

Making Poo

LESSON PLAN

RECOMMENDED FOR YEARS 3 - 6

Lesson summary

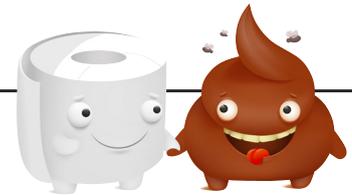
In this lesson, students learn about the digestive system by following instructions to model the process of how food turns into poo. By the end of this lesson, students will be better at explaining how the digestive system works and the role each organ plays in breaking down the foods we eat.

Learning objectives

Students can follow instructions to create a model of the digestive system.
Students can explain how the digestive system works.

Possible Australian Curriculum links

Science Understanding / Biological sciences
Science as a Human Endeavour / Use and influence of science



STARTER

1. Begin the discussion by showing students bananas and crackers. Ask students what happens if we were to eat these foods (it goes into our mouths, then our stomachs and intestines and then we poo it out!). Ask students to explain what it looks like when the food comes out the other side as poo. Invite students to share their ideas about why they think the food looks (and smells!) so different when it comes out as poo and what happens to the bananas and crackers as they travel through the human body.
2. Introduce the digestive system by having students complete “The Journey from Food to Poo” from the [Discovery Centre's Fun for Kids website](#). You could ask students to label the parts they know independently (as a diagnostic assessment activity) and have them revisit and correct their own work at the end of the lesson.

Resources

Each group will need:

- 1/3 banana
- 1 cream cracker
- 1 paper cup with hole in the bottom
- 50ml water
- 50ml white vinegar
- 1 plastic sandwich bag
- A pair of scissors
- 1 leg cut from a pair of stockings
- Paper towels
- An aluminium tray or plastic/paper bowl

You may also need:

- Plastic sheet or newspaper to cover the tables
- Food colouring (optional)

BODY

1. Explain to students that we are going to learn about the route food takes through the digestive system by creating a model of it which will produce “poo” at the end of the activity. You may like to have students work in pairs or groups of 3 for this.
2. Ask students to pour 50ml of white vinegar into a plastic sandwich bag. The bag plays the role of the stomach, while the vinegar models the stomach acid. You may wish to ask students to point to or circle each part of the digestive system on the activity sheet, as you explain and talk through the steps for making their models.
3. Have students break up the cream cracker and drop it into the bag. Ask them to break up the banana into smaller lumps and drop these into the bag as well. Explain that this action represents eating the food, which enters our bodies through our mouths and gets broken up into small pieces as we chew and swallow.
4. Have students add 50ml of water into the bag which represents the saliva from our mouths. They will then need to squeeze the air out from the bag and seal it tightly.
5. Ask students to mash up the mixture with their hands for 2-3 minutes. This action represents the stomach muscles churning up the food. By mashing the mixture, the food should eventually turn into a soup-like consistency.

Health and safety

This activity can get messy, so you may want to cover the table with plastic or newspaper first.



WOW Lesson!

Add food colouring to the food to mimic some of the digestive juices from the gall bladder, pancreas etc. This can help give the waste a browner colour for added realism!

6. Ask students to tilt the bag up slightly and cut a small hole in one corner of the bag (the corner where you're not tipping the soup towards!). With the stocking held low over the tray/bowl, ask students to squeeze the contents of the bag into the stocking. The stocking represents the small intestine (have students circle or point to this on their diagrams).
7. Have students squeeze the food through the stocking, ensuring that they keep squeezing until all the liquid has run out. Discuss how the liquid or juices contain the nutrients from the food which passes through the wall of the small intestines before being absorbed by our bodies through the bloodstream. The blood then carries the useful substances around the body to where they are needed. Some of these substances that get absorbed through the small intestine include proteins, carbohydrates, sugar, vitamins and minerals.
8. Once all the liquid has been squeezed out, have students cut the toe of the stocking off. Ask them to squeeze the remaining solids into the plastic/paper cup. The cup represents the large intestine. Discuss how most of the "useful" components of the food has now been absorbed by the time the contents reach the large intestine, leaving behind the waste material that the body doesn't need or can't digest.
9. Have students push this remaining waste material through the bottom of the cup into the tray. Discuss how this represents going to the toilet, which results in faeces or poo!

Question prompts

What happens when we eat our food?

Why does our food look different when it comes out the other side as poo?

Where do the nutrients go?

What gets left behind?

How does each part of the digestive system work?

What might happen if that part didn't exist?

Why do scientists study poo?



PLENARY

In groups of 5-10, have students create a short drama to represent the food travelling through the digestive system. You could assign an organ to each group (one group could act out food travelling through the small intestine and another group could act out food travelling through the large intestine, for example) or you could ask each group to interpret and act out the whole process of food turning into poo. Encourage students to think creatively for this activity and use props or sound effects to represent what is happening in each part. This plenary activity has cross-curricular links with outcomes in The Arts / Drama.

THE SCIENCE BEHIND THE ACTIVITY

The digestive system is a group of organs that work together to break down food into tiny molecules. Digestion of food is important as it enables us to obtain energy from the foods we eat. Physical digestion begins in the mouth where the food is chewed and broken down into smaller pieces by the teeth (mastication). There are four types of teeth we use to do this – incisors, canines, premolars, and molars. The enzymes from our saliva also help break down the food chemically.

After being chewed and swallowed, the food passes through a long tube that runs from the mouth to the stomach. This tube is called the esophagus and the muscles in the wall of the esophagus start to push the mushy food down into the stomach by waves called peristalsis. Peristalsis gives us the capability of being able to eat or drink even when we are upside down! The food then enters the stomach, which is essentially a mixing and holding area, and protein digestion begins as the food is churned and drenched in stomach acid.

After leaving the stomach, food enters the small intestine where nutrients are absorbed into the blood through the intestinal walls. Bile (produced in the liver and stored in the gallbladder) as well as other digestive enzymes produced by the pancreas and inner walls of the small intestine further assist with the breakdown of food. The nutrients that get absorbed are sent around the body to where they are needed via the bloodstream. Anything that cannot be absorbed moves to the large intestine.

By the time the contents reach the large intestine, most of the digested food has been absorbed. In the large intestine, some of the water and electrolytes are removed from the food and many microbes (for example, bacteria like *Lactobacillus acidophilus*) help in the digestion process. This just leaves waste material that the body doesn't need or can't digest. This is called faeces, or poo, which is stored in the rectum and gets excreted when we go to the toilet.

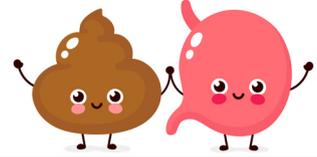
Our researchers and scientists at the Telethon Kids Institute actually study poo to learn about different bacteria and see what's going on in the gut. Using microscopes and specialist equipment, our researchers can look very closely at your poo and what you eat to find out which foods are best to keep you healthy.

Have you checked out the **Telethon Kids Discovery Centre**? Enrich this lesson with an excursion to our interactive Discovery Centre, full of fun games designed to get kids excited about science, health and research. Check out [our website](#) or [send us an email](#) for more information and to book your next school visit!

Making Poo Activity

Name: _____ Date: _____

Draw a diagram of the human digestive system in the box below.
Use the following words to label your diagram once it is completed.



esophagus	small intestine	large intestine	stomach
mouth	food	poo	teeth
kidneys	liver	pancreas	gallbladder

Explain in your own words how food travels through the digestive system and turns into poo.
