

GRADE 3

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Teachers' Corner

Science

# Operation Ouch Digestion- Biology for Kids

# Curriculum Connection:

## Science:

The lesson introduces students to the digestive system, focusing on its key components, the process of digestion, and the role of various organs.

## Health:

The lesson also integrates with the health curriculum by emphasizing the importance of understanding digestion for overall well-being. While the lesson doesn't explicitly address healthy food choices, it highlights how the body processes nutrients from food to support its functions.

# Learning Goals:

## Science:

Students will **understand the key components of the digestive system**, including the mouth, stomach, small intestine, and large intestine.

Students will learn about **the process of digestion**, including the roles of stomach acid, enzymes, and the absorption of nutrients. Students will comprehend the sequential movement of food through the digestive system.

## Health:

Students will recognize the significance of making healthy food choices and the impact of digestion on overall well-being.

Students will gain insight into how the body extracts nutrients from food to fuel its functions.



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# Materials:



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## Lesson Supplies:

- Operation Ouch: Digestion– Biology for Kids S01 E12**
- Vegetable oil**
- Poster: Journey Through the Digestive System (provided)**
- White vinegar**
- Balloon**
- Piece of bread or handful of oatmeal**



# Lesson:

**Begin the lesson by discussing with students the importance of the digestive system in our bodies.** Explain that the digestive system helps process the food we eat, extracting nutrients and energy for our bodies to function.

## Viewing the Episode:

Introduce Kidoodle.TV Show: *Operation Ouch – Digestion– Biology for kids S01 E12* to the class. Instruct students to pay attention to the journey of food through the digestive system, the role of different organs, and the processes involved.

## Experiment – Demonstrating Digestion through a Balloon:

**Prepare the Balloon:** Begin by pouring a few drops of vegetable oil into the balloon. Rub the balloon between your hands to ensure that the oil coats the inside surface of the balloon. Let any excess oil drip out by gently tipping the balloon upside down.

**Add Food:** Next, break off some small pieces of bread or drop about 15 oats into the balloon. These represent the food that we'll be "digesting" in our experiment.

**Introduce Acid:** Carefully pour about 1 teaspoon of white vinegar into the balloon. If you've added more food, you might need a little more vinegar.

**Mix and Observe:** Gently squish and squeeze the balloon for around a minute. Then, starting at the widest part of the balloon, carefully squeeze and push the contents upward. Ask the students to describe what they observe coming out of the balloon.

## Explanation of experiment:

In this experiment, we're simulating the human stomach using a balloon. Our real stomach contains acid that helps break down the food we eat so our bodies can absorb the nutrients we need. However, since we can't use real stomach acid, we're using white vinegar, which is an acid but not as strong or unpleasant as stomach acid. Our stomach has a protective lining to shield itself from the strong stomach acid. In our experiment, we replicate this lining by pouring vegetable oil into the balloon. Although our stomach lining isn't made of oil, it's actually made of mucus. The oil inside the balloon imitates how mucus lines the stomach to protect it.

Although the balloon isn't a real human stomach, we'll pretend it is for the purpose of our experiment.

We'll drop the food into the "stomach" and pretend it's been swallowed. As the food reaches the stomach, the acid (vinegar) gets to work! Our stomach is a powerful muscle that contracts and releases, just like how we're squishing the balloon to mix the contents. When you squish the contents out of the balloon, the food appears to dissolve. This mirrors what happens in our stomach before the food moves to the small intestine. The small intestine is responsible for digesting and absorbing the nutrients in the food. However, it can't work with large pieces of food. That's where the stomach comes in – its job is to break down the food into tiny pieces. This way, when the food reaches the small intestine, the nutrients are ready to be absorbed and used by our bodies.



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## Discussion and Explanation:

Engage the students in a discussion immediately after the experiment. Relate the experiment to the actual process in the digestive system, explaining the roles of stomach acid, protective lining, and the breaking down of food.

## Conclusion:

Display the poster “Journey Through the Digestive System” (provided). As a class, review and discuss each part of the digestive system and the function of each organ.

## Extension:

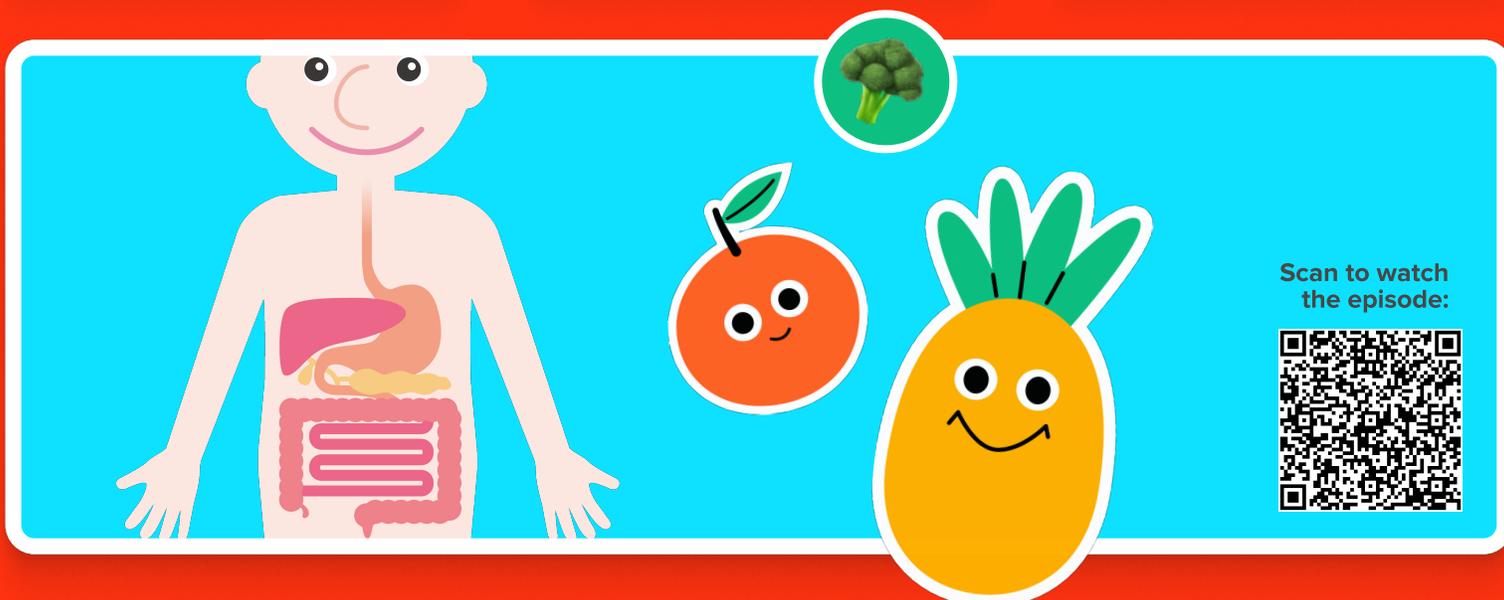
Students can participate in a "Digestive System Model" project. Working individually or in small groups, they can create a 3D model of the digestive system using craft materials. They can use items like cardboard, clay, and colored paper to represent the mouth, esophagus, stomach, small intestine, and large intestine. As they assemble the model, encourage them to consider the functions of each organ and the sequence of food movement. Once completed, students can present their models to the class, explaining the significance of each part in the digestion process.

## Assessment

Throughout the lesson, monitor students' engagement and active participation during the hands-on experiment and class discussions.

Evaluate their ability to connect the experiment to the actual digestive process by asking probing questions about stomach acid, the role of protective lining, and the breakdown of food.

During the experiment reflection, assess their grasp of the sequential journey of food through the digestive system. To gauge comprehension, have students explain how the stomach's functions relate to the experiment's outcomes.



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