Science Progression of Knowledge and Vocabulary

Medium term plan showing objectives taught in each key stage

EYFS	Year 1 and 2	Year 3 and 4	Year 5 and 6
Plants – Year A			
• UTW: Explore the natural world around them, making observations and drawing pictures of animals and plants • UTW: Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps • UTW: Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter	• Become familiar with common names of flowers and plant structures including seeds. • Identify and describe the basic structure of a variety of common flowering plants, including trees. • Become familiar with common names of flowers and plant structures. • Identify and name a variety of common wild and garden plants. • Identify and name a variety of deciduous and evergreen trees. • Understand how a plant changes over time. • Observe the growth of planted flowers. • Become familiar with plant structures. • Keep records of how plants change over time.		
Curriculum Links			
• EAD - Learn and sing growing and plants themes songs • Maths - Order plants and flowers by size and measuring plants with non standard units of measure. • Literacy - Link to stories such as Jack and the Beanstalk, The Enormous Turnip, Jasper's Beanstalk and Fran's Flower. • PSED - Explore healthy foods through tasting fruits and vegetables. • PSED - Talk about what makes a plant grow and make links with what humans need to make them grow. • PD - Make seed balls to develop fine motor skills. • Literacy - Labelling the parts of a plant	• English. Diary - Keep a record of the growth of the seed/ bean • Maths - Measure - measure the height of different plants. Record results in a table and make a graph. • Computing - Group and count the different plants around the school ground. Record this information as a tally chart. Create a pictogram. • Art - Learn about and produce artwork in the style of famous artists Georgia O'Keeffe (who loved to paint flowers) or Vincent Van Gough (for his Sunflowers art work) • Geography - Basic geographical vocabulary e.g. Soil. Vegetation, weather		

• EAD - Explore how beans and seeds grow with musical instruments and dance movements.			
Plants – Year B			
• UTW: Explore the natural world around them, making observations and drawing pictures of animals and plants • UTW: Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps • UTW: Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter	• 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. • Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. • Understand the requirements of plants for germination, growth and survival, as well as, the processes of reproduction and growth in plants. • Observe and describe how seeds and bulbs grow into mature plants. • Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	• Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers • Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant • Investigate the way in which water is transported within plants explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	
Curriculum Links			
• EAD - Learn and sing growing and plants themes songs • Maths - Order plants and flowers by size and measuring plants with non standard units of measure. • Literacy - Link to stories such as Jack and the Beanstalk, The Enormous Turnip, Jasper's Beanstalk and Fran's Flower. • PSED - Explore healthy foods through tasting fruits and vegetables. • PSED - Talk about what makes a plant grow and make links with what humans need to make them grow. • PD - Make seed balls to develop fine motor skills. • Literacy - Labelling the parts of a plant	• English - Write a set of instructions of how to plant a bean/ seed • Maths - Measure - measure the height of different plants. Record results in a table and make a graph. • Computing - Group and count the different plants around the school ground. Record this information as a tally chart. Create a pictogram. • Art - Learn about and produce artwork in the style of famous artists Georgia O'Keeffe (who loved to paint flowers) or Vincent Van Gough (for his Sunflowers art work) • PSHE - Caring for plants in our environment • Geography - Basic geographical vocabulary e.g. Soil. Vegetation, weather	• Art – Recreating plants and the key features, either through sketching or modelling • Geography – Physical geography including biomes and vegetation belts, locating plants by their countries or regions • English – Writing an information text about plants and flowers • Art – Recreating plants and the key features, either through sketching or modelling	

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Animals including humans – Year A			
• UTW: Explore the natural world around them, making observations and drawing pictures of animals and plants • UTW: Know some similarities and differences between things in the past and now, drawing on their experiences and what has been read in class • UTW: Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter	• Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. • Notice that animals, including humans, have offspring which grow into adults		
Curriculum Links			
• C&L: Learn that we are all different (links to PSHE/PSED) • PD: Keeping ourselves and our teeth healthy • Literacy - Drawing around our selves and label body parts • Literacy - letters to the tooth fairy • Maths - counting fingers, showing numbers on our fingers • EAD - Learn 'Head, Shoulders, Knees and Toes' • EAD - Printing hands and footprints with paint	• PSHE - All about me. Staying Healthy. • PE - The effects of exercise on our bodies, healthy eating • Geography - The UK • Geography - Our School and local area (fieldwork and observational skills)		
Animals including humans – Year B			
• UW: 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 • UW: Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter • UTW: Explore the natural world around them, making observations and drawing pictures of animals and plants	• Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. • Notice that animals, including humans, have offspring which grow into adults	• Describe the simple functions of the basic parts of the digestive system in humans • Identify the different types of teeth in humans and their simple functions • Construct and interpret a variety of food chains, identifying producers, predators and prey	• Describe the changes as humans develop to old age. • Identify and name the main parts of the human circulatoy system, and describe the fuctions of the heart, blood vessels and blood • Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function • Describe the ways in which nutrients and water are transported within animals, including humans.

Curriculum Links			
• Literacy/ CL - Explore non-fiction books about animals • Literacy - labelling animals, writing captions • PSED - Everyone is different and unique • PD - fine motor creating animals out of salt dough • Maths - Use animals for counting including counting the numbers of legs • EAD - Drawing/painting/collaging animals	• Geography - The 7 Continents • PSHE - Me and my family. Looking at how we grow over time. • PSHE - How to care for animals including pets. • English - Write a non fiction piece of writing about how to care for a pet • Maths/ computing - Collect data about animals using tally charts and graphs/ pictograms • Art - Making Birds Sculptural project beginning with making drawings from observation, exploring media, and transforming the drawings from 2d to 3d to make a bird.	• Music – Recall sounds with increasing aural memory • Maths – Percentages/ fractions for nutrition, data handling • PSHE – SRE – Reproduction, changes through age phases • History – Stone Age to Iron Age, Ancient Greece, change in medicine and medical understanding • P.E – Fitness tests, use of muscles, heart rate/ pulse and how this is affected by exercise • DT - Fruits and vegetables, seasonal cooking, global good, bread • Art -Festival Feasts How might we use food and art to bring us together? • Art - Bodies/ Sculpture/ Sculpture • RE - Food and Fasting • Languages - French - getting to know you, French Food	• Music – Recall sounds with increasing aural memory • Maths – Percentages/ fractions for nutrition, data handling • PSHE – SRE – Reproduction, changes through age phases • History – Stone Age to Iron Age, Ancient Greece, change in medicine and medical understanding • P.E – Fitness tests, use of muscles, heart rate/ pulse and how this is affected by exercise • DT - Fruits and vegetables, seasonal cooking, global good, bread • Art - Festival Feasts How might we use food and art to bring us together? • Art - Bodies • RE - Food and Fasting • Languages - French - getting to know you, French Food
(Uses of) Everyday Materials – Year A			
• UTW: 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 • UTW: Explore the natural world around them, making observations and drawing pictures of animals and plants • UTW: Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter	• Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. • Distinguish between an object and the material from which it is made. • 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. • Describe the simple physical properties of everyday materials. • Compare and group together a variety of everyday materials on the basis of their simple physical properties.		
Curriculum Links			
• CL - Place a selection of materials in the middle of a circle, hide them under a blanket and make a noise with one or describe it – ask the children to guess what it is.	• Maths/ Computing - Collecting data and producing tally charts and then graphs/ pictograms • Art - Playful Making Exploring materials and intention through a playful approach		

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• Pass different materials around the circle for the children to feel. • PD - Practise building with different materials to see who can build the highest tower – ice cubes, cocktail sticks, cotton balls. • Bare Foot Walk – Walk across different materials in trays – stones, mud, bubble wrap. • Potion Mixing – Use different items to make potions – the children can write about the potions and their magical effects (flowers, water, rice, colouring). • Make movements to different types of noises made by materials – crinkling bubble wrap, swooshing paper… • EAD - Use various junk modelling materials for the children to make their own creations – as they work, discuss the properties of each material. • Paint and create with different materials. Which materials make a good paintbrush? Think about properties and their uses. • Create collages with different materials. *Role Play: Three Little Pigs homes; Building Site;* *Present Wrapping Station; Material Testing Zone* • *Literacy* - Write different phonemes on different types of material and hide them around the environment for the children to explore and find. • Have a basket of materials in the writing area for the children to explore, stick down and label. • Use the 3 little pigs as an example – write a letter from the pigs to the children asking for their help to construct a home and the materials they would need to use. *Maths -*	• Art - Simple Printmaking Explore simple ways to make a print. Use line, shape, colour and texture to explore pattern, sequencing and symmetry.		

• Use materials in counting – design numbers all created from a different type of material. • Put different items into jars (screws, washers, conkers) and challenge the children to work out how many are inside. • Explore weight with materials; which items are heavier or lighter than others? • Take the children on a 2D/3D shape hunt around the school. What can they spot? What material is it made from?			
(Uses of) Everyday Materials – Year B			
• UTW: 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 • UTW: Explore the natural world around them, making observations and drawing pictures of animals and plants • UTW: Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter	• Identify and compare the suitability of a variety of everyday materials. • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.		
Curriculum Links			
• See Year A	• English - Links to 'The Three Little Pigs' (suitable materials for building) • Art - Being an Architect Unit - designing and creating a 3D house • DT - Creating buildings or objects for a specific purpose (e.g. A bridge to hold certain weights, a coat that will be waterproof) • Maths - 3D shapes for building		
Seasonal Changes - Year B			
• UTW: 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 • UTW: Understand some important processes and changes in the natural	• Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies.		

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world around them, including the seasons and changing states of matter • UTW: Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter			
Curriculum Links			
• CL: Explore the beginning and end of each season by taking a walk outside. Record the children's ideas by writing and taking pictures. • Talk about different seasonal traditions the children might have at home, such as Diwali and Christmas. • PD - Use hole punchers, scissors or other items to explore and create with leaves. • Use windy days to explore dance and movement with scarves and ribbon. • Explore water sprayers in the outside area to create numbers, letters or words on the ground or a wall. • Play games using clothing from different seasons or have an obstacle 'dress up' race. • Collect different items from around the school that show the changing seasons. • During each season, find a space for the children to sit outside and listen to the sounds – record the sounds they hear and compare them with other seasons. • PSED - Consider how other people might be feeling at different points in the year. Which seasons make you happiest? • Think about the outdoor spaces in your school. What would be the best way to look after them and ensure they thrive? • Mime a different activity you would do in each season for others to guess. • Literacy: Each season, ask the children to draw a picture of what they see and write a sentence (or scribe for them).	• Maths/ computing - measurement - measure the amount of rainfall. Record into a table and produce bar charts/ pictograms • Literacy - Writing to describe the seasons and the weather observed (diary) • DT - Design and construct a windmill		

• Use natural items in a basket to help explore the different seasons – the children can write, draw and create what they see. • Hide phonemes written on different natural materials around your learning environment. Challenge the children to find them and make words. • Using the word 'and', draw and write about the things that happen in each season (Winter = cold wind and breeze, snow and Christmas) • Maths: Have a day only using natural items or resources linked to that season – for example, count with sticks or leaves or shells from the beach. • Weigh different natural items and compare their weight. • Stick Challenge – Ask all the children to find a stick that is the same length as the distance from their elbow to their hand. Gather them all together and compare them. Put them in order from smallest to largest. • EAD: Use natural items to create portraits and designs. The children could create a giant collage outside or they could stick their items onto paper. • Use natural items to paint with – use berries, cherries and other items to create different colours. • Explore colours linking to each season in design and painting work. Role Play: Percy's park; garden centre; elf			
Living things and their habitats – Year A			
• UTW: 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 • UTW: Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter	• Explore and compare the differences between things that are living, dead, and things that have never been alive. • Identify and name a variety of plants and animals in their habitats, including microhabitats. • Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain.	• Recognise that living things can be grouped in a variety of ways • Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment • Recognise that environments can change and that this can sometimes pose dangers to living things.	• Describe how living things are classified into broad groups according to common • Observable characteristics and based on similarities and differences, including microorganisms, plants and animals give reasons for classifying plants and animals based on specific characteristics

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• UTW: Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter	• Identify and name different sources of food.		• 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.
Curriculum Links			
• EAD: Make nests or habitats using different media. • Make a dinosaur fossil by imprinting a toy animal into clay. • Make a mask of an animal using a paper plate. • Animal prints – using pictures of various animal skin; children replicate the patterns they see. • Animal imitation – musical statues but when they pause, they pretend to be a different animal – others guess. • Role Play: Vets, farm, animal rescue centre, pet shop, different habitats (jungle, desert, snow) – practise caring for animals • PD: Use blocks, boxes and other construction to build different habitats. • Make animals using a variety of construction resources. • Animal yoga – practise some yoga positions with animal names: downward dog, cobra, cat-cow, butterfly, pigeon. • Animal games – play games or races pretending to be different animals (dodgeball as an elephant/football as a snake). • CL: Animal noises – close eyes and listen to the noise of an animal. Using different small world items, choose what they heard. • Guessing games – give examples of an animal, children ask questions to narrow down the animal you're thinking of.	• Maths: Give children pictures of different animals. Use LeARn & Explore to find the size of each animal and then use that information to order and compare the animals. As a challenge, children could write comparison statements using <, > and =. • Maths/ Computing: Create a tally chart to represent how many of each type of animal found in the school grounds. As a challenge, children could create a pictogram to represent the data that they have collected. • English: Write fact files about an animal using the hotspots to research. As a challenge, children could use the information to write a non-chronological report about an animal of their choice • PSHE: Discuss some of the issues around plastic and the environment. In groups, ask children to look at different habitat scenes and identify what problems or dangers to the animals and plants within that habitat could be caused by plastic. • Geography: Locate the Arctic and the Amazon Rainforest on a world map as well as the locations of the equator and the poles. Use the habitat scenes to understand differences in weather and the habitats found in each location. Use a map to identify which continent each of the habitat scenes can be found on. • PE: Choose one of the animals and find out how it moves. In pairs, children can represent the movement of their chosen	• English: Information texts, biographical writing about famous scientists, creating questions • Maths: Data handling including using different diagrams to sort information • History: How what we know has changed over history, how scientists have built up on previous work • Geography: Human and physical geography, Biomes, Tropics and Equator, locating living species • PSHE: SRE - Reproduction	• English: Information texts, biographical writing about famous scientists, creating questions • Maths: Data handling including using different diagrams to sort information • History: How what we know has changed over history, how scientists have built up on previous work • Geography: Human and physical geography, Biomes, Tropics and Equator, locating living species • PSHE: SRE - Reproduction

• PSED: Animal feelings – discuss how animals would feel in different situations (lost, hunted…) • Compare our needs to that of an animal, thinking of the things it needs to survive. • Think how animals would need to make friends in the animal kingdom. Are there any animals who will not be friends? What could we do to help them get on? • Read 'Fox Makes Friends' • Literacy: Draw or trace animals using stencils and toys. • Real animals/dinosaurs – encourage children to draw around the feet and make their own animal footprints. • Make a book or poster about their favourite animal using magazines and drawings. • Retell a story from the book list using picture prompts from the book and small world resources to set the scenes. • Animal research • Maths: Weigh different amounts of bird food and place them around the school. The next day, collect them in and see which has the least left. Suggest which is more popular. • Sort small-world animals according to features (legs, wings etc…) • Sort animals according to groups (pet, farm, zoo etc…) • Set up a pet shop and assign an amount to each animal – use real coins for the children to pay. • Hide different animals around the room of various amounts (e.g. 4 elephants, 3 lions). The children then assign the amount they found to the written number. • Compare animals by their weight or size (elephant vs cat).	animal and other children can guess which animal they are moving like. • DT: Use the Microhabitat or Woodland Habitat scene to identify and research an animal that they might find in their local area. Evaluate existing feeders or shelters available for the chosen animal and use this information to create a set of design criteria. Design and make a feeder or shelter for an animal in their local area. • DT: Create a shoebox diorama based on one of the habitat scenes. As a challenge, children could use mechanisms such as levers, sliders or wheels to add movement to the animals in the scene. • History: Look at/ research famous explorers • Art: Inspired by Flora & Fauna Explore how artists make art inspired by flora and fauna. Make collages of MiniBeasts and display as a shared artwork.		

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Living things and their habitats – Year B			
• UW: 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 • UW: Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter	• 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 of plants and animals in their habitats, including microhabitats.		
Curriculum Links			
See Year A	**See Year A**		
Light – Year A			
• UTW: 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		• Recognise that they need light in order to see things and that dark is the absence of light. • Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. • Notice that light is reflected from surfaces. • 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.	• 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.
Curriculum Links			
• CL: Light can be the opposite of dark. • Explore the meaning of the word 'opposite' and encourage children to discuss and think of other pairs of opposite words. • Compare routines we usually do as part of the day or the evening. Are there any social phrases associated with these day and night routines? Role-play a morning or bedtime routine in pairs or small groups.		• Maths: Data and statistics, reflection • History: How our understanding has changed, how we use light has changed over the years • Art: Recreating images of light through sketching or modelling, spectrums of colour • Geography: Time zones	• Maths: Data and statistics, reflection • History: How our understanding has changed, how we use light has changed over the years • Art: Recreating images of light through sketching or modelling, spectrums of colour • Geography: Time zones

• Initiate some talk that encourages children to think more deeply about how things work or why they might happen. • You could ask questions, such as 'Where does the sun disappear to at night?' or 'How does a lamp work?' Prompt discussion of ideas between children. Do they agree or disagree with other points of view? • Sing some songs and rhymes that have a light or dark theme. • PSED: Talk about dreams we have at night and the different emotions we feel during certain dreams. If you are confident in doing so with the children in your class, include discussions about dark and unhappy dreams that may induce feelings of worry. Remind children to show sensitivity to other's feelings during the discussion. • In pairs, invite one child to cover their eyes or wear a blindfold, so they only see darkness. The other child in the pair gives them supportive directions to complete a task, e.g. build a tower with some bricks. Then, swap over roles. • Create a dark den area with a couple of torches to use inside. Discuss strategies the children could use to take turns in the den and use the torches for a fair amount of time each. Can children then organise themselves to play cooperatively and take turns in the den independently? • Discuss the different factors that support our health and wellbeing. Then, sort them into which we usually do during the day and which we do at night. • PD: Suggest to children that they could create a campsite by providing large equipment for them to move and arrange, such as crates, boxes and planks. Also, provide some large sheets or blankets to drape over the top to make			

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the tents. Children could collect smaller items, such as sticks, to build a campfire and other camping props. • Provide some coloured sheets of tissue paper for children to cut with scissors or tear into smaller pieces to develop fine motor muscles. Then, arrange onto sticky-back plastic in a black paper frame to create some suncatchers or stained-glass windows. Hang the creations in the sun and look at the patterns it creates on the floor. • Turn off the lights and sit the children in a dark room. Light up a torch by a wall and encourage children to manipulate their hands to different shapes to create shadows on the wall. Can the children guess the shape they have made? • Literacy - Prompt children to write a simple nocturnal or diurnal animal fact file. • Write some simple words associated with the topic for children to read using their phonic knowledge and then sort into a light or dark pile. For example, sleep, torch, fox, sun, stars. • Provide some photos of different things associated with light and dark to use as writing prompts, such as photos of the sun and moon. Children could write a word, phrase or sentence inspired by the photos • Maths: Set up a rocket or night bus using ten chairs (five on each side) and sit some children onto some of the seats. Use number bonds to ten to see how many seats are occupied and empty. • Provide children with some glow sticks under a covered table. Can they create some 2D shapes similar to these Lolly Stick Shapes? How many glow sticks do they need to create a triangle?			

• Use a torch to make some repeating patterns of flashes by turning it on and off in a pattern. Children could copy, continue and create a pattern with their own torches or open and close their fingers to imitate a light flashing on and off. • EAD: Make the room dark, put on some cosmic music and give the children glow sticks to hold. Encourage them to create movements to express how the music makes them feel and watch how the glow sticks move along with their actions too. • Provide materials to create some Shadow Puppets. Then, set up a shadow puppet theatre to prompt children to develop their own stories through play. • Sing 'Twinkle Twinkle Little Star' encouraging children to sing along, matching the pitch and melody. Can they select some appropriate musical instruments to accompany their performance? • Place some art straws, glow sticks or painted sticks in a large activity tray alongside some sticky tape and these Constellation Display Posters. Encourage children to explore joining the materials to create star constellations.			
Sound – Year A			
• UTW: 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		• 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.	
Curriculum Links			

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• Music: Explore sounds using musical instruments. Can the children make loud/ quiet sounds? • Literacy/ CL: Go on a listening walk • Maths: Counting sounds • Literacy: Listening to stories over and or again and then retell and sequence the events in these. • Literacy: Matching phonemes to graphemes • Maths - Counting songs to develop familiarity with sequence		• Music: Recall sounds with increasing aural memory, Use the inter-related dimensions of music	
States of Matter - Cycle B			
• UTW: Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter		• Compare and group materials together, according to whether they are solids, liquids or gases. • Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C). • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	• Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets • Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution • Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating • Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic • Demonstrate that dissolving, mixing and changes of state are reversible changes • Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.
Curriculum Links			
		• Maths – Measuring changes in temperatures	

		• Geography – The water cycle • Design Technology – Design project based around a particular brief, Food and change in state through temperature • PE - Water Dance	
Electricity – Year B			
• UTW: Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps		• 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 some common conductors and insulators, and associate metals with being good conductors. • Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.	• 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.
Curriculum Links			
• PSED - Safety with electrical items		• History - How what we know has changed over history, how scientists have built up on previous work • Computing - Physical Computing • DT - Design a product that uses electrical systems	• History - How what we know has changed over history, how scientists have built up on previous work • Computing - Physical Computing • DT - Design a product that uses electrical systems
Forces (and magnets) – Year B			
• UTW: Make comments about what they have heard and ask questions to clarify their understanding • UTW: Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps		• 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. • Compare how things move on different surfaces • Notice that some forces need contact between two objects, but magnetic forces can act at a distance	• 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.

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		• Observe how magnets attract or repel each other and attract some materials and not others, compare and group together	
Curriculum Links			
• CL: Explore the way stretchy items like rope, elastic and slinkies move. Discuss which is our favourite and why. • Talk about the properties of different items and discuss why they might be magnetic/hard to pull or push. • Ask a child to perform a push or pull action – others need to guess what it is. • PD - Start a tug-of-war with just one person. Investigate what happens when you add one more person. Keep adding to investigate balancing forces. • Provide the children with a variety of objects to push and pull. Observe what happens and encourage them to talk about the forces they are using and their effects. • Gravity - Investigate dropping different objects from height. • Friction - Use different surfaces and try pulling or pushing objects across them. • Magnetism – Explore magnets and the forces of attraction and repulsion. Try using magnets through a table or desk. • Air Resistance – Observe how objects (e.g. a ball and a feather) fall from height and make predictions about what will happen. • PSED: Talk about playing games such as 'stuck in the mud' in the playground and the forces we use to tag people. Why do we have to be careful when playing these games? • Play team games such as tug-of-war, or a version of 'pétanque' using balls or bean bags. Talk about what forces the children are using as they play		• Design Technology: Pulleys and gears, weight-bearing structures, how to stiffen and strengthen complex structures • Maths: Data handling, Measurements, Percentages/ fractions of change • Geography: Poles of the earth, physical geography	• Design Technology: Pulleys and gears, weight-bearing structures, how to stiffen and strengthen complex structures • Maths: Data handling, Measurements, Percentages/ fractions of change • Geography: Poles of the earth, physical geography

• Literacy: Using key words from the unit: push, pull, resist – practise writing them and drawing pictures to represent them. • Create a story about a force. Using the key words, create a silly story about a hero trying to rescue someone. What do they have to pull/push/attract to win? • EAD: Explore syringes and pipes to show how pushing one end causes a reaction to the other end. You could fill the syringe with paint or glue to help with a project. • Use magnets to help draw or paint something by rolling it around on paper. • Build a boat that floats using junk materials. Role Play: Factory using magnets to move items Around; parachute testing with toys • Maths: Push/pull numbers – show a child a number; the children need to push/pull an amount towards/away from them to represent it (construction blocks, small world). • Magnetic numbers – using magnets stuck on number cards and show the children an amount. They need to use a magnet to attract the correct number. • Balance different amounts using a scale and counting blocks – demonstrate how the side with more is the greater number			
Earth and Space – Year A			
• UTW: 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			• 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.
Curriculum Links			

Science Progression of Knowledge and Vocabulary

• CL: Talk about stories which go into outer space and discuss what the astronauts see on their missions. • Listening Station – set up headphones and connect them to a device for them to listen to space sounds. • Introduce an alien (teddy) and encourage the children to teach it Earthly ways. • PD: Astronaut Training - Use a large open space and challenge the children to walk in low gravity, zoom on jet packs and float through space. • Using scissors, make stars by cutting out folded shapes. • Gravity Ball – Using a balloon, play catch and 'keepy uppy'. Watch what happens when the ball floats through the sky. • Using tweezers, investigate gravel or loose stones. Which ones could be an asteroid from outer space? • Thread different beads onto string in the colours of the planets in order from the Sun. • PSED: Discuss the phrase 'shine like a star'. What does this mean? • Take photos of the children pulling different faces – share the 'alien' faces and discuss what the children pulling them are feeling. • What is your one wish? When you wish upon a shooting star, what would you wish for? • Use torches in a dark space and glow-in-the-dark stars. Explore the difference between light and dark. • Literacy: Hide different phonics sounds on rocket-shaped paper and ask the children to find them. Challenge them to blend the word or use it in a sentence before hiding it for someone else.			• Art:Pupils design and create compositions or sculptures that represent and summarise Earth. • Music: Pupils compose an original piece of music or collection of sounds to represent Earth • Maths: Construct pie charts showing the distribution of mass in the solar system or the distribution of moons in the solar system. • Geography: Prepare a geographical profile of Earth

• Create a ‘Star Trail’ by using chalk to write different phonetic words. Follow the arrows to find the next word in the trail. • Design an alien world and describe and label it. • Cover a table with tin foil and ask the children to write key words using marker pens • EAD: Shaved Planet – Using shaving foam and food colouring, create a planetary surface on a paper plate – you could also use marbling inks. • Space Scene – Using black paper and paintbrushes, flick paint onto paper to make constellation pictures. • Use chalk to make galaxy rubbings on sugar paper or shooting star/comets in the sky. • Sing songs, such as ‘five little men’, and join in with the actions. • Role Play: space station, mission control, rocket launch pad, rocket construction zone, artefact investigation • Maths: Cut different tubes out as rockets and challenge the children to put them in height order. • Using different types of rock, investigate weight and put them in weighted order. • Practise counting down from 10 to complete a rocket launch. Practise counting down from different numbers up to 20. • Use different 2D and 3D shapes to create a rocket. • Write numbers on rockets and hide them; challenge the children to find them and place them in order. • Challenge the children to find different ways of making ten using ‘space rocks’ or ‘moon sand’			
Rocks and Fossils Evolution and Inheritance – Year A			
		• Compare and group together different kinds of rocks on the basis of their	• Recognise that living things have changed over time and that fossils

Science Progression of Knowledge and Vocabulary

		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	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.
Curriculum Links			
		• Maths/ computing: sorting rocks by their properties. Data collection. • History: rocks through history e.g. Plymouth rock, Mt. Rushmore. • English: Poetry about pet rocks	• Art: Recreating images of Earth or space and the key features, either through sketching or modelling • Geography: Time zones, Equator and tropics, hemispheres, seasons • Maths: Time including calendars • History: Ancient Greece, Romans, Ancient Maya

Working Scientifically Requirements by Year Group

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Enquiring and Investigating to Obtain Evidence						
• Test out ideas suggested to them. • Say what they think will happen. • Begin to make simple comparisons.	• Test ideas suggested to them. • Say what they think will happen. • Use first hand experiences to answer questions. • Begin to make comparisons, e.g. living things.	• Use simple equipment provided to help observation. • Accurately compare objects, living things or events. • Make observations relevant to their task. • Begin to recognise when a test or comparison is unfair. • Use first hand experiences to answer questions.	• Put forward own ideas about how to find the answers to scientific questions. • Recognise the need to collect data to answer questions. • Carry out their own fair test with support. Recognise and explain why it is a fair test. • With support, begin to realise that scientific ideas are based on evidence.	• Understand that scientific ideas are based on evidence. • Know how to vary one factor while keeping others the same. • Set up their own approach to an investigation to answer questions. • Describe which factors will change and which will remain the same and say why.	• Use previous knowledge and experience combined with evidence to provide scientific explanations. • Recognise the key factors to be considered in carrying out a fair test.	• Describe evidence for a scientific idea. • Use scientific knowledge to identify an approach for their own investigation. • Explain how the investigation leads to new ideas and questions.
Observing and Recording						
• Make simple observations using appropriate senses. • Record observations using pictures, photos or video. • Communicate observations orally. • Comment on things which are the same and different, e.g. in the natural world.	• Record observations using appropriate senses. • Communicate observations orally, or by drawing, labelling, or simple writing.	• Respond to questions asked by an adult. • Ask questions about what you see. • Collect and record data (supported by an adult) • Suggest how they could collect data to answer questions. • Begin to select equipment from limited choices.	• Make relevant observations. • Measure using given equipment. • Select equipment from a wider choice.	• Carry out measurement accurately using equipment. • Make a number of observations, comparisons and measurements. • Select and use suitable equipment. • Sometimes as a group, make a series of observations and measurements to achieve a task.	• Make a series of observations, comparisons & measurements with increasing precision. • Select apparatus for a range of tasks. Plan to use different apparatus effectively. • Begin to make repeat observations and measurements systematically.	• Independently measure quantities with precision using different and fine-scale divisions. • Select and use information effectively and efficiently. • Independently make enough measurements or observations for the required task.
Curriculum Links						
			• Maths – Data handling and statistics, measurements, percentages and fractional changes, decimals, calculating • English – Writing reports, creating questions • P.E – How the body works including changes during exercise • PSHE – Keeping safe			

Science Progression of Knowledge and Vocabulary

Vocabulary Progression organised by Topic

This details the required vocabulary that the children should understand throughout each topic and year group as a prerequisite for further learning. Vocabulary is not exclusive to each year group so it is not repeated on the grid in subsequent year groups for the same topic. For example, a year 2 child studying 'Animals including Humans' may use the vocabulary listed in the year 2 column as well as that in the year 1 column. Likewise, a year 6 child learning about 'Light' may use the year 3 vocabulary as well as the year 6. Where vocabulary may have already been encountered in a previous year group but in a different topic, this will be listed under 'Previously introduced vocabulary'.

Plants

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Plant, seed, nutrients soil, water, stem, pink, sunlight, compost heap, weeds, garden, roots	seed plant stem petal deciduous evergreen fruit vegetable	photosynthesis carbon dioxide oxygen glucose pollination germination crop forests	fertiliser potassium chlorophyll photosynthesis xylem phloem anther filament stomata transpiration pollen nectar			

Animals including Humans

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Animals Living, tree, adult, non-living, young, pet, ocean, habitat, desert, farm, bird, nest, build, mud, grass, pig, horse, cow, goat, chicken, dinosaur, lizard, meteorite, museum, reptile **Insects & Invertebrates** Fly, beetle, insect, ant, invertebrate, ladybird, spider, snail, honey, worm, sap, habitat, greenfly, food, toast **Our Body** Arm, leg, chest, jump, move, hand, finger, feet, walk, run, eyes, nose, face, blink, colour, ears, mouth, hair, eyebrows, teeth, baby, food, grow, hair, teeth, freckles, gene, sibling, different, unique **The Senses** Senses, eyes, sight, taste, touch, trumpet, reed, ripple, noise, vibration, senses, hearing, sight, sound, yellow, smell, touch, taste, orange, slice, colour, sight, taste-buds **Food** Diet, exercise, tooth, healthy, fuel, vegetable, cabbage, cauliflower, celery, radish, apple, orange, pear, strawberry, fruit, chicken, egg, lay, fox, chick, cow, milk, cream, cheese, butter	fish amphibian reptile mammal bird warm-blooded cold-blooded herbivore head body brain pupil ear sound tongue taste	nutrition healthy protein carbohydrate dairy fat exercise hygiene life cycle foetus womb offspring reproduction transformation metamorphosis froglet	vitamin mineral nutrition label balanced endoskeleton exoskeleton radius tibia rib cage spine hamstrings biceps	digestive system oesophagus saliva peristalsis incisors molars enamel fluoride consumer predator tundra hide	offspring foetus dependent adolescent puberty gestation pregnant toddler prenatal breeding embryo hormones	circulatory system BPM diet pulse oxygenated deoxygenated atrium ventricle vessel valve diffusion osmosis

Science Progression of Knowledge and Vocabulary

(Uses of) Everyday Materials

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
non-living, car, toy, bike, scooter, change, solid, liquid, pan, metal, melt, freeze, cold, set, mold, sheep, fleece, shear, wool, ball, bucket, sand, sandcastle, sculpture, shovel	material fabric wood plastic metal property opaque transparent strong clay brick roof slate window pane window frame cotton	material property obstacle construction stretchy elastic force bend	igneous rocks intrusive igneous rock extrusive igneous rock magma sedimentary rock metamorphic rock weathering Acid rain erosion fossil decompose fragments	thermometer melting point freezing point boiling point solid liquid gas evaporation particles condensation water vapour substance	solute solvent reversible evaporate chemical change effervescence fair test corrosion combustion extinguish reaction carbon dioxide	

Seasonal Changes

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Rain, ice, rainforest, cloud, river, wind, movement, air, rise, sail, snowflake, melt, snowman, cool, cold, rainbow, raindrop, yellow, arc, blue, spring, summer, warm bird, sun autumn, winter, snow, bark, season	Season spring summer autumn winter hibernate temperature weather					

Living Things and their Habitats

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Living, tree, adult, non-living, young, pet, ocean, habitat, desert, farm, bird, nest, build, mud, grass, pig, horse, cow, goat, chicken, dinosaur, lizard, meteorite, museum, reptile		reproduce excrete respire habitat microhabitat survive producer consumer organism rainforest endangered biodiversity ocean ecosystem desert Arctic		migrate monsoon deforestation biodiversity emissions pollution pesticide contaminate drought freshwater marine sanctuaries conservation areas	living organism naturalist primatologist metamorphosis endangered asexual reproduction fertilisation placental mammal monotreme mammal	classification microorganism habitat livingorganism species microscopic ecosystem kingdom LinnaeanSystem cell

Light

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Senses, eyes, sight, colour, light, dark			light reflect vitamin D ultraviolet rays fluorescent high visibility shadow ray cast position shape puppet			light light source reflected variable angle mirror opaque transparent sunshade rotate optical spectrum

Science Progression of Knowledge and Vocabulary

Sound

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Trumpet, reed, ripple, noise, vibration, senses, hearing, sound, noise				Vibration Medium Source Energy Materials Reflect Volume Decibels Pitch Instruments Particles Sound source		

States of Matter

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
See Materials	See Materials	See Materials	See Materials	thermometer melting point freezing point boiling point solid liquid gas evaporation particles condensation water vapour substance	See Materials	

Electricity

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Health and Safety Danger, electricity, energy, rule, safe				electricity batteries circuit voltage current bulb conductor insulator switch control wind turbines hydropower		circuit battery electricity resistor variable resistor dimmer switch output systematically synchronised signal conductor insulator

Forces and Magnets

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Push, pull, press, suck, swing, sink, sea, float, boat, force			force friction motion texture magnet attract repel magnetic field non-contact force magnetism compass orienteering		Sir Isaac Newton gravity Galileo Galilei parachute water resistance streamlined buoyant upthrust friction newton lever pulley	

Earth and Space

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Planet, Solar System, gas planet, rocky planet, Sun, firework, launch, rocket, travel, Space					heliocentric geocentric solar system astronomy terrestrial planet gas giants axis orbit moon phase waxing waning	

Science Progression of Knowledge and Vocabulary

Rocks and Fossils Evolution and Inheritance

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
See Materials	See Materials	See Materials	igneous rocks intrusive igneous rock extrusive igneous rock magma sedimentary rock metamorphic rock weathering Acid rain erosion fossil decompose fragments	See Materials	See Materials	

Working Scientifically

EYFS	KS1	LKS2	UKS1
Science, Experiment, Fair, Find out, Explain, Reason, Why, Change	aim answers block diagrams changes compare describe difference different enquiry equipment experience explore findings gather group identify (name) investigate measure notice observe patterns pictograms questions record same similarity simple tables sort sorting diagrams tally charts test What will we do? (plan) What do you think will happen? (prediction) What happened? (results) What have we found out? (conclusion)	accurate bar chart chart classify comparative test conclusion (What have we found out?) criteria data develop diagram evaluate evidence explanation key making a test fair method observations plan (What will we do?) practical enquiry prediction (What do you think will happen?) primary sources questioning reasoning relationships results (What happened?) secondary sources standard units table What do we change, what do we keep the same, what are we measuring?	accuracy and precision bar graphs causal relationship degree of trust dependent variable independent variable justify line graphs refute repeat results scatter graphs support variables (what do we change, what do we keep the same, how and what are we measuring?)