

### **St Peter's CE Primary School** Autumn Term - Animals (3 Weeks)

#### Unit Overview:

#### Year 3 and 4

This topic fills the National Curriculum requirement to learn about animals. Throughout this unit, year 3 and 4 will learn about nutrition that animals need and that they cannot make their own food like plants can. Pupils will identify that some animals have skeletons and muscles for support, protection and movement. They will learn about different food chains and identify producers, predators and prey and practise how to construct them. Pupils will learn how living things can be grouped in a variety of ways. Pupils will create classification keys/branching databases using Purple Mash to group, identify and name a variety of living things. Pupils will look how environments can change, for example, building a new housing estate and the impact that this has on living things.

#### Year 5 and 6

This topic fills the National Curriculum requirement to learn about animals. Throughout this unit, year 5 and 6 will recognise that living things have changed over time by learning about evolution and survival of the fittest by adaptation to the environment. They recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Pupils will look at the life cycle of a mammals, amphibians, insects and birds and compare the differences. This will link with how different kinds of living things reproduce. Pupils will explore how living things can be classified into broad groups according to their characteristics and based on similarities and differences including micro-organisms and animals and the reasons why they are classified in this way. Pupils will also look at how nutrients and water are transported within animals.

#### Working Scientifically

Alongside electricity and throughout the year, pupils will continue to work scientifically in lower KS2 by:

- asking relevant questions and using different types of scientific enquiries to answer them.
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

#### Key Questions:

#### <u>LKS2</u>

- 1) What is the key vocabulary associated with animals?
- 2) What nutrition do animals need?
- 3) What is the function of the skeleton and muscles?
- 4) What are food chains and how are they made?
- 5) How can living things be grouped?
- 6) How can environments change and how does this affect living things?

### <u>UKS2</u>

- 1) What is the key vocabulary associated with animals?
- 2) How have living things change over time? (Evolution)
- 3) How do living things produce offspring of the same kind?
- 4) How do life cycles differ between a mammal, amphibian, insects and birds?
- 5) How do animals reproduce? (link with life cycles)
- 6) How are living things classified based on specific characteristics?
- 7) How are nutrients and water transported within animals?

Objectives covered in this unit:					
Science (see progression in expectations document)	•	LKS2: 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 some animals have skeletons and muscles for support, protection and movement.			
	•	Construct and interpret a variety of food chains, identifying producers, predators and prey. 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 widen environment			
	•	Recognise that environments can change and that this can sometimes pose dangers to living things.			
	•	Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution			
	•	and are not identical to their parents 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. 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			
	•	Give reasons for classifying plants and animals based on specific characteristics. Describe the ways in which nutrients and water are transported within animals			



## Animals Key Knowledge LKS2

What is the key vocabulary associated with animals?	See vocabulary sheet- Provide a glossary of terms linked to the topic for pupils which is discussed and then pupils complete the definition for each word.				
What nutrition do animals need?	Pupils need to know: That animals obtain nutrition they need by what they eat and cannot make their own food like plants can. Pupils study different living things and look at their diet and the kind of nutrients they need. This could be compared to a balanced diet that humans need, this would link in to learning from the previous year (not applicable to				
	year 3). Pupils can recap the food groups: protein, carbohydrates, fibre, fats, fruit and vegetables and then the kind of food different animals eat. Pupils learn about some well known carnivores, onivores and herbivores and the differences in the nutrients they need. Pupils study the diet of a lion and learn that they are carnivores and how much protein they need to consume. Pupils could then look at the diet of a herbivore such as a zebra and compare. Pupils can also look at the link between the size of an animal and the amount of food they need. Is there a link? Do bigger animals need more food? Pupils can look at omnivores such as birds.				
What is the function of the skeleton and muscles?	Skeleton Bunils need to know:				
	<ul> <li>The living skeleton has moving joints and provides movement for the animal's body.</li> <li>It is a framework that protects and supports the animal's organs.</li> <li>Pupils need to know that the skeleton is alive and works with other body systems of the animal</li> <li>The muscles are attached to the bones by strong chords called tendons so the muscles can pull the bone enabling them to move</li> </ul>				
	Muscles				
	- Muscles provide the tug on the bones needed to bend, straighten, and support joints. Muscles can pull on bones, but they can't push them back to their original position, so the muscles work in pairs of flexors and extensors. The extensor muscle relaxes and stretches as the flexor muscle contracts to bend the joint. Pupils need to know that the animals will need to use muscles to help them move and for strength.				

What are food chains and how are they made?	<ul> <li>Pupils need to know:</li> <li>What a food chain looks like.</li> <li>To see several examples beginning at simple food chains and then a little more complex.</li> <li>Pupils need to learn the vocabulary linked with food chains- producer, predator, prey, consumer, apex predator</li> <li>Pupils need to be able to construct food chains and label them.</li> </ul>
How can living things be grouped?	<ul> <li>BBC Video clip: <u>Science KS1 / KS2: Grouping living things - BBC Teach</u></li> <li>https://www.bbc.co.uk/teach/class-clips-video/science-ks1-ks2-ivys-plant-workshop-grouping-living-things/zfjxcqt</li> <li>Micro-organisms- bacteria can only be viewed under a microscope but they are all around us.</li> <li>Animals- can be divided into two groups: Vertebrates and invertebrates</li> <li>Invertebrates- have no back bone/ spine inside their bodies</li> <li>Vertebrates- have a back bone/ spine inside their bodies</li> <li>Vertebrates can also be divided into 5 classes:</li> <li>Reptiles- Have scales and lay eggs, they breathe air and are cold blooded, which means they need the warmth of the sun to warm their blood.</li> <li>Fish- Have scales and live in water, lay eggs and are also cold blooded- they breathe through gills and don't breathe air. They get the oxygen they need from water H2O. Sharks are also fish even though they have smooth skin (no scales) because they have gills.</li> <li>Birds- Have feathers and lay eggs- not all birds can fly- penguins and chickens for example. Birds have two wings and two legs and are warm blooded.</li> <li>Amphibians- A frog is an amphibian. Amphibians live on land and water, they are cold blooded, lay eggs and breathe air with their lungs.</li> <li>Mammals- Breathe air using their lungs, warm blooded and give birth to live young (not eggs) and feed them on milk. A platypus is a mammal because it has fur and produces milk but it also has a beak like a bird, and lays eggs like a reptile. Dolphins and whales are also mammals even though they have no fur because they breathe air through lungs and give birth to live young - they have no gills.</li> </ul>
How can environments change and how does this affect living things?	Pupils need to learn about the impact that changing environments have on living things: Building new houses can disrupt living things- reduce their habitat and kill wildlife. Climate change can impact on living things- forest fires, warmer temperatures, lack of food,



## Animals Key Knowledge UKS2

What is the key	See vocabulary sheet- Provide a glossary of terms linked to the topic for				
vocabulary associated with animals?	pupils which is discussed and then pupils complete the definition for each word				
How have living things change over	Adaptation				
time? (Evolution)	Living creatures (animals and plants) adapt or evolve to survive in their				
	environment and to live amongst a specific group of other living things.				
	Every animal or plant on Earth has adaptations, or specific characteristics,				
	that help it stay alive in its habitat. Examples of adaptations are fur, feather				
	and fat (to help animals keep warm in cold habitats), long legs (to help animals				
	escape from their predators) or camouflage (to help animals hide from their predators).				
	Pupils can study an arctic fox- how has it adapted to its environment				
	Pupils can study the evolution of a horse				
	Eohippus Oligohippus Merychippus Pliohippus Charles Darwin.				
	Evolution				
	Over time, animals and plants change and evolve because offspring have				
	slightly different characteristics to their parents. Living things born with				
	adaptations that make their lives easier in specific habitats are more likely				
	future generations is known as natural selection.				
	The theory of evolution explains how primitive life forms have changed and adapted over millions of years to become the complex living organisms living on Earth today.				
	The physical features or behaviours of plants and animals have adjusted to survive in their environment and cope better with the conditions around them. The most useful and strongest characteristics or <b>adaptations</b> are passed on to the next generation and enable the plants or animals to survive. Example of adaptations include a camel's ability to store water, polar				

	bears' white fur to camouflage themselves on the ice and a chameleon's ability to change colour to hide from predators.						
	<b>Evolution</b> is the process of change to animal and plant species over long periods of time, or how plant species and animals have developed from generation to generation.						
	Plants and animals produce offspring of the same kind. These offspring are similar but not exactly the same as their parents. Characteristics are passed on from parent to offspring. These characteristics are <b>inherited</b> .						
	learn about famo deas (Charles Dar <b>Anning</b> ). They m d evolution throug of years ago.	us win, light also gh studying					
How do living	Reproduction						
things produce	<u>https:/</u>	https://www.bbc.co.uk/bitesize/topics/zgssgk7/articles/z9xb39q					
same kind?	Tupes of Reproduction						
	How does new life start?						
			Asexual Reproduction	Sexual Reproduction	Both Sexual and Asexual Reproduction		
		What is it?	One parent produces new life.	Two parents – one male and one female – are required to produce new life.	Either one or two parents.		
		How does it occur?	One cell simply starts to divide itself. All cells of the offspring are <u>identical</u> to the parent. This means that it is a <u>clone</u> of the parent.	Male sex cells (sperm/angiosperm/polle n are different versions of male sex cells) fertilise female sex cells (eggs). This fusion means that the offspring resembles but is <u>not</u> identical to the parents.	Some living things have the capacity to reproduce in sexually or asexually.		
	To reproduce, animals need a male and female. Together they can create offspring, or babies. Some animals, such as chickens, fish and snakes, lay eggs which contain their offspring. Mammals give birth to live young. <u>Inheritance</u> Animals inherit characteristics from our parents because offspring takes half the DNA from each parent and the DNA carries the information that gives offspring characteristics from their parents.						

	All living things produce offspring of the same kind but the offspring are rarely identical to the parents. There are variations which make them different. Life cycle https://www.bbc.co.uk/bitesize/topics/zgssgk7/articles/zwn6mnb All animals, including humans, are born, they get older and bigger and some will go on to have children. In the end, all animals die. We call this a life cycle.
How do life cycles differ between a mammal, amphibian, insects and birds?	Pupils need to know about the life cycle of a frog and be able to order this. They need to compare this with the life cycle of a bird, insect (butterfly) and mammal.
How are living things classified based on specific characteristics?	<ul> <li>Micro-organisms- bacteria can only be viewed under a microscope but they are all around us.</li> <li>Animals- can be divided into two groups: Vertebrates and invertebrates</li> <li>Invertebrates- have no back bone/ spine inside their bodies</li> <li>Vertebrates- have a back bone/ spine inside their bodies</li> <li>Vertebrates can also be divided into 5 classes:</li> <li>Reptiles- Have scales and lay eggs, they breathe air and are cold blooded, which means they need the warmth of the sun to warm their blood.</li> <li>Fish- Have scales and live in water, lay eggs and are also cold blooded- they breathe through gills and don't breathe air. They get the oxygen they need from water H2O. Sharks are also fish even though they have smooth skin (no scales) because they have gills.</li> <li>Birds- Have feathers and lay eggs- not all birds can fly- penguins and chickens for example. Birds have two wings and two legs and are warm blooded.</li> <li>Amphibians- A frog is an amphibian. Amphibians live on land and water, they are cold blooded, lay eggs and breathe air with their lungs.</li> <li>Mammals- Breathe air using their lungs, warm blooded and give birth to live young (not eggs) and feed them on milk. A platypus is a mammal because it has fur and produces milk but it also has a beak like a bird, and lays eggs like a reptile. Dolphins and whales are also mammals even though they have no fur because they breathe air through lungs and give birth to live young- they have no gills.</li> <li>To build on from LKS2 pupils, UKS2 pupils can also look at other classes such as molluscs, arthropods, insects and crustacea.</li> </ul>





# Animals Vocabulary

Vocabulary				
Tier 1	Joints	Nutrition	Diet	Bones
(general)	Secrete	Constrict	Fish	Muscles
	Structure	Protect	Energy	System
	Carbon dioxide	Oxygen	Support	Absorb
	Mammal	Birds	Reptiles	
Tier 2	Skeleton	Omnivore	Organs	Carbohydrate
	Saliva	Herbivore	Nerves	Amphibians
	Saturated	System	Unsaturated	Carnivore
	Protein	Fibre	Bacteria	
Tier 3	Vertebrae	Intestine	Arachnid	Vertebrate
	Invertebrate	Arthropod	Tendons	Crustaceans