

D.I.Y. STEM: DIGESTION IN A BAG

Activity adapted from <http://www.explorit.org/scienceonline/little-hands/goo-ology-digestion-in-a-bag>

SUPPLIES

- one plastic zipper-top sandwich bag
- 3 crackers
- 1 tablespoon water
- ½ teaspoon baking soda
- 1 tablespoon white vinegar
- sponge
- scissors
- garbage can

DIRECTIONS

- 1) Look at the crackers. Notice anything happening inside your mouth? Your body prepares for digestion—the process of breaking down food to absorb nutrients—even before you begin eating. When you see or smell food, saliva (or spit) forms inside your mouth.
- 2) Place the crackers and water inside your baggie. Seal it tightly and mash it with your knuckles. This is similar to how your teeth mash food up into a mushy ball—called a bolus—that is easy to swallow. The water inside your baggie works just like your saliva: as you “chew,” it softens the food particles and helps break down your meal so that your body can absorb the fats and sugars.
- 3) When you swallow, your tongue pushes the bolus down your throat and into your esophagus, a long tube that leads to the stomach. Your stomach is like a giant mixer. Pour the vinegar and baking soda into your baggie, and knead it again. The vinegar is acidic, similar to the gastric juices and enzymes in the walls of your stomach. Together, churning movements and these secretions turn the bolus into a thick liquid called chyme.
- 4) The chyme enters the small intestine. Open your baggie and dab at the mixture with a sponge. With a little help from digestive juices provided by the liver, gall bladder, and pancreas, your small intestine “sponges up” vitamins and nutrients from the chyme. Anything that your body can’t use is passed to the large intestine.
- 5) By now, the chyme is a thin, liquidy mixture. The large intestine absorbs the water from it, and what’s left exits your body...as poop! Press the air out of your baggie and snip off one corner, then squeeze out the contents into the bucket. The process of digestion is now complete!

Questions for Discovery

- Why is chewing important?
- What happens when vinegar and baking soda are added to the bag? Describe the reaction.
- Which organs participate in chemical digestion? Which participate in mechanical digestion?

Further Learning

- [The Magic School Bus: Human Body](#). Scholastic, 2012. (DVD; preschool – gr 5)
- Flora, Brett. [Your Digestive System Works!](#) Capstone Press, 2015. (Book; gr K – 3)
- Wicks, Maris. [Human Body Theater](#). First Second, 2015. (Book; gr 4-8)



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