At Cavalry School, our science curriculum is planned to ensure that we meet the full scope of the national curriculum. Units of work draw on a wide range of sources, including the published scheme Science Bug from Pearson's Active Learn.

We recognise that Science has changed our lives and is vital to the world's future prosperity. Through Science lessons all pupils:

- are taught essential aspects of the knowledge, methods, processes and uses of science.
- build up a body of key foundational knowledge and concepts,
- begin to recognise the power of rational explanation
- develop a sense of excitement and curiosity about natural phenomena.
- understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

Curriculum summary for the "science" aspects of the EYFS curriculum in Understanding the World

'Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.' Statutory framework for EYFS Early Adopter

What do our EYFS scientists need to understand?	What do they need to know?	How can they show they are scientists?	What opportunities do we provide at Cavalry?
That the natural world around them changes over time and with the	Know the four seasons. Identify changes to	Name the 4 seasons.	Provide children with frequent outdoor opportunities for play and exploration. Through nature explorers, regularly discuss the season through questioning using senses; what can you hear? What can you see? What can you feel? What is the weather like?

changes of seasons. **Use their senses to explore the natural world.**	plants and animals in different seasons. Know that some animals hibernate over winter. Understand that different animals, including humans, have different life cycles Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	Be able to talk about signs of each season. Know typical weather for each season and be able to talk about how it affects them, eg. clothing Explore materials including magnets, floating and sinking, melting and freezing, shadows, different sounds and light/dark.	Look at the changes that take place in the Reception garden and Nature Explorers area e.g the willow is bare, blossom on trees, flowers and plants grow. Plant different plants to grow including broad beans, potatoes, sunflowers in spring, bulbs to plant in Autumn. Use the nature area at school to observe lifecycle of frogs in the pond. Have caterpillars and watch them grow and change. Talk about how they have grown and changed themselves. Talk about the weather and use senses to explore. Discuss appropriate clothing for different seasons. Through our continuous provision and seasonal changes outside, children are encouraged to investigate, make predictions and be confident to talk about what they have seen / experienced and new facts learnt e.g. drawing around shadows on the playground, water in the tough spot melting and freezing, freezing bubbles in the cold, explore ways to melt ice. Opportunities are also planned for exploring materials such as testing which materials are waterproof for a den for teddy / den for a hedgehog to hibernate in.
That there are key words/vocabulary associated with the seasons and growing. **Use their senses to**	Know spring, summer, autumn and winter. Lifecycles - frogspawn, tadpoles, froglets, frogs, Caterpillars, chrysalis,	Observe and talk about changes over time. Predict how long different stages will last. Record in their own ways how	Provide frequent opportunities for children to play and explore the outdoors. Nature Explorers sessions to introduce new vocabulary and recap prior learning and appropriate vocabulary. Collect frogspawn, monitor closely the changes and release as froglets back to the school pond.

explore the natural world.	cocoon, butterfly Ladybird larvae, ladybird Baby, toddler, child, teenager, adult. Know the names for baby animals Plants - seeds, bulbs, shoots, stems, roots, leaves and flowers.	things have changed e.g. drawing, labelling, writing sentences. Being able to order lifecycles correctly. Children can name and describe some plants and animals and are encouraged to recognise familiar plants and animals whilst outside.	Buy caterpillars, monitor closely the changes and release butterflies in the garden. Photographs of the children as babies, discuss how they have grown and changed. Discuss how they are different to other family members. Roleplay taking care of babies in the roleplay. Use topics such as Spring to discuss new life on the farm, being able to name baby farm animals and talk about their own pets being able to name puppies and kittens etc. Know names of some animals that live indifferent habitats eg jungle, polar regions, deserts Children have access to common bird identification sheets and common minibeast identification sheets. We take part in the Big Garden Birdwatch and minibeast hunts. During seasonal walks, children are shown changes and growth such as blossom, daisies and daffodils. Children grow plants during the year so can identify common plants including beans, sunflowers, potatoes etc.
We need to change what we do / wear in response to the seasons;	That weather changes according to the seasons. That we need to dress accordingly to keep ourselves safe and comfortable.	Comment on how what we wear changes with the seasons To develop self-care routines including wearing / choosing appropriate clothes To narrate why we wear hats in winter and sun cream in summer.	As part of our learning about seasons, we will use our senses to learn more about how they feel. We will test materials to decide which materials help to maintain heat and which are waterproof, linking this to our own clothing. Link learning to basic hygiene and personal needs to look after themselves in different conditions, understanding the need for sun hats and sun cream to protect them from the sun on hot days.

Cavalry Primary School

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	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
YEAR 1	Changing Seasons	Parts of an Animal (Animals, including Humans)	Comparing Materials (everyday materials)	Identifying Materials (everyday materials)	Plants	Types of Animals
YEAR 2	Habitats	Feeding and Exercise	Uses of Everyday Materials	Changing Shape (everyday materials)	Living Things	Growing Plants
YEAR 3	Rocks and Soils	Movement and Feeding	Magnets and Forces	Light and Shadows	What Plants Need	Parts of Plants
YEAR 4	Changes of State	Electricity	Sound	Human Nutrition	Grouping Living Things	Dangers to Living Things
YEAR 5	Materials	Properties and changes of materials	Changing Circuits (Yr 6 NC)	Light and Sight (yr 6 NC)	Forces	Separating Mixtures
YEAR 6	Our Bodies	Evolution and Inheritance	Earth and Space (yr 5 NC)	Earth and Space (yr 5 NC)	Classifying Living Things	Life Cycles (Yr 5 NC)
			Key:			
			Humans and Living things	Plants	Electricity	Forces
			Living Things and Their Habitats	Materials	Light and Sound	Earth and Space

Year Group + Key Documents	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year One Vocabulary Progression Knowledge Progression Types of Inquiry	**Seasonal Changes** -Observe changes across the seasons -Observe and describe weather patterns associated with the four seasons -Observe how day lengths vary **Practical Investigations:** **Changing Seasons Test** **Ice Cube experiment**	**Animals including humans** -Identify and name parts of the body -Identify which parts of the body are responsible for each of the senses. **Practical Investigations:** **Smell your way home - What are our senses and how do we use them?**	**Uses of Everyday Materials** -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. **Practical Investigations:** **Bright badges - Which colours show up best in dim light?** **Doormat Drama - Can you find out what material they should use for the doormat?**		**Plants** -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. **Practical Investigations:** **Rain gauge investigation**	**Animals including Humans** -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) **Practical Investigations:** **Alien inventory - How do humans group animals?**

Year Two Vocabulary Progression Knowledge Progression Types of Inquiry	**Animals including humans** -Notice that animals, including humans, have offspring which grow into adults -Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) -Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. - Identify and name a variety of common animals that are carnivores, herbivores and omnivores. **Practical Investigations:** **Do animals (including**	**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 **Practical Investigations:** **What do plants need to grow well?**	**Uses of Everyday Materials -** -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. **Practical Investigations:** **Best material for a cup - design, build, test and evaluate**	**Living things and their habitats** -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 **Practical Investigations:** **Hedgehog habitat investigation**

	humans) live forever ? investigation				
Year Three Vocabulary Progression Knowledge Progression Types of Inquiry	**Topic: Ourselves** **Rocks** -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 **Practical Investigations:** **Which rocks are permeable?**	**Animals including Humans** -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 **Practical Investigations:** **Bones on our Body - Identifying Human Bones**	**Topic: Where we Live** **Forces and Magnets -** -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 -Describe magnets as having two poles -Compare and group together a variety of everyday materials on the basis of whether	**Light -** -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 -Find patterns in the way that the size of shadows change -Recognise that shadows are formed when the light from a light source is blocked by a solid object	**Topic: Our Colourful World** **Plants-** -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 **Practical Investigations:** **A Seed Triathlon - seed dispersal in water, air**

			they are attracted to a magnet, and identify some magnetic materials -Predict whether two magnets will attract or repel each other, depending on which poles are facing **Practical Investigations:** **Scrap yard challenge - Identifying magnetic and non-magnetic materials** **Marble madness - How do surfaces affect how a marble moves?**	**Practical Investigations:** **What makes the best shadow?**	**and on land**	
Year Four Vocabulary Progression Knowledge Progression	**Topic: The Park** **Animals including humans** -Describe the simple functions of the basic parts of the digestive	**Living things and their Habitats** -Recognise that living things can be grouped in a variety of ways	**Topic: Materials** **States of Matter-** -Compare and group materials together, according to whether they are solids, liquids or gases		**Topic: Water, Ships and Seafarers** **Electricity-** -Identify common appliances that run on electricity	**Sound-** -Identify how sounds are made, associating some of them with something vibrating

Types of Inquiry	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 **Practical Investigations:** **Create the digestive system** **Teeth decay experiment** **Art activity - make food chains (prey goes inside predators mouth, continue...)**	-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 **Practical Investigations:** **Pond dipping and minibeast hunt - classification keys**	-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 **Practical Investigations:** **Changes of states - which chocolate makes chocolate buttons the quickest?**	-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 **Practical Investigations:**	-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 -Recognise that sounds get fainter as the distance from the sound source increases -Find patterns between the volume of a sound and the strength of the vibrations that produced it **Practical Investigations:** **How can we change the pitch of a sound?**

					Which materials conduct?	
Year Five Vocabulary Progression Knowledge Progression Types of Inquiry	**Topic: The Victorians** **Materials and States of Matter** -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		**Topic: Journeys** **Electricity** -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	**Light** -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	**Topic: Egyptians** **Forces** -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 **Practical Investigations:** **Does mass affect a swing?**	