Britannia Bridge Science Long Term Plan

Britannia Bridge Primary School

Key	P Pre Unit Assessment	E End of Unit Assessment	L Locality plant study	S Seasonal change

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
N3 Caterpillars	**All about me** Name the parts of the face Autumn-squirrels, leaves, colours.	**Celebrations** Spiders- research	**Down in the woods** Woodland walk Make porridge (change of state)	**Heroes and villains** Planting beans - what they need to grow. Signs of spring. Food healthy/unhealthy food (Supertato)	**Amazing animals** Caterpillar eggs- life cycle of a butterfly Mini beasts Safari and zoo animals	**Under the sea** Uses senses to explore materials -shells, pebbles, sand Water - forces push, pull, float and sink.
	Continuous coverage throughout the year of Science skills through Understanding The World- the natural world.					
Reception Butterflies	**It's Good to be me** Name the basic parts of the body Autumn-animals hibernation and leaves changing.	**Celebrations** Light and dark- torches/shadows, seasonal change , day and night, nocturnal animals	**The world around us** Changes in ice/water melting. Floating and sinking Arctic/Antarctica/jungle/rainforest animals and plants.	**Growing** Frogspawn- life cycle of a frog. Keeping fit and healthy Planting lettuce and cress- what do plants need to grow. Life cycle of a plant.	**Houses and Homes** Look at different materials for houses-3 Little Pigs Animal houses and habitats.	**Fantasy** Summer- weather, keeping safe in the sun.
	Continuous coverage throughout the year of Science skills through Understanding The World- the natural world.					
Year 1 Bumblebees	**Plants** Look at different wild and common plants and label their basic features. Wild plant hunt in local area.	**Animals** Naming different common animals and their features. Diets of animals Name and label body parts identifying body parts Senses- what body part use	**Materials** Identify and name a variety of everyday materials and Distinguish between an object and the material from which it is mad. Describe simple properties of everyday materials, compare, and group objects based on their properties		**Plants** Plant a seed look at how it grows and changes. Name and label features of trees. Deciduous/evergreen	
	P 1 2 3 4 L 1 S 3 E	P 1 2 3 4 L 2 S 4 5 6 E	P 1 2 3 L 3 S 1 4 S 5 5 6 E		31 S 2 S 6 5 6 7 E L 4	
Year 2 Seahorses	**Animals inc humans** Learn about the basic needs that all humans need to survive and live. The importance of exercise, a healthy diet and good hygiene as ways to keep us healthy. Look at offspring of different animals and the changes that occur as they become adults.	Living things in local area study	**Uses of everyday materials** Look at different materials and identify their properties. Conduct investigations to explore how different materials are better suited for different objects. Explore how some of these materials can be changed by squashing, bending, twisting and stretching them.	**Plants** Learn about different seeds and bulbs. Look at what plants need to grow and what they need to continue to grow and stay healthy. Life cycle of a plant.	Living things in local area study	**Living things and their habitats** Whether things are living, dead or have never been alive. Look at microhabitats and larger habitats identifying some animals that may live there. Conduct an investigation to see which type of conditions woodlice prefer in their habitat. Look at how living things are adapted to their environment. Food chains within habitats.
	P 1 2 3 4 5 6 7 8 E P		1 2 3 4 5 E P	1 2 3 4 5 E P		1 2 3 4 5 6 E

Living things in local area study

Catch up/ enrichment

Year 3 Hummingbirds	**Animals inc humans** Learn about the structure of the human skeleton and muscles. How skeletons differ in different animals. Nutrition and the importance of eating a healthy diet.	**Light** Recognise that they need light in order to see things and that dark is the absence of light. Identify light sources and explore what happens when light reflects off mirrors or other reflective materials. Think of ways to protect themselves from the Sun. Investigate shadows Recognise that shadows are formed when the light from a light source is blocked by a solid object and investigate how shadows change size.	**Forces and magnets** Explore simple pushes and pulls as an introduction to forces. Look at how the texture of an object or the surface it is on can affect how the object moves. Investigating different magnets and how they can pull (attract) and push (repel)	**Rocks** Explore different rocks and soils. Classify and group together rocks based on their appearance and physical properties. Learn how the Earth is made up of different rocks and fossils and begin to explain how some of the different rocks are formed. Look at what fossils are and how they are formed.	**Plants** Find out what plants need in order to stay healthy once they have grown. Identify and describe the functions of the different parts of plants. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. Investigate how water is transported through plants.	Catch up/ enrichment
Year 4 Dragonflies	**Electricity** Sort common electrical appliances into battery and mains powered. Construct simple series circuits containing a variety of components and understand the difference between complete and incomplete circuits. Identify whether or not a bulb will light in a simple series circuit and put forward ideas to fix incomplete circuits. Investigate which materials make good insulators and design, construct and test their own switches.	**States of matter** Compare and group materials according to whether they are solids, liquids or gases. Learn that some materials change state when they are heated or cooled and be able to identify and name these processes as melting, freezing, evaporating or condensing. Look at the water cycle and be able to identify the part played by evaporation and condensation in the water cycle	**Sound** Learn how vibrations cause sounds and how sounds travel through di-fferent mediums at different speeds. Explore how sounds can change in pitch and loudness. Learn what happens to sound vibrations when they reach the ear.	**Animals inc humans** Learn the importance of the digestive system and name each part and it's function. Identify the different types of teeth in humans and their purpose. The children will plan and conduct an investigation to answer the question: which drink causes the most tooth decay? Construct and interpret variety of food chains, identifying producers, predators and prey.	**Living things and their habitats** Recognise the seven life processes common to all living things. Sort living things using a variety of criteria. Conduct a local habitat search and learn to identify unknown living things using a classification key. Consider how environmental change impacts the environment and suggest ways in which humans can prevent further damage.	Catch up/ enrichment
Year 5 Owls	**Properties and changes of material** Properties of solids, liquids and gases, learn to describe the properties of materials using scientific language; investigate which materials make the best thermal insulators, and which materials are magnetic. Investigate how to separate materials. Name separation methods (filtering, sieving, evaporation, magnets) and decide on the most efficient method for separating a mixture of materials	**Living things and their habitats** Compare and describe differences in the life cycles of mammals, amphibians, reptiles, birds and insects. Learn how animals reproduce; comparing differences and similarities between different animal groups. Look at the life cycles of plants and learn how plants reproduce.	**Forces** Name individual forces (e.g. gravity, friction, up thrust). Look at frictional forces (air resistance and water resistance) Learn what a mechanism is and how pulleys, levers and gears are used to allow a smaller force to have a greater effect.	**Earth and Space** Learn that Earth is part of the Solar system and that the Sun is at the centre of that system. Learn the names of the other planets (based on their distance from the Sun) and be able to describe the movement of Earth (and other planets) in relation to the Sun. Discover why there is day and night on Earth and relate this to time. Gain an understanding of the phases of the Moon and be able to describe the Moon's movement in relation to the Earth.	**Animals inc humans** Learn about the different stages of the human life cycle. What happens in the womb, during puberty and when youare older.	Catch up/ enrichment

Year 6 Sharks	Living things and their habitats	Electricity	Animals inc humans	Evolution and inheritance	Light	Catch up/ enrichment
	Classification of living things, including microorganisms. Learn the names and characteristics of the main groups used to classify animals, plants and microorganisms. Use a classification key and create their own key using yes/no questions. Conduct an experiment involving the respiration of yeast. Research who Carolus Linnaeus is and understand the importance of his standard classification system.	Construct simple series circuits and draw them using scientific symbols. Conduct investigations to determine how the voltage in a circuit affects the brightness of a bulb.	Learn about the importance of the circulatory system and how it transports oxygen around our body. Learn about the heart and how it is an important muscle in our bodies and investigate how different activities can affect heart rate. Learn about being healthy and things they can do to lead a healthy lifestyle as well as learning about things that people do that can cause them to be unhealthy.	Explore how animals and plants are adapted to the environment in which they live. Learn that adaptations occur over time and that may lead to a species evolving. Conduct an experiment on the best bird beak. They will consider how certain adaptations occur in response to environmental conditions. They will learn about natural selection and how this links to inheritance and how some characteristics are inherited from parents and some are not. Consolidate previous learning on fossilisation and understand how studying fossils has helped explain the theory of evolution.	Explore the way that light behaves, including light sources, reflection and shadows. Investigate the relationship between light sources, objects and shadows and understand how the eye works.	
	P 1 2 3 4 5 6 Ep	1 2 3 4 5 Ep	1 2 3 4 5 6 Ep	1 2 3 4 5 6 Ep	1 2 3 4 5 6 E	

Supplementary information

	Year 1
Plants	While learning to name and identify plants, the pupils should be drawing on a range of different clues. Many plants change in appearance over the year - losing leaves, buds developing into flowers, flowers developing into seeds or berries. At any particular time, only some of these parts will be present. To ensure correct identification, all parts should be considered. Pupils should therefore visit the same plants throughout the year gathering additional clues for identification.
Seasonal change	Pupils should be gathering data about seasonal change regularly throughout the year. As part of this, they will be making observations about the weather and how this affects living things. If data is gathered regularly, this can be reviewed at the end of the year.

	Year 2
Living things and their habitats	Animals visible in a habitat will change depending on the weather on the day and the season. In order to build up a full picture of the animals in a habitat, the habitat should be visited at different times throughout the year While learning to name and identify plants, the pupils should be drawing on a range of different clues. Many plants change in appearance over the year - losing leaves, buds developing into flowers, flowers developing into seeds or berries. At any particular time, only some of these parts will be present. To ensure correct identification, all parts should be considered. Pupils should therefore visit the same plants throughout the year gathering additional clues for identification..
Plants	Seeds and bulbs need to be planted at different times of the year (bulbs in Autumn and seeds, generally, in Spring). For these to reach full maturity, they need to complete their life cycle. This will be determined by the plant, not the time allocated to the topic. Once planted, the beds will need to be visited regularly to weed and make observations of growth.

	Year 3
Plants	Many plants have an annual cycle - having buds, flowers, seeds/berries at certain times in the year. Pupils should therefore visit the same plants throughout the year gathering evidence linked to their life cycle e.g. collecting seeds and taking photographs or making observational drawings for buds, flowers etc. This evidence can then be reviewed at the end of the year to exemplify a range of plants' life cycles. This topic is best taught in the summer term when there is sufficient light in the classroom to grow seedling and plants as part of enquiry work.

	Year 4
Living things and their habitats	Animals visible in a habitat will change depending on the weather on the day and the season. In order to build up a full picture of the animals in a habitat, the habitat should be visited at different times throughout the year. While learning to name and identify plants, the pupils should be drawing on a range of different clues. Many plants change in appearance over the year - losing leaves, buds developing into flowers, flowers developing into seeds or berries. At any particular time, only some of these parts will be present. To ensure correct identification, all parts should be considered. Pupils should therefore visit the same plants throughout the year gathering additional clues for identification.
Animals inc humans	Pupils should be taught to construct and interpret a variety of food chains, identifying producers, predators and prey. In order to construct food chains based on their first-hand experience, this statement should be taught after they have visited a habitat to name and identify the plants and animals as part of the Living things and their habitats topic. Teaching pupils to identify producers, predators and prey represents an opportunity for pupils to apply their knowledge of the function of teeth. Consequently, it makes sense to teach the statement 'construct and interpret a variety of food chains, identifying producers, predators and prey' after learning about teeth within the Animals, including humans topic.
Sound	In the Sound topic, children need to understand that vibrations from sounds travel through a medium to the ear. It is useful if the children know about the three states of matter - solids, liquids and gases. It is therefore appropriate to teach the States of matter topic before the Sound topic. This topic is conceptually more challenging and is therefore best taught later in the year.

	Year 5
Animals inc humans	Before learning about the life cycle of humans, it is helpful if pupils have learnt about the life cycle of plants and animals. It is therefore appropriate to teach the Living things and their habitats topic before the Animals, including humans topic. The content in this topic is small and therefore requires less time to cover adequately than other topics
Properties and changes of materials	There is a lot of content to cover in this topic and therefore more time should be allocated to allow for sufficient coverage. Schools may choose to separate the content into more than one topic e.g. properties of materials and changes of materials.
Earth and Space	If the Forces topic is taught before the Earth and space topic, pupils are able to use their understanding of gravity to help them make sense of why the planets orbit the Sun, and the Moon orbits the Earth. This topic is conceptually more challenging and is therefore best taught later in the year

	Year 6
Evolution	This topic is conceptually more challenging and is therefore best taught later in the year.
Light	This topic is conceptually more challenging and is therefore best taught later in the year