Langham Primary School — Progression in Science: Biology Cycle A

	Reception/ Y1		Y1/Y2		Y3/Y4	Y5/Y6	
	Animals (including humans)	**Plants**	**Living Things and their habitats**	**Plants**	**Plants**	**Evolution and Adaptation**	
Curriculum Coverage	Children explore the natural world, using their senses and raise their own questions. Describe what they see, hear and feel while they are outside. Look closely at things in nature (animals & plants) and talk about what is seen, using a wide vocabulary. Name and describe familiar plants and animals. Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal. Know that plants and animals need water and animals need food. Begin to understand the need to respect and care for the natural environment and all living things. Show basic understanding of how they might have an impact on the environment. **ELG: Explore the natural world around them, making observations and drawing pictures of animals and plants.** **ELG: 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.** **Cycle A** **Crazy Colours** Children learn about the **five senses** by experiencing the world through them. They know which part of the body is associated with each sense. **Cycle A** **How does your garden grow?** Children identify and name a **variety of common garden animals** including insects, amphibians, birds and mammals. As they progress into Year 1, children sort animals into classes by **observable features** such as whether they have feathers as a step towards using standard scientific classifications.	**Cycle A** **How Does Your Garden Grow?** Through practical investigation in the school grounds, children identify and **name a variety of common wild and garden plants**, including deciduous and evergreen trees. Children identify and describe the **basic structure of a variety of common flowering plants**, including trees. **They carry out simple investigations to find out what seeds need to grow.**	**Cycle A** **It's a Bug's life (Living things and their habitats)** Children explore and compare the differences between things that are **living, dead**, and things that have **never been alive.** Starting with animals that can be found in the school grounds (minibeast safari), they identify that most living things live in **habitats** to which they are suited. Extending their study to animals in less familiar habitats, they describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Children 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.	**Cycle A** **Green Fingers** Children identify and describe **the basic structur**e of a variety of common flowering plants, including trees. They observe and describe **how seeds and bulbs** grow into mature plants Through practical investigation, they find out and describe how **plants need water, light and a suitable temperature** to grow and stay healthy.	**Cycle A** **Little Shop of Horrors** Children build on their work in Key Stage 1 where they learnt to name the main parts of a flowering plants. They now learn about **the functions** of different parts of flowering plants: roots, stem/trunk, leaves and flowers **,** and learn to recognise the **reproductive parts** of a flower not covered in KS1: (stamen, anther, sepal, pollen). Through practical investigation, children 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 Through practical investigation, children investigate the way in which **water is transported within plants** Children explore the part that flowers play in the **life cycle of flowering plants**, including pollination, seed formation and seed dispersal.	**Cycle A** **Avoiding Extinction** The first part of this unit focuses on **evolution and adaptation.** It builds on work done in Year 3 or 4 in which children learnt about classification learnt about how environmental changes can endanger a species' survival. They recognise that living things have changed over time and that **fossils** provide information about living things that inhabited the Earth millions of years ago. In doing so, they learn about the pioneering work of **Mary Anning**. Children recognise that living things produce offspring of the same kind, but normally **offspring vary** and are not identical to their parents Children identify how animals and plants are **adapted to suit their environment** in different ways and that adaptation may lead to evolution. In doing so, they learn about the work of **Charles Darwin** and recognise the significance of his theory.	
Essential vocabulary	**Animal, head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth, skull, spine, leg, tail, wing, fur, feathers, scales, fish, mammal, bird, insect, hibernate, migrate**	**Plant, leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bud, daisy, dandelion, daffodil, tulip, oak, holly, conifer, evergreen**	**habitat, (microhabitat), amphibian, fish, mammal, reptile, insect, carnivore, omnivore, woodland, bushes, leaf litter, producer, prey, consumer, predator,**	**Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bud, dasisy, dandelion, rose, daffodil, oak, deciduous, evergreen, bulb, seedling, germinate.**	**pollen (pollination, pollinate), seed, dispersal, fertilisation, germination, stamen, anther, sepal**	**genetic, palaeontologist, evolution, adaptation, theory, variation, inherit, fossil**	
Essential skills **(working scientifically)**	Children **ask question**s such as 'What would happen if….?' and participate in guided investigations performing some simple tests on their own. **Predict** what might happen and explain why. Children make **close observations** (using a magnifying glass where appropriate), record ideas in a simple way including making **drawings** of their observations. Collect data and record in **pictograms**. They are introduced to scientific classification by **sorting** animals and plants according to observable features and what they eat.		Children **ask questions** and know they can be answered in different ways. Children make **close observations** make **labelled drawings** of their observations and communicate their findings in **simple charts or diagrams**. Notice similarities, differences and patterns. They start using **scientific terms** such as carnivore and omnivore when sorting and classifying animals. Perform **simple comparative tests** for example in finding out conditions which most effect plant growth. Gather and record **data** in tables and bar charts.		Children make **observations** and produce labelled diagrams. They relate their observations to their increasing knowledge of plant biology, for example by relating observations to the different ways seeds are dispersed. They observe how **things happen over time**, for example how coloured water is transported in celery or a white carnation flower, or how a plant grows over measured intervals of time. They **take measurements** using standard units and present findings in charts and tables including **tables, bar graphs** (appropriate for stage of mathematical development), **labelled diagrams and keys**. They set up simple practical enquiries and understand how to make sure a test is **fair**. Children **report** on findings from enquires, including spoken and written explanations, displays or presentations of results and conclusions. Use straightforward scientific evidence to answer questions or to support findings.	Children use scientific terms to sort living creatures in different ways. They start to see how different **classifications** are related. For example, invertebrates can be further grouped into molluscs, arachnids, insects etc. Children **report on findings from enquires**, including spoken and written explanations, displays or presentations of results and conclusions and **use** straightforward **scientific evidence** to answer questions or to support findings. Children **ask relevant questions** and use different types of **scientific enquires** to answer them. They learn about the work of **famous scientists**. They ask questions and learn how they could conduct an experiment to test their question, for example about the effect of exercise on the heart rate. They learn how to recognise and **control variables** and make sure their data is **reliable** by taking repeated measurements. They record their data in a variety of increasingly complex ways including **line graphs, tables, classification keys, labelled diagrams, scatter graphs and bar graphs** where appropriate. They use a wide range of **secondary sources** in finding out about science. They use **scientific vocabulary** when communicating what they have learnt.	
Coverage notes	Some science content is taught continuously across the year. Specifically, this includes observing changes across the four seasons and observing and describing weather associated with the seasons and how day length varies. Essential vocabulary to include: **weather, sunny, rain, windy, snowy, seasons, Winter, Summer, Spring, Autumn, sun, day, night, sunrise, sunset.** Children get to explore the outdoor environment regularly and gradually learn the names of common plants, trees and animals, as well as notice how the seasons effect the life cycle of most trees and plants. Children are provided with practical seasonal tasks such as planting and harvesting to observe the growth of plants over time, learn to identify their features and learn how to look after them.						

Langham Primary School — Progression in Science: Biology Cycle B

	Reception/ Y1		Y1/Y2		Y3/Y4	Y5/Y6
	Animals (including humans)	**Plants**	**Living Things and their habitats**	**Plants**	**Animals (including humans)**	**Plants and other organisms**
Curriculum Coverage	Children explore the natural world, using their senses and raise their own questions. Describe what they see, hear and feel while they are outside. Look closely at things in nature (animals & plants) and talk about what is seen, using a wide vocabulary. Name and describe familiar plants and animals. Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal. Know that plants and animals need water and animals need food. Begin to understand the need to respect and care for the natural environment and all living things. Show basic understanding of how they might have an impact on the environment. Show concern for living things e.g. is careful not to damage plants. Recognise some environments that are different to the one in which they live. Talk about how being outside makes them feel and know that being outside can make them feel better if they are anxious or upset. **ELG: Explore the natural world around them, making observations and drawing pictures of animals and plants.** **ELG: 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.**		Cycle B **Zootropolis** Children think about what they have learnt previously and take time to **consolidate the words for different animal classes.** Children notice that animals, including humans, have **offspring** which grow into adults They find out about and describe the basic needs of animals, including humans, for survival (water, food and air) **Feed Me** Children describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	Cycle B **Flying High (Trees)** Identify and describe **the basic structur**e of a variety of common flowering plants, including trees.	**Cycle B** **Creature Comforts** Children 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 Children identify that humans and some other animals have **skeletons and muscles** for support, protection and movement. Children describe the simple functions of the basic parts of the **digestive system** in humans Children identify the different types of teeth in humans and their simple functions Children construct and interpret a variety of **food chains**, identifying producers, predators and prey. Children recognise that **living things can be grouped** in a variety of ways. They explore and use **classification keys** to help group, identify and name a variety of living things in their local and wider environment Children recognise that **environments can change** and that this can sometimes pose dangers to living things. They learn about **endangered animals** and campaigns to save them from extinction.	**Cycle B** **Science Safari** Children describe the differences in the **lifecycle** of a mammal, and amphibian, an insect and a bird. Children look at the classification of living things in more detail. Children describe how living things are **classified into broad groups** according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. They are introduced to the idea that broad groupings, such as micro-organisms, plants and animals can be subdivided. They learn about **Carl Linnaeus**, a pioneer of animal classification. Children give reasons for classifying plants and animals based on specific characteristics. As part of the same unit, children go on to describe the differences in the **life cycles** of a mammal, an amphibian, an insect and a bird and describe the life process of **reproduction** in some plants and animals. They describe the **changes** as humans develop to old age. This includes learning about puberty. Children identify and name **the main parts of the human circulatory system**, and describe the functions of the heart, blood vessels and blood They recognise the impact of diet, exercise, drugs and **lifestyle** on the way their bodies function Children describe the ways in which nutrients and water are transported within animals, including humans.
	Cycle B **Amazing Me** Children **name parts of the body** and learn that humans and some other animals have **skeletons**. **Minibeasts and Mega-beasts** Through videos and pictures, children identify and name a **variety of common animals** including fish, amphibians, reptiles, birds and mammals. As they progress into Year 1, children sort animals into classes by **observable features** including scientific classifications such as **herbivore** and **carnivore**. **Commotion in the Ocean** This unit provides the opportunity to apply what they have learnt about sorting and **classifying animals** in a different context. Some animals are **predators** and some are **prey**.	Cycle B **Autumn days and Starry Nights & A Rumble in the Jungle** Through practical investigation in the school grounds, children identify and **name a variety of common wild and garden plants**, including deciduous and evergreen trees. Children identify and describe the **basic structure of a variety of common flowering plants,** including trees. They carry out simple investigations to find out what seeds need to grow.				
Essential vocabulary	**Animal, head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth, skull, spine, leg, tail, wing, fur, feathers, scales, fish, mammal, bird, insect, hibernate, migrate**	**Plant, leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bud, daisy, dandelion, daffodil, tulip, oak, holly, conifer, evergreen**	**amphibian, fish, mammal, reptile, insect, carnivore, omnivore, woodland, bushes, leaf litter, producer, prey, consumer, predator, reproduction, growth, heartbeat, breathing, germs, meat, fish, fruit, vegetables, bread, rice/ pasta, balanced diet.**	**Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bud, dasisy, dandelion, rose, daffodil, oak, deciduous, evergreen, bulb, seedling, germinate.**	**nutrition, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, skull, spine, ribs, muscles, joints. migrate, producer, predator, prey, classification, vertebrate, invertebrate, digestion, saliva, oesophagus, stomach, intestine, rectum, anus, incisor, canine, molar, premolar.**	Vocabulary of classification form LKS2 **and vertebrates, invertebrates, microorganism,**
Essential skills **(working scientifically)**	Children **ask question**s such as 'What would happen if….?' and participate in guided investigations performing some simple tests on their own. **Predict** what might happen and explain why. Children make **close observations** (using a magnifying glass where appropriate), record ideas in a simple way including making **drawings** of their observations. Collect data and record in **pictograms**. They are introduced to scientific classification by **sorting** animals and plants according to observable features and what they eat.		Children **ask questions** and know they can be answered in different ways. Children make **close observations** make **labelled drawings** of their observations and communicate their findings in **simple charts or diagrams**. Notice similarities, differences and patterns. They start using **scientific terms** such as carnivore and omnivore when sorting and classifying animals. Perform **simple comparative tests** for example in finding out conditions which most effect plant growth. Gather and record **data** in tables and bar charts.		Children make **observations** and produce labelled diagrams. They relate their observations to their increasing knowledge of plant biology, for example by relating observations to the different ways seeds are dispersed. They observe how **things happen over time**, for example how coloured water is transported in celery or a white carnation flower, or how a plant grows over measured intervals of time. They **take measurements** using standard units and present findings in charts and tables including **tables, bar graphs** (appropriate for stage of mathematical development), **labelled diagrams and keys**. They set up simple practical enquiries and understand how to make sure a test is **fair**. Children **report** on findings from enquires, including spoken and written explanations, displays or presentations of results and conclusions. Use straightforward scientific evidence to answer questions or to support findings.	Children use scientific terms to sort living creatures in different ways. They start to see how different **classifications** are related. For example, invertebrates can be further grouped into molluscs, arachnids, insects etc. Children **report on findings from enquires**, including spoken and written explanations, displays or presentations of results and conclusions and **use** straightforward **scientific evidence** to answer questions or to support findings. Children **ask relevant questions** and use different types of **scientific enquires** to answer them. They learn about the work of **famous scientists**. They ask questions and learn how they could conduct an experiment to test their question, for example about the effect of exercise on the heart rate. They learn how to recognise and **control variables** and make sure their data is **reliable** by taking repeated measurements. They record their data in a variety of increasingly complex ways including **line graphs, tables, classification keys, labelled diagrams, scatter graphs and bar graphs** where appropriate. They use a wide range of **secondary sources** in finding out about science. They use **scientific vocabulary** when communicating what they have learnt.
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