Name: Date:

Digestion in a Bag Lab

*Adapted from Explorit Science Center’s Science Assembly Program at the University of California, Davis*

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# Introduction

In this lab, you will mimic the stages of digestion using the supplies provided. Upon completion of each step, fill in the chart identifying what each of the activity items represents. To review the role of the digestive system, use the Gastrointestinal Physiology assets presented in the Physiology & Pathology app by Visible Body. Also, watch the Inflammatory Bowel Diseases and GERD assets in the Gastrointestinal unit of Visible Body’s Physiology & Pathology app.

# Resources

* Saltine crackers
* Water
* Ziploc-style quart freezer bag
* Sponge
* Vinegar (soda or orange juice will also work)
* Scissors
* Trash can
* Spoon
* Pen or pencil
* Student worksheet with table and discussion questions
* Physiology & Pathology by Visible Body

\*This lab can be modified to be a group activity using large freezer bags.

# Directions

## Part 1: Activity

1. Add a sleeve of saltine crackers and 4 tablespoons of baking soda to the plastic bag and securely seal the bag.
2. Crush the saltine crackers using your knuckles.
3. Add ¼ cup of water to the bag.
4. Add ⅓ cup of vinegar to the bag.
5. Mash the contents of the bag so that the liquid mixture fully coats the crackers .
6. Insert the sponge into the plastic bag and seal.
7. Move around the cracker mixture to coat the sponge until the water is absorbed.
8. Remove the sponge and air from the plastic bag.
9. Seal the bag and roll the bag from the bottom to the top.
10. Hold the rolled up bag over the trash can.
11. Cut one end of the bag and squeeze the contents into the trash can.

### Table 1

| **Activity Items** | **Gastrointestinal Structure/Object** |
| --- | --- |
| Crackers |  |
| Water |  |
| Vinegar |  |
| Crackers mixed with water |  |
| Crackers mixed with vinegar |  |
| Sponge |  |

## Part 2: Thought Questions

Answer the following questions:

1. What step in the activity represents mechanical digestion?
2. What step in the activity represents chemical digestion?
3. Watch the Inflammatory Bowel Diseases animation in the Physiology & Pathology app by Visible Body. If an individual has inflammatory bowel disease, which step in this activity would be compromised?
4. What is the role of saliva in digestion?
5. Watch the GERD animation in the Physiology & Pathology app by Visible Body. Why is stomach acid harmful to the esophagus but not other areas of the gastrointestinal tract?
6. What is the role of stomach acid in digestion?

**Bonus Question:** What are the two layers of the gastrointestinal wall that contribute to peristalsis?