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## TOPIC: HUMAN DIGESTIVE SYSTEM

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**SUBJECT:** BIOLOGY

**LEVEL/AGE:** 1<sup>st</sup> grade/12-13 YEARS OLD

**FORE KNOWLEDGE:** Unit “The trip of food” in Science in the 5<sup>th</sup> grade of primary school

**LENGTH:** 5 PAGES (DURATION: 90 minutes)

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## LEARNING OUTCOMES

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At the end of the lesson, the students should know:

- The organs of the digestive system
  - The structure and function of the organs
  - The accessory glands of the system - Their position and function
  - The pathway of food through the digestive tract
  - The correlation of the digestive system with the respiratory and circulatory system
  - The importance of digestion
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## RESOURCES

A teaching model (mannequin), educational website, student's book and workbook, Word Cloud application, PowerPoint presentation

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## TEACHING METHODS

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Lecture course, videos, games, experiments, worksheets, brainstorming

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## ACTIVITIES

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### INTRODUCTION (3 minutes)

The lesson starts with the following image and the question “Why do we eat?”. We ask the students to get into the link of the [Word Cloud application](#) and answer with a word, using their mobile or computer/tablet if the lesson takes place in the ICT classroom.



### REVISION (7 minutes)

We discuss the answers with the students and emphasize the importance of food intake and its degradation into small pieces in order to provide us with nutrients and energy to develop and grow. For this purpose, our body has a system named the digestive system and the process is called digestion.

### THEORY (25 minutes)

Our 1st contact with the digestive system is a short video of about 5 minutes ("[Digestive System \(Part-1\) | Parts of Digestive System | Science | Grade-5 | TutWay](#)") to help students recall their foreknowledge.

Afterwards, using the plastic teaching model we describe each organ and give details about its structure and biological role. We put emphasis on their position in our body, their shape, their external and internal layer. We also describe the passage of the food step by step and its breakdown across the gastrointestinal tract.

### **Be careful! Don't speak during a meal**

"If you talk while eating your throat is trying to do two things at the same time, swallowing food inwards while eating and sending sound/air outwards in the opposite direction while talking. Since you are trying to do two things which requires the throat to function in opposite direction, you are increasing the likelihood of choking which may even lead to death".



The process by which digested food molecules are absorbed into the bloodstream and transported to different parts of the body is known as **absorption**. Absorption of food begins with the small intestine. The digested food molecules pass through the walls of the small intestine and then into the bloodstream.



At the same time, we do an experiment using bread and iodine in order to check the starch (iodine test). If we add saliva on the bread, it is observed that the bread with saliva does not turn blue, whereas the bread without saliva turns blue. It takes about 30 minutes to get the result.

### **HANDS-ON PART** (30 MINUTES)

1st activity (10 minutes): The students work on a biology educational website ([Sheppard Software Digestion tutorial](#)) on the school's computers and that's really simple. Students can click on the organs and learn for their function and they can also play a few games and a quiz to test their knowledge.

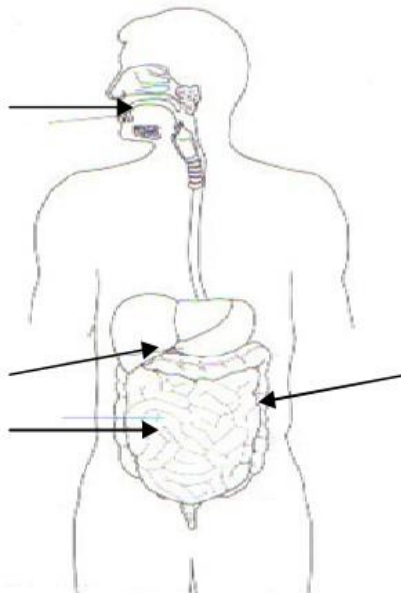
2nd activity (20 minutes): The students work on [BioDigital Human](#) which is an interactive 3D software platform for visualizing anatomy. They choose the digestive system (female/male) and they can manipulate it (zoom in/out, rotate, paint, extract or fade the organs, search for information).

### EXERCISE PART ( 15 MINUTES)

1.A. Complete the following sentences giving the name of the organs in which the following processes take place.

- The digestion of starch starts in .....
- The lipid digestion mainly occurs in .....
- The ..... produces the bile
- The ..... absorbs the water and removes the waste material

B. Put the organs on the scheme.



C. Use different colours to paint the accessory glands.

2. In the following table, check the organs the food passes by.

Heart			Mouth cavity
Liver			Arteries
Large intestine			Larynx
Stomach			Small intestine
Trachea			Pharynx

3. The length of the small and large intestines is 6 metres and 1,5 metres, respectively. How much time does a dietary fibre from the stomach need to be removed by defecation? Solution: The fibre travels 1,5 metres/30 min.

### CONCLUSION (3 MINUTES)

Students' assessment.

### SYNTHESIS/SUMMARY (7 MINUTES)

Important meanings - keywords:

**Digestive tract, accessory glands, saliva, bile, pancreatic liquid, gastric liquid, absorption, defecation, epiglottis, degradation of sugars, proteins and lipids.**

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