

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

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

[MUSIC PLAYING]

ANNOUNCER: One day, your friends are talking about their favorite games, animals, and ice cream flavors.

SPEAKER: Definitely strawberry.

SPEAKER: It's got to be chocolate.

SPEAKER: Mint chocolate chip.

SPEAKER: Have you guys tried rocky road? It's disgusting.

ANNOUNCER: And the next day, something has changed.

SPEAKER: He is so cute.

SPEAKER: Huh?

SPEAKER: Oh my gosh. She looked at me. I think I might faint.

SPEAKER: What about ice cream?

SPEAKER: Sawyer said the funniest thing to me.

SPEAKER: Oh, no. It's happening.

ANNOUNCER: That's right. Your friends have been taken over by-- the crush.

SPEAKER: Do you think he likes me back?

SPEAKER: Do you think she likes me back?

SPEAKER: Do you think they like me back?

SPEAKER: Noooo!

ANNOUNCER: The crush-- coming soon to a podcast near you.

[MUSIC PLAYING]

[THEME MUSIC]

MOLLY BLOOM: This is *Brains On* from American Public Media. I'm Molly Bloom, and my co-host today is Siaki from San Diego. Hi, Siaki.

SIAKI: Hi, Molly.

MOLLY BLOOM: Today's episode is inspired by a few listener questions we've received, including this one.

CAROLINE: My name is Caroline. I am from Hattiesburg, Mississippi. My question is, why do we fall in love?

MOLLY BLOOM: So, Siaki, have you wondered about love and crushes too?

SIAKI: Yes, I have.

MOLLY BLOOM: Do you remember when your first crush was?

SIAKI: I think my first crush was when I was in first grade.

MOLLY BLOOM: And have you had crushes since then?

SIAKI: Yes, I have had many crushes since then.

MOLLY BLOOM: [CHUCKLES] What grade are you in now?

SIAKI: I'm in sixth grade.

MOLLY BLOOM: Yeah, I remember when I was in elementary school I had crushes basically all the time, and they changed frequently. So how often would you say your crushes change?

SIAKI: Very, very, very often.

MOLLY BLOOM: [CHUCKLES] Do you have friends that haven't had crushes too?

SIAKI: Yes, I have friends that haven't had crushes, but most of them do.

MOLLY BLOOM: Do you and your friends talk about your crushes?

SIAKI: Yes, we do. But I stopped telling my friends about my crushes because then they would tease me about them. One time, my friend told my crush that I liked him, so that was embarrassing.

MOLLY BLOOM: Yeah, that is a really hard thing to have happen. That's something that happened to me. I think that's something that happens to a lot of people. Do you have one friend that you feel like you can trust? Or do you kind of just keep that to yourself now?

SIAKI: Well, I feel like I could trust one friend, but she wouldn't tell my crush. But she would keep on teasing me about it. So I just eventually stopped telling her too.

MOLLY BLOOM: Why do you think people tease about crushes?

SIAKI: Well, maybe because crushes can be funny.

MOLLY BLOOM: I think that makes sense because when we have crushes, or when our friends have crushes, when it comes to the person that they like, those of us who have crushes don't necessarily act like ourselves in that moment. Maybe we act one way most of the time. But then when you mention the crush, we act a little bit different. And maybe a little bit could seem silly because we get really excited, or we get really nervous. And so it's kind of easy to tease a friend in that instance.

SIAKI: Yeah.

CHORUS: (SINGING) Ba ba ba ba ba ba ba ba ba ba ba-- brains on.

MOLLY BLOOM: Some kids don't have crushes, but it's definitely something a lot of you have experience with.

[MUSIC PLAYING]

SPEAKER: So having a crush kind of makes me feel nervous inside just to say something. And it makes me feel sweet inside.

SPEAKER: When I have a crush, when I talk to that person, I can't stop smiling. And I blush when I look at them. And when I do anything with that person, I just feel very happy.

SPEAKER: For your latest episode, awkward.

SPEAKER: When I have a crush, I feel happy and excited and feel really special. And I really want to be around them. But at the same time, I also feel shy around them.

SPEAKER: So it makes you feel like you're really fuzzy inside and like you never want to leave them no matter what and like you want to stay with them forever and ever and ever.

SPEAKER: When I have a crush, I feel like I can't look at that person because people will then know that I have a crush on that person. And when I'm talking about them, I blush.

MOLLY BLOOM: Thanks to Samia, Zoe, Gabby, Coco, Harvey, Emily, and Lulu for sending us those lovely descriptions.

SIAKI: Some crushes grow over time. Others can sneak up on you and take you by surprise.

MOLLY BLOOM: But when you're in the middle of a crush, it can take up a lot of space in your brain.

REBECCA SCHWARTZ-METTE: There are things going on in the brain, different parts of the brain lighting up.

MOLLY BLOOM: That's Rebecca Schwartz-Mette, a psychologist who teaches at the University of Maine.

REBECCA SCHWARTZ-METTE: The parts of the brain that light up when we eat really delicious cake and the parts that light up when we're about to jump on a roller coaster, that mix of excitement-- something good is about to happen, but it's also a little scary.

SIAKI: When Rebecca says parts of the brain are lighting up, that means they're active.

MOLLY BLOOM: For your brain, having a crush is a big mix of feelings. It's almost a little like eating a piece of cake on a roller coaster. So seeing someone you have a crush on might make you feel butterflies in your stomach.

SIAKI: You might feel that same feeling before you go on stage.

MOLLY BLOOM: When you're nervous and excited about anything really, that butterfly feeling comes from a reaction to stress that's called fight or flight.

[MUSIC PLAYING]

SIAKI: We evolved to be ready to spring into action anytime we encountered stress because it probably meant running away or fighting a predator.

MOLLY BLOOM: But since we're also social creatures, meaning we need other people to survive, stress that comes from social situations triggers that same survival response in us.

SIAKI: You might wonder what your crush thinks of you, or you might want them to like you back.

MOLLY BLOOM: That can be stressful, and that causes your body to get ready for fight or flight.

SIAKI: Which means the blood rushes away from your stomach and into your muscles. That makes your stomach feel fluttery.

MOLLY BLOOM: Other brain chemicals are at play too, like dopamine, which is how your brain rewards you.

SIAKI: If your crush smiles at you, your brain will say, hey, that was awesome, and your neurons release dopamine.

MOLLY BLOOM: And oxytocin, which is a chemical that makes you feel bonded to someone.

SIAKI: OK, so there are lots of people in the world. Why do we have crushes on some people but not on others?

REBECCA SCHWARTZ-METTE: Oh, my gosh. See, and this is that magic part that science is desperate to understand. I think we have some good clues. Similarity is a big one-- similar interests, similar worldviews, similar activities for kids is a huge one. And also, the younger the kid, proximity. The more you're around someone, in many cases, the more you like them. Of course, the other thing that we think a lot about is physical appearance, and that's a powerful one.

SIAKI: So there are a lot of reasons why you might like the look of someone. It's different for everyone.

MOLLY BLOOM: Just like you might really like the look of a certain dessert or the way a house is decorated or a pair of shoes.

SIAKI: We all have different tastes.

MOLLY BLOOM: And that's great. We can all listen to our own feelings about what and who we like. It's a part of who we are. So, Siaki, why do you think a crush is called a crush?

SIAKI: Maybe a crush is called a crush because you feel crushed when you like someone.

MOLLY BLOOM: Yeah, what about it do you think makes you feel crushed?

SIAKI: Maybe it's if they don't like you back or something.

MOLLY BLOOM: Yeah. If they don't like you back, it could feel crushing. I also feel like maybe it's because there are just so many different feelings that you kind of feel crushed under the weight of all those different feelings you're feeling. Well, before we get to that crushing part of a crush, it's time for your ears to fall in love with the--

[BUZZING]

[SYNTHESIZER CHIME]

SIAKI: (WHISPERS) Mystery sound.

[SYNTHESIZER CHIME FADES]

MOLLY BLOOM: Here it is.

[SNAP]

[SNAP]

[POPPING]

OK. I think we should hear that one again. It has a lot of silence in it. Let's hear it one more time.

[SNAP]

[SNAP]

[POPPING]

OK, Siaki, what is your guess?

SIAKI: So at the beginning, I kind of hear a popping sound. And then I feel like someone's lighting a match near the end.

MOLLY BLOOM: Hm. Very good guess. Well, we will be back with the answer and give you another chance to guess a little bit later in the show.

[MUSIC PLAYING]

(SINGING) Brains on on on.

MOLLY BLOOM:

So let's turn to the why of crushes.

SIAKI:

We get crushes because, like we said earlier, humans are social creatures. We really care about our relationships with other humans.

REBECCA SCHWARTZ-METTE:

Part of the reason we think we have such sophisticated emotional systems and communication systems is to connect with other people. And so, of course, our first connections are with our caregivers and our siblings, if we have them. And then we branch out, and we form peer relationships and friendships.

And then after that is when we start to become interested in those early stages of romantic relationships. And so I think that we are, at our core, beings that wish to connect with others. And the development of the types of relationships that we create build on one another.

MOLLY BLOOM:

In a lot of ways, crushes are helping us figure out what we like in other people and who we might want to form a lasting relationship with.

SIAKI:

These bonds are important. In many cultures, people build their families around them.

MOLLY BLOOM:

And humans need to raise kids to make our species successful. Partnerships have been key to that.

SIAKI:

Humans aren't the only ones who form lasting relationships.

MOLLY BLOOM:

Some animals seem to fall in love or at least stick with the same partner for a while.

SIAKI:

And get this-- there's actually a fictional game show about them.

[AUDIO PLAYBACK]

[MUSIC PLAYING]

- Welcome to the *Long-Term Mates* game, where we quiz animals who mate for a long time to see just how well they know their partners. Let's meet our couples. Couple number 1, they met in an underground club, a tiny dirt tunnel just a few inches beneath a golf course. It was love at first sniff. It's a pair of prairie voles.

[APPLAUSE]

Couple number 2, they're the perfect picture of long-armed love. These apes are often swinging from branch to branch in the tropical rainforests of Asia. It's a pair of gibbons.

[APPLAUSE]

Couple number 3, you might mistake them for pine cones with legs. But they're actually reptiles. Joining us all the way from Western Australia, it's a couple of shingleback skinks.

[APPLAUSE]

Couple number 4, on their first date, they surprised each other by ordering the same drink-- seawater. It's a pair of literal lovebirds, the albatrosses.

[APPLAUSE]

Now, our questions are for one partner at a time. I'll ask the question, and your job is to match the answer your partner would give.

Prairie voles, you're up first. What is your partner's favorite item in your home?

- I know this. It's the grass in our nest.

- It is the dried grass in our nest.

[MUSIC AND APPLAUSE]

- Yes! I knew because our nest is just the right amount of scratchy and warm.

- Well done, voles. Gibbons, you're up.
What is your partner's ideal date?

- Oh, oh, oh, hmm. OK, I've got to say hanging out in a tree and then grooming each other.

- Baby, you were so close. I said grooming each other and then hanging out in a tree.

[APPLAUSE]

- Oh, well, we could definitely groom each other first on our next date.

- [CHUCKLES] That is sweet. We'll give you half a point for that. Shingleback skinks, let's see what you've got. What is your partner's favorite color?

- Let's see. I think I'll select dark blue.
That's the color of our tongues.

- Hon, no! Why would the color of our tongues be my favorite? I picked orange.

[SAD TROMBONES]

- Oops.

- Well, nice try, skinks. All right. Our last couple, the albatrosses, how many kids is your partner hoping to have this year?

- Well, just one.

- Oh, that's right. Yes. I want to lay one egg.

[APPLAUSE]

- We only lay one egg at a time then raise it together.

- How nice. Well, folks, I love when our couples know each other well. But my favorite part about this game is when they don't. It's amazing. All these animals are partnered for years, and they still don't know everything about each other. Love is mysterious.

Well, that's it for today. But tune in next time. We'll be quizzing wolves, sandhill cranes, octopi, and Malagasy giant rats in the *Long-Term Mates* game.

[APPLAUSE]

[END PLAYBACK]

[MUSIC PLAYING]

MOLLY BLOOM:

We're working on an episode about time travel. And we want to hear from you. We want to know if you could time travel to any time-- past or future-- where would you go and why? Siaki, where would are you time travel?

SIAKI:

I would travel into the past to see my parents grow up.

MOLLY BLOOM:

Oh, what would you like to see. What would you like to learn about that?

SIAKI:

What they ate, what they saw, what they did.

MOLLY BLOOM:

So you want to see what they were like when they were your age basically.

SIAKI:

Yes, and also what they looked like.

MOLLY BLOOM: That's super fun. Well, send your time travel destinations to us at brainson.org/contact. And while you're there, you can also send us your questions, mystery sounds, drawings, and high-fives.

SIAKI: That's where we got this question.

LARA: Hi. My name is Lara, and I'm from Las Cruces, New Mexico. My question is, what would happen if it rained oobleck?

SIAKI: We'll answer that question during the Moment of Um at the end of the show.

MOLLY BLOOM: And we'll read the most recent group of listeners to be added to the Brain's Honor Roll.

SIAKI: So keep listening.

You're listening to *Brains On* from American Public Media. I'm Siaki.

MOLLY BLOOM: And I'm Molly. OK, Siaki, are you ready to go back to that mystery sound?

SIAKI: Yes.

MOLLY BLOOM: All right. Here it is.

[SNAP]

[SNAP]

[POPPING]

All right. Do you want to hear it again?

SIAKI: Sure.

MOLLY BLOOM: OK, one more time.

[SNAP]

[SNAP]

[POPPING]

OK, what are your new thoughts?

SIAKI: I still think it's the match and the popping sound, but I also think it's something else-- maybe someone hitting drumsticks against a soft surface, like a pillow or something.

MOLLY BLOOM: Awesome. I love that guess. Well, here is the answer.

EMMA: My name is Emma, and this is my little sister--

OLIVIA: Olivia!

EMMA: We're from Cary, North Carolina. That was the sound of me putting on lip balm.

MOLLY BLOOM: So putting on lip balm. That sound at the end-- that [PUCKERING LIPS] is her putting her lips together like after you put Chapstick on.

SIAKI: Huh.

MOLLY BLOOM: Does that make sense?

SIAKI: Interesting.

MOLLY BLOOM: [LAUGHS] Yeah. And I think the sound you thought was a match was the closing of the lip balm. Do you wear lip balm sometimes?

SIAKI: Sometimes, when my lips are really, really dry.

[SNAP]

[POPPING]

AUTOMATED VOICE: Brains, brains, brains on.

MOLLY BLOOM: Siaki, have you ever tried to find out if a crush likes you back?

SIAKI: Yes, I have. The first time, I actually tried to figure it out. It didn't go so well for me.

MOLLY BLOOM: Oh, no. Tell me a little more.

SIAKI: So my crush actually figured out what I was trying to do, and he just asked me, are you trying to figure out if I like you? If you are, I'm sorry but I don't, so.

MOLLY BLOOM: Oh.

SIAKI: That was sad.

MOLLY BLOOM: That is sad. Were you trying to say it, and you were really nervous, and that's why he said that?

SIAKI: Yes.

MOLLY BLOOM: Did he handle it well? Was he nice about it? Or do you feel like he could have handled it better?

SIAKI: I think he was pretty nice about it.

MOLLY BLOOM: Yeah. I mean, it's going to be-- it's going to have a lot of feelings attached to that, no matter what happens, even if people are nice. But it's nice that at least he was respectful to you and was nice to you.

I asked a boy once if he had a crush on me by sending him a note that said, do you like me? Check one-- yes or no? That actually happened. I was really nervous about it, and I got my friend involved. It was a whole thing.

SIAKI: What did he check off?

MOLLY BLOOM:

He did check yes that time. But I did that a different time with a different boy who checked no. So I've experienced both sides of that myself. So, Siaki, would you say that it's better to know if your crush likes you or doesn't like you, or is that mystery better?

SIAKI:

I mean, there's two sides to this. In a way, it could be better to know because you'd be really anxious, and you would just want to talk to them or something. And you want to get it out and let them know how you feel. But then again, you might feel really nervous. And what if they say no, and then they keep on looking at you crazy, and then they tell everyone?

MOLLY BLOOM:

So there's some risk involved of trying to find out?

SIAKI:

Definitely some risk.

MOLLY BLOOM:

Is there fun in the mystery of not knowing?

SIAKI:

I don't think so-- at least not for me, anyway.

MOLLY BLOOM:

Yeah, you'd rather know the answer.

SIAKI:

Yeah.

MOLLY BLOOM:

Well, finding out about someone's crush or someone finding out that you have a crush on them, it's a big moment. We asked a couple experts about that.

ANUSHA:

My name is Anusha. I'm 17 years old, and I live in Ann Arbor, Michigan.

SARAH:

Hi. My name is Sarah. I'm 17 years old, and I live in Ann Arbor, Michigan.

MOLLY BLOOM:

Sarah and Anusha are peer educators, which means they talk to middle and high schoolers about healthy relationships.

SARAH:

So friends can come to us and ask us questions, and we can help them find the answers.

MOLLY BLOOM:

They had great advice about what to do in any kind of crush-related situation.

SARAH:

Take some time to digest and think about what was said before you have a reaction. So I think of two different things. I feel that there's a difference between a reaction and a response. And so your initial reaction could be scary or uncomfortable. And oftentimes, we don't have as much control over our reactions.

But our responses are something that maybe we took a little bit more time to think about. And that's something that we're comfortable sharing with other people. So our reactions are ours, and our responses are something that we give to other people. So I would just encourage people to pay attention to that difference and try and respond rather than react.

ANUSHA:

When we're younger, a lot of the time, we're not the ones who are telling our crushes that we like them. Oftentimes, they find out. There's a lot-- there's a game of telephone. And that is a really difficult thing to deal with, to have someone know something that personal about you that you never wanted them to know in the first place.

And that can be embarrassing. I've been there. It's difficult in the moment. It feels like the end of the world. I get that. It's not. I promise. You'll be fine. They'll move on. You'll move on. The next day, something funny will happen in class, and everyone will forget about it. But just know that it's going to be OK.

MOLLY BLOOM:

No matter what the situation is, crushes can bring up lots of questions. Psychologist Rebecca Schwartz-Mette says that's totally normal.

REBECCA SCHWARTZ-METTE:

It can be really confusing, but it's also exciting. To me-- and I've told my own kids this-- it's a signal that you're cool, and you want to connect with other cool people. It's your body's way, your brain's way, your heart's way of reaching out and finding new connections. And not all of those connections are going to end like a Disney princess movie. [CHUCKLES] In fact, hardly none of them will.

[AUDIO PLAYBACK]

[MUSIC PLAYING]

[BIRD WHISTLING]

- Oh, good morning, bluebird.

- [WHISTLING]

- What's that you say? Time to start my day? But, oh, I had such a wonderful time at the ball last night.

- [WHISTLING]

- Yes, I did meet the Prince. And he was just as handsome as everyone says. I think I'm in love.

- [WHISTLING]

- Why, yes, I do think we'll get married and live happily ever after.

- [WHISTLING]

- Well, no, we didn't talk for very long.

- [WHISTLING]

- We danced to three songs. And by the end, our two hearts had become one.

- [WHISTLING]

- Most crushes aren't reciprocated? You mean, the person doesn't love you back?

- [WHISTLING]

- And even if you do date them, you may not end up being compatible?

- [WHISTLING]

- And that's OK?

- [WHISTLING]

- You're telling me it's OK to fall in love at a ball with someone I've never met before and for them to not be in love with me back and that we won't get married and live happily ever after-- how is that OK? That's not how this is supposed to work?

- [WHISTLING]

- But there will be lots of good things in my life-- other balls and other crushes and also all kinds of different experiences?

- [WHISTLING]

- And crushes are good practice and will teach me something?

- [WHISTLING]

- OK. Thanks for talking with me.

- [WHISTLING]

- OK, fine. Yes, I'll get out of bed. Those tiny mouse hats won't make themselves.

[MUSIC PLAYING]

[END PLAYBACK]

REBECCA SCHWARTZ-METTE:

It's important to remember that these feelings, even if we call them a crush, they're real feelings. And the feelings of rejection are real, and the feelings of hurt are real. And so I think it's that first foray into this jungle of romantic relationships. But even that, even experiencing that lack of reciprocation, it's a training ground for helping us to refine our ideas about who we want to be connected to. And it's all part of the experience, but it can be a very painful part.

MOLLY BLOOM:

So if you find yourself having a crush, it's important to know that it is totally normal.

SIAKI:

It's also normal if you don't have crushes either.

MOLLY BLOOM:

And Rebecca says that if you find yourself with questions or are dealing with big feelings, it's great to turn to your friends or family to talk about them.

REBECCA SCHWARTZ-METTE:

I think working out those feelings, not necessarily holding on to them and being alone with them, I think is really key.

SIAKI:

It's totally OK to have questions. Talking to someone can help you get answers. No matter how you're feeling, you're not alone.

MOLLY BLOOM:

Crushes are a big deal. And so are relationships. So that's why there's no need to rush into them.

REBECCA SCHWARTZ-METTE:

We find, from our research and working with kids and talking with kids, that romantic relationships are so important for development. It's a good thing, even though it can bring up new types of conflict and new types of distress that people haven't navigated before. It can also bring up lots of new joys and other wonderful things.

But one thing that we know is that when kids get into romantic relationships too, too early, then it can be harmful in some ways. And so knowing that there's a lot of room to develop and grow in between first crush and first relationship-- it's OK to wait a little while and savor the crush, I tell people. The experience of having those feelings in and of themselves can be fun and important.

MOLLY BLOOM:

Here's something else important to think about. Crushes and relationships involve you and someone else. That means you need to respect that other person, listen to what they want and don't want. And it's important that you listen to yourself to, what you want and what you don't want. Everyone gets to choose what feels right to them.

[MUSIC PLAYING]

ANUSHA:

Our bodies are our own. So we have complete control over what happens to our bodies. And that includes how other people interact with them.

MOLLY BLOOM:

Again, our peer educator pal, Anusha.

ANUSHA:

If someone wants to give me a hug, I want to make sure that they're asking me permission before they give me that hug. And if I want to give someone else a hug, I want to make sure that I'm asking them permission. Any time that someone is interacting with my body or I'm interacting with someone else's body, I want to make sure that I know that I have their consent, I have their permission to do that.

It's not always easy to say no. And I think, oftentimes, especially when it comes to people that we're really close with-- family members and friends and teachers-- we don't want to upset them by saying no. But we want to make sure that we're putting our feelings at the same level playing field as everyone else's.

If someone comes up to you and asks you for a hug, and you don't feel comfortable, something like, hey, I don't really feel like a hug right now because sometimes I just don't feel like giving hugs. And that's totally OK.

A lot of the times, when we get said no to, we feel like it's our responsibility. But we have to step back and realize that the boundaries are on the other person. So those are their boundaries that they're comfortable with. And it doesn't have anything to do with us, but we still need to respect them.

[MUSIC PLAYING]

MOLLY BLOOM:

Humans are social creatures. And having strong relationships of all kinds is important to us as a species.

SIAKI:

We get crushes because we're learning about romantic relationships and what we like in other people.

MOLLY BLOOM:

Many crushes won't be returned. And that's OK because it helps us learn.

SIAKI:

And talking to friends or family members can help us process all the things we're feeling.

MOLLY BLOOM:

And remember, you don't need to rush into anything. You get to set your own boundaries, and it's important to respect other people's boundaries. And that's it for this episode of *Brains On*.

SIAKI:

Brains On is produced by Meneka Wilhelm, Marc Sanchez, Sanden Totten, and Molly Bloom.

MOLLY BLOOM:

We had production help from David [INAUDIBLE], Kristina Lopez, and Nancy [? Hsu ?] and editing from Phyllis Fletcher. We had engineering help from Cameron Wylie. Special thanks to Andy Doucette, Melanie Renate, James Rabe, Juliet, Odin, Axl, and Coco.

SIAKI:

Brains On is a nonprofit public radio podcast.

MOLLY BLOOM:

You can support the show and help us keep making new episodes at brainson.org/fans.

SIAKI: Now before we go it's time for our Moment of Um.

CHORUS: (HUMMING) Um, um, um, um, um, um, um.

LARA: My question is, what would happen if it rained oobleck?

GINGER ZEE: So I'm Ginger Zee. I am the chief meteorologist at ABC News. That means that I have, since I was a child, studied the atmosphere but got a bachelor of science in meteorology so that I could put together the puzzle that is the atmosphere and forecast the weather.

I really love this question because it's something I have not thought about much before. But when I went back to remember what non-Newtonian fluids do, they do not react the same when it comes to viscosity. So viscosity, how fluid or solid something is.

When we talk about forecasting rain, we know we're talking about water. In the water cycle, you have these droplets of moisture all over. We have moisture all over our atmosphere. It's in us right now. I can feel it sometimes. When it's more humid, you can actually feel it on your skin.

Those water droplets rise. They evaporate and cool as they get higher in the atmosphere. They condense, and they become a cloud. We see that cloud, depending on what type, create rain. And what's going to happen is the water then falls, as a liquid, and often into the surface temperatures, which are typically warmer than what's above. And so it remains a liquid.

Here's the interesting part-- if we were to put oobleck up in the atmosphere, it would really depend on if it was already up there because if you tried to lift it with an updraft of a thunderstorm, say, I think the pressure of that would make it a solid. But then you'd have the solid, and I imagine it would be way too heavy. So I think the gravity would take over before it would break into little droplets.

So instead, let's imagine that there are already tiny droplets of oobleck separated up in the atmosphere and just talk about the gravity of it falling, which I do think would still, because of that pressure, keep it as a solid until it hit the ground. Then I think it would become the liquid. So it would be almost the opposite of how we describe freezing rain.

Freezing rain is up in that, either thunderstorm or cloud. You've got rain droplets. They start falling. And in this situation, it's different. The atmosphere sometimes is flipped when you have freezing rain, where the surface temperatures are colder than what's above. And you'll have a rain droplet falling through the atmosphere, staying rain. And then as soon as it hits that surface layer-- something like a bridge or a metal pole-- on contact, it will super cool and freeze on contact. And that's when you get that glaze of ice. And so it goes from liquid, liquid, liquid to solid. And I think that's probably the best example of the opposite of what oobleck would do.

[MUSIC PLAYING]

SUBJECT:

Um. Um. Um.

MOLLY BLOOM:

Time for this list of listeners to rain down. It's the Brain's Honor Roll. These are the amazing listeners who sent us their questions, ideas, mystery sounds, drawings, and high-fives.

[LISTING HONOR ROLL]

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

SIAKI:

Thanks for listening.