The Gas You Pass

What causes flatulence and makes you pass gas?

Description

Although we may not admit it, all humans fart or pass gas. In fact, most animals have flatulence. Where do **some of these gases come from? Mimic food passing through your intestines and discover what releases gas.**

Age Level: 10 and up

What causes flatulence and makes you pass gas?

Materials

- Empty soda or water bottle, roughly 500 mL
- Banana
- Medium-sized balloon
- Resealable sandwich bag
- Marker
- Scissors

Time

Preparation: 5 min
Activity: 15 min + data collection
Cleanup: 5 min

Step 1

To mimic food passing through your intestines, peel a banana, break it into small pieces, and place it inside a resealable bag. Press as much air out of the bag as you can, then seal it.

Step 2

Using your hands or any small, flat object, gently squish and mash the bagged banana pieces until the entire banana is completely squashed.

Step 3

Cut off a small corner of the bag. Squeeze the mashed banana into the empty bottle. This mashed banana in the bottle is similar to chewed food sitting in your large intestine. Food you eat can be in your large intestine for about 40 hours.

Step 4

Place the mouth of the balloon over the mouth of the bottle. If the banana releases any gases, they will inflate the balloon. Use the marker to write today's date and time on the outside of the bottle.

Step 5

Take a photo with your device or draw a picture of the bottle, once or twice a day for one week. What changes do you notice in the banana mixture? What happens to the balloon?

Optional Step

There are other foods you can test the same way. Do fatty foods (like avocados) produce as much gas as foods high in starch and sugar (like fruits)? Does the reaction happen faster or more slowly if the bottle is kept in a warm place like a sunny window sill? What if the bottle is kept in a dark cupboard?

What's going on?

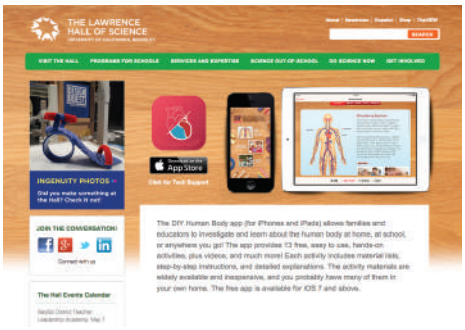
The balloon should have expanded and grown la ger over the week. The banana may also have turned browner. Why did the balloon expand?

When you eat, you first chew to break your food apart. This is similar to mashing the banana in the bag. In your stomach, food breaks down further, then moves through your intestines to complete digestion. There, bacteria break down more food and release gases like hydrogen, methane, and carbon dioxide. These gases build up in your intestines (as gas built up in the balloon) and eventually make their way out of your body—this is called a flatus (also known as a fart).

Good Bacteria?

Bacteria that live inside you are very important for keeping you healthy. A human body can have more than 100 trillion bacteria—close to 2 kilograms! These bacteria aren't all good or bad, and each person has a unique mix. Without the bacteria inside your gut, you couldn't digest some carbohydrates like starch and fiber. Some people are missing a certain enzyme, called lactase, and can't digest lactose, a carbohydrate found in dairy. When undigested lactose reaches bacteria further down in the large intestine (the colon), the bacteria absorb the lactose and produce a lot of gas that can be painful. This is one of the main problems for people with lactose intolerance.

Learn More



For more info and other activities, visit:

LawrenceHallofScience.org/do_science_now/diy_human_body

Credits

This project was supported by the National Institutes of Health (NIH) Science Education Partnership Award program under award number 5R25OD010543-02. Any opinions, findings, conclusions, or recommendations expressed in this program are those of the author and do not reflect the views of NIH.

THE LAWRENCE HALL OF SCIENCE

This activity from the DIY Human Body app allows families to investigate and learn about the human body at home or on the go! The app features thirteen hands-on investigations, as well as images & videos.