Aldbury Primary & Nursery Knowledge Organisers		
Science Unit: Animals including humans	**Class 3**	**Year B Spring Term**

What should they already know?
From their 'animals including humans' topic in Class 1, the children should be able to: • identify and locate the sense organs • name and locate the basic parts of the human body • describe the importance of exercise, eating the right amounts of different types of food and hygiene • identify and name a variety of common animals • identify and name a variety of common carnivores, herbivores and omnivores • describe and compare the structure (body parts) of a variety of common animals
Key vocabulary from Class 1: eyes, ears, elbows, hair, mouth, nose, teeth, feel, hear, see, smell, taste, touch, exercise, diet, fish, amphibians, mammals, reptiles, birds, carnivore, herbivore, omnivore

Working Scientifically tasks that link to this unit:	
Year 3 – model skeletons	**To be used at the start of the topic** How do I use secondary sources to find out about the human skeleton?
Year 3 – researching skeletons	How do I ask questions and find the answers to them? How do I compare skeletons from 2 different animals?
Year 4 – teeth (eggs in different liquids)	How do I plan an enquiry and record my observations?

Key vocabulary	
balanced diet	a diet that has a variety of different food groups that provides your body with an adequate amount of nutrients
bones	pieces of hard, whitish tissue that make up the skeletons of humans and other vertebrates
muscles	soft tissues in the body that contract and relax to cause movement
hollow	having a hole or empty space inside (bones are hollow)
relax	when a muscle relaxes, it is not tight
contract	when a muscle contracts, it becomes shorter and tighter in order to effect movement of a part of the body
protect	keep safe from injury or harm
support	bear all or part of the weight of something (hold it up)
internal skeleton	animals that have a skeleton on the inside of their body
external skeleton (exoskeleton)	animals that have a skeleton on the outside of their body
food groups	carbohydrates, protein, fats, fibre, fruit and vegetables
parts of the skeleton	bones, muscles, femur, ribs, spine, tibia, shoulder blade
types of teeth	incisor, molar, canine
decay	rotting
organs in the digestive system	saliva, tongue, toilet waste, stomach, large intestine, small intestine, brain, lungs, urine, faeces, oesophagus
nutrients	substances that animals/humans need to stay alive and healthy
energy	this is what gives us the strength to move around

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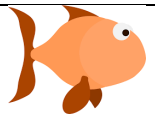
HFL ARE statements explained						
How do humans get their nutrients?	Humans/animals cannot make their own food, like plants do. We get nutrition from what we eat.					
What do the different food groups do for our bodies?	**Nutrient/food group**	**Found in… (examples)**				**What it does/they do for our body**
	carbohydrates	 potatoes	 pasta	 bread	 bananas	provides energy
	protein	 eggs	 fish	 yoghurt	 chicken	helps growth and repair
How do I know if my diet is balanced? (refer to eat well plate on NHS website https://www.nhs.uk/live-well/eat-well/the-eatwell-guide/)	fats	 oil	 butter	 cheese	 sausages	provides energy
	fibre	wholegrain cereal 	broccoli 	chickpeas 	apple 	helps you to digest food
	fruit and vegetables	strawberries 	leeks 	cucumbers 	chopped tomatoes 	keeps you healthy

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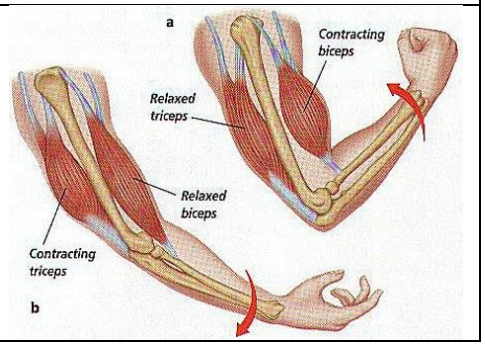
Do all animals have an internal skeleton? How do I group animals based on whether they have an internal skeleton or not?	This is a good opportunity for using secondary sources – children are not expected to know which animals do/do not have an internal skeleton without extra knowledge.	**Animals with an internal skeleton (all vertebrates)** – the skeleton grows with the body • fish • amphibians • mammals • reptiles • birds	**Animals with a skeleton on the outside (exoskeleton)** – skeletons do not grow with the animals, so they have to shed their skeleton and produce a new one. • insects • spiders • crustaceans • other invertebrates • tortoise (has internal and external)	**Animals without any bones at all (hydrostatic skeletons – all animals without any bones are invertebrates)** • slugs • jellyfish • worms
Why do we have skeletons?	Skeletons do 3 important jobs: • protect the organs inside the body • allow movement • support the body and stop it from falling on the floor			
How do we move?	Muscles work in pairs to move the bones that they are attaches to. They take turns to contract (get shorter) and relax (get longer).			



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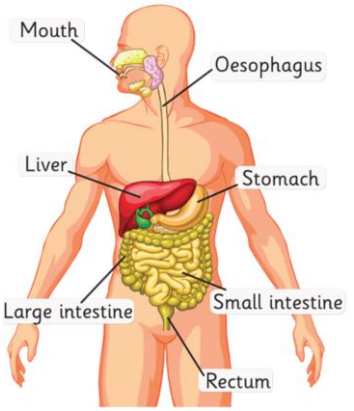
How does our food get broken down/digested?	Children need to be able to name the different organs in the digestive system and describe the role of each organ. Our body needs food to provide it with energy, vitamin and minerals. However, in order to use the food, we need to first break it down into substances that the organs in our body can use. This is the job of the digestive system, acts in stages. Each stage is important and prepares the food for the next stage. The entire length of the digestive system is around 20-30 feet!  **<u>5 major stages of the digestive system:</u>** 1. **Chewing –** Your teeth chew our food to break it into smaller pieces that are easier to digest/swallow and uses saliva to help do this. 2. **Swallowing –** Your tongue helps to push the food to the back of your throat and a muscle (oesophagus) pushes it down until it gets to the stomach (by contacting and relaxing). 3. **Stomach –** Enzymes (that is from a digestive juice) break down the food in the stomach into things our body needs. The stomach acid kills a lot of bad bacteria as well, so we don't get sick. 4. **Small intestine –** The small intestine works to continue to break down our food. The nutrients are absorbed into the intestine and into our body through the blood. 5. **Large intestine –** Any food that the body doesn't need or can't use is sent to the large intestine and later leaves the body as toilet waste.
Are all of our teeth the same? What do they do?	Teeth are part of the digestive system – they turn food into small pieces so we can swallow it. Humans have 32 adult teeth. Children have 20 teeth. You may like to give the children mirrors to count how many teeth they currently have.  • **Incisors** – for biting and cutting food (front of your mouth – 8 of them – 4 top, 4 bottom) • **Canines** – for ripping and tearing food (next to incisors – 4 of them – 2 top, 2 bottom) • **Premolars** – for holding and crushing food (towards the back – bigger and wider than incisors/canines) • **Molars** – for chewing and grinding food (right at the back – bigger than premolars – work with tongue to prepare for swallowing) • **Wisdom teeth** – an extra set of molars at the very back. Scientists think that wisdom teeth come from a very long time ago when our ancestors ate a diet of rougher/coarser food. They needed the extra molars to chew the food. Over time, our diets have changed, and they now have no function. They usually emerge in adults when they are around 18 years (but this can vary!)

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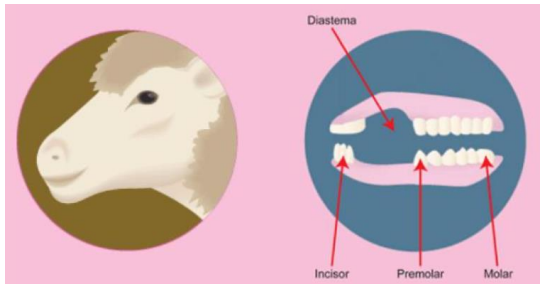
How do I look after my teeth and why do I need to?	• Brush your teeth twice a day • Brush your teeth for 2 minutes each time • Avoid too many sugary drunks/foods • Visit the dentist regularly • Choose drinks like water/milk when possible If we don't look after our teeth, a substance called plaque will appear on them. Plaque has bacteria in it, which causes our teeth to decay and turn rotten. Regular visits to the dentists will help identify teeth that are decaying, and the dentist can repair the tooth with fillings. Eventually, rotten teeth with fall out.
Do animals have the same teeth?	Animals have different diets (herbivores, carnivores and omnivores) and therefore need to have different kinds of teeth to suit the food they eat. • Herbivores need more molars for grinding their food and less canines as they do not need to rip/tear as much • Carnivores need canines (often big ones) to ensure they can rip and tear the meat they eat. • Omnivores need a mixture of all teeth to allow them to eat all foods.  

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Types of enquiry you could cover in this topic about digestion/teeth/skeleton	
	• How does the skull circumference of a girl compare to that of a boy? • How does the angle that your elbow/knee is bent affect the circumference of your upper thigh? • In our class, are omnivores taller than vegetarians?
	• How does an eggshell change when it is left in cola?
	• Do male humans have larger skulls than female humans? • Are foods that are high in energy always high in sugar?
	• How has a visit to the dentist changed since [choose time]? • How do dentists fix broken teeth? • Why do different types of vitamins keep us healthy and which foods can we find them in? • How did Marie Maynard Daly use science to help us improve our diets? • Which part of our digestive system does the most important job?
	• What are the names for all the organs involved in the digestive system? • How can we organise teeth into groups? • How do the skeletons different animals compare? • How can we group the food we eat?

Book/writing links
BOOKS • I will not never ever eat tomatoes • Goldilocks • Spider sandwiches
RECOUNT • Create a comic strip – the journey of a piece of food in the digestive system
EXPLANATIONS • My body has superpowers- explain how your body is super e.g. skeleton and muscles which allow you to move, a rib cage and skull which protects vital organs. • Explain the purpose of the skeleton and muscles • Explain how and why we should look after our teeth
PERSUASION • Write a letter to parents/ school canteen asking them to provide a range of foods for a healthy diet.