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SCIENCE LONG TERM OVERVIEW							
	EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Autumn 1	**Understanding the World** -Look for changes of autumn, what we see, hear & feel -Share pictures of their family and talk about them	**<u>Animals including humans</u>** **What are the names for all our body parts?** -Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense Chris Packham (Wildlife photographer)	**Uses of everyday materials** **How can I change the shape of solid objects?** - Identify and compare the suitability of everyday materials, including wood, metal, plastic glass, brick, rock, paper, and cardboard for various uses - Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching Charles Macintosh (inventor of waterproof material) Danial Azahan (Mechanical engineer)	**Light** **How does the distance between the object and the screen affect the size of shadows?** - 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. Patricia Bath (Ophthalmologist and inventor)	**Animals including humans (teeth and food chains)** **Why are teeth different?** - 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 Ivan Pavlove (Physiologist)	**<u>Forces</u>** **What are the different forces and their effects?** - 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 Issac Newton (discovered gravity) Rafsan Chowdhury (Mechanical engineer)	**Animals including humans** **How does exercise affect our pulse rate?** -identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood -recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function -describe the ways in which nutrients and water are transported within animals, including humans. William Harvey (Discovered how blood moves through the body) Barouh Berkovits (invented the pacemaker and defibrillator)

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Autumn 2	**Understanding the World** -Observe & interact with natural processes such as ice melting or grass growing -Look for changes of season, what we see, hear & feel -To take care of animals in the world around us, recognising their needs e.g bird feeder or hedgehog house	**Seasonal change (1 week)** **What changes happen in Autumn?** -Observe changes that take place in Autumn -Observe the weather associated with Autumn and how the day length changes. **<u>Everyday materials</u>** **What are different objects made from?** -Distinguish between an object and the materials from which it is made -Identify and name a variety of everyday materials, including wood, plastic William Addis (inventor of the toothbrush) Dr Pearl Agyakwa (materials scientist)	**Animals including humans** **Which offspring belongs to which animal?** -notice that animals including humans have offspring that grow into adults Dr Donald Palmer **<u>Plants (2 weeks)</u>** **Do bigger bulbs grow into bigger plants?** -Observe and describe how seeds and bulbs grow into mature plants (Planning and planting bulbs outside ready for Spring 2)	**Rocks** **How are fossils formed?** - 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 Mary Anning (Fossilist) Christopher Jackson (geologist)	**Animals including humans** **What do the different parts of the digestive system do?** - describe the simple functions of the basic parts of the digestive system in humans. Charlotte Armah (Nutritional biochemist)	**Properties and changes in materials (properties of material statements)** **What are the properties of different materials?** - compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Becky Shroeder (Inventor of the glow sheet) Dr Nira Chamberlain **(Depending on length of term begin Spring 1)**	**Electricity** **How does the voltage of the batteries affect the other components in a 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. Mo Ibrahim (mobile phone) Hertha Ayrton (Engineer and inventor)

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Spring 1	**Understanding the World** -Look for changes of winter, what we see, hear & feel -Recognise some environments that are different from the one in which they live in	**Seasonal Change** **What changes happen in Spring?** -Observe changes that take place in Spring -Observe the weather associated with Spring and how the day length changes -Compare seasonal changes in Spring to Autumn John Dalton (British weather pioneer)	**Animals including humans** **What do animals need to survive?** -find out 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. Bear Grylls (Survival expert)	**Forces and Magnets** **Which surface is best to stop you slipping?** - 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.	**States of matter** **What are the differences between solid, liquid and gases?** -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. Daniel Fahrenheit (Inventor of the thermometer) Dr Fangxian Fang (Earth scientist)	**Properties and changes in materials (changes of material statements)** **How can materials change? Can these changes always be reversed?** - 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	**Living things and their habitats** **What do different types of microorganisms do?** - 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. Carl Linneus (Naturalist and botanist) Nazifa Tabassum (Microbiologist and science communicator)

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				William Gilbert (magnetism and electricity) Jyoti Sehdey (senior civil engineer)		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.	

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Spring 2	**Understanding the World**  -Look for changes of spring, what we see, hear & feel	**Plants** **What are the most common British plants and where can we find them?**  - 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 Beatrix Potter (Botanist, arborist)	**Plants** **What happens to my seed/bulb after I have planted it?**  -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. George Washington Carver (Botanist) Agnes Arber (Botanist)	**Forces and magnets (Continued from previous half term)** **Does the size and shape of an object affect how strong it is?** **Plants [last two weeks]**  - identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.	**Electricity** **What happens when there is a break in the circuit?**  -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	**Earth and space** **How does the length of daylight hours change in each season?**  - 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. Mai Jemison (Astronaut) Dr Helen Mason (Solar scientist)	**Light** **How do we see things?**  -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. CV Rayman (Physicist) Professor Colin Webb (Professor of Laser Physics)

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					being good conductors. Michael Faraday (Physicist) Hertha Ayrton (Electrical engineer and suffragette)		

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Summer 1	**Understanding the World** -Name and describe some plants, including fruit & vegetables -Draw attention to the weather & provide opportunities to record the weather -Close observation of natural world, draw pictures of plants and name some -Observe & interact with natural processes such as floating & sinking	**Animals including humans** **What do different animals eat?** - 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) Malaika Vaz (Wildlife videographer)	**Living things and their habitats** **What conditions do different animals prefer?** -explore and compare the differences between things that ate 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 animals and plants, and how they depend on each other -Identify and name a variety of plants and animals in their habitats, including microhabitats Rachel Carson (Marine Biologist) Tanesha Aleen (Zoologist)	**Plants** **Which conditions help seeds germinate faster?** - 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. Ahmed Mumin Warfa (Botanist) Maria Sibylla Merian (documented the relationship between plants and insects)	**Sound** **How are sounds made?** -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. Evelyn Glennie (Deaf percussionist) Karrie Keyes (Audio engineer)	**Living things and their habitats** **What are the differences between different animals lifecycles?** - 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. Malaika Vaz (National Geographic explorer)	**Evolution and inheritance** **How have different plants and animals adapted to their environment over time?** - 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.

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Summer 2	**Understanding the World** -Observe how animals behave differently as seasons change - Children make comments of animals they have observed & draw them -Name and describe animals they have seen & talk about how they can be cared for & what they need. -Provide opportunities to look at lifecycles eg frogs and butterflies. -Observe & interact with natural processes such as objects casting a shadow.	**Seasonal Change** **How does a tree/plant change over the year?** - Observe changes across the four seasons - Observe and describe weather associated with the seasons and how day length varies **<u>Plants (2 weeks)</u>** - Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees	**Living things and their habitats (continued)** **What do different animals eat?** -Identify and name a variety of plants and animals in their habitats, including microhabitats (continued) -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. **<u>Plants (last 2 weeks – observing full lifecycle)</u>** **How has the plant changed over time?** --Observe and describe how seeds and bulbs grow into mature plants	**Animals including humans** **What is the function of the skeleton?** - 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. Willhelm Rontgen (invented the x-ray) Zubair Haleem (Academy physio at Arsenal)	**Living things and their habitats** **How can living things be grouped and classified?** -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. Prem Singh Gill (Polar Scientist)	**Animals including humans** **Can I identify all the stages of the human lifecycle?** - describe the changes as humans develop to old age. Sigmund Freud Olivia Guthrie Smith (physiotherapist)	**Evolution and inheritance (Continued from previous half term)** Charles Darwin (Naturalist. Developed theory of evolution) Rosalind Franklin (Discovered structure of DNA)

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Key

	Build – area of study that builds on previous area of learning		Revisit – spaced retrieval
	Link – area of study links to another curriculum area		New - Introduce new content