

But Why: A Podcast for Curious Kids

Why Are Moths So Attracted To Light?

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[Jane] This is *But Why: A Podcast for Curious Kids* from Vermont Public Radio. I'm Jane Lindholm. On this podcast, we honor the diversity of childhood experience and celebrate the wonder you all bring to the world around you.

In other words you guys are all awesome and your questions are even awesomer.

Every episode we take one or two or twelve of your questions and we find some neat people to help answer them.

Before we get started, I'd like to take a quick moment to thank our sponsor the farm families who own Cabot Co-op have something new for busy families. Cabot's award winning cheeses now come pre-sliced for when your family is on the go for picnics, or for parties. Do you love cheese? Cabot has lots of cheesy recipes that kids love on their website Cabot Cheese-dot-co-op.

Here in Vermont and all over the northern hemisphere right now, it's summer. For many of us that means warmer weather, long days and fun outside. In today's episode we're going to be answering questions about creatures you might find outside in the summertime and we'll scratch a few bug bites and some poison ivy. So put on your sunscreen. We're going to talk about that too. Grab your bug net and come on an outdoor adventure with us.

Speaking of sunscreen I'm sure many of you want to run the other direction or look around when your parent is trying to put sunblock on your nose. It's so annoying. WHY ARE THEY DOING THIS TO YOU?

[Samarah] My name is Samarah. I am eight years old and from Johnson, Vermont. My question is why do I have to wear sunscreen?

[Izzy] My name is Izzy. I'm four years old and I live in Minnesota. I want to know why we don't have to wear sunscreen in the house?

[Jane] The sun's light gives us lots of things we need to grow and thrive. But it can also be damaging. Certain kinds of light from the sun, ultraviolet light it's called, can damage your skin when you get too much of it. If you've ever gotten a sunburn you know how that feels, tight and hot and really painful. And sometimes your skin even peels off where you got the burn. Like any kind of burn that's not good for your skin. Even a tan is bad for your skin. When you get older it can make your skin wrinkly and aged if you've gotten too many sunburns. More importantly doctors think there's a link between lots of

sun damage over time and skin cancer. Sunscreen or sunblock has chemicals or minerals in it to help filter out or block the damaging ultraviolet light from the sun. You should be wearing a sunblock with an SPF, sun protection factor, of at least 15 or 30 and you should slather it on every two hours or after you've gone for a swim and then towed off. Everyone can get sun damage. People with darker skin have more melanin which offers a little bit of sun protection, but it's still important to put sunscreen on whether your skin is light or dark or anywhere in between to make sure you're protecting yourself.

You don't have to wear sunscreen indoors because your house is kind of acting like sunblock. It's actually blocking that ultraviolet light. Though, be careful. You can get a sunburn through a sunny window, especially in a car. And if you really hate sunscreen you can also wear a hat with a wide brimmed to help protect your face and neck and long-sleeved shirts and pants to keep the sun off your skin and limit where you need to put that sunscreen.

But you know, sunscreen is a small burden to bear for being able to play outside in the sun all day long.

[Thatcher] I'm Thatcher. I'm four. I live in Easton, New Hampshire, and I want to know how a firefly glows?

[Jane] Writer and field biologist Bryan Pfeiffer loves watching fireflies. So he took a crack at Thatcher's question about how fireflies glow.

[Bryan] Fireflies glow not because they're plugged into anything but they generate their own glow with a chemical reaction in their body. In the rear end of the firefly there are some chemicals that the firefly can mix and when they mix they produce light. And the glow of a firefly actually is a signal to other fireflies. The males flash for females and it's all part of reproduction and making more fireflies. The males fly around and they flash for the females and they flash in a recognizable pattern and the females will respond with a flash of their own.

When we see fireflies flying across our yard at night they're flashing for the females and the females are often down in the grass or down in the shrubs. And she will see him and she'll respond with a flash and he'll say wow there's a lady over there I'm going to come in and meet her.

[Heidi] Hello my name is Heidi. I'm six years old I live in Leonardville, Kansas. My question is can fireflies control their blinking?

[Bryan] Fireflies do control their blinking because it's very important in their life. We communicate by talking to each other. Fireflies communicate with each other through

blinking. They recognize each other through their blinkings and there are many, many different kinds of fireflies, different species of fireflies and many of them have their own blinking patterns so they speak with four flashes and then a pause and then four flashes and then a pause, that might be one kind of firefly. Then there's another firefly that makes a J flash so it will be hanging in the hot summer air and it'll flash and it will draw a J as it's flashing with its bottom and you can actually see the J kind of hanging there for just a little bit as it flashes. So when it flashes its pattern it makes a J. Other fireflies will fly horizontally and then blink as they fly.

[Jane] But the firefly... Let's say I'm one kind of firefly. I can't communicate with the other kind by deciding well this time I'm going to make a J, or I can't say hey I'm a unique firefly and I'm going to go flash, flash, flash and then tomorrow I'm going to go flash, flash.

[Bryan] Generally they have their fixed flashes. Now, they flash one kind of flash. The flashing does depend on how hot it is if it's really humid. Those kinds of things also will change the flashing pattern a bit, but pretty much they have their own distinctive flashing pattern.

[Jane] For each species.

[Bryan] For each species, not per individual. Right exactly. There is however a trick that sometimes the females play. Sometimes the female fireflies will flash as an imitation. They'll do a fake flash because they see a male out there and they would recognize it and a female might flash to bring him in but she's playing a trick on him. She's not a female of his species she's not one of his kind. She's a different species and when he comes in thinking he's going to meet a female, she actually will kill him and eat him.

[Jane] Oh how cruel. Do you live in a place where there are fireflies? There are about 2,000 different species of fireflies and they live all over the world. In the United States, they mostly live east of Kansas. So if you divided the U.S. down the middle they'd mostly be on the right -hand side. They love moisture so even in fairly dry places you'll find them hanging around in tall grass near marshes or other kind of soggy spots. If you do live near fireflies or visit a place where they live, you can try to see if you can attract them to you by mimicking a firefly. To mimic means to imitate or to pretend to be, so you have to kind of pretend to be a firefly. You can use a flashlight and stand at the edge of a field where the fireflies are and then flash your light on and off.

But Bryan says it's a little tricky if you want to catch the firefly's attention.

[Bryan] Sometimes if you're good and you know how the females flash, if you see the males flashing and you know the females response, you can hold like a little penlight in the grass and flash like that female and sometimes the male will come in to your flash.

But it's tricky. It takes a bit of practice and you have to really know well what is the female's flash, what's her signature?

[Jane] The Museum of Science in Boston keeps track of people's observations of fireflies. We'll put a link in our newsletter and on the But Why Kids Facebook page and you can discover how to add your own observations to this citizen science project. That's also a good place to go to learn more about fireflies and how you can help preserve them. Bryan Pfeifer says in a lot of places fireflies have disappeared because there's not enough open grassland for them to congregate. Too many people mowing their lawns means less space for the fireflies.

You know if you're already outside in the evening you might get lucky and hear something like this.

That's a barred owl. B-A-R-R-E-D.

In our very first episode we got to hear some amazing barred owl sounds from the Cornell Lab of Ornithology where this one came from. So if you haven't checked out that episode go find it and you can hear barred owls talking to their babies in kind of a barn owl party. Since that episode we've gotten a few owl questions.

[Matthew] My name is Matthew and I live Annapolis, Maryland. I'm six years old and my question is how are owls nocturnal?.

[Kent] I'm Kent McFarland, a biologist at the Vermont Center for Eco Studies. Owls are nocturnal because there's a time of night when there's very few other birds around so they can feed on things that the other birds aren't feeding on and mostly those are mice and because the mice are nocturnal, the owls become nocturnal to find the mice and other small mammals, it could be, you know, a variety of different woodland mice and owls have amazing adaptations to be able to hang out at night time and be awake when we're not. And one of them is eyesight, for example, they have really big eyes on the front of their faces that allow gathering of a lot of light. So even there's just a little bit of moonlight maybe or a little bit of street light even they can gather a lot of that light and see things better.

The other thing they have is really excellent hearing and the coolest thing about owls is their ears one ear is up higher and one ear is down lower on the other side and that allows them to hear things just slightly differently on each side. So if they hear a mouse squeaking or making a noise in the understory of the forest and they're on a branch they might turn their head towards the sound and the sound will be funneled into one side of their head more quickly than the other side of their head and their brain is so fast it allows them to sort of triangulate allows them to figure out the angle of the sound and then allows them to see literally with their mind where the sound came from. And then

allows them to swoop down and grab that mouse without ever even seeing it. So they're seeing with sound that's the greatest adaptation I think they have.

The second thing is well if you're going to swoop down on a mouse, you have to be quick. But you also have to be quiet. And so they have, a lot of owls have these amazing wings where the feathers on the ends of their wings are fringed. They have little almost like hairs on the end of their wings. They're sort of a fringe for lack of a better word. They're sort of soft and cozy at the end.

And so when they beat their wings through the air instead of making a loud whoosh like you might hear an eagle make is really quiet. It's just, shh, shh, shh, and bang they're on onto the mouse or the mouse never even hears them coming. So these are some just great adaptations allow them to take advantage of darkness and to feed on things small mammals like mice.

[Jora] Hi my name is Jora. I'm ten years old and I live in Hinesburg. My question is how do owls swivel their heads all the way around.

[Kent] So first why do owls have to swivel their heads at all? And one of the reasons is that their eyes are sort of towards the front of their head just like us. Some birds if you look at them like say an eagle, their eyes are sort of to the sides of their head but on owls if you notice they have a face like ours their eyes are towards the front of their face. It gives them what's called binocular vision, really acute vision to see small things like rodents to eat.

[Jane] But there's a really big difference between how owls eyes move and how our eyes move. Right now sit up straight, look straight ahead. Now without moving your neck move your eyes left and right. Are you doing it. You have a wide range of vision just by turning your eyes without even moving your head. You can see off to the side and maybe see your sibling. You can turn to the other side see what's happening over there and your head is still facing forward.

Well, owls can't do that.

[Kent] Owls can't pivot their eyeballs at all. Their eyeballs are fixed into their skull they can't move them. And so in order to compensate for that they have to turn their heads to see things. So if they hear something with their great hearing off to the right, boom they're going to pivot their head real quickly and get that binocular vision right on what they're hearing and see if they can see it. So that's why their heads can actually pivot quickly and quietly is because they can't pivot their eyeballs at all. One thing you might think about though is that sometimes we see maybe in cartoons or on shows that an owl might turn its head the whole way around, 360 degrees it'll start in the front and spin its head the whole way around. Well, it's funny to think that they might be able to do that,

but they can't really do that. But they can turn their heads really far, much farther than ours. If you think about yourself if you turn your head to the right they could pivot their head well past their shoulder almost to the back to almost to the whole way to the back of their back and then they have to turn it back around again they can do it to the left side.

[Jane] I wish I could turn my head that far around.

[Pippa] My name is Pippa and I live in West Linn, Oregon and I'm five. My question is how do different owls make different sounds? Thank you.

[Kent] Well owls make a couple of different sounds.

You know, we often think of owls as hooting and many of them do hoot, but they also there's some kinds of owls like the Northern Saw-whet which is a tiny kind of owl that lives here in Vermont and other places in the northeast and it actually makes little whistle noises and actually makes this crazy noise that sounds like sharpening of an old fashioned saw that people used to use to cut lumber.

So it doesn't hoot, it sort of whistles and makes these wild noises at night and even barred owls which hoot, which to the sort of "who cook for you? who cooks for you all," it sounds like that when they do it they actually when they have young in the nest and when they come out of the nest the young make all kinds of crazy monkey noises. And just a variety of strange noises that might if you're walking in the woods a night might scare you a little bit if you didn't know it was just a beautiful owl making the noise. And then another thing they like to do if you get really close to them and they're a little bit upset is they snap their bills.

And I've had barred owls do this to me when I've gotten too close to them when they might be roosting in a tree in the daytime if I happen to see one and I walk up on the tree and the owl looks down on me and it's about to fly and it's a little mad at me for getting too close. It takes its sharp bills and just snaps together kind of like a warning like I see you and I'm not happy with you. It's just a warning to get out of my territory where I'm gonna have to fly and I don't think he wants to fly really.

So there's different sounds that owls can make it's not all just whoo whoo, it's all kinds of whistles and snaps and great noises at night.

[Jane] Do you like being outside at night? I do. Even though sometimes I get a little scared when I hear noises I don't recognize. That's why I think it's so cool to hear from people like Kent McFarland and Bryan Pfeiffer because they know a lot of things and they can tell us exactly what those sounds are. And when you know what's out there making noise it helps you form a picture in your head of what's happening around you.

Even if you can't see it and that can help you be less afraid. And you know sometimes when you can't see, it forces you to be a better listener and maybe even a better smeller and you start to understand all of the things that are happening around you that you don't even pay attention to in the day time or when you can see them.

Of course if you don't want it to be dark you turn on a light. And what happens then?

Well little winged creatures start flying right towards your light!

[Vonn] I'm Vonn. I'm five years old. I live in Parkville, Maryland. I'm wondering why moths are so attracted to light?

[Kent] No one actually really knows why they're attracted to light. There's a lot of ideas out there and I always ask other people that love moths, other entomologists, people that study insects and they always give me a different answer. But generally there's two answers. One of them is they think that moths might use things like the moon to navigate at night. And so if you imagine at nighttime there's they're sensing where the moon is. And it allows them to sort of figure out which way to fly.

[Jane] So your porch light might look like the moon and confuse them. But Kent says he's never really liked that hypothesis, that idea. He prefers a different scientific theory.

[Kent] The other idea is that they're attracted to lights because they see different kinds of light than we do. So moths have special eyes a lot of them and they can see a light spectrum that we can't even see, ultraviolet light. Colors of light that we in the spectrum of the sun that we can't even imagine in our brains, they can see it. And so the idea is that some of our lights things that run on things like mercury vapor lights the special lights or black lights, these kind of lights give off an eerie glow to moths that maybe mesmerize them and may actually blind them so they're kind of attracted to them because they can see it, it's this bright object. And when they get near it, it might actually be so strong that it blinds them and they get confused. And you've seen these moths do this they just circle and circle and circle the light and then they land on something like they're exhausted. And it might be that they're actually just blinded they literally can't do anything but circle around and try to get out of the light and they just can't seem and they'll land on something. I mean almost in frustration, let's say you know like gosh. And then you turn the light off and slowly they all fade away and go back to their business. So I like that idea that it's a spectrum of light that they can see that we can't see and it just really blinds them and confuses them and brings them in.

Which also tells me that you know, I want to make sure that I turn my lights on so I can watch moths for a little bit, but I also like to turn them off too so they all disappear and can go about their daily routine because there is some concern that there are some lights especially in our cities that actually confuse moths so much and there on so much

that it's detrimental to their health and we don't have as many moths in those places because of artificial lighting.

[Jane] You know we thought you might like to learn a little bit more about moths. So right now I'm going to play you an excerpt, or a bit, from another podcast that we make here at Vermont Public Radio. It's called Outdoor Radio and it's all about the natural world around us. It's hosted by Kent McFarland, who you've been hearing from, and another biologist at the Vermont Center for Eco Studies named Sara Zahendra. In a recent episode Sara and Kent collected moths in a way that you can do in your own home. So here's Ken and Sara and *Outdoor Radio*.

[Kent] I know we've gone to some wild places before and tonight it's not so wild. We're going to look at moths in my backyard.

[Sara] And you can actually find tens maybe hundreds of different species in your own backyard.

{Kent} Yeah it's amazing everyone just thinks of moths beings little brown things that flutter around at night when you really start to look at them you find out that there are all kinds of colors out there. There's reds, there's pinks, yellows, there's gold.

[Sara] And it's even not just moths, things like giant water bugs, all sorts of different lace wings some really beautiful fascinating insects just on a summer night with family and friends.

[Kent] And that's what we have tonight in my backyard. We've got a sheet hanging up. I've got a black light and I've got what's called a mercury vapor light.

[Sara] And we've got really the most important part and that is a moth expert with us.

[Kent] We do. I invited Joanne Russo who is an expert at moths. And you're kind of addicted to moths now.

[Joanne] I am.

[Sara] She also puts pictures of moths that she sees in her backyard and that she also helps people identify moths that they take photographs as well. And let's hope we find something more than just Junebugs on this sheet because now there's one attached to Kent's leg.

[Kent] So you said earlier you got really excited back in 2007 or so?

[Joanne] Yeah it was about 2007 and looking for something to do in the summer. Something I didn't really have to travel for. Butterflies and dragonflies didn't do and I started just looking at moths that were coming in my lights. I took a picture I blew it up

on the computer and I was amazed at the colors and just the variety that was coming to my house with just my porch light. And I didn't have to go anywhere! But with moths, they come to you leave a light on. So if you really want to get more involved with moths and you can get like a black light or a mercury vapor light, you can do moth bait which is just kind of beer, or maple syrup, or brown sugar, bananas, fruit like that, it ferments you can paint it on the barks of trees. Some moths will be attracted to this. And a lot of the like Catocola moths which are these just brilliantly colored underwing moths that when they first come out and you see them they kind of blend in with the bark of a tree their patterns are just subtle and dark. And then if their predator approaches them they open up and they show this beautiful orange or pink-striped underwing that just makes that predator say OK I'm not touching you. The predator will have that image in its mind of what this moth look like. But then the moth will lay back on a bark of a tree and the wings will fold back up and it just disappears.

[Kent] And now it looks totally different disappears, camouflage.

So that's what happens you start looking at these things and you get addicted.

[Joanne] Yeah it's easy to do.

[Sara] Well then let's start looking at these things.

[Kent] So what I have set up here is one sheet my back yard with a mercury vapor light on it and it's just a fancy light that I bought in a pet store. Up on my deck, I've got another sheet where I have a blacklight, that it's a U.V. light. And so all these lights attract the moths and other insects that we already have...

Joanne, you're bent down on moth right there.

[Joanne] We have this beautiful little green moth. It's one of the emeralds. And a lot of them and they have, they're just really pretty almost like celery green color. And when they spread open their wings when they're at rest they have very fine white lines on them. There's a lot of them in Vermont.

[Kent] As you guys are looking at that one I'm looking over your heads and there's literally mobs coming in out of the woods just buzzing around your heads.

[Sarah] That's great. So how many species now of moths that we know of are in Vermont.

[Kent] We are still figuring out but we're somewhere around 2,500 species of moths in Vermont alone.

[Sara] And so this is separated into two distinct groups that are called the Micromoths and the macromoths, right? Which is just what it sounds like. Teeny tiny really intricate

beautiful delicate little moths but you can also really just stick with the macromoths. Obviously those are larger moths and a little bit easier to identify and there's a lot of great books. They'll help you identify those moths.

[Joanne] There's also a lot of sources online. There's a bug guide dot net. There's the moth photographers group that has a lot of moths. And Facebook has a lot of moth groups, so a lot of people post a picture of a moth that they found, where they found it. And some expert will come in and say this is what it is. And so it's pretty easy.

[Sara] This is the perfect time really to be looking for a moths because a lot of them are mating right now especially those macro moths that everybody loves to see like the luna moth.

[Kent] Yeah let's check the bait.

[Sara] Yeah, let's go find it.

[Kent] I put this bait out in the sun all day and then I just take a paintbrush and I paint it onto the trunk of the tree and it's little chunks of banana you see on there and then some molasses.

[Sara] And why do we put bait out in the first place. Like what's the point of that if we've already got these lights out?

[Joanne] Well there are species that won't come to light but they will come to bait. So it's just a good way to see different species of moths.

[Kent] Is there anything to be afraid of?

[Joanne] No. Moths are very docile especially, when they're resting at a sheet, you can pick them up. A lot of times they'll just stick to your fingers, their feet almost have these little suction-cuppy things that you know you've got it on your finger and you're looking at it and then it's like all right. And then they're just like OK I'm going to stay on your finger for a while. They don't want to leave, so you almost have to push them off but they're not going to bite you.

[Sara] One of the great things about this I think is it's something that an entire family can do together on a weekend evening and it's a great way to get kids involved and experiencing nature. And there's no danger involved whatsoever. Like you said they're not going to sting. They don't bite. So it really is a good way to introduce people to all the species in their backyard.

[Kent] One of the things we want to remember about not only there are so many species in Vermont and elsewhere but really moths are sort of powerhouse for everything else out in the woods and we hear. They are the protein for all those songbirds out there

singing. They're feeding all their chicks moth larva that they're collecting. And if it wasn't for this massive bountiful crop of moths every year the birds would do very poorly, bats would do very poorly.

[Sara] I was going to say, don't forget about the bats.

[Kent] And they are also pollinators.

[Sara] Joanne, thank you so much for joining us tonight and talking about moths.

[Joanne] You're welcome any time. I love it.

[Kent] I'm Kent McFarland.

[Sara] And I'm Sara Zahendra. Thanks for listening to Outdoor Radio.

[Sara] Well we didn't find a luna moth.

[Kent] I've got this emerald back here in the backside

[Sara] Oh wait! Oh here's the new one, a different one. Oh there's one a couple of different ones! Look at this one you guys!

[Kent] Oh look at this one, I just got a glimpse of this. It's gold.

[Jane] If you like that you can check out other episodes and subscribe to *Outdoor Radio*. Now before we end this episode, I want to answer a few questions about the less pleasant parts of being outside in the summertime that you've sent us.

[Rowan] My name is Rowan. I'm four. I'm from Juneau, Alaska. My question is why do but bites itch?

[Jane] Well Rowan, if you have ever looked closely at a mosquito while it's biting you, you might have noticed that the mosquito has a long skinny mouth, or proboscis, that it actually sticks through your skin like a needle, or a straws, so it can suck up your blood. Yowzah! When they do that mosquitoes inject a little bit of their spit or saliva into your skin, their saliva has chemicals in it and your body says wait a minute this isn't right. Where did this come from? And then your body sends out other chemicals called histamines. The histamines are what create that red bump that you get where that bug bit you. And they actually cause the itching. It's uncomfortable and annoying but it's actually your body trying to defend and repair itself. So that's mainly why mosquito bites and other bug bites itch. Some bugs also have other kinds of chemicals that make you itch and some of them even have histamines in their own saliva. But basically it's the bite from the bug sometimes the way their little teeth work, that can cause that little spot

to itch or burn. And it's the histamines in your own skin helping your body repair itself and defend itself against that mean bug.

[Macy] Hi my name is Macy. I am seven years old and live in Marblehead, Massachusetts. My question is why are some caterpillars poisonous?

[Macy] Macy, have you listened to our episode about butterflies yet? You might find that one super interesting. In it we learned how butterflies have come up with all kinds of ways to protect themselves from predators, animals that want to eat them. So the butterflies might look camouflage so that nobody can see them or just the opposite. They might have really bright colors and those colors signal to a predator, don't even think about eating me, I am poisonous. Well it's the same thing for caterpillars. Some caterpillars are poisonous when an animal tries to eat them their insides are poisonous, so the animals will learn to avoid them. And some caterpillars have hollow hairs with poisonous chemicals in them that will make your skin sting if you touch them. This is all ways that the caterpillar has to try to stay alive and keep you or another animal away.

[Sophie] My name is Sophie. I'm nine years old and I live in Washington D.C. My question is why does poison ivy itch us?

[Jane] Poison ivy, poison oak, poison sumac, these are all different plants that you might encounter in the woods depending on where you live. These plants have an oil called urushiol, that causes a rash when it gets on your skin. Luckily though the rash might not develop for a couple of days after you've touched a plant. So if you've accidentally walked through poison ivy and you realize it, washing yourself off with soap can help stop the rash from appearing, or at least prevent you from having such a bad rash. There are other plants that can give you a reaction to and some of them are reactive to sunlight. They can get worse in the sun. So you should get an adult to help you recognize these plants so you can keep yourself safe.

Now speaking of things that you should learn about to stay safe. Here's another one.

[Melbourne] I am Melbourne. I am seven years old. I live in England. My question is why are some berries poisonous and some not?

[Jane] Berries are actually designed to be eaten. They're the seeds of the plant but it wouldn't be very helpful to have all the seeds drop right on top of one another right below that original plant, the seedlings would crowd one another out and they'd be competing for light and water and soil. So plants have developed remarkable ways to spread their seeds. Some seeds are really light and they have kind of like a parachute or almost a balloon that catches the wind. If you've ever blown on a dandelion that's gone to seed all those puffy parts just float away and the little seed is on the bottom that floats along with it.

Lots of berries were designed to be eaten by animals who then walk or fly away. Later on the animal will poop out the seeds and that's where those new plants will grow. As plants have evolved sometimes they have substances in them that are poisonous to humans but not to other animals like, birds. One theory is that birds are better at dispersing or spreading seeds because they can fly so far and so fast. So the plants adapted ways to make the berries less appealing to certain animals like humans while still being a good snack for the local birds.

All of you should know that some berries and plants can be really dangerous. So you should always talk to an adult before you eat something wild and unfamiliar. And there are plenty of books you can get that will help you identify a berry or a plant or a mushroom and find out what ones look similar but are poisonous. So you know what you can and can't eat.

That's it for today's episode. I hope you're getting outside and having a lot of fun in the summertime or if you're living in a place where it's winter, you can tell us what you're doing too and I hope you're having a good time as it gets cool and dark. Tell us some of the things that you love to do in the summertime. Send a note to questions@butwhykids.org. That's also the e-mail address that you can use to send us questions about anything you might be wondering.

We want to know about history, friendship, families, emotions, science, anything that you're wondering. We would love to know about it. Have an adult record you asking your question on a smartphone you can use a memo function. Make sure you tell us your first name, your town, and how old you are and we'll try to get you an answer.

But Why is produced by Melody Bodette, and me, Jane Lindholm at Vermont Public Radio. Our theme music is by Luke Reynolds. Thanks to Kent McFarland and Chris Albertine for some great summer sounds and Carita Bergman for a saw-whet owl song. We'll be back in two weeks. Until then, stay curious!