

Smelly Science – What Makes Us Fart?



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This article is intended for students of Form Four or above
with background of Biology

Introduction

Sometimes it is really embarrassing if you fart in social occasions such as a meeting, dinner party. Despite the “exploding” sound produced from farting, fart smells make people around you keep their distance. This article will give scientific explanations on this embarrassing phenomenon. What actually makes us fart?

Cause of farting

Everyone should have had the experience of farting. Even a 3-year-old kid can tell immediately that a fart is the gas erupted out of the anus. So where does such gas come from?

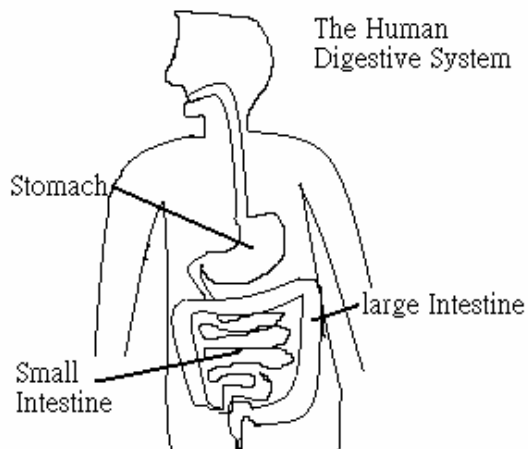
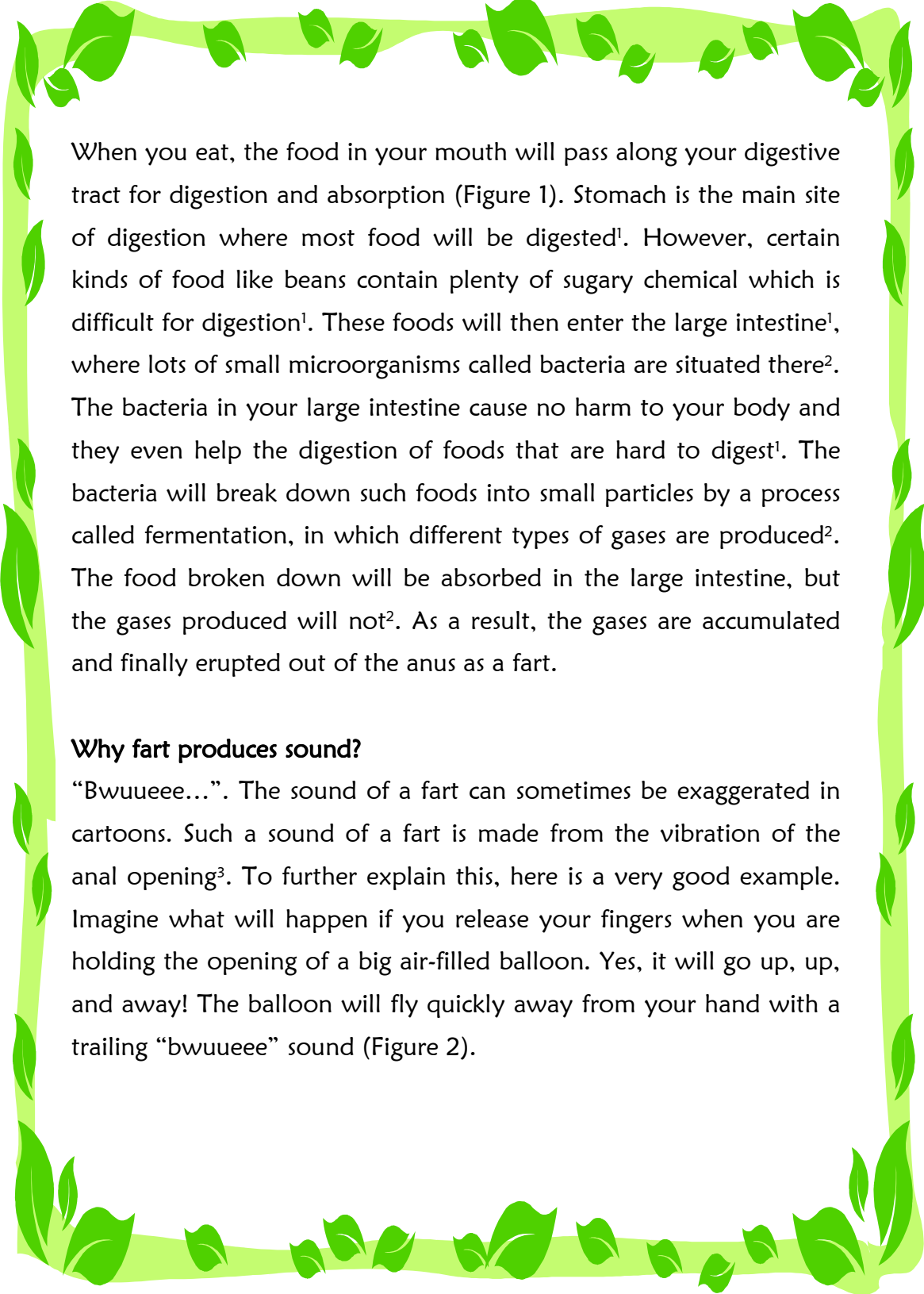


Figure 1. The Human Digestive System

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Living with Science; Life in Science



When you eat, the food in your mouth will pass along your digestive tract for digestion and absorption (Figure 1). Stomach is the main site of digestion where most food will be digested¹. However, certain kinds of food like beans contain plenty of sugary chemical which is difficult for digestion¹. These foods will then enter the large intestine¹, where lots of small microorganisms called bacteria are situated there². The bacteria in your large intestine cause no harm to your body and they even help the digestion of foods that are hard to digest¹. The bacteria will break down such foods into small particles by a process called fermentation, in which different types of gases are produced². The food broken down will be absorbed in the large intestine, but the gases produced will not². As a result, the gases are accumulated and finally erupted out of the anus as a fart.

Why fart produces sound?

“Bwuueee...”. The sound of a fart can sometimes be exaggerated in cartoons. Such a sound of a fart is made from the vibration of the anal opening³. To further explain this, here is a very good example. Imagine what will happen if you release your fingers when you are holding the opening of a big air-filled balloon. Yes, it will go up, up, and away! The balloon will fly quickly away from your hand with a trailing “bwuueee” sound (Figure 2).

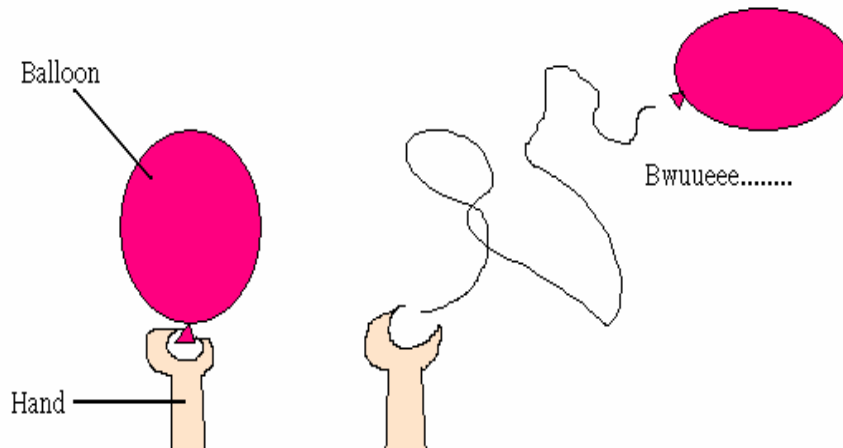


Figure 2. The phenomenon of the release of a balloon © Li Wing Huen 2006

This is because the air inside the big balloon erupts from a small opening all of a sudden. This makes the air pressure fluctuates around the opening of the balloon and causes it to vibrate vigorously, producing a flimsy sound. The same theory applies in the case of farting: gases erupting from the anus cause vibrations of the anal opening and makes a fart sound.

In fact, the sound of a fart is dependent on the speed of the gases leaving the anus and the tightness of the anal muscles². The higher the speed, the slacker the anal muscles, and the louder the sound as a result of more intense vibrations of the anal opening².

What makes a fart so stinky?

Stinky fart is really disgusting and makes people feel sick, especially when you fart in an enclosed area like small crowded elevator. People there have no way to escape. They have to tolerate and keep on breathing in your stinky 'spontaneous human combustion'. The reason why a fart has a stinky smell is due to the presence of some chemical substances⁴. They are the chemicals that contain sulphur⁴ - a kind of element which gives a pale yellow appearance. These sulphur compounds, giving smells like rotten eggs and decomposing vegetables⁴, come from the food you eat every day. Different foods may contain various amounts of sulphur⁴. Cauliflower, eggs and meat are the examples of sulphur-rich food³. The bacteria in your large intestine will act on the sulphur-rich food and make gases containing stinky sulphur compounds³. Therefore, the more sulphur-rich food you eat, the more gases containing sulphur compound are made by the bacteria, and the nastier is your fart³.

Conclusion

In short, a fart is the gas produced by the bacteria in the large intestine resulting from the fermentation of some foods that are hard to digest. The sound of a fart is caused by the vibration of the anal opening³ which results from the eruption of gases out of the anus; the stinky smell of a fart is caused by the presence of sulphur compounds in a fart⁴.

Farting is a normal physiological process in your body. There is no reason to feel strongly ashamed of your farts because everybody does fart a lot every day. Medical statistics show that farting around 10 times a day is perfectly natural and even necessary¹. It is actually a vital process for you to remove toxic substances from your body. Otherwise, toxic substances will accumulate in your body, and it will eventually make you very sick¹.

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