Podcast**:** Imagine This

Episode Title: Why do farts come out of your bum?

Duration: 13’ 19”

[ABC Kids podcast sting – This is an ABC podcast]

*[Plodding classical music with brass instruments]*

**Nij:** Hello, my name is Nij and today on Imagine This, we’re talking about something that all of us do. They can be loud

*[tuba trumpets]*

or soft

*[small tuba toot]*

Sometimes smelly

*[sniff sniff and voice saying ew]*

And almost always funny

*[Child giggles]*

Yep, we’re talking about farts!

**Kid 1:** Um they come out of our bum, they’re air, I think

**Kid 2:** Some farts are quiet but deadly

**Kid 1:** They’re made with gas

**Kid 2:** And something to make it stinky

**Nij:** Heaps of you have been asking about farts…

**Kid 1:** Hi my name is Emilia, I’m six, and I want to know why we fart

**Kid 2:** My name is Ravi and I want to know how are farts made?

**Kid 1:** My names Hamish, my question is - why do farts come out of your bum?

**Kid 2:** Hi my name is Sebastian and I want to know, what are farts made of?

**Nij:** Who do you think we should talk to about farts?

**Kid 1:** I don’t know

**Nij:** Is there a fart expert?

**Kid 2:** Not sure

**Nij:** A professor of the poo-tunes?

*[Kids giggle]*

**Nij:** A teacher of toots?

*[Kids giggle]*

**Nij:** A guru of gas?

**Kid 1:** A fart…ologist?

**Nij:** *(laughing)* maybe

**Kid 2:** Or a nurse?

**Nij:** Could be!

**Kid 1:** hmm

**Nij:** I know someone we can talk to - Dr Kourosh Kalantar-zadeh! He’s a professor of engineering

**Kid 2:** Engineering?!

**Kid 1:** That’s like cars and machines

**Nij:** Ah but Dr Kourosh has *engineered* a special invention. It’s a gas sensing capsule.

**Kid 2:** What’s that?

**Nij:** I don’t know! Let’s go ask him

*[Song ends on long, low, flatulent note]*

*[Sounds of bubbling mud and volcanic springs]*

**Kourosh:** Hello Nij, hi kids

**Kid 1:** Hello

**Kid 2:** G’day

**Nij:** Hi Dr Kourosh!

**Kid 1:** We’re at a volcano?

**Kid 2:** There’s pools full of mud

**Kid 1:** It’s bubbling

**Kid 2:** It stinks

**Nij:** *(Sniff sniff)* Eww! This place smells like…

**Kid 1:** … rotten eggs!

**Kourosh:** You can thank sulphur for that

**Kid 2:** Sulphur stinks

**Kourosh:** It’s a pretty strong smell!

**Kid 1:** It smells like farts

**Nij:** Yeah, and that’s what we came to ask you about. Can you tell us how farts are made?

**Kid 2:** And why do they stink?

**Kid 1:** and why do they come out your bum!

*[Kourosh laughs]*

**Kid 2:** Did you invent a fart machine?

**Kourosh:** *(laughing)* No! In my laboratory, we made a small machine. It helps doctors look at the gas in our bodies. It’s basically like an electronic nose that people can swallow like a pill

**Kid 1:** Woah

**Nij:** That’s incredible

**Kourosh:** If you want to learn more about farts, we can use our imaginations to go on the same journey my little machine goes on through the body

**Nij:** Yeah, let’s do it.

**Kid 2:** Cool!

**Nij:** Alright everyone, think small!

**Kid 1:** Really small

**Kid 2:** Yeah so we all fit inside the capsule

*[Nij, Kourosh and kids shrink and enter the capsule where there are sensors and computers whirring and beeping]*

**Kourosh:** Now we are inside the capsule

**Kid 1:** What’s that?

**Kourosh:** This is a small microcomputer, and these are small gas sensors

**Kid 2:** Ahh! An electric nose

**Kid 1:** For smelling gas!

**Kourosh:** The first place the capsule goes is in the mouth

*[Capsule is popped inside mouth]*

**Nij:** And down the throat!

**Kourosh:** Here we go!

*[Big gulp and splash as capsule lands inside stomach]*

**Kid 2:** We’ve been here before

*[Curious classical music begins]*

**Nij:** This is the stomach.

**Kid 1:** The tummy

**Nij:** This is where food arrives and gets mixed up with acid and water

**Kid 2:** And you use it for energy

**Kourosh:** Yes, it’s easier for our bodies to digest and get all the vitamins and nutrients from our food

**Nij:** It’s like turning everything we eat into a smoothie

*[Bubbles and gurgles in stomach]*

**Kid 1:** What’s going on over there?

**Kid 2:** It’s bubbling!

**Nij:** Oh no! Is it a fart?!

**Kourosh:** That’s not a fart, it’s –

*[Loud echoing burp]*

**Kid 1:** It’s a burp!

**Kid 2:** Oh gross

**Nij:** (*laughing)* What’s the difference between a burp and a fart?

**Kourosh:** Well, a burp can be caused by a few things. One is that you might swallow too much air while you’re eating

*[Crunching and chewing echoes through stomach from above]*

Some of it can end up in your stomach

*[Child gasps]*

It’s not a bad thing. If there’s too much there, your body sends it out again. So, you burp

**Nij:** What’s the other reason?

**Kourosh:** Well, the acid in your stomach is very strong.

*[Stomach gurgles]*

It helps break down food and kill any bad bacteria. But when you mix stomach acid with certain foods and drinks – like fizzy drinks – they can create *lots* of gas – which comes up out of your mouth as a burp!

*[More stomach gurgles followed by loud burp]*

**Kid 1:** It kind of feels like air comes of your mouth

**Kid 2:** They feel like a bump in your throat

**Kid 1:** And they sound funny

*[Burp followed by child giggling]*

**Nij:** So, farts aren’t made here in the stomach?

**Kourosh:** No, they’re made further down

**Kid 2:** Where does it go now?

**Kourosh:** After the stomach, it’s the small intestine! Here we go!

*[Computer beeps as capsule moves through the gurgling stomach juices toward intestine. The small intestine has a low and steady churning sound]*

**Kourosh:** The small intestine is a thin tube that’s tucked into our bodies very neatly

**Kid 1:** It’s really long

**Nij:** Yeah – 7m long – that’s as tall as a giraffe

**Kid 2:** Woah, that’s huge!

*[Classical piano music starts]*

**Nij:** The small intestine is where most of the nutrients in food get absorbed and get sent all around the body

**Kid 1:** All the good bits and not the yucky bits

**Kid 2:** And the bits you use for energy go into everywhere of your body, and the bits that you don’t use for energy, they go intooooooo…

**Kid 1:** It goes to your bum!

*[Kids laugh]*

**Kid 2:** And turns into poo

**Kourosh:** Yes, most digestion takes place here. But foods like wholegrain bread, pasta or beans that have fibre take longer to break down.

**Kid 1:** How come?

**Kourosh:** Fibre is really tough to digest, so it needs another step.

**Nij:** Ooohh… we’ve never gotten further than the small intestine before. What’s next?

**KIDS**: The bum!

**Kourosh:** *laughing* Not yet! Next is the large intestine.

**Kid 1:** Oh the large intestine

**Nij:** Let’s go

*[Computer beeps as capsule moves through to the large intestine. The large intestine has a deeper growl with the wet sound of feasting bugs]*

**Kourosh:** It’s also called the colon or bowel.

**Kid 2:** Is it longer than a giraffe?

**Kourosh:** No, the large intestine is shorter than the small intestine. But it’s still pretty big! About one and a half metres long. Any food that hasn’t been broken down by the small intestine arrives here to be feasted on by millions and trillions of bugs!

*[Bugs munching]*

**Kid 1:** Wow

**Nij:** They sure are hungry

**Kid 2:** Look at them go!

**Nij:** What are they?

**Kourosh:** These little bugs are bacteria, fungi, yeasts, archaea – we call them microbiota.

**Kid 1:** Microbiota

**Kourosh:** They’re so small you can only see them with a microscope

**Kid 2:** Isn’t bacteria bad?

**Kid 1:** They can make you sick

**Kourosh:** Some bacteria can make you sick – but most of these little bugs are very good for us! There are trillions of them living in our gut.

**Kid 2:** Trillions!

**Kourosh:** There is actually more microbiota in our bodies than our own cells.

**Kid 1:** Wow!

**Nij:** There are so many!

*[More bugs munching]*

**Kid 2:** What are they doing?

**Kourosh:** They’re digesting food

**Nij:** So, our food becomes *their* food?

**Kourosh:** Yes! And it’s important to feed them. When they’re happy, they make lots of good things for our body

**Nij:** Like farts?

**Kourosh:** Oh yes. As the microbiota start feasting, the food in our large intestine starts to ferment and break down. This is what creates gas!

*[Bubbling starts as the food is fermented by the microbiota. The computer inside capsule starts beeping and blooping]*

**Nij:** Woah, the sensor is going crazy! There’s methane, hydrogen, carbon dioxide!Oh no, hold your noses everyone!

**Kid 1:** Is this about to get stinky?

**Kourosh:** Actually, we can’t smell any of those gases.

**Nij:** What?

**Kourosh:** Most of the molecules in our farts don’t smell!

**Nij:** Mine usually do!

**Kourosh:** (*laughing)* Yes, of course, they can be very smelly, but the *stinky* part of a fart is only a tiny part of it. Over 99% of farts is gas that doesn’t have *any* smell.

**Nij:** Really? So, what makes them so smelly?

**Kourosh:** Sulphur! Remember that rotten egg smell at the mud pools around the volcano. Molecules with sulphur are what makes lots of things stinky. It’s the smallest *and* yet stinkiest part of the fart – even a tiny amount of sulphur in gas can make something really smelly

**Nij:** Peeyeewwww!

**Kid 2:** It stinks

**Nij:** That smells! Ah that smells really bad

**Kid 1:** It smells like farts

**Nij:** Look at all this gas. How much can one body make?

**Kourosh:** Well, it depends on the person and what you eat! But a healthy person can fart up to 2 litres a day.

**Nij:** 2 litres! That’s like a whole birthday balloon full of farts

**Kid 2:** Ew!

**Nij:** (*Laughing)* That’s a lot of farts

*[The capsule sensors continue to beep]*

**Kid 1:** The computer’s still beeping!

**Nij:** Is all this gas gonna come out as a fart?

**Kourosh:** No, actually more than half these gases will be absorbed into the blood stream

*[Heartbeat pumps under sound of bloodstream]*

**Kid 2:** There’s farts in your blood!?

**Kourosh:** Well, the blood carries that gas to the lungs, and you breathe it out

*[Sound of person exhaling a deep breath]*

**Kid 1:** We breathe farts!?

**Kid 2:** Gross!

**Nij:** What!?

**Kourosh:** *(laughing)* I wouldn’t call it a fart. But that is how about half of these gases leave our body

**Nij:** Gross!

**KID**: Yuck!

*[Computer beeping like alarm. There is an increasing rumbling sound]*

**Nij:** Looks like the pressure is getting too high

**Kid 1:** It’s gonna blow!

**Kourosh:** We don’t wanna go that way

**Nij:** I don’t wanna go out in a fart!

**Kourosh:** Let’s get out of here

*[Nij, Kourosh and kids grow to full size and return to the mud pools at the volcano]*

**Nij:** Finally fresh air!

*[Nij takes a deep breath]*

*[Plop of mud]*

Nope still smells like farts

**Kid 2:** *(laughing)* It’s the sulphur

**Kid 1:** We’re still at the volcano

**Nij:** I can’t believe all our farts come from little bugs in our bellies

**Kourosh:** They’re *incredible* – the bugs in our bellies. Bacteria have learned to live in some of the most extreme environments in the world. We couldn’t live in a place like our gut

**Kid 2:** What do you mean?

**Kourosh:** Our stomach, for example, is full of acid and our large intestine has no oxygen.

**Nij:** Woah, it’d be like living on Mars. I never knew how much work went into a fart!

*[Sound of a fart]*

**Nij:** That wasn’t me, I swear

*[All laughing]*

*[Plodding classical music starts]*

**Nij:** So, a fart comes at the end of a long food journey

*[Chewing sound]*

That begins when we chew our food, and swallow it into our stomachs

*[Gulp]*

where it’s digested in our small intestine

*[Churning and bubbling]*

Then the food gets pushed into our large intestine

*[Low growl]*

Where the parts we can’t break down ourselves, get a little help from trillions of bugs that are living there

*[Bugs munching]*

These bugs are called microbiota. They create gas as they ferment and break down all our undigested food

*[Bubbling]*

A lot of this gas goes into our blood and travels to our lungs, to be breathed out of our mouths

*[Exhale]*

**Kid 1:** Brush your teeth

**Nij:** The rest builds up in our large intestine until it comes out our bum as a fart!

**Kid 2:** Peeeyew!

**Nij:** Most of the gas our gut bacteria makes doesn’t have any smell.

*[Sniff sniff]*

The stinky part of the fart is the tiny molecules with sulphur in them. They make up less than 1% of the gas that escapes our bodies. Everyone farts. Animals too.

*[Meow]*

They might be stinky

*[Fart and giggle]*

And sound funny

*[Long strange fart and giggle]*

But remember, that every fart

*[Short fart]*

Is being made by some of the toughest, most amazing, organisms on the planet!

*[Long airy fart flourish as music ends]*

**Nij:** Imagine This is an ABC Kids listen podcast, hosted by me Dr Niraj Lal. A big thanks to our guest Dr Kourosh Kalantar Zadeh from the University of NSW and all the kids on the show. Today’s episode was made on the Gadigal, Wurundjeri, Dharawal, Noongar, and Wada Wurrung Nations. Written and produced by Soumia Bella with sound design by Que Ngyuen, our senior producer is Emma Gibbs. For more great podcasts to play, music to move, and stories and soundtracks for sleep. Download the ABC Kids listen app. Free from your app store