The Science of Flatulence: Why and How We Pass Gas

Name Date Class

Reading

1 Flatulence is the medical word for passing gas from the digestive system. People also call it farting. Everyone does it, and doctors say it is **normal** and not dangerous. Even so, many people find the topic **embarrassing**. In this lesson, we look at the science: where the gas comes from, how much people pass, and how animals compare.

2 Gas in the gut has two main sources. The first is air that we **swallow** when we eat or drink quickly, chew gum, or drink fizzy drinks. Most of this air comes back up as a burp. The second source is larger: **bacteria** in the large intestine **digest** food that our own bodies cannot break down, especially **fiber** and some sugars. As the bacteria work, they make gases. In one study of 16 people, about three quarters of the gas passed was made inside the intestine in this way.

3 Most of the gas has no **smell**. It is mostly nitrogen, hydrogen, carbon dioxide, and sometimes methane. Only some people make methane, because it depends on which microbes (tiny living things) live in their gut. The bad smell comes from tiny traces of gases with sulfur in them. In a 1998 US study, the stronger the smell of a sample, the more hydrogen sulfide it had.

4 The gas moves through the intestines and collects near the end of the digestive system. The **muscles** around the anus hold it in, and most of the time we can choose when to let it out. In a 1991 British experiment, ten **volunteers** ate their usual food plus 200 grams of baked beans. Their daily **amount** of gas was between 476 and 1,491 milliliters, and the middle value was 705 milliliters, about two soda cans. Larger amounts were passed after meals than at other times. On a fiber-free diet, the amount fell to about 214 milliliters a day.

5 How often do people pass gas? In a 1996 US study, 25 healthy adults counted each time for a week. The **average** was 10 times a day, and 20 was the top of the normal **range**. The US National Institutes of Health gives an average of 8 to 14 times a day and says up to 25 can be normal. In a **survey** of 16,000 Americans, the most common answer was passing gas about every three to four hours, and people aged 65 and over reported it less often than younger adults. These answers were self-reported. But a 2025 study at the University of Maryland in the US found much higher numbers. Healthy young adults wore a small hydrogen sensor on their underwear. It recorded an average of 32 times a day, from 4 to 59. The team says older counts may be too low because people forget or do not notice.

6 Many animals make gas too. Cows make a lot of methane, but most of it leaves through the mouth as burps, not from the other end. Herring make short, high-pitched sounds at night, and scientists think the fish use them to **communicate**. This is not digestive gas, however: herring gulp air at the surface and let out bubbles near the anus. Scientists have even **estimated** that giant plant-eating dinosaurs made huge amounts of methane, although nobody can be sure.

7 Passing gas is a natural part of digestion, and eating more slowly means less swallowed air. People who have strong pain or other worrying symptoms with gas should talk to a doctor. The Maryland team now plans to measure hundreds of people with its sensor. That may finally show how much gas is really normal.

Vocabulary Matching

Match each word from the reading with its meaning. Write the letter on the line.

1	**normal**	_____	**A**	making people feel shy or silly
2	**embarrassing**	_____	**B**	a set of questions asked to many people
3	**swallow**	_____	**C**	share information with others
4	**bacteria**	_____	**D**	people who agree to help or take part
5	**digest**	_____	**E**	body parts that help you move
6	**fiber**	_____	**F**	guessed a number by careful study
7	**smell**	_____	**G**	break down food in the body
8	**muscles**	_____	**H**	take food or air down your throat
9	**volunteers**	_____	**I**	what your nose notices
10	**average**	_____	**J**	from the smallest to the largest
11	**range**	_____	**K**	how much of something there is
12	**amount**	_____	**L**	very small living things
13	**survey**	_____	**M**	plant food that helps digestion
14	**communicate**	_____	**N**	usual and expected
15	**estimated**	_____	**O**	the typical number in a group

Fill in the Blank

Choose a word from the box to complete each sentence. Use each word once. The words are already in the correct form.

average	**bacteria**	**communicate**	**digest**	**embarrassing**	**estimated**	**fiber**	**muscles**	**normal**	**range**
smell	**survey**	**swallow**	**volunteers**						

1 It is _____ to feel nervous before a test.

2 It was _____ to fall over in front of the whole class.

3 It hurts to _____ when you have a sore throat.

4 Some _____ are harmful, but many are useful.

5 Milk is hard to _____ for some people.

6 Beans and vegetables contain a lot of _____ .

7 I love the _____ of fresh bread.

8 Swimming makes your _____ stronger.

9 The city needs _____ to clean the beach on Saturday.

10 The _____ age of the students is twenty.

11 The shop sells a wide _____ of bicycles.

12 The school did a _____ about students' sleep.

13 Whales _____ with long songs.

14 The builder _____ that the job would take three weeks.

Comprehension Questions

Answer in your notebook or discuss with a partner. Questions 10 to 12 are IELTS-style.

1 What is flatulence, and what do doctors say about it?

2 Explain the two main sources of gas in the gut. Which source is larger?

3 What do the bacteria in the large intestine do, and what kinds of food do they use?

4 Which gases are in the gas that people pass? What gives some of it a bad smell?

5 What do the muscles around the anus do?

6 Describe the 1991 experiment. Who took part, what did they eat, and what did the researchers find?

7 What do the numbers in the reading show about how often people pass gas? Which study found the highest number, and how did it count?

8 What did the survey of 16,000 Americans find, and why might answers like these not be exact?

9 Compare cows and herring. In what way is the herring case different from normal flatulence?

IELTS-Style Questions

10 **True, False, or Not Given:** *"Beans always make people pass gas."* Explain your answer using evidence from the reading.

11 **Yes, No, or Not Given:** *"The writer thinks that people should feel embarrassed about passing gas."* Explain your answer using evidence from the reading.

12 **Author's purpose:** Why does the writer include cows, herring, and dinosaurs in the last part? What do they add to the lesson?

True or False

Circle T (true) or F (false) according to the reading. Write a correction for each false statement on the dotted line.

1 **T / F** Doctors say that passing gas is normal and not dangerous.

2 **T / F** Most gas in the gut comes from swallowed air.

3 **T / F** Bacteria in the large intestine digest food that our bodies cannot break down.

4 **T / F** Most of the gas has a strong smell.

5 **T / F** Everyone's gut makes some methane.

6 **T / F** Most of the time, people can choose when to let gas out.

7 **T / F** In the 1991 experiment, the middle value was 705 milliliters a day.

8 **T / F** People aged 65 and over reported passing gas more often than younger adults.

9 **T / F** Most of a cow's methane leaves through its mouth as burps.

10 **T / F** The sounds that herring make are digestive gas.

Discussion Questions

Talk with a partner or in a small group. The questions move from personal to more abstract.

1 Before you read this lesson, what did you know about where gut gas comes from? What was new?

2 Why do you think many people find the topic embarrassing, even though it is normal?

3 The reading says bacteria in our gut help us digest food. Did that surprise you? Why or why not?

4 Which foods do you think make more gas? How could a scientist test your idea in a safe and fair way?

5 The study used volunteers who ate baked beans. Why might a scientist use the same food for every volunteer?

6 The results show a wide range between people. Why is it important to report the range and not only the average?

7 The survey of 16,000 people used self-reported answers. What problems can self-reported answers have?

8 Scientists plan to measure hundreds of people with the new sensor. What other everyday body activity would you like scientists to measure, and why?

9 Cows make a lot of methane, mostly from burps. Why might this matter for the environment?

10 Herring seem to use bubbles to communicate. What other animals communicate without using their voices?

11 Some scientists estimated that dinosaurs made huge amounts of methane, but nobody can be sure. How can scientists learn about animals that lived millions of years ago?

12 The lesson says you should talk to a doctor if you have strong pain. Why is it a good idea to ask a doctor about health worries and not only search online?

13 Eating more slowly can reduce swallowed air. What other simple habits help our digestion?

14 How would you explain the science of digestion to a younger student in three sentences?

Language Focus: Comparatives and Superlatives

We use comparatives (more, less, larger, -er) to compare two things or groups, often followed by than. We use superlatives (the most, the largest, the -est) to say which is at the top of a group of three or more. The pattern the + comparative, the + comparative shows that two things change together.

In the reading:

- "The second source is **larger**."
- "**Larger amounts** were passed after meals **than** at other times…"
- "…the **most common** answer was passing gas about every three to four hours…"

Practice: Complete the sentence with a comparative: *"The amount of gas on a fiber-free diet was ____ (small) the amount on a normal diet."*

Activities and speed challenge
englishbridges.com/lessons/science-of-flatulence

Notes