St. Benedict's Primary School
SCIENCE
KNOWLEDGE AND SKILLS BUILDER

Science element from the National Curriculum – **ANIMALS**

Phase	Context for learning	Knowledge and Skills for Animals
EYFS	**RECEPTION** Spring 1 Topic Animals Big Question Are all animals wild? Context	**Skills** Begin to differentiate wild and domesticated animals **Knowledge** Wild animals live in a habitat, which is their natural home, and they depend only on themselves to survive.
KEY STAGE 1	**Year 1** Summer 2 **ILP Dinosaur Planet** Big Question What is a dinosaur? Programme of Study linked to LIVING THINGS • Develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them. Programme of Study linked to PARTS AND FUNCTIONS • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). Programme of Study linked to INVESTIGATION • Observe closely, using simple equipment	**Skills** Describe, following observation, how plants and animals change over time **Knowledge** All living things (plants and animals) change over time as they grow and mature. **Skills** Label and describe the basic structures of a variety of common animals, including fish, amphibians, reptiles, birds and mammals. **Knowledge** Different animal groups have some common body parts, such as eyes and a mouth, and some different body parts, such as fins or wings. **Skills** With support, use simple equipment to measure and make observations. **Knowledge** Simple equipment is used to take measurements and observations. Examples include metre sticks, measuring tapes, egg timers and hand lenses.

	Year 2 Spring Term 2 **ILP Towers, Tunnels and Turrets** **Context: Tunnelling Animals** **Programmes of Study** Identify and name a variety of plants and animals in their habitats, including microhabitats	**Skills** Identify and name a variety of plants and animals in a range of habitats and microhabitats. **Knowledge** A habitat is a place where a living thing lives. A microhabitat is a very small habitat.
	YEAR 2 Summer 2 **ILP Wriggle and Crawl** **Context:** Minibeast Hunt/Habitats/Capture and Release/Food Preferences/Bees/Camouflage/whose Baby? Big Question How do animals move? Programme of Study linked to INVESTIGATION • Ask simple questions and recognise that they can be answered in different ways. • Perform simple tests. • Use their observations and ideas to suggest answers to questions. Programme of Study linked to **CLASSIFICATION** • Notice that animals, including humans, have offspring which grow into adults. Programme of Study linked to **SURVIVAL** • Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). Programme of Study linked to **NUTRITION** 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.	**Skills** Ask and answer scientific questions about the world around them. Follow a set of instructions to perform a range of simple tests, making simple predictions for what might happen and suggesting ways to answer their questions. Begin to notice patterns and relationships in their data and explain what they have done and found out using simple scientific language. **Knowledge** Questions can help us find out about the world. Tests can be carried out by following a set of instructions. A prediction is a guess at what might happen in an investigation. The results are information that has been found out from an investigation and can be used to answer a question. **Skills** Describe the basic life cycles of some familiar animals (egg, caterpillar, pupa, butterfly; egg, chick, chicken; spawn, tadpole, froglet, frog). **Knowledge** Animals have offspring that grow into adults. Different animals have different stages of growth or life cycles. **Skills** Explain how animals, including humans, need water, food, air and shelter to survive. **Knowledge** Animals need water, food, air and shelter to survive. Their habitat must provide all these things. **Skills** Interpret and construct simple food chains to describe how living things depend on each other as a source of food **Knowledge** Food chains show how living things depend on one another for food. All food chains start with a plant, followed by animals that either eat the plant or other animals.

LOWER KEY STAGE 2	**YEAR 3 Autumn 2** ILP Predator Big Question What is a predator? Programme of Study linked to • Develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics. Programme of Study linked to INVESTIGATION • Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. • Identify differences, similarities or changes related to simple scientific ideas and processes. Programme of Study linked to GATHERING AND RECORDING DATA • Gather, record, classify and present data in a variety of ways to help in answering questions. • Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Programme of Study linked to Human Body • Identify that humans and some other animals have skeletons and muscles for support, protection and movement. Programme of Study linked to NUTRITION • 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.	**Skills** Describe how environments can change due to natural influences and how living things need to be able to adapt to these changes. **Knowledge** Environments are constantly changing due to natural influences, such as seasons, extreme weather, population changes and availability of food. Living things must adapt to these changes in order to survive. **Skills** Make increasingly careful observations, identifying similarities, differences and changes and making simple connections. **Knowledge** An observation involves looking closely at objects, materials and living things, which can be compared and grouped according to their features. **Skills** Gather and record findings in a variety of ways (diagrams, tables, charts and graphs) with increasing accuracy. **Knowledge** Data can be recorded and displayed in different ways, including tables, charts, graphs and labelled diagrams. Data can be used to provide evidence to answer questions. **Skills** Describe how humans need the skeleton and muscles for support, protection and movement. **Knowledge** Humans have a skeleton and muscles for movement, support and protecting organs. Major bones in the human body include the skull, ribs, spine, humerus, ulna, radius, pelvis, femur, tibia and fibula. Major muscle groups in the human body include the biceps, triceps, abdominals, trapezius, gluteals, hamstrings, quadriceps, deltoids, gastrocnemius, latissimus dorsi and pectorals. **Skills** Compare and contrast the diets of different animals. **Knowledge** Animals cannot make their own food and need to get nutrition from the food they eat. Carnivores get their nutrition from eating other animals. Herbivores get their nutrition from plants. Omnivores get their nutrition from eating a combination of both plants and other animals.

	YEAR 3 Summer 1 **ILP Scrumdiddlyumptious** **Context: Healthy Lifestyles** **Big Question** **Programme of Study** linked to **NUTRITION** • 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. • Know what constitutes a healthy diet (including understanding calories and other nutritional content).	**Skills** Compare and contrast the diets of different animals **Knowledge** Animals cannot make their own food and need to get nutrition from the food they eat. Carnivores get their nutrition from eating other animals. Herbivores get their nutrition from plants. Omnivores get their nutrition from eating a combination of both plants and other animals. **Skills** Explain the importance and characteristics of a healthy, balanced diet. **Knowledge** Humans have to get nutrition from what they eat. It is important to have a balanced diet made up of the main food groups, including proteins, carbohydrates, fruit and vegetables, dairy products and alternatives, and fats and spreads. Humans need to stay hydrated by drinking water.
	YEAR 4 Spring 2 **ILP Burps, Bottoms and Bile** **Context: Teeth/Digestive organs/How many stomachs does a cow have?/Animal Business** Big Question Programme of Study • Construct and interpret a variety of food chains, identifying producers, predators and prey Programme of Study PARTS AND FUNCTIONS • Identify the different types of teeth in humans and their simple functions. Programme of Study INVESTIGATION • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.	**Skills** Construct and interpret a variety of food chains and webs to show interdependence and how energy is passed on over time. **Knowledge** Food chains show what animals eat within a habitat and how energy is passed on over time. All food chains start with a producer, which is typically a green plant. The producer is eaten by a primary consumer (prey), which is eaten by a secondary consumer (prey), which is eaten by a tertiary consumer. All food chains end with a top or apex predator. Changes within a food chain, such as an abundance or lack of one food type, have an impact on the entire food chain. **Skills** Identify the four different types of teeth in humans and other animals, and describe their functions. **Knowledge** There are four different types of teeth: incisors, canines, premolars and molars. Incisors are used for cutting. Canines are used for tearing. Premolars and molars are used for grinding and chewing. Carnivores, herbivores and omnivores have characteristic types of teeth. Herbivores have many large molars for grinding plant material. Carnivores have large canines for killing their prey and tearing meat. **Skills** Use scientific vocabulary to report and answer questions about their findings based on evidence collected, draw simple conclusions and identify next steps, improvements and further questions. **Knowledge** Results are information, such as data or observations that have been found out from an investigation. A conclusion is the answer to a question that uses the evidence collected.

	• Use straightforward scientific evidence to answer questions or to support their findings. • Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. • Identify differences, similarities or changes related to simple scientific ideas and processes. • **PoS Health** Know the characteristics of a poor diet and risks associated with unhealthy eating (including, for example, obesity and tooth decay) and other behaviours (e.g. the impact of alcohol on diet or health). • Know about dental health and the benefits of good oral hygiene and dental flossing, including regular check ups at the dentist.	**Skills** Begin to choose which observations to make and for how long and make systematic, careful observations and comparisons, identifying changes and connections. **Knowledge** An observation involves looking closely at objects, materials and living things. Observations can be made regularly to identify changes over time. **Skills** Describe what damages teeth and how to look after them **Knowledge** Regular teeth brushing, limiting sugary foods and visiting the dentist are important for good oral hygiene
	YEAR 4 Summer 2 **ILP Blue Abyss** **Context:Brine Shrimp/Oceanic food chains/Deep sea adaptations/A Great Threat!** **Big Question** Context Aquarium Visit, testing water Programme of Study INVESTIGATION,GATHER AND RECORD • Gather, record, classify and present data in a variety of ways to help in answering questions. • Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. • 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. Programme of Study linked to NUTRITION • Construct and interpret a variety of food chains, identifying producers, predators and prey.	**Skills** Gather, record, classify and present observations and measurements in a variety of ways (pictorial representations, timelines, diagrams, keys, tables, charts and graphs). **Knowledge** Data can be recorded and displayed in different ways, including tables, charts, graphs, keys and labelled diagrams. **Skills** Compare, sort and group living things from a range of environments, in a variety of ways, based on observable features and behaviour. **Knowledge** Scientists classify living things according to shared characteristics. Animals can be divided into six main groups: mammals, reptiles, amphibians, birds, fish and invertebrates. These groups can be further subdivided. Classification keys are scientific tools that aid the identification of living things. **Skills** Construct and interpret a variety of food chains and webs to show interdependence and how energy is passed on over time.

	Programme of Study linked to SURVIVAL • Are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future. Programme of Study linked to MEASUREMENT • Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Programme of Study linked to LIVING THINGS/CHANGES • Recognise that environments can change and that this can sometimes pose dangers to living things.	**Knowledge** Food chains show what animals eat within a habitat and how energy is passed on over time. All food chains start with a producer, which is typically a green plant. The producer is eaten by a primary consumer (prey), which is eaten by a secondary consumer (prey), which is eaten by a tertiary consumer. All food chains end with a top or apex predator. Changes within a food chain, such as an abundance or lack of one food type, have an impact on the entire food chain. **Skills** Explain how adaptations help living things to survive in their habitat. **Knowledge** An adaptation helps an animal or plant survive in its habitat. If living things are unable to adapt to changes within their habitat, they are at risk of becoming extinct. **Skills** Take accurate measurements in standard units, using a range of equipment. **Knowledge** Equipment is used to take measurements in standard units. Examples include data loggers plus sensors, timers (seconds, minutes and hours), thermometers (°C), and metre sticks, rulers or trundle wheels (millimetres, centimetres, metres). **Skills** Explain how unfamiliar habitats, such as a mountain or ocean, can change over time and what influences these changes. **Knowledge** Habitats change over time, either due to natural or human influences. Natural influences include extreme or unseasonable weather. Human influences include habitat destruction or pollution. These changes can pose a risk to animals and plants that live in the habitat.
UPPER KEY STAGE 2	YEAR 5 Spring 2 ILP Beast Creator Big Question Context minibeast hunt, worm charming, metamorphosis Programme of Study INVESTIGATION, GATHERING AND RECORDING DATA • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Programme of Study linked to INVESTIGATION • Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.	**Skills** Gather and record data and results of increasing complexity, selecting from a range of methods (scientific diagrams, labels, classification keys, tables, graphs and models). **Knowledge** Data can be recorded and displayed in different ways, including tables, bar and line charts, classification keys and labelled diagrams. **Skills** Plan and carry out a range of enquiries, including writing methods, identifying variables and making predictions based on prior knowledge and understanding. **Knowledge**

	Programme of Study linked to PHYSICAL THINGS • Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.	A method is a set of clear instructions for how to carry out a scientific investigation. A prediction is a statement about what might happen in an investigation based on some prior knowledge or understanding. **Skills** Compare the life cycles of animals, including a mammal, an amphibian, an insect and a bird. **Knowledge** A life cycle is the series of changes in the life of a living thing and includes these basic stages: birth, growth, reproduction and death. Mammals' life cycles include the stages: embryo, baby, adolescent and adult. Amphibians' life cycles include the stages: egg, larva (tadpole), adolescent and adult. Some insects' (butterflies, beetles and bees) life cycles include the stages: egg, larva, pupa and adult. Birds' life cycles include the stages: egg, baby, adolescent and adult.
	Year 6 Spring 1 **ILP Frozen Kingdom** **Context**: Polar Adaptations/Food Chains and webs/Biodiversity **Big Question** **Programmes of Study** Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. Give reasons for classifying plants and animals based on specific characteristics.	**Skills** Identify how animals and plants are adapted to suit their environment, such as giraffes having long necks for feeding, and that adaptations may lead to evolution **Knowledge** An adaptation is a physical or behavioural trait that allows a living thing to survive and fill an ecological niche. Adaptations evolve by natural selection. Favourable traits help an organism survive and pass on their genes to subsequent generations. **Skills** Research unfamiliar animals and plants from a range of habitats, deciding upon and explaining where they belong in the classification system. **Knowledge** Living things are classified into groups, according to common observable characteristics and based on similarities and differences.