Science Year 4 Spring 2 The Digestive System

Key Facts

Animals, including humans, cannot make their own food; they get **nutrition** from what they eat. We eat different foods so that our bodies get enough **nutrients** for growth and repair and for energy. Nutrients are **absorbed** by the body as food goes through the **digestive system**, travelling in this order:

mouth > oesophagus > stomach > small intestine > large intestine > rectum > anus

In the mouth, food is broken down both mechanically by the teeth and chemically by the saliva. Humans have two sets of teeth – milk teeth and permanent teeth. Teeth break the food into smaller pieces so that it can be swallowed.

Different animals have different numbers and types of teeth:

- Herbivores eat only plants and have incisors and molars.
- Carnivores eat only meat and have incisors and canines.
- Omnivores eat plants and meat and have incisors, canines and molars.

Saliva contains chemicals (**enzymes**) that break the food down. The tongue is used to move the food between different sets of teeth, and roll it into a ball for swallowing. The **oesophagus** is a tube that takes food from the mouth to the stomach, but plays no function in the breakdown of food.

Types of teeth:

- Incisors – cutting and snipping

- Canines – ripping and tearing

- Molars – crushing and grinding

In the **stomach** the food is churned around and broken down further mechanically. **Gastric juices** help to break the food down further chemically. Small intestine. Food continues to be broken down chemically in the **small intestine**, helped by juices produced by the liver and pancreas.

Nutrients pass out of the digestive system in the small intestine to be **transported** to the rest of the body. Food is digested in both the stomach and the small intestine: some foods are digested in the stomach (where the juices are acidic) while others are digested in the small intestines (where the juices are alkaline).
As the remaining food passes through the **large intestine** water is removed to be used elsewhere in the body. The solid waste from food that is not required by the body is stored in your **rectum** until you go to the toilet, when the waste material passes out of the body through the **anus**.

Vocabulary

Word	Definition
Absorb	Take in or soak up (energy or a liquid or other substance) by chemical or physical action.
Anus	The opening at the end of the digestive system through which solid waste matter leaves the body
Digestion	How our bodies change food to release energy and nutrients.
Digestive System	The parts of the body that work together to break down food to release energy and nutrients.
Enzymes	A natural chemical that our body uses to change foods in digestion and other processes.
Fibre	A plant material found in food that is not digested by the body but that plays an important part in good health.
Gastric Juices	A mild acid liquid and digestive enzymes produced in the stomach walls to digest food.
Glands	A group of cells or an organ that produces fluids that our bodies use.
Intestine	The lower part of the digestive system, below the stomach. It is a long, coiled tube, divided into the small intestine and the large intestine.
Nutrients	Chemicals that get from food to stay alive and grow.
Oesophagus	The tube that moves food from our mouth to our stomach.
Organ	A part of the body that performs a special task, such as our stomach, heart or lungs.
Saliva	A liquid produced by glands in the mouth that helps us to chew and digest food.
Stomach	The organ in the body that receives food that has been swallowed and begins to digest it.

Common Misconceptions:

We sometimes use the word **stomach** to mean the tummy or abdomen, and not the **organ** inside. Because we talk about food 'going down the wrong way', some people may think that there are two tubes (correct) but may assume that the second tube is for drinks (not the air we breathe). People often have little concept of how long the digestive tract (system) is (9m for adults).

Knowledge and Understanding:

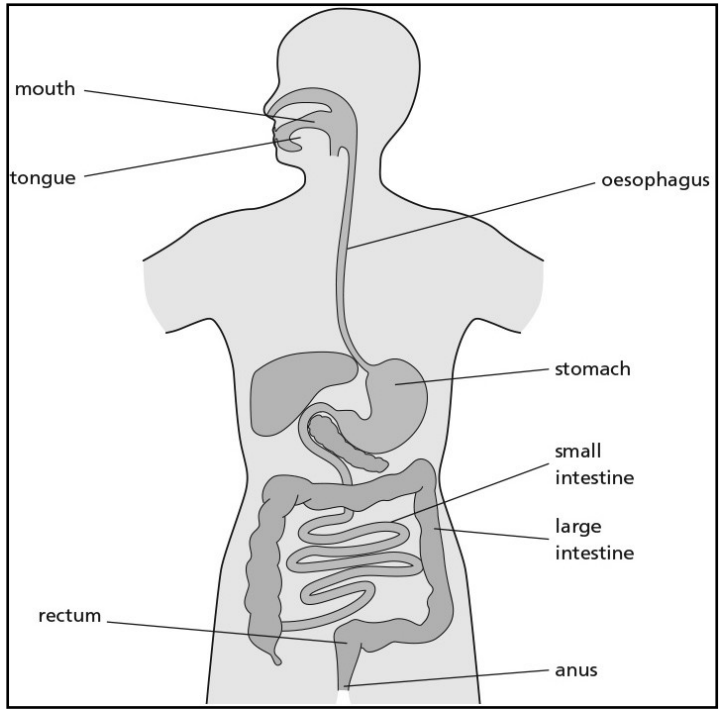
Children will learn:

- All about the human digestive system, and its main body parts: the mouth, tongue, teeth, oesophagus, stomach, intestines, rectum and anus.
- That the role of the digestive system is to break down the food we eat so that the nutrients, energy and other requirements we derive from it can be used in the rest of the body.
- How food is broken down through mechanical and chemical processes.
- About the roles of the different types of teeth in breaking food down, and how to care for their teeth. They will also learn about milk teeth and permanent teeth. There are also opportunities for children to investigate questions around toothpastes.
- What animals eat and how this information can be used to build food chains. There are opportunities to explore how the teeth of animals are adapted to the type of food that they eat.

Key skills and concepts:

Children will be able to:

- Ask and answer questions about teeth, digestion and food chains by carrying out research using secondary sources.
- Group and classify teeth by their function and relate this to diet.
- Carry out comparative and fair tests on different types of toothpaste and to record and present data in a range of ways.



Key Questions

What do we know about food?

Where does food go inside your body?

What sort of teeth do we have?

How can we look after our teeth?

What do animals eat?

What do animals' teeth tell us?

How is food broken down in the digestive system?