

Grade 5 Science
Week of October 19– October 22

Digestive System – Part 1

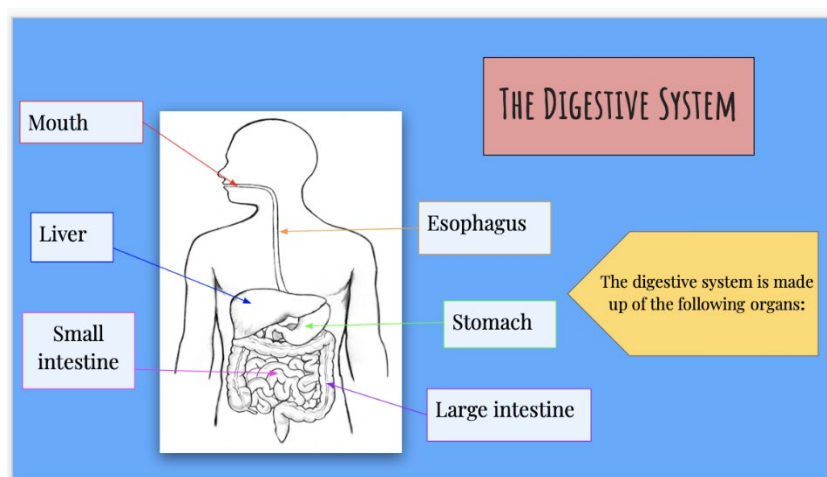
Introduction

Ever wonder what happens to your food once it disappears as you swallow? In this unit, you will learn about the process that food goes through while traveling through the **digestive system**. The digestive system is made up of a bunch of organs that work together to:

- Transform food that you eat into **nutrients** for your body to use
- Get rid food waste that your body will not use

By the end of the unit, you will be able to recognize and describe the function of:

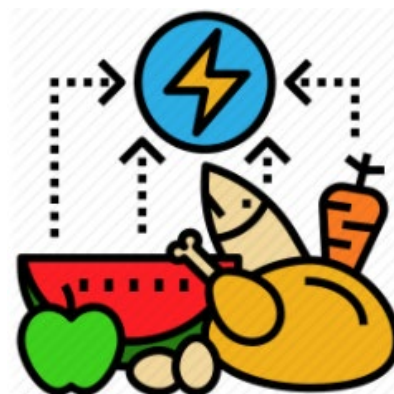
1. The mouth
2. The esophagus
3. The stomach
4. The small intestine
5. The large intestine
6. The liver



Digestion

Food! We really can't live without it. Food is essential for life because it provides your body with **energy, vitamins, and minerals** that are all necessary for overall good health and well-being. Eating a balanced diet is important so that your systems can receive **all of the nutrients** that you need to nourish your body.

Every meal and snack you eat is transformed into the nutrients and energy, which are **shared** with different systems in your body. The body gets rid of what isn't needed. The process of digestion, which is everything that happens between chewing and elimination, will be explored here.



There are two kinds of digestion that take place in your digestive system: **mechanical** and **chemical**. Your teeth breaking down the food into tiny pieces would be an example of mechanical digestion. The enzymes found in your small intestine would be an example of chemical digestion. Don't worry, you will learn more about these in the next few slides!

Watch this video below as an introduction to everything you will be learning in this unit. Make sure you follow along in your learning guide!



<https://youtu.be/VwrsL-ICZYo>

What Nutrients Do I Need?

Your body's digestive system is a complicated 'machine' that can take food and turn it into the nutrients you need. Nutrients in food can be divided into 4 main categories:

Nutrient	Used for	Example
carbohydrates	energy	sugars, bread, fruit
protein	building and repairing	meat, eggs
fats	store energy	butter
vitamins/minerals	maintain health	spinach (iron) oranges (vitamin C)

All of these categories should be met with your daily food intake. So it's important that you eat a balanced diet!



Healthy Diet

Eating a balanced, healthy diet is extremely important. Your body receives **energy** from the food you eat, so you want to make sure that you are nourishing it with good food. Healthy food contains nutrients that your body needs to function properly and **fight off illness**.

Your body needs a mix of **micronutrients** and **macronutrients**. Micronutrients are vitamins and minerals, like calcium, iron and vitamin D. Macronutrients are fats, proteins, carbohydrates, and fiber. You need both types of nutrients in your body, but you need more macronutrients than micronutrients.

In Canada, what comprises a healthy diet has recently changed. In 2019, the Canadian government came out with a new Food Guide to match growing scientific evidence of what kinds of foods are needed for a balanced diet. In your Learning Guide, take some time to compare the old Food Guide to the newly revamped one.

Canada's food guide

Eat well. Live well.

Eat a variety of healthy foods each day

Have plenty of vegetables and fruits

Eat protein foods

Make water your drink of choice

Choose whole grain foods

Discover your food guide at Canada.ca/FoodGuide

Health Canada Santé Canada

Canada

The Mouth

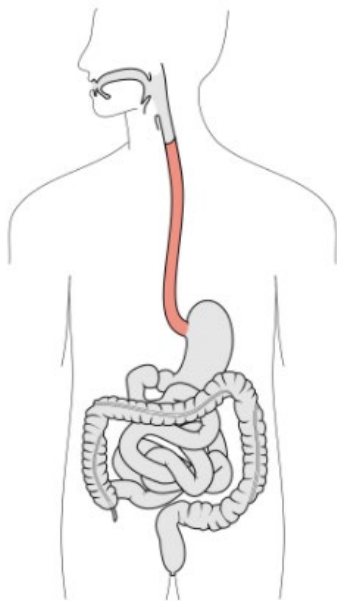
Let's begin our journey through the digestive system! Digestion starts in the **mouth**. Your food is broken into tiny pieces by your **teeth** to make digestion easier on your other organs. When your food is smashed into smaller pieces, this makes it easier for **all nutrients** to be extracted and used throughout your body. It's suggested that you chew your food **32 times** before swallowing it. But this depends on what you're eating, do you think you would have to chew a Smartie as many times as a carrot? Probably not!



But your teeth aren't the only things that help start the digestive process. **Saliva** plays a key role in digestion. Did you know that you produce around 1.5 L of saliva each day? In your saliva, there is a type of protein molecule called **enzymes** that helps with the break down of your food. Enzymes are found in different stages throughout the digestive process, you'll learn a bit more about them later on!

Fun fact: Laundry detergent contains the same enzymes that are found in your digestive system! This is how it breaks down stains and cleans your dirty clothes. Pretty cool!

The Esophagus



The **esophagus** is the organ in your digestive system that doesn't help digest food, but rather **transports** it where it needs to go! When you swallow, the food will move down your esophagus (taking about 7 seconds) and into your stomach. The esophagus is a **muscular tube** that contracts to push food down into your stomach. This is why you can actually eat upside down because the muscles are strong enough to push your food against gravity and down into your stomach!

At the top of your esophagus is a flap called the **epiglottis**. You will learn more about this flap in the respiratory system unit as well because it is vital to both systems. Watch the video below to see why the epiglottis is so important:



<https://youtu.be/sLECPLYafA>

Complete the following:

Name the two kinds of digestion:

How the Digestive System Works Video:

Watch the “How the Digestive System Works” video and answer the following questions:

1. The _____ is the gateway to the digestive system
2. Complete the sentence: Saliva contains things called _____ that start breaking down food immediately.
3. After the stomach, where does your food move to?
4. Where is bile made? _____
5. What two things does the large intestine absorb? _____

Complete the following table:

Nutrient	Used for	Example
Carbohydrates		sugars, bread, fruit
	building and repairing	meat, eggs
Fats	store energy	
	maintain health	spinach (iron) oranges (vitamin C)

Why is it important to eat a healthy, balanced diet?

Canada's Food Guide changed in 2019.



Compare the old Food Guide with the newly revamped one and answer the following questions

1. What changes do you notice?

2. Do you like the new Food Guide or the old Food Guide better? Why?

3. Do you think you eat a diet close to the one that is shown on the new Food Guide? Explain.

How many times (on average) should you chew your food before swallowing?

How much saliva do you produce each day? _____

How long does it take for food to travel down your esophagus to your stomach?

How is it possible that you can still eat upside down? _____

Operation Ouch- The Epiglottis Video:

Watch the "Operation Ouch-The Epiglottis" video and answer the following questions:

1. What is the name of the device that Xander uses to view Chris' epiglottis?

2. Explain what happens to the epiglottis as soon as Chris swallows:

3. How many times do you swallow in a day?

4. What kind of muscle is pushing the soup up into Xander's stomach when he is upside down?
