



Driving Question: How can we communicate our understanding of the digestive system to a younger audience?
Power Skill: Critical Thinking - I can tailor my message for the intended audience.

National Curriculum Learning Objectives

- 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

salivary glands	stomach	liver	pancreas	small intestine
large intestine	oesophagus	gall bladder	anus	enzymes
canine	incisor	molar	predator	prey

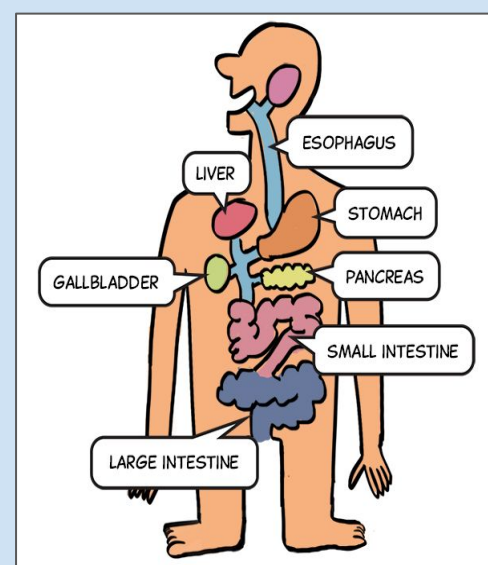
Key Learning

The Human Digestive System:

Our body needs food to provide it with energy, vitamins, and minerals. However, in order to get nutrients from the food, we must first break it down into substances that the various organs and cells in our body can use. This is the job of our digestive system. The digestive system acts in stages to digest our food. Each stage is important and prepares the food for the next stage. The entire length of our digestive system is around 20 to 30 feet!

Here are the major stages of the digestive system:

1. **Chewing:** Chewing is the first stage of the digestive system. When you chew your food, it breaks up big pieces into little pieces that are easier to digest and swallow. Also, your saliva is more than just water. It has special enzymes in it that start to break down starchy food (potatoes, bread) while you chew.
2. **Swallowing:** Food doesn't just fall down our throats into our stomach. First, our tongue helps to push food into the back of our throat. Then, there are special throat muscles that force the food down into a long tube that leads to our stomach, called the oesophagus. The food doesn't just fall down the pipe, muscles push the food along until it gets to our stomach.
3. **Stomach:** The next stage is the stomach. Food remains in the stomach for around 4 hours. While the food sits there, more enzymes break the food down further, such as proteins that our bodies can use. The stomach kills a lot of bad bacteria as well, so we don't get ill.
4. **Small Intestine:** The first part of the small intestine works with juices from the liver and pancreas to continue to break down our food. The second part is where the food gets absorbed from the intestine and into our body through the blood.
5. **Large Intestine:** The last stage is the large intestine. Any food that the body doesn't need or can't use is sent to the large intestine and where the water is removed from any remaining food. This food then leaves the body as waste.



The Liver and Pancreas:

The liver and pancreas do a lot to help the digestive system along. Both work with the small intestine. The liver provides bile (stored in the gall bladder) that helps break up fat into smaller bits. The pancreas provides additional enzymes to help digest all sorts of food. The liver also processes the digested food from your blood before it gets sent to various places in your body to be used.

Thinking Point

What would happen if you didn't have one of these organs?



Explore and Investigate

Tooth decay investigation: Use egg shells and a variety of drinks (milk, orange juice, cola, water) to demonstrate how sugar causes tooth decay and to address misconceptions about milk and calcium (milk is sugary, and the calcium in it which supports strong bones and teeth is absorbed in the digestive system, not through the teeth!).

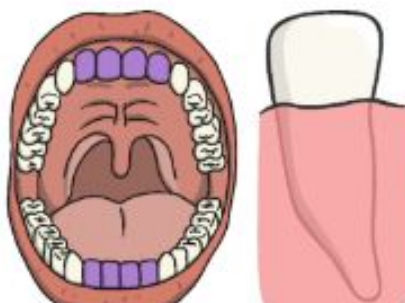
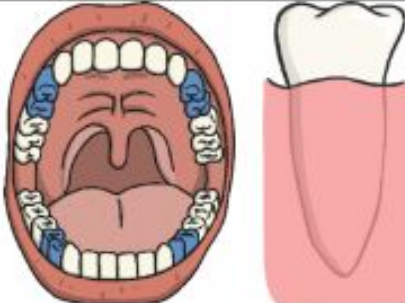


Resources:

Bowls etc for digestive system demonstration, egg shells and liquids, 3D models of digestive system and teeth.

Key Learning

Human Teeth:

Within the mouth, humans have a set of teeth to support the digestive system. Their primary function is to chew and grind up food so that it is easier to pass down the oesophagus and in to the stomach.

<p>Incisor:</p> <p>Humans have 8 incisors altogether; 4 in the upper jaw and 4 in the lower jaw. They are shovel shaped and are used for biting in to and cutting off pieces of food.</p> 	<p>Premolar:</p> <p>Humans have 8 premolars, two in each quarter of the mouth. They are between the canine tooth and the molars. They are used for holding and crushing food in to smaller pieces.</p> 
<p>Canine:</p> <p>Humans have 4 canine teeth, one in each quarter of the mouth, on either side of the incisors. They are pointy and used for tearing and ripping food.</p> 	<p>Molar:</p> <p>Humans have 8 molars, two in each quarter of the mouth. They are at the back of the mouth behind the premolars. They are large and flat and used for grinding food.</p> 

Thinking Point
Which tooth do you think is the most important to for humans to have?

Different animals have varying sets of teeth based on their diet.

Human:

This is the skull of a human. A human is an omnivore and eats a varied diet of meat and vegetation.

Lion:

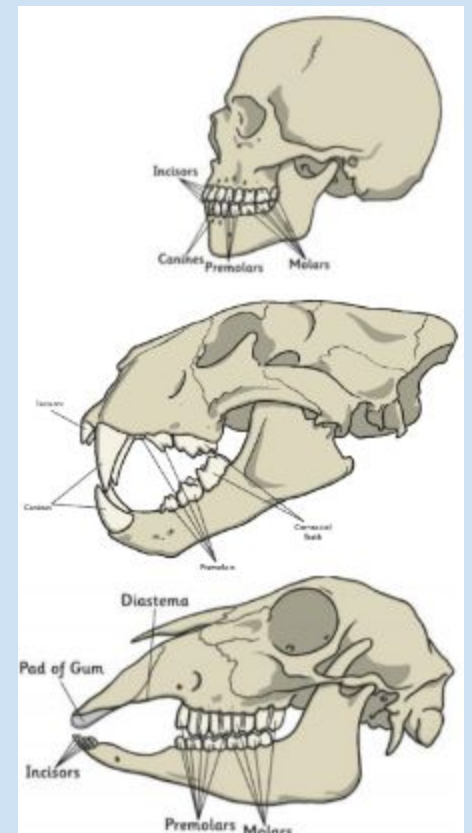
This is the skull of a lion. A lion is a carnivore and only eats meat.

Notice that, similar to humans, the lion has a similar set up of teeth with incisors and canines at the front of the mouth. However, because of a lion's hunting lifestyle and diet of only meat, they require much sharper incisors and canines.

Sheep:

This is the skull of a sheep. A sheep is a herbivore and only eats vegetation like grass.

Again, similar to humans, the sheep has incisors at the front of the mouth and premolars and molars at the back. However, because of the sheep's lifestyle and diet of only vegetation, they do not require any canine teeth. They also do not have any incisors on the top of their mouth. Instead, they have a pad of gum.



Food Chains:

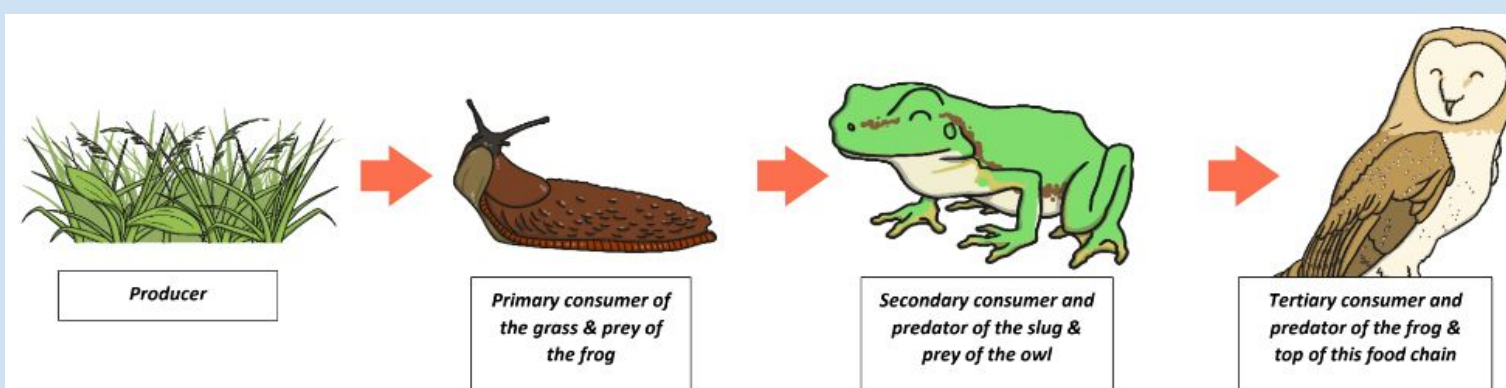
A food chain shows how plants and animals get their energy.

Producers and consumers:

A food chain always starts with a producer. This is an organism that makes its own food. Most food chains start with a green plant, because plants can make their food by photosynthesis. This producer is then eaten (consumed) by a consumer. A living thing that eats other plants and animals is called a consumer.

Predators and prey:

A predator is an animal that eats other animals. The animals that predators eat are called prey. Predators are found at the top of a food chain.



Thinking Point
Where do you think humans fit on a food chain?