

Brains On (APM) | Brains On! Why do we need bugs? 01GWHQFZC93V0KC6ZXBA3EPBWH

SPEAKER 1: You're listening to Brains On, where we're serious about being curious.

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

SPEAKER 3: Welcome to Save You Lots, where you save so much, we almost don't make a profit. But we do. Don't worry, we actually make a lot of money.

BOB: Oh, goodness, so much to buy, so much to buy. I might need another shopping cart.

MOLLY BLOOM: Bob, is that you?

BOB: Oh. Hi, Molly.

MOLLY BLOOM: Wow, you're buying a lot of food. Are you stocking up before the next big snowstorm?

BOB: No, no, I'm getting supplies for my Bob party.

MOLLY BLOOM: Bob party? Is that a party just for you?

BOB: No. Bob, Buddies of Bugs. I'm throwing a party for all my bug friends. I've got big jugs of nectar for my butterfly buds, fresh leaves for the grasshoppers, and rotting fruit for--

MOLLY BLOOM: For the fruit flies?

BOB: No. That's for me. I love spotty bananas and overripe cantaloupe. The mushier the better, I always say. But you're right, my fruit fly friends would probably love it, too.

MOLLY BLOOM: So you're inviting a bunch of bugs over to your house for a party?

DRAGONFLY: You bet he is. Because Bob is the best.

TERMITE: He throws the most amazing parties.

MOLLY BLOOM: Is that a dragonfly riding on your shoulder? And a termite peeking out of your pocket?

BOB: Oh, yeah. They always come shopping with me. You know what they say, can't go shopping without a pocketful of bugs.

DRAGONFLY: Don't forget the party hats, Bob. We need an extra 600 this time. The honey bee hive from next door is coming.

BOB: Six hundred tiny party hats. Got it. We'll pick them up when we get the karaoke machine and the bounce house.

MOLLY BLOOM: The bounce house? For bugs?

BOB: Yeah. Just wait till you see all the ants pile in. The last time, they spent hours jumping around in there. I had to use a big slice of chocolate cake to lure them out.

TERMITE: Hey, Bob, can we do face painting at the bug party?

DRAGONFLY: And a clown, and a magician, and a petting zoo?

BOB: You bet, bug buddies Molly, I got to run. See you at the party later? And could you bring five chocolate cakes with extra frosting, for the ants. OK, thanks. Bye.

[MUSIC PLAYING]

MOLLY BLOOM: You're listening to Brains On from APM Studios. I'm Molly Bloom, and my co-host today is Lorna from Ireland. Hi, Lorna.

LORNA: Hey, Molly.

MOLLY BLOOM: As always, today's episode was inspired by a question from a listener.

SADIE: Hi, my name is Sadie, and I live in Fruit Heights, Utah. And my question is, why do we need bugs?

MOLLY BLOOM: We're got to answer that question in just a bit. But first, Lorna, how do you feel about bugs?

LORNA: I feel like some of them are really interesting and pretty, but some just give me the creeps.

MOLLY BLOOM: Mm-hmm. Which ones do you find a little creepy.

LORNA: Cockroaches and a bug-- like, a lot of legs. Because when they walk, it's just kind of-- they give me the creeps when they walk.

MOLLY BLOOM: Mm-hmm. Yeah, they walk very differently than we do. And it is a little disconcerting to watch them. So why do you think you get that feeling when you see those?

LORNA: Maybe it's because I am-- I see it a lot of times, so then maybe just, like-- it just feel weird when they're around me or walking.

MOLLY BLOOM: And which are the bugs that you think are cool and interesting?

LORNA: Peppy butterflies, bees, and ladybugs.

MOLLY BLOOM: Those are really cool. Do you have friends who either love bugs or strongly dislike bugs?

LORNA: I have this one friend called Noah, and he loves bugs. He makes bug houses every summer and I help him.

MOLLY BLOOM: Oh, cool.

LORNA: Sometimes if I'm not on holiday, but then most of my other friends scream when they see bugs, especially bees or wasps.

MOLLY BLOOM: Yes, people are very afraid of bees and wasps, I think, because they're afraid they're going to sting them. So did you say you make bug houses?

LORNA: Yeah, I make bug houses with Noah sometimes.

MOLLY BLOOM: So why do you make bug houses?

LORNA: Because I'm like-- sometimes in the winter or summer, the bugs want somewhere to stay. So even if I feel creeped out by bugs, I always want them to be safe and stuff, so we just make hotels so they don't get eaten or stuff like that.

MOLLY BLOOM: Nice. So you're just providing them a little extra spot where they can hang out, and say, you're welcome here.

LORNA: Yeah. Because I know they're going to like their houses, but sometimes, if they're exploring, and there's a bird nearby and they're far away from their house, they could maybe just go into the hotel.

MOLLY BLOOM: So it sounds like you appreciate bugs, but you might be a little skeptical about some kinds, which is totally understandable. But when we get to know even those a little better, they're actually amazing.

LORNA: Really?

MOLLY BLOOM: Yes. Think about tiny ants that can carry up to 50 times their own body weight. That would be like, if you carried more than 3,000 pounds on your back. The weight of a small car.

LORNA: But ants are always all over my picnic blanket, walking around and eating my food.

MOLLY BLOOM: True. But what about monarch butterflies? Not only are they incredibly beautiful with their delicate orange wings and velvety bodies, they also migrate thousands of miles each year.

LORNA: Monarch butterflies are really pretty. But there are so many other bugs that aren't pretty. Like cockroaches or fleas.

MOLLY BLOOM: That's what's so incredible about insects. There are more than one million different species out there, and they all look different. You can have fireflies lighting up your backyard in the summer, or ladybugs hanging out in your garden, or even fuzzy bumblebees that look like flying pom poms.

LORNA: I just think that they're kind of strange.

MOLLY BLOOM: I think I'm going to have to call in some backup. Luckily, we have a bug expert at Brains On. Our editor Shahla Farzan is also a scientist who used to study insects. Let me just fire up the Brains On bug signal.

BUG SIGNAL: Bugmergency. Bugmergency. Bugmergency.

MOLLY BLOOM: We beam it up into the sky whenever there's a bugmergency.

LORNA: Why is it so loud?

MOLLY BLOOM: I'm proud, too. Proud to love bugs

BUG SIGNAL: Bugmergency. Bugmergency.

SHAHLA FARZAN: Hey, Molly. I saw the bug signal and I got here as fast as I could. Is it time for the Buddies of Bugs party already?

MOLLY BLOOM: Oh, no, the Bob party isn't until later today, but I do need your help. I wanted to introduce you to my friend Lorna. She's not convinced that bugs are the bee's knees.

SHAHLA Oh my gosh. OK. I have been training for this for my whole life. Talking about bugs is one of my favorite things in the entire world. It's right up there with eating dessert before dinner. That's how awesome I think bugs are.

FARZAN:

LORNA: So what's the deal? Why do you love them so much?

SHAHLA So many reasons. I mean, first of all, they can live almost anywhere. Backyards, mountaintops, super-hot deserts, under water, even Antarctica.

FARZAN:

MOLLY BLOOM: Oh, yeah. There's a tiny midge fly that lives underground there.

SHAHLA Yeah, they're incredible survivors. One thing to know about insects is that they're part of this big group of animals called arthropods. And arthropods are super common. They actually make up more than 80% of all animals on Earth.

FARZAN:

LORNA: Wow. That means that for every 10 animals on this planet, eight of them are arthropods?

SHAHLA Right. And instead of having bones like us, arthropods wear their skeletons on the outside, like armor. They're truly the Iron Mans of the animal kingdom. Plus, their bodies are divided up into segments, and they have jointed legs.

FARZAN:

LORNA: Jointed legs? So like crabs?

SHAHLA Yeah. Crabs and lobsters are actually arthropods, too, which means they're related to insects. Spiders, centipedes, scorpions, these are all different kinds of arthropods. Insects are just one kind, but they've been around a long time. Like, more than 300 million years.

FARZAN:

LORNA: So they're older than dinosaurs.

SHAHLA Oh, yeah, much older than dinosaurs. And they live these complicated lives that were just starting to understand.

FARZAN:

MOLLY BLOOM: Yeah, insects are still pretty mysterious to us in a lot of ways.

SHAHLA Like, imagine a housefly.

FARZAN:

[FLY BUZZING]

Super common, right? Seen them a million times, whatever. Well, houseflies actually taste sugar with their feet.

[FLY BUZZING]

[FLY SLURPING]

And their feet are 10 million times more sensitive than our human tongues.

LORNA: Whoa. I wonder what it'd be like if we could taste things with our feet.

MOLLY BLOOM: Probably pretty socky tasting.

SHAHLA Yeah, probably not the most delicious thing for us, but super useful for flies. And don't get me wrong, flies are awesome. But I think some of the coolest insects out there are bees. Back when I was working as a scientist, I spent a lot of time in Utah, studying bees in the forest and doing experiments. And usually, when we think about bees, we think honey bees are the model bee, right?

FARZAN:

LORNA: Yeah, anytime I've seen a bee in a movie or on TV, it's always a honey bee.

SHAHLA Yeah, me, too. But here's a surprising thing I learned. There are more than 20,000 different bee species out there. Twenty thousand. And hardly any of them look or act like honeybees. They don't live in hives, they don't make honey, and they don't even have queens.

FARZAN:

MOLLY BLOOM: I've seen some of these bees before. They can be shiny metallic green, or smaller than a grain of rice. Some of them even build their nests out of dried flower petals.

LORNA: OK, that's pretty cute.

SHAHLA Oh, they are so cute. Some of them even look like little teddy bears. But it's not just that they're adorable, bees and other insects do a ton of good stuff in the world. You know, my friend Meredith Cenzer is actually really good at explaining this kind of thing. Here, let me just fire up that bug signal again.

FARZAN:

LORNA: Wait, not that loud.

BUG SIGNAL: Bugmergency

SHAHLA Meredith is an entomologist, which is a fancy name for a bug scientist.

FARZAN:

MOLLY BLOOM: A bug that tries to kiss?

LORNA: No, she said, a bug lying and minced.

BUG SIGNAL: Bugmergency. Bugmergency.

SHAHLA Oh, that's her now.

FARZAN:

BUG SIGNAL: Bugmergency.

LORNA: My ears feel like jello.

SHAHLA Hey, Meredith, it's Shahla.

FARZAN:

MEREDITH Hey, Shahla. I saw the bug signal. What's up? Has an ant forgotten which colony is hers again? Or does a cricket need help serenading the neighborhood? Oh, is a ladybug trying to decide what to wear to the Buddies of Bugs party? Because it should wear the polka dot dress, obviously.

CENZER:

SHAHLA OK, I was actually calling because I'm here with my friends Molly and Lorna, and we were just talking about insects, and all the good stuff they do to keep our world running. Do you have a couple of minutes to chat about that?

FARZAN:

MEREDITH CENZER: Yeah, sure. Oh, I was just thinking about this this morning. I like to start at the bottom in the soil. Because we often don't think about what's happening beneath our feet, but insects are really important for keeping healthy soil. So one of the ways they do this is by creating little tunnels. So a lot of insects go underground and they loosen up the soil, which makes it easier for plants to grow. And even more importantly, they break down all of the stuff on the soil surface, and help get those nutrients into the ground so that plants can use them.

LORNA: What kinds of stuff are insects breaking down?

MEREDITH CENZER: So for example, they will bury poop. So if you think about how much poop is out there, like cows. If you've ever been around cows, you know how much poop they make. Horses, deer, all the wild animals, they're pooping, and it has to go somewhere. And most of it is buried or broken down by insects, mostly dung beetles and flies.

SHAHLA FARZAN: Yeah, that's right. And besides poop, they're also breaking down dead stuff.

MOLLY BLOOM: So basically, insects are keeping us from living in a world covered in poop and dead things.

LORNA: OK, that's a little icky, but it seems like a good thing.

SHAHLA FARZAN: Totally. Plus, a lot of insects, like bees, flies, ants, and butterflies visit flowering plants to collect nectar and pollen. And when they do, they pollinate the plants, which helps them make seeds and fruit. Like the blueberries in your pancakes, or the nuts in your trail mix.

MEREDITH CENZER: And then of course, insects are a really important food source for a bunch of other creatures. So birds really rely on insects, especially when they're nesting. Lizards, frogs, fish, a lot of fish rely on insect prey. And then other insects. They eat each other, so they're all kind of part of this web of creatures that make the ecosystem what it is.

SHAHLA FARZAN: So basically, if you like a world with healthy ecosystems that's full of fruits, and flowers, and nuts, and isn't covered in poop and dead stuff, then thank bugs.

LORNA: I do like those things. Yeah, maybe insects are a little cooler than I thought.

MEREDITH CENZER: Yes. Shahla, air five.

SHAHLA FARZAN: Air five. And, Lorna, if you want to join our Buddies of Bugs club, we always have room for more members. Oh, speaking of which, Meredith, we got to go finish our costumes for the bug party later.

MEREDITH CENZER: You're right. Bye, Molly, bye, Lorna.

LORNA: Bye.

[MYSTERIOUS MUSIC]

AUTOMATED VOICE: (ECHOING) Brains On.

MOLLY BLOOM: We're going to find out more about insects in a bit. But first, it's time for the--

[MYSTERIOUS MUSIC]

WHISPERING Mystery sound.

VOICE:

MOLLY BLOOM: All right, here it is.

[MUFFLED BEEPING]

[WATER SPLASHING]

What do you think?

LORNA: Is it a clock breaking down, and then being dropped into the water?

MOLLY BLOOM: I love that. I love a narrative, that's great. A clock breaking down and being dropped into the water. I mean, that makes as much sense as anything, I think. We'll listen to it again a little bit later in the show, and get another chance to guess, right after the credits.

[MUSIC PLAYING]

All this talk about insects today has gotten me thinking about how beautiful some of them are. Like iridescent butterfly wings or rainbow-colored beetles, some of them look like artwork. Lorna, are there any insects that you think are beautiful?

LORNA: I think maybe ladybugs are super pretty. They can be pink, yellow, red. And they're with little dots, it's just really pretty, and as well they can fly. And butterflies-- like, each type of species of butterfly, all of their wings are different. And some butterflies can look like eyes, others can be orange, like the monarch butterflies. And some can be blue. It's just like-- butterflies are just like a mix of colors and stuff.

MOLLY BLOOM: Totally. Yeah, butterflies, ladybugs, both so beautiful. Listeners, we want to see your bug artwork. Send us drawings of your favorite bugs at BrainsOn.Org/contact. While you're there, you can send us mystery sounds, drawings, high fives, and questions.

LORNA: Like this one.

HARVEY: Hello, my name is Harvey, and I am from Eugene, Oregon. And my question is, what is the part of a worm that looks like a Band-Aid?

MOLLY BLOOM: You can find an answer to that question on our *Moment of Um* podcast. It's a daily dose of facts you can find wherever you listen to Brains On.

LORNA: Just search for *Moment of Um*.

MOLLY BLOOM: And keep listening.

[MUSIC PLAYING]

LORNA: You're listening to Brains On. I'm Lorna.

MOLLY BLOOM: And I'm Molly. And today, we're talking about why insects are important.

LORNA: Which I get. They do a lot of good things for the world. But what if you just kind of find them a little creepy sometimes?

ROSE DUPONT: Oh, I hear you on that.

MOLLY BLOOM: Oh, hey, it's Brains On producer Rosie DuPont. Hey, Rosie.

ROSE DUPONT: Hi, Molly. Hi, Lorna.

[SAD MUSIC]

Lorna, I was once like you. I thought insects were yucky, creepy, crawly, icky, yucky, nasty, and yucky.

LORNA: You said yucky three times.

ROSE DUPONT: Because that's how much I thought they were yucky. But that all changed when I met my new pal Henry J. Flyman. Henry changed my perspective on buggies, and I bet he could help you, too. Now I think they're nifty, neat, wowie, helpful, and handy.

LORNA: Cool. I'd like to meet this Henry J. Flyman, too. Maybe he can help me see the beauty in bugs.

ROSE DUPONT: Let me just--

LORNA: No, not the bug signal again.

ROSE DUPONT: Bug signal? But, no. No, no, no. I was just going to text him to come over.

[PHONE KEYS CLICKING]

Last I saw, he was hanging around a big pile of manure.

MOLLY BLOOM: Manure? Like poop?

ROSE DUPONT: Yeah, he really loves that stuff for some reason. He's an odd dude. Tall, mysterious, always wearing a dark hat, dark glasses, oversized trench coat. But he helps me get over my fear of bugs, so we're friends.

[MESSAGE SENT TONE]

There.

[MESSAGE RECEIVED TONE]

Oh, he says he'll fly right over.

MOLLY BLOOM: Fly?

[MESSAGE RECEIVED TONE]

ROSE DUPONT: Oh. Oh, he meant he'll human walk over, with his human legs.

MOLLY BLOOM: Um.

ROSE DUPONT: Ah. Henry J Flyman. He'll help you see the light. Hi, Henry.

HENRY: [BUZZING] Hi, Rosie. It's me, human person Henry J Flyman. [BUZZING]

MOLLY BLOOM: Something seems strange about Henry.

HENRY: I was just doing human person things. Like paying a tax, or checking an email. [BUZZING]

ROSE DUPONT: Cool. Well, we were just talking about how I used to think insects were creepy.

HENRY: [BUZZING] Yes, it's totally normal for human people to be afraid of insects. [BUZZING] In fact, the fear of crawly critters [BUZZING] might be something humans are born with.

LORNA: Really? Why is that?

MOLLY BLOOM: And why is Henry's arm bent that way? That doesn't seem right.

HENRY: Well, most arachnids and insects are totally harmless. But there are a few that can spell trouble. Like venomous black widow spiders, or bitey fire ants. [BUZZING]

ROSE DUPONT: That's right. Scientists studied a group of people, and had them play a game, where they tried to identify as fast as they could, whether a picture was an insect or something else. Like a plant or flower. Turns out, people spotted the insect faster than the other things. That made the scientists think we might be born to quickly notice insects, maybe for our safety.

LORNA: Huh. I think I find insects kind of gross. Because I sometimes see them hanging around dead things, or in poop.

ROSE DUPONT: That is another good point. Some scientists think our fear of bugs might be part of our disgust reflex. That's what they call it when we find something disgusting. Like rotten food, dead animals, poo, or booger mud. That's mud with boogers in it. Not a real thing, but if it was, it would be disgusting.

MOLLY BLOOM: Right, I've heard of the disgust reflex. It's the idea that we find things disgusting because it's our brain's way of helping us avoid things that can make us sick.

ROSE DUPONT: Exactly. Spoiled food can upset your tummy. Dead animals sometimes have diseases and bacteria. And since insects sometimes hang out in things we find disgusting, some scientists think we assume they are disgusting, too.

LORNA: Insects themselves aren't disgusting, though. They hang around dead stuff and poop because they're breaking it down, like Meredith told us earlier.

HENRY: Yeah. And insects just want to do their thing in peace. Like for instance, Rosie, is that an old banana peel in your pocket? [BUZZING]

ROSE DUPONT: Yeah, actually. How did you--

HENRY: If I was a swarm of flies pretending to be a normal people human, I would really want to help you break that down. [BUZZING]

ROSE DUPONT: Good point. I guess a swarm of flies pretending to be a human would want to do that. Weird example, but sure.

HENRY: But the point is, bugs just want to live in peace. They can't help it if occasionally they end up in your house, buzzing around your heads, trying to dodge the newspaper as you swat at us. I mean, them.

LORNA: Huh, I never thought of it like that. Bugs are just doing their thing. Living their lives like us. And maybe if we got to know them a little better, we wouldn't be so nervous around them.

HENRY: Exactly. But seriously, do you want me to take care of that banana peel, Rosie? [BUZZING]

MOLLY BLOOM: OK, I'm sorry, but am I the only one who notices this?

ROSE DUPONT: Notices what?

MOLLY BLOOM: Henry J. Flyman, he's definitely not a human. He doesn't have feet, he's just hovering there in a trench coat.

HENRY: I am just jumping, [BUZZING] and not coming down. Nothing [BUZZING] strange here.

MOLLY BLOOM: And he's definitely buzzing.

HENRY: That's just my cellular phone. It's on vibrate. [BUZZING]

MOLLY BLOOM: Look, I have to say it. I'm pretty sure Henry J. Flyman is just a bunch of flies in a trench coat.

ROSE DUPONT: Molly, I think I'd know if my friend was just a bunch of flies in a coat. I mean, we've hung around garbage cans together, spent time in a stinky barn, talked about rotten fruit for literal hours. Wait a second. No eyes, no mouth, a face made of hundreds of tiny flies. Maybe he is a bunch of flies. Oh, man, I was duped. Henry, how could you?

HENRY: Rosie, oh, we are sorry. [BUZZING] I only wanted to help you see that insects are beneficial, and to make a new friend. We'll go now. [BUZZING] Sad buzz. [BUZZING]

ROSE DUPONT: I feel so foolish. How could I not see him for who he truly is? Which, as it turns out, is in fact, a bunch of flies in a trench coat. I mean, he did teach me a lot of cool facts about flies, like how they have compound eyes that let them see behind them, or how a housefly can travel 300 times their own length in a single second. And it was nice how he always offered to take out my trash for me. Maybe I'm being too hard on him. I do that sometimes. I should journal about this later. Why is everyone looking at me?

MOLLY BLOOM: Rosie, I think you're saying your inner monologue out loud.

ROSE DUPONT: Oh, no, not again.

LORNA: You know what? I might still feel a little weirded out by insects, but thanks to you, Henry, or Henries, whatever. Thanks to you, I realize it's normal to feel this way sometimes. But I can see that bugs are also really nice.

ROSE DUPONT: Yeah, Lorna's right. Once you learned a little bit about them, you can start seeing insects for the helpful and amazing creatures they are. And if it took a bunch of flies, and a hat, and trench coat to make that happen, then so be it. Let's still be friends. Come on, flies formerly known as Henry, let's head to the compost heap. I was going to drop off my banana peel, and I bet you'd love it there.

HENRY: [BUZZING] Compost? Now you're talking. Thanks, Rosie.

ROSE DUPONT: See ya, Molly and Lorna.

LORNA: Bye.

[MUSIC PLAYING]

MOLLY BLOOM: For some people, it doesn't take a trench coat full of flies to realize the value of insects.

LORNA: Yeah, some of our Brains On listeners are already bonkers for them. Here's what they had to say about our tiny friends.

[MUSIC PLAYING]

SPEAKER 4: I like dragonflies because they kind of make us shimmer in the sun, that looks like rainbow, and I really like their color.

SPEAKER 5: My favorite insect's a bumble bee. Because bumblebees pollinate flowers, and unlike other bees, bumblebees can use their stingers again, and again, and again.

SPEAKER 6: My favorite bug is a roly poly.

SPEAKER 7: My favorite bug is a praying mantis. Because they have really huge eyes, and I used to take care of them in jars. So I'm an expert on praying mantises.

SPEAKER 8: I like grasshoppers because they are easy to pick up and feed.

SPEAKER 9: My favorite bug is a fire ant. And why fire ants are my favorite? Because they can just do-- they can attack ginormous things without the ginormous things stepping on them. That's why I think they're very cool.

SPEAKER 10: My favorite bug is the dragonfly. Because they're one of the first insects with wings, to evolve over 300 million years ago. And they can spend years under water, and they eat mosquitoes which are harmful to humans.

SPEAKER 11: I like ladybugs because they have cool patterns, and they're fun to hold because they're a little tippy.

[MUSIC PLAYING]

MOLLY BLOOM: So many of our listeners had thoughts about insects.

LORNA: Yeah, and it's easy to see why. They're in their gardens or parks.

MOLLY BLOOM: And even in our podcast. We see insects everywhere.

[TRUCK HORN HONKING]

[TRUCK ENGINE WHIRRING]

TONY: Sorry to break it to you, but when it comes to insects, not seeing them is the problem.

LORNA: Holy big rig. Who are you?

MOLLY BLOOM: And how did you get that semi truck into the studio?

TONY: The name's Tony. Tony the turnip trucker. For the past 40 years, I've driven turnips all over the US. And in that time, I've seen many things. I saw a moose eating spaghetti. I saw a meteor shower while taking a bubble bath. I even saw a big ball of twine once.

MOLLY BLOOM: That last one isn't so interesting.

TONY: But one thing I keep seeing less and less of, insects. Squished insects on the windshield of my truck, to be precise.

LORNA: Why would that be a problem?

TONY: Because looking at insects splattered on a car's windshield is a rough way of figuring out how many are out there.

MOLLY BLOOM: I've heard of this. Scientists call it the windshield phenomenon.

TONY: That's right. And it's not just windshields noticing it. Scientists have been collecting data on this for years. Usually, by catching different kinds of insects and counting them. They found that almost half of all insect species worldwide are declining, and one in three are endangered.

LORNA: It's partly because so many of the places they live, like forests, or prairies, or swamps, have become cities, or towns, or houses.

TONY: True as a truck tire. Climate change is also a part of the problem, because insects are super duper sensitive to changes in temperature. And the pesticides or bug poisons we put on our gardens and farms are probably also to blame.

LORNA: So what can we do to help?

TONY: Lots of things. Planting native plants in your backyard that are suited to your part of the country, gives insects places to look for food, nests, and hide from predators. Even just one beautiful native plant in the corner of your yard can make a difference. Also, try to use fewer pesticides on your plants.

MOLLY BLOOM: Oh, yeah, our buddy Joy Dolo did a whole episode of *Forever Ago*, all about the things we can do to make our yards friendlier for insects and other critters.

TONY: All the long distance truckers on my route love *Forever Ago*. That Joy, she's something. Anywho, these little changes will help make the bugs in your neighborhood happy and healthy. And if we keep at it, before you know it, my windshield will be covered in bugs once again. Which isn't really a good thing, now that I think about it. Oh, well, speaking of which, I got to hit the road. Got to deliver a giant pinata to the Buddies of Bugs party. See ya.

[TRUCK ENGINE WHIRRING]

[TRUCK HORN HONKING]

LORNA: You know what? I think I want to come to that bug party.

MOLLY BLOOM: Really? Even though it will be full of insects and people who love insects?

LORNA: Yeah. You know, bugs are in trouble and they need our help. Instead of focusing on how some of them give me the creeps, I want to start talking about how all of them help the planet, and how they do amazing things, like lift heavy things, or see behind them, or glow in the dark. I want to help the world see bugs for the tiny wonders they are.

MOLLY BLOOM: That's great. This calls for an emergency bug celebration. Let me just get Sheila and Meredith back here with the bug signal.

LORNA: Wait, no, not that horrible signal of--

BUG SIGNAL: Bugmergency. Bugmergency. Bugmergency. Bugmergency.

[MUSIC PLAYING]

MOLLY BLOOM: Insects are an incredible group of animals that do all kinds of important things for our environment, like pollinating plants.

LORNA: Or breaking down poop and dead things to help plants grow.

MOLLY BLOOM: Plus, lots of other animals rely on insects for food. Like birds, bats, and frogs.

LORNA: Sometimes people feel a little nervous around them. But most insects are totally harmless, and more afraid of you than you are of them.

MOLLY BLOOM: Scientists say some insects are disappearing because of climate change and habitat loss, but there are things we can do to help. Like planting native plants in your yard. That's it for this episode of Brains On.

LORNA: This episode was produced by Shahla Farzan, Aron Woldeslassie, Molly Bloom, Rosie Dupont, Anna Goldfield, Nico Gonzalez Wisler, Ruby Guthrie, Anna Weggel, and Mark Sanchez.

MOLLY BLOOM: It was edited by Sanden Totten, and sound design by Rachel Brees. We had engineering help from Trevor Galvan, Derek Ramirez, and Raul Escobar. Beth Pearlman is our executive producer, the executives in charge of APM studios are Chandra Kavati, Alex Schaffert, and Joanne Griffith. Special thanks to Brendan Berry, Joy Dolo, Andy Doucette, and Eric Ringham

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

MOLLY BLOOM: There are lots of ways to support the show. Head to BrainsOn.Org.

LORNA: While you're there, you can subscribe to our Smarty Pass, which lets you listen to ad-free episodes, and other super-special bonus content.

MOLLY BLOOM: And you can submit your questions and fan art. We love getting fan art from you, it makes our days. OK, Lorna, are you ready to listen to that mystery sound again?

LORNA: Yep.

MOLLY BLOOM: All right, here it is.

[MUFFLED BEEPING]

[WATER SPLASHING]

Any new thoughts?

LORNA: I don't know, it sounds like something reversed. Like--

MOLLY BLOOM: Oh, yeah, totally.

LORNA: Like, maybe first, it's a splash of water, and then, like-- or maybe a toy or something.

MOLLY BLOOM: I love that. All right, are you ready for the answer?

LORNA: Yep.

MOLLY BLOOM: OK, here it is.

NOAH: Hi, my name is Noah, and I'm from California, Santa Rosa. And that sound was from a pool net going out of the water.

LORNA: Oh.

MOLLY BLOOM: A metal tube for a pool net going in and out of the water. That's a very hard mystery sound, but you totally heard the water, and you got that there was something going in and out of the water. You thought a clock, maybe, or a toy. But it's a tube, that's why I made that really cool sound.

LORNA: Oh, I didn't know that.

[MUFFLED BEEPING]

[WATER SPLASHING]

MOLLY BLOOM: Now it's time for the Brain's honor roll. These are the kids who keep this show going with their mystery sounds, drawings, questions, and ideas.

[LISTING HONOR ROLL]

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

LORNA: Thanks for listening.