

**Brains On (APM) | Brains On! AHH! How music can make scary movies even scarier**  
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**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:** Thanks for coming to see the first screening of my horror movie, Sanden.

**SANDEN:** Of course. I am so excited to be totally scared by-- uh, what's it called again?

**SPEAKER 3:** Duck Duck Ghost. Ha ha. Let me get it going here.

[FILM ROLLING]

[MUSIC PLAYING]

**BRETT:** Stacey, I don't know about this. Maybe we shouldn't go to the duck pond alone at night. What if it's haunted?

**STACEY:** Come on, Brett. There's no such thing as a haunted duck pond.

**BRETT:** Of course, there is. Where do you think poultry-geist come from?

[DUCK QUACKS]

**STACEY:** I just want to see some cute sleeping ducks, Brett. There's one. Aw.

[GROWLING]

**BRETT:** What was that?

**STACEY:** Um, that duck looks different.

**BRETT:** It's got red eyes and-- are those fangs in its beak?

**STACEY:** It's coming closer. It's, it's--

[GROWLS]

[SCREAMS]

**SPEAKER 3:** So what do you think of the first scene?

**SANDEN:** Well, the dialogue is great. The set design-- truly horrifying. Great job. And you even had a jump scare. Woo, gave me chills. But are you sure about the music? I mean, it didn't sound right to me. What if you made the music scary too?

**SPEAKER 3:** Hm, scary music with a scary movie. Buddy, I think you're onto something.

**MOLLY:** You're listening to *Brains On!* from APM Studios. I'm Molly Bloom. And my co-host today is Chase from San Diego. Hi, Chase.

**CHASE:** Hi.

**MOLLY:** So, Chase, you wrote to us with a question that we thought was perfect for this extra creepy time of year.

**CHASE:** Yeah, I wanted to know why the music that goes with scary movies makes them even scarier.

**MOLLY:** That is a great question. So, Chase, I'm wondering, what made you think of this?

**CHASE:** Well, I was watching a scary show, and I noticed that the music made it feel like even creepier.

**MOLLY:** [LAUGHS] Do you remember what that music sounded like?

**CHASE:** In this particular show, it was all buildup mostly. So it was like

[HUMMING]

And then it just cut to a different scene almost every time.

**MOLLY:** [LAUGHS] Kept the suspense going.

**CHASE:** I know. And then it would go back, rebuild it up, and then the jump scare would happen.

**MOLLY:** So, do you like watching scary movies and scary TV shows?

**CHASE:** Um, I don't like really-- I don't like slasher movies as much. I feel like those are too realistic. But I watched *Halloween*, which wasn't scary. I feel like the more--

**MOLLY:** It wasn't scary?

**CHASE:** No.

**MOLLY:** [LAUGHS]

**CHASE:** I feel like the more like ghosts and zombies and stuff isn't nearly as scary as, like-- I haven't seen *Halloween*, but I've heard that one's actually pretty scary.

**MOLLY:** OK, so you sound like you know scary movies. You're not scared by movies that definitely scare me. So, I'm going to chalk that up to you liking scary movies. What do you think a scary movie would be like with the sound off? Do you think it would be as scary?

**CHASE:** I think you-- it would just look normal and you wouldn't feel anything. And then when the jump scare came, it would be like oh, oh, OK.

**MOLLY:** Can you explain what a jump scare is?

**CHASE:** Yeah, it would be the-- when something suddenly-- like, maybe it's through visual or you hear it. So it might-- it's like a sudden, either, like boom or it's something like jumps on the screen or-- and it feels like it's like jumping at you most of the time.

**MOLLY:** It goes like, surprise! But scary. A scary surprise. Not like-- not a birthday party surprise.

**CHASE:** Yeah.

**MOLLY:** Do you play any instruments?

**CHASE:** I play the drums.

**MOLLY:** Oh, nice. How would you make drums sound scary?

**CHASE:** If I think of, like, scary drums, I think of, like, the *Jaws* theme but, like, in a -- kind of in a drum beat being like boom, boom. Boom, boom. Boom, boom. Maybe more of a heartbeat, actually.

**MOLLY:** Yeah.

**CHASE:** Boom, boom. Boom, boom. Boom, boom. Boom, boom, boom, boom, boom, boom, boom, boom, boom, boom. And, like, it speeds up, and then boom!

**MOLLY:** Yes. Yes. That sounds scary. That's awesome. So, Chase, your question got us thinking about how we're not just listening to music with our ears, we're also using that amazing electric meatball between our ears, our brains.

**CHASE:** When it comes to feeling scared, our brains play a massive role.

**MOLLY:** Yeah. Fear is one of the many ways our brains respond to what's going on around us. We're constantly getting new information from our senses, like sight, sound, smell, and touch.

**CHASE:** And our brain processes all of that information super quickly. If anything around us seems like a threat, our brain tells our body to get out of there.

**MOLLY:** To see what's going on in there, let's get our handy dandy brains on zoom ray and zoom in on the middle of the brain.

[MUSIC PLAYING]

**MOLLY:** You see that little oval blob right above the brainstem?

**CHASE:** Yeah. It kind of looks like a walnut, or maybe an almond?

**MOLLY:** That's the amygdala. Its name actually means almond, because of its shape. The amygdala is where a lot of emotional information is processed. It also tells our brains if something is out of the ordinary.

**CHASE:** So if I were taking a walk in the woods and I saw a tree next to me, the amygdala wouldn't have much to say about it.

[WHISTLING]

**AMYGDALA:** Oak, pine, maple. Yep, everything looks good here.

**MOLLY:** But if you looked over and saw a moose or a bear or something else unusual, the amygdala would jump into action and send out a distress signal, kind of like an alarm.

[ALARM BEEPING]

**AMYGDALA:** Whoa! This is not a drill. That's definitely something out of the ordinary. Go. Go. Go.

**CHASE:** Then my brain would tell my body to start sending out stress hormones. My heart would beat faster, my muscles would tense up, and I might start breathing quickly.

**MOLLY:** This reaction can be turned on by any of our senses, not just sight. So if you were taking a walk in the woods and you heard a scary noise, you might have that same kind of response.

[LEAVES RUSTLING]

[GROWLING]

**CHASE:** Ah! Whoo. OK, my response there, that was an example of innate fear. Innate means something you're born with.

**MOLLY:** We find something scary because our ancestors thought they were scary too. A long, long time ago if you were minding your own business and you heard a twig snap behind you, it might be a predator looking to make you its snack.

**CHASE:** Yikes. And an early human who jumped and was ready to run at a sudden sound had a much better chance of surviving and passing on their speedy reflexes to the next generation.

**MOLLY:** Exactly. So, thanks to those early ancestors we have that jump reflex baked into our brain. It's innate. We're born with it. Nowadays, a sudden noise is much less likely to be a hungry lion but we've still got the same fear response.

**CHASE:** When a composer writes the music to go along with a scary movie, they can use musical tricks that take advantage of our innate fears.

**MOLLY:** Like having the music go from soft to loud. Woo, I scared myself there.

**CHASE:** We asked Jae Kyo Han to tell us more about how music can play with our brains. Hi, Jae.

**JAE KYO HAN:** Hi, Chase. Hi, Molly. Thanks for having me.

**MOLLY:** Of course. We're so happy you're here. Jae is a concert pianist and music teacher, and he knows his way around scary sounds.

**JAE KYO HAN:** I do, and I've got my piano right here.

[SPOOKY PIANO PLAYING]

**MOLLY:** Ooh, spooky.

**CHASE:** So Jae, we want to talk to you about the musical techniques used in scary music.

**MOLLY:** First, let's explore music that plays on our innate fears, the ones we're born with. So, what sounds might startle our brains, Jae?

**JAE KYO HAN:** Well, playing with rhythm and tempo is a great way to start. Rhythm, as you probably know, is a regular repeated pattern of sound. And sometimes, rhythms can be creepy. What are some you might hear in real life?

**CHASE:** Slow footsteps?

[FOOTSEPS]

**MOLLY:** A loud ticking clock.

[CLOCK TICKING]

**CHASE:** A heartbeat?

[HEARTBEAT]

**JAE KYO HAN:** Exactly. To make things even scarier, you can manipulate tempo, which is how fast or slow music moves. For example, if footsteps are getting faster, what would that sound like?

[FAST FOOTSTEPS]

**CHASE:** Something's running toward you maybe?

**JAE KYO HAN:** Right. Maybe even a chase?

**MOLLY:** [LAUGHS]

**JAE KYO HAN:** Here's a little piece of music from Grieg's *Hall of the Mountain King* that uses rhythm and tempo to create the creepy feeling of being chased.

[MUSIC - "IN THE HALL OF THE MOUNTAIN KING"]

**MOLLY:** Chase, what do you imagine might happen in a movie scene with that music?

**CHASE:** Maybe a chase, Chase.

[LAUGHTER]

**JAE KYO HAN:** Exactly. Next, let's talk dynamics. Chase, do you know what musical dynamics are?

**CHASE:** Yeah, they're how loud or soft a piece of music is played.

[LOUD PIANO PLAYING]

**MOLLY:** [YELLS]

**CHASE:** And loud sounds are one of the things humans are born afraid of.

**JAE KYO HAN:** Yes, but soft sounds can feel creepy too, like in Chopin's *Scherzo No. 2 in B flat minor*.

[PIANO PLAYING]

**JAE KYO HAN:** So if you start out soft, you can edge people into the creepy--

[PIANO PLAYING]

**JAE KYO HAN:** --and then.

[LOUD PIANO PLAYING]

**CHASE:** Ah, definitely. I mean, [INAUDIBLE] jump a little.

[LAUGHTER]

**JAE KYO HAN:** That was--

**MOLLY:** Unsettling. My heart is pounding!

**JAE KYO HAN:** Molly, do you hear how your voice just got higher?

**MOLLY:** Yes, because I'm anxious.

**JAE KYO HAN:** Well, in music, we'd say your voice has a higher pitch. Playing with pitch is another great scary music tool. If I imitate that anxious, high-pitched sound, it can feel very offputting. Here is the theme from John Carpenter's *Halloween*.

[MUSIC PLAYING]

**CHASE:** Low notes can also be ominous. Our brains might interpret them as something that sounds like a growl from hungry lion our ancestors wanted to avoid.

**MOLLY:** Yeah, that got creepier with the low notes.

**JAE KYO HAN:** Yeah, definitely. One pitch trick you hear a lot in movie scores are pitch bends.

[CREEPY MUSIC]

**JAE KYO HAN:** Which sound like--

[SCREAMING]

**CHASE:** A human scream!

**JAE KYO HAN:** That's some scary stuff.

**SPEAKER 4:** (SINGING) Brains On!

[CLEARS THROAT]

**MOLLY:** OK, I need a break to let my poor brain recover from all that sonic scariness. We'll talk more with Jae in a minute. But while we're on the topic of screams, you know, it's not just us humany humans that wail. Chase, we're going to play a game I call I scream, you scream, we all scream for animal screams. I'm going to play you some screams and you guess the animal that's screaming. Got it?

**CHASE:** Yup.

**MOLLY:** All right. Here is the first scream.

[CHIMPANZEE SCREAMING]

**MOLLY:** What animal do you think that is?

**CHASE:** That sounds like a monkey, kind of like a chimpanzee.

**MOLLY:** Oh my goodness, Chase, you are 100% correct. Nicely done. Nicely done. All right, here is scream number two.

[ANIMAL SCREAMING]

**CHASE:** Hm, that's either a seal or a dog. I'm going to go with seal, like a seal on the beach screaming.

**MOLLY:** Very good guess. The answer is a dog.

**CHASE:** [GROANS]

**MOLLY:** You almost had it.

**CHASE:** Yeah.

**MOLLY:** That type of dog is a Malamute Alaskan Husky.

**CHASE:** Oh my God. Huskies are my favorite dog.

**MOLLY:** Oh really? Well now you know what they sound like when they're screaming. All right, here is animal scream number three.

[BIRD SQUAWKING]

**CHASE:** Oh, that, that's a bird. That's like a parrot, I think.

**MOLLY:** You are correct. It is a bird, but it's a barn owl. A true creature of the night.

**CHASE:** Owls are that loud?

**MOLLY:** Oh, yes. Owls can be very noisy.

**CHASE:** I didn't know owls scream like that. I just thought owls did like the--

[HOOTS]

**MOLLY:** Yeah, I wonder when they scream like that, probably when they're angry. Like, stay away from my mouse. That's my mouse. All right, here is our fourth and final animal scream.

[ANIMAL SCREAMS]

**MOLLY:** That's a short one. So let's hear it again.

[ANIMAL SCREAMS]

**MOLLY:** What do you think?

**CHASE:** That short? I'm going to go with meerkat. It's like alerting, it's alerting it's group, danger maybe?

**MOLLY:** I love that. The answer is the Red Abyssinian Wolf or Simien jackal. It's a kind of canine native to the Highlands of Ethiopia.

**CHASE:** A jackal?

**MOLLY:** That is a really hard one because most people probably aren't thinking jackals in their day to day. But that was excellent. Very good work. Excellent ears. So now you've got plenty of inspiration for your own signature scream that you can bust out on Halloween or the next time you hear a scary story. Chase, can you give us a taste of what your scream is like?

**CHASE:** [SCREAMS]

**MOLLY:** Wow, that was a good scream. Sending chills down my spine.

**CHASE:** Why, thank you.

**MOLLY:** OK, this next sound is less scary and more secretive. It's the--

**SPEAKER 5:** Mystery Sound.

**MOLLY:** Are you ready for a mystery sound?

**CHASE:** Yeah.

**MOLLY:** Here it is.

[MYSTERY SOUND PLAYING]

**MOLLY:** Whoa. What is your guess?

**CHASE:** That's a lot of jacket zippers. I do that all the time with my jacket. If I'm bored, I'll go on my jacket and just start moving it up and down. I'm familiar with that sound.

**MOLLY:** [LAUGHS] Excellent work. Yeah, that's what it sounded like to me too. Jacket zippers. All right, well we will hear it again, see if we're right after the credits.

[SPACE MUSIC]

**MOLLY:** We're working on an episode all about space, that dark, starry, infinite place right above our heads. And we want you to send us your space jingles.

**CHASE:** A jingle is a short little song about how amazing something is.

**MOLLY:** OK, Chase. If you had to write a jingle about space, what would it be?

**CHASE:** (SINGING) Space, it's infinite, which means it's got a lot of space. It's space!

**MOLLY:** That was great. I enjoyed that very much. I can definitely hear some drums behind that.

**CHASE:** Yeah.

**MOLLY:** Very nice work. Listeners, record your space jingle and send it to us at [brainson.org/contact](http://brainson.org/contact).

**CHASE:** And while you're there, you can send us your mystery sounds, drawings, and questions.

**MOLLY:** Like this one.

**SPEAKER 6:** My name is [INAUDIBLE]. And my question is, why do shadows bend?

**CHASE:** You can find an answer to that on the *Moment of Um* podcast.

**MOLLY:** It's a dose of fabulous facts every weekday. Just search for a *Moment of Um* wherever you listen to *Brains On!*

**CHASE:** And keep listening.

**CHASE:** You're listening to *Brains On!* from APM Studios. I'm Chase.

**MOLLY:** And I'm Molly. And we're here at *Brains On!* headquarters having a screamingly wonderful time talking about how music can play with our brains, and add extra thrills and chills to scary movies.

**CHASE:** We talked about the kinds of sounds that we're instinctively scared of like loud sounds or sounds that change pitch.

**MOLLY:** But there's another reason certain sounds freak us out. We've been taught to find them scary.

**CHASE:** Take the theremin.

[THEREMIN PLAYING]

**CHASE:** This amazing instrument made of two metal antennas. And when electricity runs through them, it makes an electromagnetic field.

**MOLLY:** You play it by moving your hands around in the air and interfering with its electromagnetic energy.

**CHASE:** It's pretty funny looking when people play it, like they're slowly waving away a bunch of invisible bugs.

**MOLLY:** The theremin was used in a ton of scary science fiction movies in the 1950s and '60s when that type of movie was super popular.

[CREEPY MUSIC]

**MOLLY:** And so many people have learned to associate this instrument with aliens, monsters, Halloween, and feeling creeped out.

**CHASE:** But it can also make beautiful and calming music.

[SOFT THEREMIN MUSIC]

**CHASE:** We were taught to think it was scary, but it isn't scary on its own. It depends what you hear or see along with the sound.

**MOLLY:** Another great example is the pipe organ. There's lots of beautiful music written for this instrument.

[PIPE ORGAN PLAYING]

**CHASE:** But it has also been used in tons of classic monster movies. So if you hear something like this--

[CREEPY PIPE ORGAN MUSIC]

**CHASE:** --you might expect to see Dracula or Frankenstein around the next corner.

**MOLLY:** When composers write scary music, they use a combination of things we've learned to find frightening, along with musical elements that mimic sounds we were born afraid of.

**CHASE:** One more musical element that humans across cultures seem to find fairly scary is dissonance.

**MOLLY:** Right, it's when two notes don't harmonize with each other, when they clash. So some of our associations with dissonance are more innate, and some are learned. It's a complicated subject. Luckily, we've still got Jae Kyo Han, our musical magician here. And I bet he can tell us more.

**JAE KYO HAN:** So one of the freakiest dissonant chords out there is the minor second. It's when two notes are right next to each other.

[CREEPY MUSIC]

**JAE KYO HAN:** The *Jaws* theme song uses this minor second, and it's considered one of the scariest movie soundtracks of all time.

[JAWS THEME SONG PLAYING]

**MOLLY:** What did that sound like to you, Chase?

**CHASE:** Um, probably like a cat sneaking up on a mouse.

**MOLLY:** Hm. Something sneaking up on you.

**CHASE:** Yeah.

**JAE KYO HAN:** Right, I almost think like the way that it's using the long note and the short note kind of creates that picture even clearer. It's like-- it's like crouching and then it jumps and tries to catch you. So I feel like that's almost playing into it as well.

**CHASE:** Yeah, I think we each think it's like the dun it moves, and then a stop, and it freezes, and then it keeps going, and it freezes. And then you have the dun! And it pounces.

**JAE KYO HAN:** And then freezes. Exactly.

**MOLLY:** And that makes sense for *Jaws* because that movie, they're looking for a shark. They don't really see the shark, they're trying to find it. So it's like something out of sight, you don't know where it is, that kind of creepy feeling of something being right behind you. Yeah, that's awesome.

**JAE KYO HAN:** So dissonance can be creepy, uncomfortable, and scary because it doesn't feel resolved. So any technique you can use to make a piece feel unexpected or unfinished can add scariness.

For example, a series of chords that don't really fit together is unexpected, like we hear in Mussorgsky's *Denon*.

[PIANO MUSIC PLAYING]

**JAE KYO HAN:** And a scale that doesn't resolve feels unfinished.

[PIANO MUSIC PLAYING]

**MOLLY:** Resolve! Resolve!

**JAE KYO HAN:**[LAUGHS] yeah.

**MOLLY:** So, Chase, how does it make you feel when it doesn't resolve and just kind of hangs like that? What does it make you think of or picture?

**CHASE:** I want to hit whatever button it takes to put in that last note.

**MOLLY:** [LAUGHS] The resolve buttons!

**JAE KYO HAN:**[LAUGHS] Exactly.

**CHASE:** It's like in a room you put a fireplace in the middle and it's not centered, and you're like [GROWLS]

**MOLLY:** [LAUGHS]

**JAE KYO HAN:**[LAUGHS] Did there's a funny story about Mozart where his father would play a phrase and he wouldn't resolve the piece. And Mozart would get out of bed and he would play the final chord just so he could go to sleep.

**MOLLY:** Dad, you're keeping me up with your unresolved chord progressions!

**JAE KYO HAN:**Exactly. So I've been playing the piano by pressing its keys. But a lot of movie composers, they'll use the inside of the piano. So I'm going to actually brush the strings with my fingers, and it'll create a very creepy sound.

[CREEPY MUSIC]

**MOLLY:** Oh, yeah. Chase, what does that make you think of?

**CHASE:** A higher pitched guitar. Like it sounded like the-- it sounded like a mix between a guitar and piano because it had the kind of building up, like swiping your hand over the piano keys but the strum of a guitar.

**MOLLY:** What do you think that would be good to use for, like, in a creepy movie? Like what setting would that be used in?

**JAE KYO HAN:**I can play it for you again here.

[CREEPY MUSIC]

**CHASE:** It'd be in-- it'd be in, like,*Scooby Doo* when the villain, like, kind of-- you see them, they, like, turn toward the camera and then open some kind of wall and go behind it, and that's where they kind of plan.

**MOLLY:** Some sneaky sounds.

**CHASE:** Yeah.

**JAE KYO HAN:**Yes, mysterious. So there are definitely more musical tools you can use to write a scary piece of music, but those are a few great ones to start with.

**MOLLY:** OK, so let's make sure we've got it. To write a scary piece of music you can use an unsettling rhythm, kind of like heartbeat or footsteps.

**CHASE:** And speed up or slow down the tempo in an unpredictable way.

**MOLLY:** You can also use a surprising mixture of very soft notes.

**CHASE:** And very loud ones.

**MOLLY:** High pitched screamie sounds!

**CHASE:** Or low ominous ones.

**MOLLY:** Dissonant chords are very unsettling.

**CHASE:** And pretty much anything that feels unexpected or unfinished will add a little creepy energy to your piece.

**JAE KYO HAN:** You got it.

**CHASE:** Thanks so much for joining us today, Jae.

**JAE KYO HAN:** It was my pleasure. Bye, Chase. Bye, Molly.

**MOLLY:** Bye, Jae.

**CHASE:** Bye.

**MOLLY:** Get that piano off the sidewalk now.

**JAE KYO HAN:** [LAUGHS] Will do.

- Brains On!

**CHASE:** We've learned how scary music works on our brains. So when a composer is writing music for a scary movie, how do they decide how it will sound?

**MOLLY:** We asked musician and composer Heather McIntosh to tell us how she uses music to add a creepy feeling to movies.

**HEATHER:** Hi. My name is Heather McIntosh, and I am a composer for film and television. Sometimes with a film, I may just work from the script, which is a written version of the story that the movie turns into.

So maybe I start from the script, and I can sort of develop themes and ideas away from an actual shot picture. So sometimes it's from script. But then sometimes it happens later in the process where I get a full cut of the film and I get to watch that down and I come up with the themes that way.

Or a third way is I get the full cut of the film and then the picture editor or music editor may put in a temporary score, which is music from other composers or maybe from me, too, music that I've written that they put in to give you a guideline of what tone they think, like what the director or the filmmakers feel like the tone should be.

So just to give you a better idea of, oh, this is where I need it to be really loud and scary, or this is where I want to have a quiet, super tiny sound. But whenever there's a picture, we have a spotting session, which is where you sit with the director and you talk about what you think the music should do at all the different points in the whole film.

So once you have a full cut of the film, you would go through and say, oh, there's this part where the door is creaking and we don't want any music there. But when the door opens and the bad guy comes, that's when you want to have some terrifying sound or a full orchestral sound.

It's a lot of questions and answers to just find exactly how to dial in the sound for that very specific project. And it's always different.

**MOLLY:** Chase, now that all these tips and tricks, if you were going to create a scary sound to introduce a monster in a movie, what would it be?

**CHASE:** Boom, boom, boom, boom, bo, boom! It would be like the, kind of like footsteps, the boom, boom, but, like, heavy ones. And then it stops, and then it bangs down the door, breaks through it. And then it cuts to the scene with the police tape everywhere.

And they go in like-- how'd they die? We don't know. No evidence was found. There's this weird, big footprint. But only a single one, even though it's walked down the entire hallway. But only one footprint, and we don't know what it is.

**MOLLY:** Oh, creepy.

**CHASE:** I know.

**MOLLY:** Yeah, scary music can really get our hearts racing, our blood pumping, our skin sweating. And when we've had too much, we might let out a scream.

[SCREAMS]

- Ba, ba, ba,  
ba, ba, ba, ba,  
ba, ba, ba, ba,  
brains on.

**SPEAKER 7:** Coming soon to theaters. Just when you thought it was safe to get back in the duck pond.

**BRETT:** Stacey, it's behind you.

[DUCK QUACKS]

**SPEAKER 7:** Something is very wrong at Old MacDonald's farm. E-I-E-I-oh no. From the director who brought you Duck in Space. It's Duck Duck Ghost.

**SPEAKER 8:** I've been in the ghost hunting business for 20 years and I've never seen anything like this. See this? The readings are off the charts.

**STACEY:** The air is so cold but it's the middle of July.

[SHIVERS]

We must be close.

**SPEAKER 8:** You better get those bread crumbs ready, kid.

[RUSTLING]

Did you see that? Behind that bush. It's--

[GROWLING]

No, that's impossible. I'd know those feathers anywhere.

**SPEAKER 7:** The monster duck of Old MacDonald's farm is quack from the dead.

[DUCK QUACKS]

**MOLLY:** That's it for this episode of *Brains On!*

**CHASE:** This episode was written by Anna Goldfield and Rosie Dupont. We had production help from Molly Bloom, Ruby Guthrie, Mark Sanchez, [INAUDIBLE] Anna Weigel, and Nico Gonzales Wisler.

**MOLLY:** Our editors are Sanden Totten and Shahla Farzan. And our executive producer is Beth Perlman. This episode was sound design by Rachel Breeze and mixed by Anna Haberman. Our production coordinator is Lauren Humbert. We had engineering help from Dave Drexler, special thanks to Brant Miller, Jae Kyo Han, and Laura Rivard.

The executives in charge of APM Studios are Chandra Kavati, Joanne Griffith, and Alex Shaffer.

**CHASE:** *Brains On!* is a nonprofit public radio program.

**MOLLY:** If you liked the show, head to [brainson.org](http://brainson.org). While you're there, you can tell your friends about us.

**CHASE:** Donate to the show.

**MOLLY:** Send in your drawings.

**CHASE:** And your mystery sounds.

**MOLLY:** That reminds me, we still don't know exactly what that mystery sound was. Do you want to hear it one more time, Chase?

**CHASE:** Yeah.

**MOLLY:** All right, here it is.

[MYSTERY SOUND PLAYING]

**MOLLY:** What do you think?

**CHASE:** I still think it's zippers.

**MOLLY:** Zippers. I think it's zippers too. OK, ready for the answer?

**CHASE:** Yep.

**MOLLY:** OK, here it is.

**LUISA:** Hi. My name is Luisa.

**HANNAH:** Hi my name is Hannah.

**LUISA:** That was the sound of us rubbing the soles of our flip-flops together. We like that sound because it reminds us of the summers in Cape Cod.

**CHASE:** I would never have guessed that.

**MOLLY:** Yeah, no. Me neither. It is very specific, not something I've done before. It's definitely a unique sound, that's for sure.

[MYSTERY SOUND PLAYING]

**MOLLY:** Now it's time for the brain's honor roll. These are the incredible kids who keep the show going with their questions, ideas, mystery sounds, drawings, and high fives.

[LISTING HONOR ROLL]

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

**CHASE:** Thanks for listening!