Science – Curriculum Progression Map

Discovery MAT - Science Curriculum Position Statement

Quotes that guide us:
'It is important to view knowledge as sort of a semantic tree – make sure you understand the fundamental principles, i.e. the trunk and big branches, before you get into the leaves/details or there is nothing for them to hang on to.' Elon Musk

Why is it important to teach Science? (Intent)
At Discovery Multi Academy Trust we encourage all children to be inquisitive throughout their time at the school and beyond. The Science curriculum fosters a healthy curiosity in children about our universe and promotes respect for the living and non-living things. Science encompasses the acquisition of knowledge, concepts, skills and positive attitudes.

Throughout the programmes of study, the children will acquire and develop the key knowledge that has been identified within each unit and across each year group. The key knowledge identified by each year group is informed by the National Curriculum and builds towards identified phase 'end points' in accordance with NC expectations. Key skills are also mapped for each year group and are progressive throughout the schools. These too ensure systematic progression to identified skills end points which are in accordance with the Working Scientifically skills expectations of the national curriculum.

The curriculum is designed to ensure that children are able to acquire key scientific knowledge through practical experiences; using equipment, conducting experiments, building arguments and explaining concepts confidently.

The school's approach to science takes account of each of the school's own contexts, ensuring access to people with specialist expertise and places of scientific interest as part of the school's commitment to learning outside the classroom. Children are encouraged to ask questions and be curious about their surroundings and a love of science is nurtured through a whole school ethos and a varied science curriculum.

Key Concepts:
EYFS – exploring the natural world, seasons, materials, solar system, growing, life cycle of a butterfly

Year 1 – animals including humans, the body and senses, seasons, materials, plants and trees, comparing characteristics of animals (Kenyan Animals)

Year 2 – animals including humans, living things and habitats, plants and life cycles, materials and their properties, ocean habitats, food chains

Year 3 – materials and properties, rocks and fossils, dinosaurs, forces, light, plants and life cycles, animals including humans (skeletons and muscles)

Year 4 – water cycle, states of matter, irrigation, sound, digestive system, skeletal system, living things and their habitats, classification, circuits

Year 5 – sundials and water clocks, solar system, forces, living things and their habitats, classification and adaptation, environmental changes, life cycles (Amazon), testing temperature

Year 6 – light, electricity, circuits, evolution and inheritance, living things and their habitats, classification, animal adaptations, biomes, animals including humans (health and lifestyle), nutrients and water

Underpinning the knowledge are the following processes of science –

- Asking questions
- Designing experiments
- Reasoning and arguing with scientific evidence
- Analysing and interpreting data

Curriculum Design (Implementation)
Some of our key themes throughout the school year are Science based. We carry out the curriculum planning for Science in two phases, long-term and medium-term planning. The long-term plan maps the scientific topics studied in each term for each year group. The medium-term plans are based on the scientific topics listed on the long-term plan. They ensure an appropriate balance and distribution of work across each term. Planning is annotated by the class teacher and used for reference in future teaching. To ensure clear sequences of learning, staff have knowledge of the progression of teaching throughout the school. For example, Year 4 know that their class will have covered the skeletal system in Year 3, Term 4 in their topic 'Farming for Food'. Vocabulary is a key focus and is identified for each topic. Retrieval techniques are used to embed vocabulary, and in the following term to ensure deeper learning and understanding.

Enquiry-based approaches enable pupils to enhance their scientific knowledge, understanding, skills and attitudes and further develop their curiosity about the world around them. Pupils have regular access to appropriate hands-on practical activities that: support the development of motor, manipulative and age-appropriate technical skills, underpin their understanding of key scientific concepts, encourage them to ask productive questions, explore and investigate possible answers and communicate their findings to others and provide opportunities for developing both independent learning and team working skills.

Science in Early Years is taught through the Understanding the World part of the Foundation Stage Curriculum. The strands link into to termly topics as well as crossing into other areas of the curriculum. Children are provided with hands on opportunities to investigate, observe, ask, and answer questions, become inquisitive and to further their knowledge and understanding of the world. All these skills help to prepare them for Science in KS1 and beyond.

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There is a STEM room, based at Beechwood Primary Academy which can be used by all three schools within the MAT. Classes can book to use the room on a regular or individual lesson basis. It is a well-resourced room with suitable materials for all year groups and all areas of the curriculum. Replenishable resources, such as batteries can be ordered to support upcoming topics. This also includes resources to support the other subjects under the umbrella of STEM. There are links to BABCOCK and other local businesses who also support us with equipment for specific topics.

Knowledge Focused
Learning during the academic term is shared with parents in each of the schools e.g. through learning maps or journeys. These include the main aim of the term's topic and how this is explored through each subject. This is also available to access on each of the school's websites. Websites and books are also shared with parents to support learning and topic knowledge. Social media (school Facebook pages) regularly shows parents any Science learning that has taken place in school, within each year group.

What we do well as a Trust (Impact)
The Science Coordinators liaise across the MAT to build relationships between the schools and plan parallel activities, with guidance from the Trust Science Coordinator. The individual Science Coordinators signpost staff to any relevant courses, useful websites, and age-appropriate competitions.

National Curriculum Working Scientifically Objectives

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EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
In the EYFS, the characteristics of effective learning from the Statutory Framework for the Early Years Foundation Stage are the foundations on which the working scientifically skills build in Key Stage 1. While children are playing and exploring, teachers should be modelling, encouraging and supporting them to do the following: • show curiosity and ask questions • make observations using their senses and simple equipment • make direct comparisons • use equipment to measure • record their observations by drawing, taking photographs, using sorting rings or boxes and, in Reception, on simple tick sheets • use their observations to help them to answer their questions • talk about what they are doing and have found out • identify, sort and group.	During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: • asking simple questions and recognising that they can be answered in different ways. • observing closely, using simple equipment. • performing simple tests. • identifying and classifying. • using their observations and ideas to suggest answers to questions. • gathering and recording data to help in answering questions.	During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: • asking relevant questions and using different types of scientific enquiries to answer them. • setting up simple practical enquiries, comparative and fair tests. • making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. • Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. • reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • identifying differences, similarities or changes related to simple scientific ideas and processes. • using straightforward scientific evidence to answer questions or to support their findings.	During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: • Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. • taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat. readings when appropriate • recording data and results of increasing complexity using scientific diagrams and • labels, classification keys, tables, scatter graphs, bar and line graphs. • Using test results to make predictions to set up further comparative and fair tests. • reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentation. • identifying scientific evidence that has been used to support or refute ideas or arguments.

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Science Curriculum Overview						
EYFS	**All About Me** **ANIMALS INCLUDING HUMANS**	**Woodland Explorers** **LIVING THINGS AND THEIR HABITATS**	**To Infinity and Beyond** **EARTH AND SPACE**	**Things That Grow** **PLANTS**	**Trains, Planes and Cars** **FORCES**	**On the Seven Seas** **LIVING THINGS AND THEIR HABITATS**
Y1	**Amazing Me** **ANIMALS INCLUDING HUMANS** ***The Human Body*** **SEASONAL CHANGES** **(Steve Backshaw)**	**Weather Watchers** **MATERIALS** **SEASONAL CHANGES** **(Holly Green)**	**What's in the Toybox** **ANIMALS INCLUDING HUMANS** ***Animals*** ***Planting A***	**Our Local Area** **PLANTS** **SEASONAL CHANGES** ***Caring for the Planet*** ***Seasonal Changes*** ***Planting B***	**Women in History** **PLANTS** ***Planting C***	**Kenya: Too Hot to Handle** **WORKING SCIENTIFCALLY** **SEASONAL CHANGES** ***Growing and Cooking***
Y2	**Our Great Britain** **LIVING THINGS AND THEIR HABITATS** ***Animals Needs for Survival*** **ANIMALS INCLUDING HUMANS** ***Humans***	**British Bridges** **MATERIALS** **(Isambard Kingdom Brunel)** ***Sustainability***	**Greenland: Below Zero** **PLANTS** **LIVING THINGS AND THEIR HABITATS**	**UK Climate** **LIVING THINGS AND THEIR HABITATS** **PLANTS**	**World Explorers** **PLANTS** **ANIMALS INCLUDING HUMANS** ***Growing up***	**Commotion in the Ocean** **ANIMALS INCLUDING HUMANS** ***Growing up*** **LIVING THINGS AND THEIR HABITATS** ***Wildlife*** **(Steve Irwin)**
Y3	**Prehistoric Britain** **ANIMALS INCLUDING HUMANS** ***Skeletons*** ***Movement*** ***Nutrition and Diet***	**Masters of Disaster** **ANIMALS INCLUDING HUMANS** ***Nutrition and Diet*** **ROCKS**	**Dinosaurs and Fossils** **ROCKS** ***Fossils/Soils*** **(Mary Anning)**	**Food and Farming** **LIGHT**	**Egyptians** **PLANTS**	**Plymouth Hoe: Our City** **FORCES** ***Magnets*** **PLANTS** ***Plants B*** ***Sustainability***
Y4	**Shang Dynasty** **LIVING THINGS AND THEIR HABITATS** ***Group and Classify Living Things*** ***Data Collection***	**Journey Through North America** **STATES OF MATTER** **(Alhazan)**	**Ancient Greece** **SOUND** ***Data Collection***	**Australia** **ELECTRICITY** **(Nicola Tesla/Thomas Edison)** ***Sustainability***	**Ancient Rome** **LIVING THINGS AND THEIR HABITATS** **(Sir David Attenborough)** ***Data Collection*** ***Habitats*** ***Sustainability***	**Inventions Which Changed the World** **ANIMALS INCLUDING HUMANS** ***The Digestive System*** **LIVING THINGS AND THEIR HABITATS** ***Food Chains***

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Y5	**Romans in Britain/Anglo Saxons** **FORCES**	**Space: Out of this World** **EARTH AND SPACE** ***Sustainability***	**Vikings** **MATERIALS** ***Properties of Materials*** **ANIMALS INCLUDING HUMANS**	**Our Changing World** **ANIMALS INCLUDING HUMANS** **LIVING THINGS AND THEIR HABITATS** ***Life Cycles***	**Ancient Maya** **LIVING THINGS AND THEIR HABITATS** ***Reproduction A*** **MATERIALS** ***Reversible and Irreversible Changes***	**Amazon Rainforest** **LIVING THINGS AND THEIR HABITATS** ***Reproduction B*** ***Sustainability***
Y6	**Dartmoor** **LIVING THINGS AND THEIR HABITATS** **(Carl Linnaeus)**	**Tudors:** **Port of Plymouth** **ELECTRICITY** ***Sustainability***	**British Empire & Industrial Revolution** **LIGHT** ***Sustainability***	**Biomes of the World** **ANIMALS INCLUDING HUMANS** ***The Circulatory System*** ***Diet, Drugs and Lifestyle***	**20th Century Conflict** **EVOLUTION AND INHERITENCE** **(Charles Darwin)** ***Variation*** ***Adaptations*** ***Fossils***	

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PLANTS					
Year	**NC: Statutory Requirements**	**Key Learning**	**Possible Activities**	**Key Vocabulary**	**Scientist**
EYFS	• Understand the key features of the life cycle of a plant and animal. • Plant seeds and care for growing plants • Pupils the natural world around them, making observations and drawing pictures of animals and Plants. • Understand some important process and changes in the natural world around them, including the seasons and changing states of matter.	The children will learn where vegetables grown around the world and grow and eat their own. We will be exploring the life cycle and different parts of a plant or flower. Chdn learned how to plant and care for a seed. Grow and eat vegetables. To know where vegetables grow around the world. To draw pictures of flowers/plants	The chdn could plant their own beans and write up instructions to grow and care for it. This also provides a cross curricular link to English. Observational drawings of plants and label. Jigsaw of Flower to aid understanding. Grew cress and made sandwiches.	Present, Different, Grow, Life cycle, Tall, Short	
1	Pupils should be taught to: • 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.	Growing locally, there will be a vast array of plants which all have specific names. These can be identified by looking at the key characteristics of the plant. Plants have common parts, but they vary between the different types of plants. Some trees keep their leaves all year while other trees drop their leaves during autumn and grow them again during spring. \	• Make close observations of leaves, seeds, flowers etc. • Compare two leaves, seeds, flowers etc. • Classify leaves, seeds, flowers etc. using a range of characteristics. • Identify plants by matching them to named images. • Make observations of how plants change over a period of time. • When further afield, spot plants that are the same as those in the local area studied regularly, describing the key features that helped them.	Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud Names of trees in the local area Names of garden and wild flowering plants in the local area.	Holly Green – Weather watchers Steve Backshall – Amazing me
2	Pupils should be taught to: • 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.	All objects are either living, dead or have never been alive. Living things are plants (including seeds) and animals. Dead things include dead animals and plants and parts of plants and animals that are no longer attached e.g., leaves and twigs, shells, fur, hair and feathers (This is a simplification, but appropriate for Year 2 children.) An object made of wood is classed as dead. Objects made of rock, metal and plastic have never been alive (again ignoring that plastics are made of fossil fuels). Animals and plants live in a habitat to which they are suited, which means that animals have suitable features that help them move and find food and plants have suitable features that help them to grow well. The habitat provides the basic needs of the animals and plants – shelter, food and water. Within a habitat there are different micro-habitats	• Explore the outside environment regularly to find objects that are living, dead and have never lived. • Classify objects found in the local environment. • Observe animals and plants carefully, drawing and labelling diagrams. • Create simple food chains for a familiar local habitat from first-hand observation and research. • Create simple food chains from information given e.g., in picture books (Gruffalo etc.).	living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, water, air, survive, survival, names of local habitats (e.g. pond, woodland etc.), names of micro-habitats (e.g. under logs, in bushes etc.), conditions, light, dark, shady, sunny, wet, damp, dry, hot, cold, names of living things in the habitats and micro-habitats studied	

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		e.g., in a woodland – in the leaf litter, on the bark of trees, on the leaves. These micro-habitats have different conditions e.g., light or dark, damp or dry. These conditions affect which plants and animals live there. The plants and animals in a habitat depend on each other for food and shelter etc. The way that animals obtain their food from plants and other animals can be shown in a food chain.			
3	Pupils should be taught to: • 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.	Many plants, but not all, have roots, stems/trunks, leaves and flowers/blossom. The roots absorb water and nutrients from the soil and anchor the plant in place. The stem transports water and nutrients/minerals around the plant and holds the leaves and flowers up in the air to enhance photosynthesis, pollination and seed dispersal. The leaves use sunlight and water to produce the plant's food. Some plants produce flowers which enable the plant to reproduce. Pollen, which is produced by the male part of the flower, is transferred to the female part of other flowers (pollination). This forms seeds, sometimes contained in berries or fruits which are then dispersed in different ways. Different plants require different conditions for germination and growth.	• Observe what happens to plants over time when the leaves or roots are removed. • Observe the effect of putting cut white carnations or celery in coloured water. • Investigate what happens to plants when they are put in different conditions e.g., in darkness, in the cold, deprived of air, different types of soil, different fertilisers, varying amount of space. • Spot flowers, seeds, berries and fruits outside throughout the year. • Observe flowers carefully to identify the pollen. • Observe flowers being visited by pollinators e.g., bees and butterflies in the summer. • Observe seeds being blown from the trees e.g., sycamore seeds. • Research different types of seed dispersal. • Classify seeds in a range of ways, including by how they are dispersed. • Create a new species of flowering plant.	photosynthesis, pollen, insect/wind pollination, male, female, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal), air, nutrients, minerals, soil, absorb, transport	
4					
5					
6					

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ANIMALS INCLUDING HUMANS					
Year	**NC: Statutory Requirements**	**Key Learning**	**Possible Activities**	**Key Vocabulary**	**Scientist**
EYFS	ELG: The Natural World • Explore the natural world around them, making observations and drawing pictures of animals and plants. • Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class; • Understand some important process and changes in the natural world around them, including the seasons and changing states of matter.	Beginning to make sense of their own life story and changes in their bodies. To investigate minibeasts in wood. To identify and observe different woodland animals.	Label different parts of the body and discussed similarities and differences from one another. Life cycle of a human – Baby, toddler, Child, Teenager, Adult. To visit the local woodland habitat with a mini beast scavenger hunt (tick sheet for observation). Observe the life cycle of a butterfly through from a caterpillar through pupau and emerging from chrysalis (including WS – measuring changes)	Body, Face, Arms, Legs, Hands, Fee, Caterpillar, Butterfly, Different, Grow, Life cycle.	
I	**Term 1** Pupils should be taught to: • 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. **Term 6** • Pupils should use the local environment to explore and answer questions about animals in their habitat. • They should understand how to take care of animals taken from their local environment and the need to return them safely after study. • To identify animals native to Kenya and compare characteristics of these animals. • To understand what animals need to survive. • Pupils might work scientifically by: using their observations to compare and contrast animals at first hand or through videos and photographs, describing how they identify and group them; grouping animals according to what they eat; and using their senses to compare different textures, sounds and smells.	Animals vary in many ways having different structures e.g., wings, tails, ears etc. They also have different skin coverings e.g., scales, feathers, hair. These key features can be used to identify them. Animals eat certain things - some eat other animals, some eat plants, some eat both plants and animals. Humans have key parts in common, but these vary from person to person. Humans (and other animals) find out about the world using their senses. Humans have five senses – sight, touch, taste, hearing and smelling. These senses are linked to particular parts of the body.	• Make first-hand, close observations of animals from each of the groups. • Compare two animals from the same or different groups. • Classify animals using a range of features. • Identify animals by matching them to named images. • Classify animals according to what they eat. • Make first-hand close observations of parts of the body e.g., hands, eyes. • Compare two people. • Take measurements of parts of their body. • Compare parts of their own body. • Look for patterns between people e.g. Do people with big hands have big feet? • Classify people according to their features. • Investigate human senses e.g. Which part of my body is good for feeling, which is not? Which food/flavours can I identify by taste? Which smells can I match?	head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, names of animals experienced first-hand from each vertebrate group, parts of the body including those within the school's RSE policy, senses, touch, see, smell, taste, hear, fingers, skin, eyes, nose, ear, tongue. **N.B.** The children need to be able to name and identify a range of animals in each group e.g., name specific birds and fish. They do not need to use the terms mammal, reptiles etc. or know the key characteristics of each, although they will probably be able to identify birds and fish, based on their characteristics. The children also do not need to use the words carnivore, herbivore and omnivore. If they do, ensure that they understand that carnivores eat other animals, not just meat. Although we often use our fingers and hands to feel objects, the children should understand that we can feel with many parts of our body.	

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2	Pupils should be taught to: • 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.	Animals, including humans, have offspring which grow into adults. In humans and some animals, these offspring will be young, such as babies or kittens, that grow into adults. In other animals, such as chickens or insects, there may be eggs laid that hatch to young or other stages which then grow to adults. The young of some animals do not look like their parents e.g., tadpoles. All animals, including humans, have the basic needs of feeding, drinking and breathing that must be satisfied in order to survive. To grow into healthy adults, they also need the right amounts and types of food and exercise. Good hygiene is also important in preventing infections and illnesses.	• Ask people questions and use secondary sources to find out about the life cycles of some animals. • Observe animals growing over a period of time e.g., chicks, caterpillars, a baby. • Ask questions of a parent about how they look after their baby. • Ask pet owners questions about how they look after their pet. • Explore the effect of exercise on their bodies. • Classify food in a range of ways, including using the Eatwell Guide. • Investigate washing hands, using glitter gel.	offspring, reproduction, growth, baby, toddler, child, teenager, adult, old person, names of animals and their babies (e.g., chick/hen, kitten/cat, caterpillar/butterfly), survive, survival, water food, air, exercise, heartbeat, breathing, hygiene, germs, disease, food types (e.g., meat, fish, vegetables, bread, rice, pasta, dairy)	
3	**Pupils should be taught to:** • 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.	Animals, unlike plants which can make their own food, need to eat in order to get the nutrients they need. Food contains a range of different nutrients – carbohydrates (including sugars), protein, vitamins, minerals, fats, sugars, water – and fibre that are needed by the body to stay healthy. A piece of food will often provide a range of nutrients. Humans, and some other animals, have skeletons and muscles which help them move and provide protection and support.	• Classify food in a range of ways. • Use food labels to explore the nutritional content of a range of food items. • Use secondary sources to find out the types of food that contain the different nutrients. • Use food labels to answer enquiry questions e.g. How much fat do different types of pizza contain? How much sugar is in soft drinks? • Plan a daily diet to contain a good balance of nutrients. • Explore the nutrients contained in fast food. • Use secondary sources to research the parts and functions of the skeleton. • Investigate patterns asking questions such as: Can people with longer legs run faster? Can people with bigger hands catch a ball better?	Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine.	

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			• Compare, contrast and classify skeletons of different animals.		
4	Pupils should be taught to: • 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.	Food enters the body through the mouth. Digestion starts when the teeth start to break the food down. Saliva is added and the tongue rolls the food into a ball. The food is swallowed and passes down the oesophagus to the stomach. Here the food is broken down further by being churned around and other chemicals are added. The food passes into the small intestine. Here nutrients are removed from the food and leave the digestive system to be used elsewhere in the body. The rest of the food then passes into the large intestine. Here the water is removed for use elsewhere in the body. What is left is then stored in the rectum until it leaves the body through the anus when you go to the toilet. Humans have four types of teeth: incisors for cutting; canines for tearing; and molars and premolars for grinding (chewing).	• Research the function of the parts of the digestive system. • Create a model of the digestive system using household objects. • Explore eating different types of food to identify which teeth are being used for cutting, tearing and grinding (chewing). • Classify animals as herbivores, carnivores or omnivores according to the type of teeth they have in their skulls. • Use food chains to identify producers, predators and prey within a habitat. • Use secondary sources to identify animals in a habitat and find out what they eat.	Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain	
5	Pupils should be taught to: • Describe the changes as humans develop to old age.	When babies are young, they grow rapidly. They are very dependent on their parents. As they develop, they learn many skills. At puberty, a child's body changes and develops primary and secondary sexual characteristics. This enables the adult to reproduce. This needs to be taught alongside PSHE. The new statutory requirements for relationships and health education can be found below: • statutory guidance on Physical health and mental wellbeing (primary and secondary). Other useful guidance includes: • Joint briefing on teaching about puberty in KS2 from PHSE Association and Association for Science Education • Briefing on humans' development and	This unit is likely to be taught through direct instruction due to its sensitive nature, although children can carry out a research enquiry by asking an expert e.g. school nurse to provide answers to questions that have been filtered by the teacher	Puberty – the vocabulary to describe sexual characteristics	

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		reproduction in the Primary Curriculum from PHSE Association and Association for Science Education.			
6	Pupils should be taught to: • 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 body's function. • Describe the ways in which nutrients and water are transported within animals, including humans.	The heart pumps blood in the blood vessels around to the lungs. Oxygen goes into the blood and carbon dioxide is removed. The blood goes back to the heart and is then pumped around the body. Nutrients, water and oxygen are transported in the blood to the muscles and other parts of the body where they are needed. As they are used, they produce carbon dioxide and other waste products. Carbon dioxide is carried by the blood back to the heart and then the cycle starts again as it is transported back to the lungs to be removed from the body. This is the human circulatory system. Diet, exercise, drugs and lifestyle have an impact on the way our body's function. They can affect how well out heart and lungs work, how likely we are to suffer from conditions such as diabetes, how clearly we think, and generally how fit and well we feel. Some conditions are caused by deficiencies in our diet e.g., lack of vitamins. This content is also included in PSHE. The new statutory requirements for relationships and health education can be found below: • statutory guidance on Physical health and mental wellbeing (primary and secondary).	• Create a role play model for the circulatory system. • Carry out a range of pulse rate investigations: ▪ fair test – effect of different activities on my pulse rate ▪ pattern seeking – exploring which groups of people may have higher or lower resting pulse rates ▪ observation over time - how long does it take my pulse rate to return to my resting pulse rate (recovery rate) ▪ pattern seeking – exploring recovery rate for different groups of people. • Research the negative effects of drugs (e.g., tobacco) and the benefits of a healthy diet and regular exercise by asking an expert or using carefully selected secondary sources.	Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle	

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LIVING THINGS AND THEIR HABITATS					
Year	**NC: Statutory Requirements**	**Key Learning**	**Possible Activities**	**Key Vocabulary**	**Scientist**
EYFS	• Understand some important process and changes in the natural world around them, including the seasons and changing states of matter. • Begin to understand the need to respect and care for the natural environment and all living things. • Explore the natural world around them making observations and drawing pictures of animals. • Recognise some environments that are different to the one in which we live.	To explore the natural world around them. To make comparisons between hot and cold habitats (including oceans)	Welly walks to identify different environments and the living things that are there. Beach/woodland/local environment. Visit to local beach/rockpools Compared and contrast environment/habitats where different animals live using activity sheets Continuous provision rock pools/ woodlands/ artic theme with fake snow and arctic animals. Undersea/ Woodland role play area.	Micro-habitat, Habitats, Wildlife, Tree, Flower, Change Hot/Cold	
1					
2	Pupils should be taught to: • 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.	All objects are either living, dead or have never been alive. Living things are plants (including seeds) and animals. Dead things include dead animals and plants and parts of plants and animals that are no longer attached e.g., leaves and twigs, shells, fur, hair and feathers (This is a simplification, but appropriate for Year 2 children.) An object made of wood is classed as dead. Objects made of rock, metal and plastic have never been alive (again ignoring that plastics are made of fossil fuels). Animals and plants live in a habitat to which they are suited, which means that animals have suitable features that help them move and find food and plants have suitable features that help them to grow well. The habitat provides the basic needs of the animals and plants – shelter, food and water. Within a habitat there are	• Explore the outside environment regularly to find objects that are living, dead and have never lived. • Classify objects found in the local environment. • Observe animals and plants carefully, drawing and labelling diagrams. • Create simple food chains for a familiar local habitat from first-hand observation and research. • Create simple food chains from information given e.g. in picture books (Gruffalo etc.).	living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, water, air, survive, survival, names of local habitats (e.g. pond, woodland etc.), names of micro-habitats (e.g. under logs, in bushes etc.), conditions, light, dark, shady, sunny, wet, damp, dry, hot, cold, names of living things in the habitats and micro-habitats studied.	

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		different micro-habitats e.g., in a woodland – in the leaf litter, on the bark of trees, on the leaves. These micro-habitats have different conditions e.g., light or dark, damp or dry. These conditions affect which plants and animals live there. The plants and animals in a habitat depend on each other for food and shelter etc. The way that animals obtain their food from plants and other animals can be shown in a food chain.			
3					
4	Pupils should be taught that: • 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.	Living things can be grouped (classified) in different ways according to their features. Classification keys can be used to identify and name living things. Living things live in a habitat which provides an environment to which they are suited (Year 2 learning). These environments may change naturally e.g. through flooding, fire, earthquakes etc. Humans also cause the environment to change. This can be in a good way (i.e. positive human impact, such as setting up nature reserves) or in a bad way (i.e. negative human impact, such as littering). These environments also change with the seasons; different living things can be found in a habitat at different times of the year.	• Observe plants and animals in different habitats throughout the year. • Compare and contrast the living things observed. • Use classification keys to name unknown living things. • Classify living things found in different habitats based on their features. • Create a simple identification key based on observable features. • Use fieldwork to explore human impact on the local environment e.g., litter, tree planting. • Use secondary sources to find out about how environments may naturally change. • Use secondary sources to find out about human impact, both positive and negative, on environments.	Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate.	Sir David Attenborough – Australia
5	**Pupils should be taught that:** • 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.	As part of their life cycle, plants and animals reproduce. Most animals reproduce sexually. This involves two parents where the sperm from the male fertilises the female egg. Animals, including humans, have offspring which grow into adults. In humans and some animals, these offspring will be born live, such as babies or kittens, and then grow into	• Use secondary sources and, where possible, first-hand observations to find out about the life cycle of a range of animals. • Compare the gestation times for mammals and look for patterns e.g., in relation to size of animal or length of dependency after birth.	life cycle, reproduce, sexual, fertilises, asexual, plantlets, runners, tubers, bulbs, cuttings	

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		adults. In other animals, such as chickens or snakes, there may be eggs laid that hatch to young which then grow to adults. Some young undergo a further change before becoming adults e.g. caterpillars to butterflies. This is called a metamorphosis. Plants reproduce both sexually and asexually. Bulbs, tubers, runners and plantlets are examples of asexual plant reproduction which involves only one parent. Gardeners may force plants to reproduce asexually by taking cuttings. Sexual reproduction occurs through pollination, usually involving wind or insects.	• Look for patterns between the size of an animal and its expected life span. • Grow and observe plants that reproduce asexually e.g., strawberries, spider plants, potatoes. • Take cuttings from a range of plants e.g., African violet, mint. • Plant bulbs and then harvest to see how they multiply. • Use secondary sources to find out about pollination.		
6	**Pupils should be taught to:** • 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.	Living things can be formally grouped according to characteristics. Plants and animals are two main groups but there are other livings things that do not fit into these groups e.g. micro-organisms such as bacteria and yeast, and toadstools and mushrooms. Plants can make their own food whereas animals cannot. Animals can be divided into two main groups: those that have backbones (vertebrates); and those that do not (invertebrates). Vertebrates can be divided into five small groups: fish; amphibians; reptiles; birds; and mammals. Each group has common characteristics. Invertebrates can be divided into a number of groups, including insects, spiders, snails and worms. Plants can be divided broadly into two main groups: flowering plants; and non-flowering plants.	• Use secondary sources to learn about the formal classification system devised by Carl Linnaeus and why it is important. • Use first-hand observation to identify characteristics shared by the animals in a group. • Use secondary sources to research the characteristics of animals that belong to a group. • Use information about the characteristics of an unknown animal or plant to assign it to a group. • Classify plants and animals, presenting this in a range of ways e.g., Venn diagrams, Carroll diagrams and keys. • Create an imaginary animal which has features from one or more groups.	vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, warm-blooded, cold-blooded, insects, spiders, snails, worms, flowering, non-flowering, mosses, ferns, conifers	Carl Linnaeus – Biomes of the World

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MATERIALS					
Year	**NC: Statutory Requirements**	**Key Learning**	**Possible Activities**	**Key Vocabulary**	**Scientist**
EYFS	Make comparisons between objects relating to size, length weight and capacity. Explore collections of materials with similar and/or different properties. Talk about the differences between materials and changes they notice. Explore different materials freely to develop their ideas about how to use them and what to make. Develop their own ideas deciding which materials to use to express them. Join different materials and explore different textures. Understand some important process and changing states of matter.	The chdn will investigate and explore materials and their properties, what they look like and how they feel.	Continuous Provision – sorting materials by touch and observation. Recycling station – properties. Choosing various materials to create models/pictures. Explore materials that are waterproof to create their own boats. Frozen toys in an ice block – observation over time to see changes of state. Expose chdn to variety of textures through continuous provision (ice, playdough, paint, kinetic sand, rice) Den building outside – choosing the right materials to stay safe and dry.	Sort, Material, Smooth, Rough, Heavy, Light, Glass, metal, wood, plastic, Soft, Strong, Stretch, Waterproof, Long/short, Solid, Melting, Liquid, Sticky	
I	Pupils should be taught to: • 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.	All objects are made of one or more materials. Some objects can be made from different materials e.g., plastic, metal or wooden spoons. Materials can be described by their properties e.g., shiny, stretchy, rough etc. Some materials e.g., plastic can be in different forms with very different properties.	• Classify objects made of one material in different ways e.g., a group of objects made of metal. • Classify in different ways one type of object made from a range of materials e.g., a collection of spoons made of different materials. • Classify materials based on their properties. • Test the properties of objects e.g., absorbency of cloths, strength of party hats made of different papers, stiffness of paper plates, waterproofness of shelters.	Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through	

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2	Pupils should be taught to: • 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.	All objects are made of one or more materials that are chosen specifically because they have suitable properties for the task. For example, a water bottle is made of plastic because it is transparent allowing you to see the drink inside and waterproof so that it holds the water. When choosing what to make an object from, the properties needed are compared with the properties of the possible materials, identified through simple tests and classifying activities. A material can be suitable for different purposes and an object can be made of different materials. Objects made of some materials can be changed in shape by bending, stretching, squashing and twisting. For example, clay can be shaped by squashing, stretching, rolling, pressing etc. This can be a property of the material or depend on how the material has been processed e.g. thickness.	• Classify materials. • Make suggestions about alternative materials for a purpose that are both suitable and unsuitable • Test the properties of materials for particular uses e.g., compare the stretchiness of fabrics to select the most appropriate for Elastigirl's costume, test materials for waterproofness to select the most appropriate for a rain hat.	Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard Properties of materials – as for Year 1 plus opaque, transparent and translucent, reflective, nonreflective, flexible, rigid Shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching	Isambard Kingdom Brunel – British Bridges Steve Irwin – Commotion in the Ocean.
3					
4					
5	**Pupils should be taught to:** • 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.	Materials have different uses depending on their properties and state (liquid, solid, gas). Properties include hardness, transparency, electrical and thermal conductivity and attraction to magnets. Some materials will dissolve in a liquid and form a solution while others are insoluble and form sediment. Mixtures can be separated by filtering, sieving and evaporation. Some changes to materials such as dissolving, mixing and changes of state are reversible, but some changes such as burning wood, rusting and mixing vinegar with	• Investigate the properties of different materials in order to recommend materials for particular functions depending on these properties e.g. test waterproofness and thermal insulation to identify a suitable fabric for a coat. • Explore adding a range of solids to water and other liquids e.g. cooking oil, as appropriate. • Investigate rates of dissolving by carrying out comparative and fair test. • Separate mixtures by sieving, filtering and evaporation, choosing	Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material	Spencer Silver – Our changing world.

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	• 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.	bicarbonate of soda result in the formation of new materials and these are not reversible.	the most suitable method and equipment for each mixture. • Explore a range of non-reversible changes e.g. rusting, adding fizzy tablets to water, burning. • Carry out comparative and fair tests involving non-reversible changes e.g. What affects the rate of rusting? What affects the amount of gas produced? • Research new materials produced by chemists e.g., Spencer Silver (glue of sticky notes) and Ruth Benerito (wrinkle free cotton).		
6					

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SEASONAL CHANGES					
Year	**NC: Statutory Requirements**	**Key Learning**	**Possible Activities**	**Key Vocabulary**	**Scientist**
EYFS	• Pupils the natural world around them, making observations and drawing pictures of animals and Plants. • Understand some important process and changes in the natural world around them, including the seasons. • Talk about what they can see using a wide range of vocabulary. • Explore the natural world around them – Describing what they hear, see and feel while outside. • Understanding the effects of changing seasons on the natural world around them. • Explore the natural world around them making observations and drawing pictures.	Chdn can identify and talk about the 4 seasons and the changes they might see in the natural world around them. Chdn can identify warm and cold seasons. Similarities and differences in the seasons.	• Welly walks – looking for signs of the season – building a vocabulary bank. • Go on a senses walk – drawing what they hear, see feel on a senses map. • Take a picture of the same tree through the seasons to compare and contrast. • Seasons Wheel – to understand the order of the seasons/birthdays. • Dressing dolls/teddy for the season. • Tuff trays – seasonal explorers (e.g., Autumn leaves/animals)	Seasons, Autumn, Spring, Winter, Summer, Leaves, Colour, Changes, Hot, Cold, Frosty, Sun, Snow, Cloud, Rain, Windy	
1	Pupils should be taught to: • Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies.	In the UK, the day length is longest at mid-summer (about 16 hours) and gets shorter each day until mid-winter (about 8 hours) before getting longer again. The weather also changes with the seasons. In the UK, it is usually colder and rainier in winter, and hotter and dryer in the summer. The change in weather causes many other changes. Some examples are: numbers of minibeasts found outside; seed and plant growth; leaves on trees; and type of clothes worn by people.	• Collect information about the weather regularly throughout the year. • Present this information in tables and charts to compare the weather across the seasons. • Collect information, regularly throughout the year, of features that change with the seasons e.g. plants, animals, humans. • Present this information in different ways to compare the seasons. • Gather data about day length regularly throughout the year and present this to compare the seasons.	weather, sunny, rainy, raining, shower, windy, snowy, cloudy, hot, warm, cold, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, rainbow, seasons, winter, summer, spring, autumn, Sun, sunrise, sunset, day length	Holly Green
2					
3					
4					
5					
6					

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ROCKS					
Year	**NC: Statutory Requirements**	**Key Learning**	**Possible Activities**	**Key Vocabulary**	**Scientist**
EYFS	**Links to material**				
1					
2					
3	Pupils should be taught to: • 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	Rock is a naturally occurring material. There are different types of rock e.g. sandstone, limestone, slate etc. which have different properties. Rocks can be hard or soft. They have different sizes of grain or crystal. They may absorb water. Rocks can be different shapes and sizes (stones, pebbles, boulders). Soils are made up of pieces of ground down rock which may be mixed with plant and animal material (organic matter). The type of rock, size of rock pieces and the amount of organic matter affect the property of the soil. Some rocks contain fossils. Fossils were formed millions of years ago. When plants and animals died, they fell to the seabed. They became covered and squashed by other material. Over time the dissolving animal and plant matter is replaced by minerals from the water.	• Observe rocks closely. • Classify rocks in a range of ways, based on their appearance. • Devise a test to investigate the hardness of a range of rocks. • Devise a test to investigate how much water different rocks absorb. • Observe how rocks change over time e.g., gravestones or old building. • Research using secondary sources how fossils are formed. • Observe soils closely. • Classify soils in a range of ways based on their appearance. • Devise a test to investigate the water retention of soils. • Observe how soil can be separated through sedimentation. • Research the work of Mary Anning.	rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, fossil, bone, flesh, minerals, marble, chalk, granite, sandstone, slate, soil, types of soil (e.g. peaty, sandy, chalk, clay)	
4					
5					
6					

Science – Curriculum Progression Map

LIGHT					
Year	**NC: Statutory Requirements**	**Key Learning**	**Possible Activities**	**Key Vocabulary**	**Scientist**
EYFS	Explore the natural world around them, making observations. Understand some important processes and changes in the natural world.	To understand the similarities and differences between day/night, Light/dark.	• Dark Den/ play with torches. • Shadow shapes (with their hands) • Nocturnal Animals • Maths link – Comparing night and day. • Role play with dolls house creating half the house in day/ half at night to explore differences.	Light, Dark, Nocturnal, Day, Night, Sun, Moon, Stars	
1					
2					
3	Pupils should be taught to: • 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.	We see objects because our eyes can sense light. Dark is the absence of light. We cannot see anything in complete darkness. Some objects, for example, the sun, light bulbs and candles are sources of light. Objects are easier to see if there is more light. Some surfaces reflect light. Objects are easier to see when there is less light if they are reflective. The light from the sun can damage our eyes and therefore we should not look directly at the sun and can protect our eyes by wearing sunglasses or sunhats in bright light. Shadows are formed on a surface when an opaque or translucent object is between a light source and the surface and blocks some of the light. The size of the shadow depends on the position of the source, object and surface.	• Explore how different objects are more or less visible in different levels of lighting. • Explore how objects with different surfaces, e.g. shiny vs matt, are more or less visible. • Explore how shadows vary as the distance between a light source and an object or surface is changed. • Explore shadows which are connected to and disconnected from the object e.g., shadows of clouds and children in the playground. Choose suitable materials to make shadow puppets. • Create artwork using shadows.	light, light source, Sun, sunlight, dangerous.	
4					
5					
6	**Pupils should be taught to:** • 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.	Light appears to travel in straight lines, and we see objects when light from them goes into our eyes. The light may come directly from light sources, but for other objects some light must be reflected from the object into our eyes for the object to be seen. Objects that block light (are not fully transparent) will cause shadows. Because light travels in straight lines the shape of the shadow	• Explore different ways to demonstrate that light travels in straight lines e.g., shining a torch down a bent and straight hose pipe, shining a torch through different shaped holes in card. • Explore the uses of the behaviour of light, reflection and shadows, such as in periscope design, rear view mirrors and shadow puppets.	As for Year 3 - Light, plus straight lines, light rays	

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		will be the same as the outline shape of the object.			

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FORCES					
Year	**NC: Statutory Requirements**	**Key Learning**	**Possible Activities**	**Key Vocabulary**	**Scientist**
EYFS	Explore collections of materials with similar and/or different properties (Magnetic/non-magnetic) Explore and talk about different forces they can feel.	Chdn can talk about differences and similarities of forces such as push and pull.	Material sort (magnetic/non-magnetic) Fishing games using magnets. Magnetic letters/numbers. Made boats and cars and looked at motion (push – pull) Measure the distance the toy vehicles travelled using cubes and string. Autumn welly walk – wind, rain. Marble runs. Water wheels in the tuff trays. Explore ways of travelling/bike ability using push/pull.	Push, Pull, Magnetic, Non-magnetic, Heavy, Light, Move	
1					
2					
3	• Compare how things move on different surfaces. • Notice that some forces need contact between two objects, but magnetic forces can act at a distance. • Observe how magnets attract or repel each other and attract some materials and not others. • Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. • Describe magnets as having two poles. • Predict whether two magnets will attract or repel each other, depending on which poles are facing.	A force is a push or a pull. When an object moves on a surface, the texture of the surface and the object affect how it moves. It may help the object to move better or it may hinder its movement e.g. ice skater compared to walking on ice in normal shoes. A magnet attracts magnetic material. Iron and nickel and other materials containing these, e.g. stainless steel, are magnetic. The strongest parts of a magnet are the poles. Magnets have two poles – a north pole and a south pole. If two like poles, e.g. two north poles, are brought together they will push away from each other – repel. If two unlike poles, e.g. a north and south, are	• Carry out investigations to explore how objects move on different surfaces e.g. spinning tops/coins, rolling balls/cars, clockwork toys, soles of shoes etc. • Explore what materials are attracted to a magnet. • Classify materials according to whether they are magnetic. • Explore the way that magnets behave in relation to each other. • Use a marked magnet to find the unmarked poles on other types of magnets. • Explore how magnets work at a distance e.g. through the table, in water, jumping paper clips up off the table.	Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole	

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		brought together they will pull together – attract.	• Devise an investigation to test the strength of magnets.		
4					
5	Pupils should be taught to: • 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.	A force causes an object to start moving, stop moving, speed up, slow down or change direction. Gravity is a force that acts at a distance. Everything is pulled to the Earth by gravity. This causes unsupported objects to fall. Air resistance, water resistance and friction are contact forces that act between moving surfaces. The object may be moving through the air or water, or the air and water may be moving over a stationary object. A mechanism is a device that allows a small force to be increased to a larger force. The pay back is that it requires a greater movement. The small force moves a long distance and the resulting large force moves a small distance, e.g. a crowbar or bottle top remover. Pulleys, levers and gears are all mechanisms, also known as simple machines.	• Investigate the effect of friction in a range of contexts e.g. trainers, bathmats, mats for a helter-skelter. • Investigate the effects of water resistance in a range of contexts e.g. dropping shapes through water and pulling shapes, such as boats, along the surface of water. • Investigate the effects of air resistance in a range of contexts e.g. parachutes, spinners, sails on boats. • Explore how levers, pulleys and gears work. • Make a product that involves a lever, pulley or gear. • Create a timer that uses gravity to move a ball. • Research how the work of scientists such as Galileo Galilei and Isaac Newton helped to develop the theory of gravitation.	Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears	
6					

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STATES OF MATTER					
Year	**NC: Statutory Requirements**	**Key Learning**	**Possible Activities**	**Key Vocabulary**	**Scientist**
EYFS					
1					
2					
3					
4	Pupils should be taught to: • 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.	A solid keeps its shape and has a fixed volume. A liquid has a fixed volume but changes in shape to fit the container. A liquid can be poured and keeps a level, horizontal surface. A gas fills all available space; it has no fixed shape or volume. Granular and powdery solids like sand can be confused with liquids because they can be poured, but when poured they form a heap and they do not keep a level surface when tipped. Each individual grain demonstrates the properties of a solid. Melting is a state change from solid to liquid. Freezing is a state change from liquid to solid. The freezing point of water is 0oC. Boiling is a change of state from liquid to gas that happens when a liquid is heated to a specific temperature and bubbles of the gas can be seen in the liquid. Water boils when it is heated to 100oC. Evaporation is the same state change as boiling (liquid to gas), but it happens slowly at lower temperatures and only at the surface of the liquid. Evaporation happens	• Observe closely and classify a range of solids. Observe closely and classify a range of liquids. • Explore making gases visible e.g. squeezing sponges under water to see bubbles, and showing their effect e.g. using straws to blow objects, trees moving in the wind. • Classify materials according to whether they are solids, liquids and gases. • Observe a range of materials melting e.g. ice, chocolate, butter. • Investigate how to melt ice more quickly. • Observe the changes when making rocky road cakes or ice-cream. • Investigate the melting point of different materials e.g. ice, margarine, butter and chocolate. • Explore freezing different liquids e.g. tomato ketchup, oil, shampoo. • Use a thermometer to measure temperatures e.g. icy water (melting), tap water, hot water, boiling water (demonstration).	solid, liquid, gas, heating, cooling, state change, melting, freezing, melting point, boiling, boiling point, evaporation, condensation, temperature, water cycle	

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		more quickly if the temperature is higher, the liquid is spread out or it is windy. Condensation is the change back from a gas to a liquid caused by cooling. Water at the surface of seas, rivers etc. evaporates into water vapour (a gas). This rises, cools and condenses back into a liquid forming clouds. When too much water has condensed, the water droplets in the cloud get too heavy and fall back down as rain, snow, sleet etc. and drain back into rivers etc. This is known as precipitation. This is the water cycle.	• Observe water evaporating and condensing e.g. on cups of icy water and hot water. • Set up investigations to explore changing the rate of evaporation e.g. washing, puddles, handprints on paper towels, liquids in containers. • Use secondary sources to find out about the water cycle.		
5					
6					

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SOUND					
Year	**NC: Statutory Requirements**	**Key Learning**	**Possible Activities**	**Key Vocabulary**	**Scientist**
EYFS					
1					
2					
3					
4	Pupils should be taught to: • 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.	A sound produces vibrations which travel through a medium from the source to our ears. Different mediums such as solids, liquids and gases can carry sound, but sound cannot travel through a vacuum (an area empty of matter). The vibrations cause parts of our body inside our ears to vibrate, allowing us to hear (sense) the sound. The loudness (volume) of the sound depends on the strength (size) of vibrations which decreases as they travel through the medium. Therefore, sounds decrease in volume as you move away from the source. A sound insulator is a material which blocks sound effectively. Pitch is the highness or lowness of a sound and is affected by features of objects producing the sounds. For example, smaller objects usually produce higher pitched sounds.	• Classify sound sources. • Explore making sounds with a range of objects, such as musical instruments and other household objects. • Explore how string telephones or ear gongs work. • Explore altering the pitch or volume of objects, such as the length of a guitar string, amount of water in bottles, size of tuning forks. • Measure sounds over different distances. • Measure sounds through different insulation materials.	Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation	
5					
6					

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EARTH AND SPACE					
Year	**NC: Statutory Requirements**	**Key Learning**	**Possible Activities**	**Key Vocabulary**	**Scientist**
EYFS	Know some similarities and differences between the natural world around the m and contrasting environments. Talk about the lives of the people around them and their roles in society.	To name the some of the things in space. To Learned what it was like to be an astronaut.	• Tasting astronaut food. • Dressed as astronauts and aliens. • Made rockets to fly to the moon. • Ordered the planets from the sun. • Watched a rocket launch. • Listened to 'story time from space' (from astronaut's) • Tuff trays – Space themed (moon surface with rockets, moon buggy's and astronauts). • Foil tuff tray with space words to copy with mirrors.	Planet, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune	
1					
2					
3					
4					
5	Pupils should be taught to: • 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.	The Sun is a star. It is at the centre of our solar system. There are 8 planets (can choose to name them, but not essential). These travel around the Sun in fixed orbits. Earth takes 365¼ days to complete its orbit around the Sun. The Earth rotates (spins) on its axis every 24 hours. As Earth rotates half faces the Sun (day) and half is facing away from the Sun (night). As the Earth rotates, the Sun appears to move across the sky. The Moon orbits the Earth. It takes about 28 days to complete its orbit. The Sun, Earth and Moon are approximately spherical.	• Use secondary sources to help create a model e.g. role play or using balls to show the movement of the Earth around the Sun and the Moon around the Earth. • Use secondary sources to help make a model to show why day and night occur. • Make first-hand observations of how shadows caused by the Sun change through the day. • Make a sundial. • Research time zones. • Consider the views of scientists in the past and evidence used to deduce shapes and movements of the Earth, Moon and planets before space travel.	Sun, Moon, Earth, planets (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, Solar System, rotate, star, orbit	
6					

Science – Curriculum Progression Map

EVOLUTION AND INHERITANCE					
Year	**NC: Statutory Requirements**	**Key Learning**	**Possible Activities**	**Key Vocabulary**	**Scientist**
EYFS					
1					
2					
3					
4					
5					
	Pupils should be taught to: • 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.	All living things have offspring of the same kind, as features in the offspring are inherited from the parents. Due to sexual reproduction, the offspring are not identical to their parents and vary from each other. Plants and animals have characteristics that make them suited (adapted) to their environment. If the environment changes rapidly, some variations of a species may not suit the new environment and will die. If the environment changes slowly, animals and plants with variations that are best suited survive in greater numbers to reproduce and pass their characteristics on to their young. Over time, these inherited characteristics become more dominant within the population. Over a very long period of time, these characteristics may be so different to how they were originally that a new species is created. This is evolution. Fossils give us evidence of what lived on the Earth millions of year ago and provide evidence to support the theory of evolution. More recently, scientists such as Darwin and Wallace observed how living things adapt to different environments to become distinct varieties with their own characteristics.	• Design a new plant or animal to live in a particular habitat. • Use models to demonstrate evolution e.g. 'Darwin's finches' bird beak activity. • Use secondary sources to find out about how the population of peppered moths changed during the industrial revolution. • Make observations of fossils to identify living things that lived on Earth millions of years ago. • Identify features in animals and plants that are passed on to offspring and explore this process by considering the artificial breeding of animals or plants e.g. dogs. • Compare the ideas of Charles Darwin and Alfred Wallace on evolution. • Research the work of Mary Anning and how this provided evidence of evolution.	offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils, evolve, evolution	

Science – Curriculum Progression Map

Electricity					
Year	**NC: Statutory Requirements**	**Key Learning**	**Possible Activities**	**Key Vocabulary**	**Scientist**
EYFS					
1					
2					
3					
4	Pupils should be taught to: • 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.	Many household devices and appliances run on electricity. Some plug in to the mains and others run on batteries. An electrical circuit consists of a cell or battery connected to a component using wires. If there is a break in the circuit, a loose connection or a short circuit, the component will not work. A switch can be added to the circuit to turn the component on and off. Metals are good conductors so they can be used as wires in a circuit. Non-metallic solids are insulators except for graphite (pencil lead). Water, if not completely pure, also conducts electricity. Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol. N.B. Children in Year 4 do not need to use standard symbols for electrical components, as this is taught in Year 6.	• Construct a range of circuits. • Explore which materials can be used instead of wires to make a circuit. • Classify the materials that were suitable/not suitable for wires. • Explore how to connect a range of different switches and investigate how they function in different ways. • Choose switches to add to circuits to solve particular problems, such as a pressure switch for a burglar alarm. • Apply their knowledge of conductors and insulators to design and make different types of switches. • Make circuits that can be controlled as part of a DT project. N.B. Children should be given one component at a time to add to circuits	Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol	

Science – Curriculum Progression Map

5					
6	Pupils should be taught to: • 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.	Adding more cells to a complete circuit will make a bulb brighter, a motor spin faster or a buzzer make a louder sound. If you use a battery with a higher voltage, the same thing happens. Adding more bulbs to a circuit will make each bulb less bright. Using more motors or buzzers, each motor will spin more slowly and each buzzer will be quieter. Turning a switch off (open) breaks a circuit so the circuit is not complete and electricity cannot flow. Any bulbs, motors or buzzers will then turn off as well. You can use recognised circuit symbols to draw simple circuit diagrams.	• Explain how a circuit operates to achieve particular operations, such as to control the light from a torch with different brightnesses or make a motor go faster or slower. • Make circuits to solve particular problems, such as a quiet and a loud burglar alarm. • Carry out fair tests exploring changes in circuits. • Make circuits that can be controlled as part of a DT project.	Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage	

Science – Curriculum Progression Map

Progression in working scientifically skills							
	Asking questions and recognising that they can be answered in different ways	**Observing closely, using simple equipment**	**Engaging in practical enquiry to answer questions**	**Recording and presenting evidence**	**Answering questions and concluding**	**Evaluating and raising further questions and predictions**	**Communicating their findings**
EYFS	Show curiosity and ask questions.	Make observations using their senses and simple equipment. Use equipment to measure		Record their observations by drawing, taking photographs, using sorting rings or boxes and, in Reception, on simple tick sheets	Talk about what they are doing and have found out.		
I	• While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions. • The children answer questions developed with the teacher often through a scenario. • The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to recognise that there are different ways in which questions can be answered.	• Children explore the world around them. They make careful observations to support identification, comparison and noticing change. They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations. • They begin to take measurements, initially by comparisons, then using non-standard units.	Performing simple tests • The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time. Identifying and classifying • Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting. • They use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing.	Gathering and recording data to help in answering questions. • The children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing. • They record their measurements e.g. using prepared tables, pictograms, tally charts and block graphs. • They classify using simple prepared tables and sorting rings.	Using their observations and ideas to suggest answers to questions. • Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources. Using their observations and ideas to suggest answers to questions. • The children recognise 'biggest and smallest', 'best and worst' etc. from their data.		

Science – Curriculum Progression Map

2	• While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions. • The children answer questions developed with the teacher often through a scenario. • The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to recognise that there are different ways in which questions can be answered	• Children explore the world around them. They make careful observations to support identification, comparison and noticing change. They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations. • They begin to take measurements, initially by comparisons, then using non-standard units.	Performing simple tests • The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time. Identifying and classifying • Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting. • They use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing.	Gathering and recording data to help in answering questions. • The children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing. • They record their measurements e.g. using prepared tables, pictograms, tally charts and block graphs. • They classify using simple prepared tables and sorting rings.	Using their observations and ideas to suggest answers to questions. • Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources. Using their observations and ideas to suggest answers to questions. • The children recognise 'biggest and smallest', 'best and worst' etc. from their data.		
3	The children consider their prior knowledge when asking questions. They independently use a range of question stems. Where appropriate, they answer these questions. • The children answer questions posed by the teacher. • Given a range of resources, the children decide for themselves how to gather evidence to answer the question. They recognise when secondary sources can be used to answer questions	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • The children make systematic and careful observations. • They use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements.	Setting up simple practical enquiries, comparative and fair tests. • The children select from a range of practical resources to gather evidence to answer questions generated by themselves or the teacher. • They follow their plan to carry out: observations and tests to classify; comparative and simple fair tests;	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. • The children sometimes decide how to record and present evidence. They record their observation e.g. using photographs, videos, pictures, labelled diagrams or writing. They	Using straightforward scientific evidence to answer questions or to support their findings. • Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. The answers are consistent with the evidence.	Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • They identify ways in which they adapted their method as they progressed or how they would do it differently if they repeated the enquiry. Using results to draw simple conclusions, make predictions for new	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • They communicate their findings to an audience both orally and in writing, using appropriate scientific vocabulary.

Science – Curriculum Progression Map

	that cannot be answered through practical work. They identify the type of enquiry that they have chosen to answer their question.		observations over time; and pattern seeking. Explanatory note A comparative test is performed by changing a variable that is qualitative e.g. the type of material, shape of the parachute. This leads to a ranked outcome. A fair test is performed by changing a variable that is quantitative e.g. the thickness of the material or the area of the canopy. This leads to establishing a causative relationship.	record their measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings). They record classifications e.g. using tables, Venn diagrams, Carroll diagrams. • Children are supported to present the same data in different ways in order to help with answering the question.	Identifying differences, similarities or changes related to simple scientific ideas and processes. • Children interpret their data to generate simple comparative statements based on their evidence. They begin to identify naturally occurring patterns and causal relationships. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • They draw conclusions based on their evidence and current subject knowledge.	values, suggest improvements and raise further questions. • Children use their evidence to suggest values for different items tested using the same method e.g. the distance travelled by a car on an additional surface. • Following a scientific experience, the children ask further questions which can be answered by extending the same enquiry.	
4	The children consider their prior knowledge when asking questions. They independently use a range of question stems. Where appropriate, they answer these questions. • The children answer questions posed by the teacher. • Given a range of resources, the children decide for themselves how to gather evidence to answer the question. They recognise when secondary sources can be used to answer questions that cannot be answered through practical work. They identify the type of enquiry that they have chosen to answer their question.	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • The children make systematic and careful observations. • They use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements.	Setting up simple practical enquiries, comparative and fair tests. • The children select from a range of practical resources to gather evidence to answer questions generated by themselves or the teacher. • They follow their plan to carry out: observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking. Explanatory note: A comparative test is performed by changing a variable that is qualitative	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. • The children sometimes decide how to record and present evidence. They record their observation e.g. using photographs, videos, pictures, labelled diagrams or writing. They record their measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add	Using straightforward scientific evidence to answer questions or to support their findings. • Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. The answers are consistent with the evidence. Identifying differences, similarities or changes related to simple scientific ideas and processes. • Children interpret their data to generate	Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • They identify ways in which they adapted their method as they progressed or how they would do it differently if they repeated the enquiry. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • Children use their evidence to suggest values for different items	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • They communicate their findings to an audience both orally and in writing, using appropriate scientific vocabulary.

Science – Curriculum Progression Map

			e.g. the type of material, shape of the parachute. This leads to a ranked outcome. A fair test is performed by changing a variable that is quantitative e.g. the thickness of the material or the area of the canopy. This leads to establishing a causative relationship.	headings). They record classifications e.g. using tables, Venn diagrams, Carroll diagrams. • Children are supported to present the same data in different ways in order to help with answering the question.	simple comparative statements based on their evidence. They begin to identify naturally occurring patterns and causal relationships. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.	tested using the same method e.g. the distance travelled by a car on an additional surface. • Following a scientific experience, the children ask further questions which can be answered by extending the same enquiry.	
5	Children independently ask scientific questions. This may be stimulated by a scientific experience or involve asking further questions based on their developed understanding following an enquiry. • Given a wide range of resources the children decide for themselves how to gather evidence to answer a scientific question. They choose a type of enquiry to carry out and justify their choice. They recognise how secondary sources can be used to answer questions that cannot be answered through practical work.	Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • The children select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale. • During an enquiry, they make decisions e.g. whether they need to: take repeat readings (fair testing); increase the sample size (pattern seeking); adjust the observation period and frequency (observing over time); or check further secondary sources (researching); in order to get accurate data (closer to the true value).	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. • The children select from a range of practical resources to gather evidence to answer their questions. They carry out fair tests, recognising and controlling variables. They decide what observations or measurements to make over time and for how long. They look for patterns and relationships using a suitable sample.	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • The children decide how to record and present evidence. They record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing. They record measurements e.g. using tables, tally charts, bar charts, line graphs and scatter graphs. They record classifications e.g. using tables, Venn diagrams, Carroll diagrams and classification keys. • Children present the same data in different ways in order to help with answering the question.	Identifying scientific evidence that has been used to support or refute ideas or arguments. • Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. When doing this, they discuss whether other evidence e.g. from other groups, secondary sources and their scientific understanding, supports or refutes their answer. • They talk about how their scientific ideas change due to new evidence that they have gathered. • They talk about how new discoveries change scientific understanding. Reporting and presenting findings from enquiries, including conclusions, causal	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations • They evaluate, for example, the choice of method used, the control of variables, the precision and accuracy of measurements and the credibility of secondary sources used. • They identify any limitations that reduce the trust they have in their data. Using test results to make predictions to set up further comparative and fair tests. • Children use the scientific knowledge gained from enquiry work to make predictions they can investigate using comparative and fair tests.	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. • They communicate their findings to an audience using relevant scientific language and illustrations.

Science – Curriculum Progression Map

					relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. • In their conclusions, children: identify causal relationships and patterns in the natural world from their evidence; identify results that do not fit the overall pattern; and explain their findings using their subject knowledge.		
6	Children independently ask scientific questions. This may be stimulated by a scientific experience or involve asking further questions based on their developed understanding following an enquiry. • Given a wide range of resources the children decide for themselves how to gather evidence to answer a scientific question. They choose a type of enquiry to carry out and justify their choice. They recognise how secondary sources can be used to answer questions that cannot be answered through practical work.	Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • The children select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale. • During an enquiry, they make decisions e.g. whether they need to: take repeat readings (fair testing); increase the sample size (pattern seeking); adjust the observation period and frequency (observing over time); or check further secondary sources (researching); in order to get accurate data (closer to the true value).	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. • The children select from a range of practical resources to gather evidence to answer their questions. They carry out fair tests, recognising and controlling variables. They decide what observations or measurements to make over time and for how long. They look for patterns and relationships using a suitable sample.	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • The children decide how to record and present evidence. They record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing. They record measurements e.g. using tables, tally charts, bar charts, line graphs and scatter graphs. They record classifications e.g. using tables, Venn diagrams, Carroll diagrams and classification keys. • Children present the same data in different ways in order to help	Identifying scientific evidence that has been used to support or refute ideas or arguments. • Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. When doing this, they discuss whether other evidence e.g. from other groups, secondary sources and their scientific understanding, supports or refutes their answer. • They talk about how their scientific ideas change due to new evidence that they have gathered. • They talk about how new discoveries change scientific understanding.	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. • They evaluate, for example, the choice of method used, the control of variables, the precision and accuracy of measurements and the credibility of secondary sources used. • They identify any limitations that reduce the trust they have in their data. Using test results to make predictions to set up further comparative and fair tests. • Children use the scientific knowledge gained from enquiry work to make	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. • They communicate their findings to an audience using relevant scientific language and illustrations.

Science – Curriculum Progression Map

				with answering the question.	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. • In their conclusions, children: identify causal relationships and patterns in the natural world from their evidence; identify results that do not fit the overall pattern; and explain their findings using their subject knowledge.	predictions they can investigate using comparative and fair tests.	