

LESSON: The Digestive System

LEARNING OBJECTIVES:

- Define and explain what digestion is
- Understand and identify key stages and important body parts of the digestive system
- Understand and describe the process of digestion and how your body breaks down food
- Understand the difference between mechanical and chemical digestion

LEVEL:



MATERIALS:

- Activity Sheet: Level 3 - The Digestive System: Label the Body
- Activity Sheet: Level 3 - Digestion Crossword
- PowerPoint: Level 3 - Digestion
- Quiz: Level 3 - Digestion

LESSON:

Starter: The purpose is to introduce the idea of digestion for grades 7-8. Students can critically consider questions such as: What happens to our food after we eat it? How is our food broken down? What does food do for our body and why is digestion important?

Bring students together to have them start talking and thinking about these topics.

**Educators Note:* For a starter, try asking students what their favorite food or meal is. While going through the stages of digestion, use that food example to trace the food's journey.

Section 1: What is Digestion?

Ask Class: What is digestion? **listen to responses, build a definition together, recap and compare with the following**

Digestion is the body's process of breaking down food and its nutrients so that our body is able to absorb and use them for its regular functions.

Section 2: The 5 Stages of the Digestive System

Ask Class: What are the 5 stages of the digestive system? **listen to response, create a list, recap and compare with the following**

1. The Mouth: Teeth, Tongue, Saliva
2. The Esophagus
3. The Stomach: Gastric Juices
4. The Small Intestine: Liver, Gallbladder
5. The Large Intestine: Colon, Rectum

The Mouth: this is where digestion first begins. As you chew your food, your **teeth** help to break the food down into tiny pieces making it both easier to swallow and easier for your body to break down. Your **tongue** can also help to move your food around and assist in the chewing and swallowing process. Your mouth creates a fluid -called **saliva**- which helps to break down your food even further and it also helps to make your food easier to swallow so it can enter the next stage: **The Esophagus**.

Fun Fact: The mouth uses the teeth, tongue, and saliva to form the food into a small mushy ball called a *Bolus*.

The Esophagus: food enters a tube called the esophagus which acts as a passage that allows food to travel from the mouth, to the next stage: **The Stomach**. Food doesn't just simply fall down this tube however. Instead, there is an opening at the top of the esophagus, called a *sphincter*, which controls how much of the bolus (food) is passed through. Once the food enters, muscles in the esophagus contract (*contract* - muscles tighten and then loosen) to push the food along. When thinking about contracting, it can be helpful to picture someone stretching an elastic band*. When you stretch an elastic band, it causes it to grow larger. However, when you let go, the elastic band pulls back and returns to its smaller size. This action of the elastic band stretching and then shrinking is similar to how the muscles in your esophagus contract to push your food along. Once the food reaches the end of the esophagus, another sphincter controls the passage of the food to the next stage: **The Stomach**.

**Educators Note:* It may be helpful to have an elastic band for this portion of the lesson to demonstrate contraction for the students.

The Stomach: with the help of the sphincter, small portions of food are slowly released into the stomach. Here, your stomach acts like a blender where it mashes and grinds using a motion called *churning*, until your food reaches an almost-liquid form, also known as *chyme*. This is done with the help of your strong stomach muscles and the stomach's juices, known as **gastric juices**. The chyme is then released bit by bit (using another sphincter) into the next stage: **The Small Intestine**.

Fun Fact: The gastric juices not only help to break down your food, but they can also help to kill any harmful bacteria which you may have *ingested* (*ingested* - eaten or taken in).

The Small Intestine: while this stage is called the small intestine, it actually isn't very small at all! In fact, the small intestine is the longest part of the digestive system, measuring at about 6-7 meters or over 22 feet long! The small intestine is an important part of the digestive system as it helps to further break down your food and collects the important nutrients from the food that you have eaten. The small intestine gets help from two other important body parts; the **liver** and the **gallbladder**. The **liver** helps to create a liquid called *bile* which assists with digestion and the breakdown of your food. With the help of your **gallbladder**, this bile is then released into the small intestine where it can be put to work! By the time the chyme reaches the next stage: **The Large Intestine**, the bile has helped to make this mixture completely liquid.

The Large Intestine: this is the final stage of the digestive system which ends with waste leaving the body. A major part of the large intestine is the **colon**. The colon helps to remove the water from the liquid mixture and leaves behind solid waste which is made up of things that our body cannot use. From here, the waste then travels to the **rectum** where it is stored until your body is ready to excrete it (*excrete*- to remove or get rid of). Once ready, this waste then leaves the body when you go to the bathroom.

Section 3: Chemical vs. Mechanical Digestion

Recap Digestion: Now that you have learned what digestion is, and the different stages to the digestion process, are there different types of digestion?

Ask Class: *What do you think is the difference between chemical digestion vs. mechanical digestion? Can you give any examples? *listen to responses, build a definition together, recap and compare with the following**

***Answer:**

- **Mechanical digestion** is the breakdown of food and nutrients using physical movement such as chewing, grinding, crushing, and/or muscle contractions.
- **Chemical digestion** is the breakdown of food and nutrients using specific chemicals such as Saliva, Bile, Gastric Juices, etc.

Summary: Wrap-up and Take-Home Points

That concludes your food's journey through the digestive system! Remember, it is not just your mouth that is important for eating, but there are many other important parts of the system that allows your body to eat and absorb all the important nutrients that it needs!

*Educators Note: *For further facilitation, use the assigned quiz to recap the key concepts and to test knowledge learned from this lesson.*

REFLECTION NOTES:

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