Year 4 – Animals including humans

What happens to the food that we eat?

Overview of learning

During this unit of work, children will learn about the importance of the digestive system. They will learn the names and functions of each part of the system and be able to 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? Children will use scientific models and diagrams to deepen their understanding and to present their findings clearly. They will also carry out research to gather information, compare ideas and support their explanations, helping them develop a more accurate and well-informed understanding of the topic.They will extend their knowledge of food chains by constructing and interpreting a variety of food chains, identifying producers, consumers, predators and prey.

Knowledge and understanding objectives

NC Y4 :
Children will:

- describe the simple functions of the basic parts of the digestive system in humans
- identify the different types of teeth in humans and their simple functions
- construct and interpret a variety of food chains, identifying producers, predators and prey

Key vocabulary

Tier 1: healthy, mouth, stomach, teeth, tongue
Tier 2: absorb, diet, digest, energy, function, observe, prediction, system, variable
Tier 3: canine, carnivore, consumer, digestion, food chain, habitat, herbivore, incisors, internal organ, large intestine, molars, nutrients, oesophagus, omnivore, predator, premolars, prey, producer, rectum, salivary gland, small intestine, tooth decay

Possible misconceptions

Children may think that all teeth do the same job, or that sharp teeth only belong to carnivores, not realising that humans have different types of teeth with different functions.
Misconceptions about the digestive system can include thinking that digestion happens only in the stomach, or that food travels straight through the body without being broken down in stages. Children may think their stomach is located by their belly button. Children may think that food goes down one tube and liquids go down another. They may also think that the air we breathe goes down the same tube as the food and water. Some pupils also imagine the digestive organs sitting separately rather than being connected in a working system.
When learning about food chains, children may believe that the chain always starts with an animal, or that predators are always 'big' animals, rather than understanding that food chains begin with a producer and that even small creatures can be predators. When drawing food chains, children may confuse the direction of the arrows.

Videos

1. https://www.bing.com/videos/riverview/relatedvideo?q=%20names%20of%20teeth%20video%20for%20a%2010%20years&mid=5B1EFB6627EF9D4519035B1EFB6627EF9D451903&ajaxhist=0
2. https://www.bing.com/videos/riverview/relatedvideo?q=how%20to%20brush%20your%20teeth%20video%20for%20children&mid=76CD3C835021FDF72B3476CD3C835021FDF72B34&ajaxhist=0
3. https://www.bing.com/videos/riverview/relatedvideo?q=+the+journey+of+food+through+the+body+video+for+kids&&mid=1B7E4E8002B6FB6568FB1B7E4E8002B6FB6568FB&FORM=VAMGZC
4. https://www.bing.com/videos/riverview/relatedvideo?q=Dairy+Cow+Digestive+System&&mid=3C0E3A0D08D2B79D12D93C0E3A0D08D2B79D12D98FORM=VCGVRP
5. https://www.youtube.com/watch?v=WEatCszm6ko
6. https://www.bbc.co.uk/bitesize/articles/z74rqp3#zqd2fdm
7. https://www.bing.com/videos/riverview/relatedvideo?q=digestion+demonstration+for+kids&&mid=71EB3DBB71A6951697E771EB3DBB71A6951697E78FORM=VAMGZC
8. https://www.bbc.co.uk/bitesize/articles/zwbtxsg
9. https://www.bing.com/videos/riverview/relatedvideo?&q=+video+on+food+chains+year+4&&mid=834FE6555AD0ABEC0670834FE6555AD0ABEC0670&mmscn=mtsc&qps=18FORM=VRDGAR

Previous learning

KS1 – In years 1 and 2, children will have learnt to identify and name common animals that are carnivores, omnivores and herbivores. They will be able to compare animals such as birds, fish, reptiles, amphibians and mammals. They will have learnt to identify and name basic parts of the body and say which part is associated with each sense. They will have learnt that most living things live in habitats and be able to construct simple food chains.

Year 3 – Children will have learnt about healthy diets and nutrition.

Future learning

UKS2 – Children will learn to describe the changes as humans develop to old age, extend their understanding of the human body to incorporate the circulatory system and describe ways in which nutrients and water are transported around the body.

KS3 – Children will learn more about the importance of a healthy diet and how different foods are absorbed and used in the human body. They will learn more about gas exchange systems in the lungs of the human body. They will also look at the effects of recreational drugs including substance misuse.

How are scientific enquiry types and working scientifically skills developed within this unit?

Scientific enquiry type	Working scientifically skills
Identifying different types of teeth in humans and their simple function	Identifying types of teeth on a diagram or model
Conducting an investigation to determine which drink causes the most tooth decay	Making predictions using knowledge of the effects of sugar on tooth decay
Identifying the basic parts of the human digestive system	Setting up tests to investigate the question posed – "Which drink causes the most tooth decay?"
Researching the simple functions of the basic parts of the digestive system	Recording their findings by producing a life-sized model of the digestive system
Researching what animals eat to construct a food chain	Communicating their findings by producing a presentation of food's journey through the digestive system
	Children will evaluate their presentations
	Asking questions about what animals eat
	Drawing diagrams to show the transfer of energy in a food chain

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Unit overview

What happens to the food that we eat?

Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
Key question: Why are teeth different shapes?	**Key question:** Which drink causes the most tooth decay?	**Key question:** What is the digestive system?	**Key question:** What happens to food as it travels through the digestive system?	**Key question:** What is a food chain?
Learning objective: I can identify the different teeth and describe their functions.	**Learning objective:** I can plan and carry out an investigation. I can make predictions.	**Learning objective:** I can name the basic parts of the digestive system.	**Learning objective:** I can name the basic parts of the digestive system and describe their functions. I can communicate how food is digested using a science model.	**Learning objective:** I can construct and interpret a variety of food chains. I understand what producers, consumers, predators and prey are.
Success criteria: Children will be able to name different teeth and relate the shape of the teeth to their function.	**Success criteria:** Children will be able to plan and conduct a comparative test investigation to answer the question; which drink causes the most tooth decay? They will make accurate observations and use this information to draw simple conclusions.	**Success criteria:** Children will be able to identify the basic parts of the digestive system. Children will make a life-sized model of the digestive system, using objects to represent digestive parts.	**Success criteria:** Children will use secondary sources to research the function of the basic parts of the human digestion system. Based on their research, they will write a presentation entitled: 'Food's journey' and present it with the help of a scientific model.	**Success criteria:** Children will be able to ask questions about what animals eat, research the answer and use their knowledge to correctly construct food chains. They will be able to identify the consumers, producers, predators and prey in the food chain.
Cumulative quiz: Q 1 – 3	**Cumulative quiz:** Q 4 – 6	**Cumulative quiz:** Q 7 – 9	**Cumulative quiz:** Q 10 – 12	**Cumulative quiz:** Q 13 – 15
Scientific enquiry type: Identifying & classifying	**Scientific enquiry type:** Testing	**Scientific enquiry type:** Identifying & classifying	**Scientific enquiry type:** Researching	**Scientific enquiry type:** Researching
Working scientifically skills: Recording data	**Working scientifically skills:** Making predictions Setting up tests	**Working scientifically skills:** Recording data	**Working scientifically skills:** Interpreting & communicating results Evaluating	**Working scientifically skills:** Asking questions Recording data

Unit overview

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Stretch and challenge ideas

Children could:

- write or storyboard the journey of a piece of food through the digestive system, but from the point of view of the food itself, including scientific terms (e.g., enzymes, nutrients, saliva) and describe each organ's role accurately
- compare the teeth of a lion (carnivore) with a cow (herbivore) and answer the questions using knowledge of diet and the specific function of each type of tooth
- explain which ingredient in drinks causes tooth decay and explain how it affects teeth, using the internet to research their answer
- use a Venn diagram to sort living things into predators and prey
- design a 'super animal' – challenge the children to invent a new animal adapted to a specific environment, designing appropriate teeth, digestive features and a place in the food chain, justifying every choice using scientific reasoning
- challenge the children to build a food web for a woodland, ocean or desert habitat, including multiple producers, consumers and predators, and explain what would happen if one organism disappeared
- be given hypothetical situations to consider, such as "What if humans had no molars?" or "What if the stomach didn't produce acid?" and explain the impact on digestion and overall health

Assessment

The **knowledge organiser** can be used to support children. These can be on display, on the tables, sent home or used for pre-teaching key vocabulary or concepts.

The **post-unit assessment** can be used to assess the knowledge and understanding objectives that have been taught throughout the unit. This can be done independently or in small groups with a teacher.

There is a **cumulative quiz** with questions that can be used to assess children throughout the topic. The quiz questions will link directly to each objective. They can also be used at the end of each lesson to give immediate feedback to inform future planning, and allow identifying children who do not understand.

Where possible, each lesson also includes small 'pit stop' style activities, such as true-or-false or stop-and-jot activities.

Climate change and sustainability

Use the '**Climate change and sustainability links**' document and scenario-based discussion cards to help pupils explore real-world sustainability challenges and choices.

Scientific enquiry type key

- Testing
- Researching
- Observing
- Pattern seeking
- Identifying & classifying
- Problem solving

Working scientifically key

- Asking questions
- Making predictions
- Setting up tests
- Observing & measuring
- Recording data
- Interpreting & communicating results
- Evaluating

Please refer to the '**Science activities safety guidance**' when undertaking any practical activities.