions. **Observing Over Time:** By the end of KS1 pupils will be able to… • Ask simple questions and recognise that they can be answered in different ways. • Use their observations and ideas to suggest answers to questions. • Observe closely using simple equipment. • Gather and record data to help in answering questions. **Research Using Secondary Sources:** By the end of KS1 pupils will be able to… • Ask simple questions and recognise that they can be answered in different ways. • Use their observations and ideas to suggest answers to questions. • Gather and record data to help in answering questions.	**Pattern Seeking:** By the end of LKS2… • Ask relevant questions and use different types of scientific enquiries to answer them. • Use results to draw simple conclusions, make predictions for new values, suggesting improvements and raising further questions. **Identifying, Classifying and Grouping:** By the end of LKS2… • Gather, record, classify and present data in a variety of ways to help in answering questions. • Identify differences, similarities or changes related to simple scientific ideas and processes. **Comparative and Fair Testing:** By the end of LKS2… • Set up simple practical enquiries, comparative and fair tests. • Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. • Report on findings from enquiries, including verbal and written explanations, displays or presentations of results and conclusions. **Observing Over Time:** By the end of LKS2… • Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. **Research Using Secondary Sources:** By the end of LKS2… • Use straightforward scientific evidence to answer questions or to support their findings.	**Pattern Seeking:** By the end of UKS2… • Report and present findings from enquiries, including conclusions, relationships and explanations of and degree of trust in results, in verbal and written forms such as displays and other presentations. • Use test results to make predictions to set up further comparative and fair tests. **Identifying, Classifying and Grouping:** By the end of UKS2… • Report and present findings from enquiries, including conclusions, relationships and explanations of and degree of trust in results, in verbal and written forms such as displays and other presentations. **Comparative and Fair Testing (including Observing Over Time):** By the end of UKS2… • 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. • Report and present findings from enquiries, including conclusions, relationships and explanations of and degree of trust in results, in verbal and written forms such as displays and other presentations. **Research Using Secondary Sources:** By the end of UKS2… • Identify scientific evidence that has been used to support or refute ideas or arguments.