

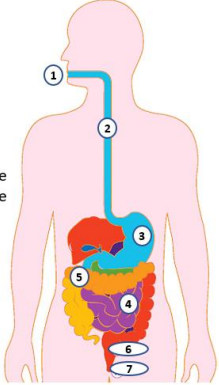
Activity: Digestion in a Bag

Summary: This activity engages children to learn about our digestive system by finding out how poo is made by the body.

Appropriate age-group: primary school
 (ideally 3rd to 6th class)

Curriculum Links: Living Things

Learning objectives: to learn how food is digested by our body; the function of certain organs in our body; about the healthy microbes that live in our gut; the importance of hygiene in keeping us healthy

 <p>1. Mouth 2. Oesophagus 3. Stomach 4. Small intestine 5. Large intestine 6. Rectum 7. Anus</p>	<p>Materials required:</p> <ul style="list-style-type: none"> • Plastic Ziplock bag • 12 Shreddies or 1 piece of Weetabix (or other healthy cereal) • 10ml water containing a pinch bread soda – this will act as saliva • 10 ml brown malt vinegar – this will act as the stomach acid • 5 ml of dilute fairy liquid (dilute 1:1 with water) – this will act as the bile • 5 g of sprinkles – these are the gut microbes • Small ball of cotton wool – this will act as the large intestine • Scissors • Container to collect waste
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Activity:

1. Put the breakfast cereal in the Ziplock bag and seal it.
2. Use your hands on the outside of the bag to crunch up the food to mimic chewing. **Chewing** is a type of mechanical digestion.
3. Add the “**saliva**” and reseal the bag. Continue mashing the food with your hands. There is an **enzyme** (chemical) called amylase that breaks down food.
4. Explain that when the food is soft enough to swallow it travels down through the **oesophagus** (inside our throat) to our stomach.
5. Add the “**stomach acid**” (vinegar) to the Ziplock bag. The stomach acid chemically breaks down the food so that it become more like a liquid
6. Next explain that the food travels to the **small intestine**, a very long and narrow tube between our stomach and large intestine.
7. Add the “**bile**” to the Ziplock bag. Bile is like fairy liquid – fairy liquid breaks down the fat & grease on our dishes and, bile breaks down the fat in our food
8. Any food that has not been absorbed yet, travels down to the **large intestine**. Add the cotton wool to the Ziplock bag to mimic how the large intestine reabsorbs (soaks up) water and salts into the body.
9. Add the **microbes** (sprinkles) to the Ziplock bag. Explain that the microbes produce gases as the break down our foods which leads to farts!
10. Now that digestion is complete, undigested food must leave the body through the **rectum**. Cut the bottom corner off the Ziplock bag and squeeze out the contents (poo) to mimic elimination.

Activity: Digestion in a Bag

Class discussion points:

1. How do you first break down the food you eat? How do we soften the food in our mouths?
2. How does food move through our body? The linked activity on peristalsis is useful here
3. The small intestine is covered with **villi**, which are like tiny fingers. The villi absorb (soak up) **nutrients** from our food to give us energy. Because of there are so many villi, the small intestine can cover a huge area – can student's guess how much space would be covered if the small intestine was spread out flat? (it would cover 2 tennis courts!)
4. We have trillions of microbes (good bacteria) living in our gut. We rely on them to keep us healthy. They make vitamins for us and digest fibres that we can't break down by ourselves.
5. Can students think of ways that we can mind our microbes? (eating healthy food, taking exercise, having good hygiene, not getting stressed about things)

Facilitating group work

- This activity works well as a demonstration but is more engaging when children are involved in each stage of the digestion.
- In either case, you may like to use the PowerPoint slides to guide the activity
- If working in groups, pupils can work individually or as pairs. Make sure to scale up the amount of consumables/equipment accordingly
- Set up workstations so that 4-6 pupils can work in the same area.
- To control the flow of the activity, it's helpful not to put all the materials needed at the workstation at once. Rather dispense the materials to each workstation only when all pupils are ready and listening.

Linked activities:

- **Guess to Digest:** Predict the length of various digestive organs
- **Chew on That:** Learn about physical and chemical digestion in the mouth
- **Peristalsis Power:** Learning how food moves through the body
- **It's Alive!** Learn about living things with yeast
- **Alimentary Adventures:** Large inflatable tunnel of the digestive system at family science festivals. Also featured on RTEJr.