

Brains On (APM) | Brains On! How do hurricanes form? 01G11B9AXWP19KYWK4PNW83DJC

SPEAKER 1: You're listening to *BrainsOn*, where we are serious about being curious.

SPEAKER 2: *Brains On* is supported, in part, by a grant from the National Science Foundation.

TRAVIS: The Taino people lived in the Caribbean for over 1,000 years, long before Europeans sailed across the Atlantic and stumbled upon these islands now known as Cuba, Haiti, Jamaica, the Dominican Republic, Puerto Rico, and the Bahamas.

The Taino people believe that the world needed to remain in balance. There are good forces and bad forces that are needed to balance each other out. Their good forces were represented by a spirit, named Yucahu, and the bad force was embodied by a spirit known as Juracan. Juracan brought destruction, often, in the form of fierce storms.

Juracan is where the word hurricane comes from. In carvings, Juracan is shown as a head with two arms swinging in opposite directions. One arm is raised and curved over the head, moving to the left, and the other arm is curved below, moving to the right. It's clear the Taino people understood hurricanes and the fierce winds, flooding and tides that come with them.

Because, now, when we see satellite images of hurricanes from high above, they look remarkably similar to these ancient carvings of Juracan. Humans living on islands and coasts have been coexisting with seasons for a very long time. Why do they happen? How are they changing? And how do we continue to live with them? We'll be answering those questions right now.

MOLLY BLOOM: You're listening to *Brains On* from AP studios. I'm Molly Bloom, and my co-host today is Travis from Houston, Texas. Hi, Travis.

TRAVIS: Hi, Molly.

MOLLY BLOOM: Today, we're talking about hurricanes. In other parts of the world, they're called typhoons or cyclones. These are the powerful storms that can bring high winds, torrential rain, and big waves with them. Some of us, like Travis, have lived through hurricanes, and many of us have seen them in the news. So naturally, our listeners have a lot of questions about them.

ALICE: Hello. My name is Alice from Salem, Massachusetts. My question is, how do planes find the center of hurricanes?

TARA: Hi. My name is Tara, and I want to know how do hurricanes form.

ELLIOT: My name is Elliot.

CARLYN: And I'm Carlyn.

ELLIOT: And we're from Saint Augustine, Florida.

CARLYN: Our question is, how do you account form?

TRAVIS: So let's start at the beginning. How do hurricanes form?

MOLLY BLOOM: They start with a storm.

TRAVIS: OK. So that means we have to talk about how storms form first.

MOLLY BLOOM: Well, then we need to talk about air molecules.

TRAVIS: I really love talking about molecules, but I'm not sure we need--

MOLLY BLOOM: But isn't it cool to think about how the air, the invisible thing that we take for granted, is actually made of stuff? It's not emptiness. It's teeny tiny materials that we can't see just with our eyes. Like, look, I'm wiggling my fingers in the air, and they're touching air molecules.

And now, I'm breathing in air molecules. The air is made of stuff. When wind is blowing, you can actually feel it. It's so cool. I love you, molecules.

MOLECULES: We love you too, Molly.

TRAVIS: Yes, very cool. But here's how I would start-- clouds.

MOLLY BLOOM: OK, tell me more.

TRAVIS: Storms are collections of very big rain clouds, right? So picture a cloud named Claude.

CLAUDE: Hello. I'm Claude, the cloud.

TRAVIS: Claude is made up of little droplets of water. That water started on the earth's surface, but now it's evaporated, meaning it's gone from a liquid to a gas. It was heated up by the sun, evaporated and floated into the air. Up in the sky, it turns back into water and becomes a cloud. And if that rained it's too heavy in the cloud, boom, rainstorm.

CLAUDE: Sorry to rain on your parade.

TRAVIS: See, it's all about the clouds.

MOLLY BLOOM: Right, but that all has to do with molecules too.

MOLECULES: Oh, yeah, it's us again.

MOLLY BLOOM: So for example, when the sun shines on a lake or the ocean, it heats up the little water molecules.

MOLECULES: Ah, getting toasty.

MOLLY BLOOM: And some of them evaporate and rise into the air and even float up into the sky. That's what builds the cloud. See, it's all about tiny molecules.

TRAVIS: OK. But for a hurricane to happen, you need to think big, like real big, like picture of the Atlantic Ocean.

MOLLY BLOOM: I'm picturing it.

TRAVIS: It's the end of the summer, so the ocean has been soaking up heat from the sun, and the water is warm.

MOLLY BLOOM: Oh, yeah, it's got to be, at least, 80 degrees Fahrenheit. It feels pretty good.

TRAVIS: As water heats up, it evaporates, then this ocean vapor turned back into water and forms a cloud.

CLAUDE: Oh, well, looks like I'm going to rain again and ruin this beautiful day.

TRAVIS: But get this. When the water vapor turns into water and joins that cloud, it releases heat, making the air around it even warmer.

CLAUDE: What can I say? I've got a warm personality.

TRAVIS: And if there's one thing you need to know about hot air, it's that hot air rises, so the cloud warms the air, and the air rises and makes that cloud taller. See, now, you're getting a powerful storm brewing.

MOLLY BLOOM: Yes, but it's all about the molecules here, too. See, when that air rises, it leaves space for other molecules to move in. You can't have nothing there. There's always molecules, even if we can't see them. So those molecules rush in to fill in the gaps, where the hot air once was.

MOLECULES: Come, molecules, some hot air is rising. Let's take its place.

MOLLY BLOOM: And those molecules are cooler at first. But then, those molecules warm up, too, and then they rise. And then, more molecules rush in to take their place. And then those warm up, too, and they rise, and on, and on. It becomes like a Ferris Wheel with hot air going up on one side and cold air coming down on the other.

MOLECULES: Being a molecule is fun.

TRAVIS: Fueled by the warm ocean water, the storm gets bigger, and bigger, and faster, and faster. The clouds warm and grow.

MOLLY BLOOM: And all that rushing of molecules makes wind, and it whips up the water below.

TRAVIS: And if this goes on long enough, you get a mega storm. You get our hurricane.

MOLLY BLOOM: Oh, I feel all whipped up, too. But hey, I guess we were both right. You can't explain a hurricane without the big picture stuff, like oceans and clouds.

TRAVIS: And the really tiny things, like water and air molecules.

MOLLY BLOOM: A storm is officially classified as a hurricane, when the wind whipping around is going over 74 miles per hour. That's faster than cars on the highway.

TRAVIS: And at this point, the clouds reach high into the sky, at least, 50,000 feet. And the width of the storm is about 125 miles.

MOLLY BLOOM: That's a very big storm. When hurricanes reach the land, they generally become less powerful because, like we said, they're fueled by water and heat. And there's not as much moisture and heat found on the land as there is over the ocean.

TRAVIS: And the Atlantic Ocean in the fall near the equator is very warm. There's obviously a lot of moisture.

MOLLY BLOOM: When hurricanes reach the shore, they slow down and lose energy, since they don't have that warm ocean fueling them anymore.

TRAVIS: But these hurricanes can cause a lot of damage before they slow down. The high wind, heavy rains, and big tide surges can be dangerous for people living in the storm's path.

MOLLY BLOOM: So now, Travis, you were personally affected by a hurricane a few years ago. That was Hurricane Harvey in 2017. So how old were you when that hurricane hit the Gulf Coast?

TRAVIS: I was six or five.

MOLLY BLOOM: So what do you remember about that time?

TRAVIS: I remember waking up in the middle of the night, and there was water everywhere. My stepdad picked me up and carried me across the street while my mom carried her dog, Huck. Our neighbors have a two story house so that's why we went across the street.

MOLLY BLOOM: Got it. So the water was inside your house at that point?

TRAVIS: Yeah.

MOLLY BLOOM: Wow.

TRAVIS: It was like a foot high.

MOLLY BLOOM: Oh, my goodness. And you were not very tall back then so that must have felt pretty scary to you, I'm guessing.

TRAVIS: Yeah. And it was dark outside, and the water came up to 4 feet in the street.

MOLLY BLOOM: Wow.

TRAVIS: And it was cold and stinky and still raining more.

MOLLY BLOOM: Oh, my gosh. So, cold stinky water in the street, and it's still raining. So you went across the street to your neighbors. You went up to their second story? Was it dry there?

TRAVIS: We didn't go to the second story.

MOLLY BLOOM: OK.

TRAVIS: We went to the first story because the water didn't reach into the house yet.

MOLLY BLOOM: Got it. So a little bit higher than your house?

TRAVIS: Yeah. It didn't ever reach the house or into our neighbor's house.

MOLLY BLOOM: So, then, after your neighbor's house, where did you go after that?

TRAVIS: We later went to a friend of my step dad's house to live. And we called that garage apartment because on top of the garage, there was a place for us to sleep.

MOLLY BLOOM: So how long were you away from home for?

TRAVIS: I don't know. Maybe around a year?

MOLLY BLOOM: Wow. And that's because your house had been flooded, and so it needed to be cleaned and all of that?

TRAVIS: Yeah. And they had to remodel the house completely.

MOLLY BLOOM: Wow. So what was it like living away from home during the time? Were you far from school or were you still able to go to the same school?

TRAVIS: I was still able to go to the same school, but I was still far.

MOLLY BLOOM: OK. So when you were leaving your house that night, when it was really raining and flooding, do you remember how you felt at that time?

TRAVIS: I think I was a bit scared.

MOLLY BLOOM: So what was it like when you finally got to go home a year later?

TRAVIS: It felt really good to go back home, and we finally had space.

MOLLY BLOOM: And so, you had your own bedroom again?

TRAVIS: Yes.

MOLLY BLOOM: Nice. So when Hurricane season approaches now, how do you feel when you get to that time of year?

TRAVIS: I feel really nervous every hurricane season.

MOLLY BLOOM: So what advice do you have for kids who may have to evacuate their homes for things, like hurricanes, or fires, or other weather events that are happening?

TRAVIS: I suggest talking about whatever happened to their parents and even cry about it if they feel like it.

MOLLY BLOOM: Yes. It's OK to feel all the feelings when those kinds of things happen because they're big events. It's hard to deal with, and it's important to talk to people and let yourself feel stuff about them. That's really good advice. Well, thank you for sharing your experiences with us. I really, really appreciate it.

TRAVIS: OK. You're welcome.

SPEAKER 3: Ba, ba, ba, ba, ba, ba, ba, ba, ba, ba, *Brains On.*

MOLLY BLOOM: So there's still a lot we don't understand about hurricanes. Scientists are studying them all the time. But sometimes, the best way to learn is to get up close and personal.

TRAVIS: That's why some people will actually fly an airplane right through a hurricane. These people are hurricane hunters.

MOLLY BLOOM: Travis recently interviewed one over Zoom. Her name is Major Joyce Hirai, and she's part of the Air Force's Weather Reconnaissance Team.

TRAVIS: What is a hurricane hunter?

JOYCE HIRAI: So basically, a hurricane hunter is a member of a team, which includes two pilots, weather officer, which is what I am, a loadmaster, and a navigator. And we fly into hurricanes to see what type of characteristics it has. Is it growing? Is it slowing down? Is it getting stronger? So we're trying to find the information by flying into the hurricane.

TRAVIS: Why do you fly through hurricanes?

JOYCE HIRAI: So we have satellite images from space, but just looking at that, it's like looking at the hood of a car, and you can't see what's underneath it. So us flying into the storm is like going underneath the hood and finding out the different characteristics of the storm and how it is driven, such as where is the eye, and what the pressure is helps the scientists at the National Hurricane Center build a more precise forecast.

TRAVIS: What tools do you use to measure and look at the hurricane?

JOYCE HIRAI: So essentially, our whole aircraft, the C-130, is basically a big weather sensor. We have drops on, which is a weather instrumentation. It looks like a Pringles can with a parachute on it, and that is released out of our aircraft.

And it collects the atmospheric data, such as the temperature, the wind speeds and direction, the air pressure and humidity, all the way down to the surface. And that information is sent directly to the Hurricane Center, where the forecasters are, through satellite communication from our aircraft.

We also have weather sensor called the Stepped Frequency Microwave Radiometer, which, essentially, just continuously measures the wind speeds from the ocean surface and also collects the rainfall rate as well.

TRAVIS: What's it like flying through the storm?

JOYCE HIRAI: It's actually a lot of fun. The best way I can explain it is a roller coaster in a car wash. Every storm is different, and each one has its own personality, just like we all do. Imagine being in a car wash for about four to five hours. You see the constant rain.

Sometimes, you'll see lightning, feeling the up and down motions of turbulence. Also, there is a distinct metallic-like smell that happens, sometimes, as well. But however, though, once you go through that rough part of the weather, on the other side of it, if you can imagine it, you'll see clear skies, calm winds. Sometimes, you see the clouds surround you like a stadium. And we call that the stadium effect, which is also really cool to see.

MOLLY BLOOM: That stadium effect is happening around the eye of the storm. The eye of the storm is the center of the swirling hurricane winds. And amazingly, this eye inside the center of the hurricane feels very calm. There's hardly any wind, and the sky is clear.

So when Joyce and her team fly into the eye, they can see the clouds that make up the hurricane surrounding them like the size of a stadium. Getting more details about the eye of the storm can help forecasters on the ground predict more accurately what the hurricane will do next.

We're working on an episode all about tongue twisters, and we want to hear from you. What is your favorite tongue twister? Travis, do you have any favorites?

TRAVIS: I do. My favorite is Fuzzy Wuzzy. And for people who don't know what Fuzzy Wuzzy is, it goes like this-- Fuzzy Wuzzy was a bear. Fuzzy Wuzzy behind had no hair. Fuzzy Wuzzy wasn't very fuzzy, was he?

MOLLY BLOOM: Nicely done. You made that sound easy. Do you know any tongue twisters in any other language?

TRAVIS: Yeah, I know this one in Spanish.

[NON-ENGLISH SPEECH]

MOLLY BLOOM: Wow, those are some really good rolled R's. Can you tell me what that means?

TRAVIS: It means, a dog sleeping under a car. Another dog came and bit that dog in the tail.

MOLLY BLOOM: Well, send your tongue twisters to us here at brainson.org/contact. While you're there, you can also send us your drawings, mystery sounds, and questions.

TRAVIS: Like this one.

OSCAR: My name is Oscar. I'm from Snohomish, Washington, and I want to know why black absorbs heat.

MOLLY BLOOM: You can find an answer to that question on our *Moment of Um* podcast. It's a short daily dose of fascinating facts.

TRAVIS: Find it wherever you listen to *Brains On*.

MOLLY BLOOM: Plus, if you're in Boston, Los Angeles, or the Twin Cities, Marc, Sanden, and I are coming to do a live show in your town. There will be magic, games, dancing, and plenty of sciency fun. Find out more and get your tickets at brainson.org/events. We hope to see you there.

TRAVIS: And keep listening.

You're listening to *Brains On* from APM Studios. I'm Travis.

MOLLY BLOOM: And I'm Molly. And this is the--

SPEAKER 4: Mystery sound.

MOLLY BLOOM: All right, you ready for the mystery sound, Travis?

TRAVIS: Yeah.

MOLLY BLOOM: All right, here it is.

[MYSTERY SOUND]

OK, Travis, what are your thoughts?

TRAVIS: It definitely sounds like something you'd hear at a construction, where people are working on construction, like one of those hammers that you use to drill into the ground.

MOLLY BLOOM: Yeah, like a jackhammer.

TRAVIS: Yeah, that's what I think it is. Because I also heard people talking in the background and trucks backing up.

MOLLY BLOOM: There are a lot of sounds going on there. That's a really good guess. We're going to give you another chance to guess and reveal the answer right after the credits.

TRAVIS: Have you ever noticed how hurricanes all have names?

MOLLY BLOOM: I sure have.

TRAVIS: Have you ever wondered how the hurricanes got those names?

MOLLY BLOOM: You bet.

TRAVIS: Well, you're in luck, because I just happened across this new hit single that has all the answers.

SPEAKER 5: Each year, we name our tropical storms. They're alphabetized, if you're keeping score. From A to Z, there's a list you will see from the World Meteorological Organization OMG. A is for Andrea. B is for Bea. C is for Chantal, D is for Dexter.

There wasn't always such an organized way to name storms and hurricanes. In the 1800s, they were named after saints, just like politicians, Greek and Roman gods, or beautiful women.

E is for Esther. F for Fernan. G is for Gabriel. H is for Humberto.

In World War II, the meteorologists were naming storms after their wives and girlfriends. And in 1953, an official list of hurricane names was made, and they were all women.

I is for Imelda. J is for Jerry. K is for Karen, and L is for Lorenzo.

Many women didn't like that only their names are being associated with disaster, so they started lobbying for the official list of names to include men. And in the late '70s, it finally happened. The first one was Hurricane Bob.

M is for Melissa. N is for Nestor. O is for Olga, and P is for Patty.

Now the World Meteorological Organization is a keeper of the list of names. There are six different agency lists that rotate throughout different years. So the list in 2016 was the same as a 2022 list. If a hurricane is really destructive, that name is retired and replaced with a new one.

R is for Rebecca.

Wait, what happened to Q? Oh, right, there is no Q. Oh, well.

S is for Sebastian. T for Tanya.

The list alternates male and female names, and it includes names for the languages spoken in that area. So for Atlantic Ocean hurricanes, they use French, English, and Spanish names.

There is no U name, but V is for Van. W was for Wendy. That's me.

And there's no X, Y, or Z. We hurry through these hurricane names. Now, your brains are full of hurricanes, and we hope you learned a thing or two because our hurricane song is through.

MOLLY BLOOM: That list you just heard is the actual list of names that will be used in the year 2025. There are five others, too, which you can look up if you're curious. Maybe your name is on there somewhere. We've learned so much about hurricanes already, but we're still left with one question.

TRAVIS: Yeah, how will we live with them? I mean, they're not going away, and they can be very dangerous, too.

MOLLY BLOOM: To help answer that, we asked our pal, Ruby Guthrie, to do some research.

TRAVIS: Hi, Ruby.

RUBY GUTHRIE: Hi, Travis. Hi, Molly. So we've learned how powerful hurricanes can be. They're these magnificent forces of nature, but we they also can cause a lot of damage, whether that be whipping winds or flooding. This can really overwhelm people's homes and their communities, like we talked about earlier.

TRAVIS: And that can be scary.

RUBY GUTHRIE: Absolutely. And we know that these storms are happening more and more often due to climate change, which is also overwhelming. But it's important to remember that we have tools to live with these disasters, tools to be more resilient.

TRAVIS: Resilient. That's an awesome word.

RUBY GUTHRIE: Totally. It's fun to say, right? And resilient means being able to survive difficult things, like how a camel can go days without eating or drinking in the desert.

MOLLY BLOOM: Or how humans invented air conditioning to keep cool.

TRAVIS: Or how after I fell off my bike, I got right back up again. What can I say? I'm a resilient rider.

RUBY GUTHRIE: Exactly. And when it comes to natural disasters like hurricanes, there are different techniques we have to be more resilient. Some people build their houses on stilts to avoid flooding or make their walls out of materials that will flex with the high winds.

Most coastal cities use man-made barriers, like seawalls or levees, to keep water from flooding in. But we must remember that people have been living with tropical storms since the beginning of time.

WILLIAM
KEEGAN: We can still learn valuable lessons from the people who lived in the past. In some ways, they were much better protected against storms, like hurricanes, than we are.

RUBY GUTHRIE: That's Dr. Will Keegan. He's a curator of Caribbean Archeology at the Florida Museum of Natural History. Will studies the history of the native peoples who lived in the Caribbean before the Europeans arrived, like the Tainos.

MOLLY BLOOM: The same people we mentioned at the very start of the episode.

RUBY GUTHRIE: Right. In addition to inventing the word hurricane, the Tainos were also really good at making their homes resistant to them.

WILLIAM
KEEGAN: They would set large poles deep into the ground and then build a thatched roof on top of that. That Provides a very nice protection from the rain. And if a strong wind comes through and blows off your roof, all you need to do is go out and collect more thatch from the bush and repair your roof.

RUBY GUTHRIE: And this is key because the Tainos could respond super quickly to the fast-changing storms. And that's pretty cool, because, today, sometimes, it takes us months, even years to recover our houses, towns, and cities from hurricanes. Will says there's a lot we can learn from the Taino people.

WILLIAM
KEEGAN: The Taino belief in keeping nature in balance is, I think, so important and something that we lose sight of today. And even if you don't believe that nature is controlled by spirits, there is still a very important lesson to learn from living in balance and living sustainably.

RUBY GUTHRIE: And when it comes to living with hurricanes, this is exactly what researchers, scientists, and engineers are pushing for, using our natural resources. You see, areas with more plants, such as wetlands, are better protected against hurricanes than those without. And that's because these plants were made to be resilient to these storms.

TRAVIS: So how does that work?

RUBY GUTHRIE: Great question. So let's take the mangrove, for example. It's this tall tree with lots of tangly roots, and it grows on the coastlines.

MANUEL: Did somebody say mangrove?

TRAVIS: Is that a talking tree?

RUBY GUTHRIE: Oh, my, it is Manuel, the mangrove. Is that you? It's been ages.

MOLLY BLOOM: Yeah, we haven't seen you since the lost cities episode.

MANUEL: Why talk about trees, when you can talk to a tree.

RUBY GUTHRIE: Yes. Oh, Travis, this is Manuel, the mangrove.

TRAVIS: It's tree-mendous to meet you, Manuel.

MANUEL: Ditto, dear human.

RUBY GUTHRIE: So Manuel, you're a super resilient guy, especially when it comes to hurricanes. That has to do with all your tangly roots, right?

MANUEL: Correctomundo. These roots help slow the water from surging the shores and eroding the coastlines. They also help break up and buffer the high winds coming off the water.

RUBY GUTHRIE: Oh, like a natural seawall.

MANUEL: Yeah, but I also do so much more. We, mangroves, help absorb tons of carbon dioxide. Plus, we're home to lots of different animals and fish. Concrete's got nothing on the grove.

RUBY GUTHRIE: That's a good point. You do so much beyond protecting us from hurricanes.

MANUEL: It's true. And I know hurricanes have quite the reputation, but they can actually be really useful to mangroves like me.

RUBY GUTHRIE: Well, really?

MANUEL: Yeah. You see, when a hurricane happens, it swirls up soil from the ocean floor that's super rich in minerals, which we, trees, just gobble up. These minerals give us fuel to recover quickly from storms and branch out to make even bigger forests.

RUBY GUTHRIE: All the more to protect with.

MANUEL: Exactamundo.

RUBY GUTHRIE: Wow. Pretty amazing. So even though hurricanes can be super daunting, we have tools to live with them.

TRAVIS: And they might even help us. Well, if you're mangrove, that is.

RUBY GUTHRIE: Yeah, Manuel, I'm rooting for you. We're all rooting for you. See ya.

TRAVIS: Hurricanes are huge storms that are fueled by warm ocean water.

MOLLY BLOOM: They're becoming more common as our climate changes and our planet warms.

TRAVIS: These storms are named because it makes it easier to keep track when there are multiple storms happening at once.

MOLLY BLOOM: Hurricanes can cause a lot of damage, but we have so many tools to help make us more resilient to them. That's it for this episode of *Brains On*.

TRAVIS: *Brains On* is produced by Molly Bloom, Rose DuPont, Ruby Guthrie, Marc Sanchez, Sanden Totten, and Anna Weggle.

MOLLY BLOOM: Our powerful fellow is Anna Goldfield, and our executive producer is Beth Perlman. We had engineering help from Shannon Harrison and Evan Clark. Special thanks to Lorraine and Eric Wrangham. This episode was sound design by Eduardo Perez. The executives in charge of APM Studios are Alex Shaffer and Joann Griffith.

TRAVIS: *Brains On* is a nonprofit public radio program.

MOLLY BLOOM: There are lots of ways to support the show. You can make a donation, buy our books, come to our live shows, or tell your friends about us. Now, before we go, Travis, let's go back to that mystery sound. Are your ears ready?

TRAVIS: Yep, my ears are turned on.

MOLLY BLOOM: Awesome.

[MYSTERY SOUND]

Do you have new thoughts? Last time, you were thinking jackhammer, construction site. Did you hear anything that might make you feel differently this time?

TRAVIS: I'm still going to go with my same answer, a jackhammer at a construction site, with all the people talking and the truck noises.

MOLLY BLOOM: Very good guess. So I'm going to give you a hint, Travis. It is not a machine making that noise, but actually a living creature. So let's listen to it again with that in mind.

So what do you think now that it's a living thing that's making that noise?

TRAVIS: I don't know any living creatures that can do that noise, but I definitely know it's not a wood pecker.

MOLLY BLOOM: Definitely not a woodpecker. It's a sound that I've heard my husband make before.

TRAVIS: Oh, it must be some animal snoring. Maybe a lion snoring or a hippo?

MOLLY BLOOM: I love it.

TRAVIS: Definitely a big animal.

MOLLY BLOOM: Very good guesses. Yes, definitely a big animal because a tiny little animal could not make that sound like. I've heard cute little dogs snore. They don't sound like that. They have a really cute snores. So the answer is--

EMMY: Hello. My name is Emmy, and I live in Renton, Washington, and that was the sound of a pig snoring. I recorded it in October at a Pumpkin Patch. It reminds me of my dad's snoring.

TRAVIS: Oh. Well, I've been close with the hippo.

MOLLY BLOOM: Totally. They have a lot in common, for sure. Well, thank you, Emmy, for sending in that mystery sound. We really love hearing your mystery sounds, questions, and ideas, and we super duper love seeing your drawings. We love them so much that we created the *Brains* honor roll to say thanks to all of you. Here is the most recent group to be added.

[LISTING HONOR ROLL]

We'll be back soon with more answers to your questions.

TRAVIS: Thanks for listening.