

**Brains On (APM) | Brains On! Going underground at Wind Cave National Park  
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SPEAKER: You're listening to *BrainsOn!*, where we're serious about being curious.

[BIRDS CHIRPING]

**MOLLY BLOOM:** Whew. We made it to the peak. What a view.

**CARTER** Yeah, all that nature, all those plants and animals, national parks are the best.

**WHATLEY:**

**MOLLY BLOOM:** Yeah, I could stand here all day staring at it.

**CARTER** Me, too.

**WHATLEY:**

[BOTH SIGH]

Wait. Aren't we supposed to be doing something?

**MOLLY BLOOM:** What do you mean? We are doing something. We're taking in this view.

**CARTER** No, no, no. We're supposed to be hosting a special series on *Brains On!* right now. It's all about the national parks.

**WHATLEY:**

**MOLLY BLOOM:** Oh, right. Was that today?

**CARTER** Yeah.

**WHATLEY:**

**MOLLY BLOOM:** Oh. Oh, OK. We got to go. We're going to be late. Oh, OK, put the theme song on, and that should buy us a little bit of time while we scoot down this mountain.

[STEPS SPRINTING]

OK, let's go.

**CARTER** Keep listening.

**WHATLEY:**

[THEME MUSIC]

**MOLLY BLOOM:** OK, back in the studio. You are listening to *Brains On!* from American Public Media. I'm your host, Molly Bloom.

**CARTER** And I am Carter Whatley.

**WHATLEY:**

**MOLLY BLOOM:** So Carter, we asked you to cohost this series with us because you have a very special relationship to a national park. What is that?

**CARTER** Yes. I lived 13 years in Yosemite National Park.

**WHATLEY:**

**MOLLY BLOOM:** And you are 13 right now?

**CARTER** Yeah.

**WHATLEY:**

**MOLLY BLOOM:** So you-- and just like a few months ago, you just moved kind of right outside the park, right?

**CARTER** Yeah.

**WHATLEY:**

**MOLLY BLOOM:** So that is an experience that not a lot of people have had. So how is it that you came to live in Yosemite? How is your family there?

**CARTER** My dad worked in the park, and we were able to live there.

**WHATLEY:**

**MOLLY BLOOM:** That's amazing. Can you describe what your house in Yosemite looked like? Was it a tent, or was it a house?

**CARTER** It was a house, and it was connected to another person's house, but there was a wall in between. And you had a

**WHATLEY:** meadow in front of you and trees, and then you saw Half Dome.

**MOLLY BLOOM:** What's Half Dome?

**CARTER** Half Dome is one of the biggest mountains in Yosemite National Park.

**WHATLEY:**

**MOLLY BLOOM:** So you woke up in the morning and looked out, and that was just there.

**CARTER** Yeah.

**WHATLEY:**

**MOLLY BLOOM:** That's incredible. And I know you really enjoy hiking.

**CARTER** Yeah.

**WHATLEY:**

**MOLLY BLOOM:** How many hikes would you say you've been on in your life? Can you even count?

**CARTER** No, I don't know how many I've been on, but I know I've been on a lot.

**WHATLEY:**

**MOLLY BLOOM:** And what are some of your favorite hikes?

**CARTER** I like the Vernal Falls Mist Trail because it's-- you hike up to the top of a waterfall, and you can hear the waterfall

**WHATLEY:** before you even get there. And as you get closer, you get misted with the water in the springtime.

**MOLLY BLOOM:** Because you're hot from hiking, so that probably feels awesome.

**CARTER** Yeah.

**WHATLEY:**

**MOLLY BLOOM:** So what advice do you have for people who may not have hiked before, and they might be interested in starting to hike?

**CARTER** You want to be prepared and ready, like have enough food and water, and you want to know what you're doing,  
**WHATLEY:** just like if you know what you're doing, you don't want to start out fast. You want to start out slow and steady.

**MOLLY BLOOM:** So what is your favorite animal in Yosemite?

**CARTER** I like the bear. I think it's just really cool how it just walks and roams around and does whatever it wants.

**WHATLEY:**

**MOLLY BLOOM:** So do you have to get out of the bear's way? Is it dangerous?

**CARTER** It can be. You just don't want to get close to any animal, really. You just want to leave it be.

**WHATLEY:**

**MOLLY BLOOM:** So what kind of stuff does the bear do?

**CARTER** Sometimes, it climbs in the trees and eats the apples, and sometimes, it just walks around and just sits there.

**WHATLEY:** [CHUCKLES]

**MOLLY BLOOM:** So then that's an important part, too, of being in a national park, of sort of enjoying it but also leaving the nature to be.

**CARTER** Yeah. You want to listen to the sounds of nature and winds in the trees and birds singing, and you always want to

**WHATLEY:** respect nature.

**MOLLY BLOOM:** That is very wise. And we hope this series of stories on the national parks helps other people understand the parks like you do.

[MUSIC PLAYING]

We at *Brains On!* love the national parks. In fact, a few years ago, we did a series all about the rad science happening in these amazing outdoor spaces. You can find the rest of the series on our website, [BrainsOn.org](http://BrainsOn.org).

**CARTER** We'll take you to a desert, to a beach, and to a place where wild horses still roam.

**WHATLEY:**

**MOLLY BLOOM:** In this episode, we're taking you to South Dakota. Now, dear listener, what do you think of when we say "national park"? Probably, trees, trails, mountains, lakes-- all the great outdoor stuff. But what's underneath it all?

**CARTER** In the case of South Dakota's Wind Cave National Park, a lot. We sent producer Marc Sanchez deep underground  
**WHATLEY:** for this story.

**MARC SANCHEZ:** Caves come in all shapes and sizes. There are caves of limestone with dramatic stalactites dripping from the roof. There are caves in glaciers swathed in patches of green and blue. There are even caves near volcanoes in tubes left behind from lava flow. With all this variety, it could be difficult to define just what a cave is, so let's keep it simple.

**MARC OHMS:** The main thread amongst them all is that it's naturally forming versus a mine that is human-created. So it's a natural-occurring void in the rock or in the Earth.

**MARC SANCHEZ:** Marc Ohms is a scientist at Wind Cave National Park in the Black Hills of South Dakota. He's been exploring caves for 30 years. In other words, he's a caver.

[MUSIC PLAYING]

Above ground, Wind Cave National Park fits in with its surrounding South Dakota landscape. Bison mingle with prairie dogs. Ponderosa pine trees sprout up through tall natural grasses. It's truly a beautiful and inspiring site. When I talked with Marc Ohms, however, we had just stepped off an elevator. We were about 300 feet underground. No vegetation, no animals, just a huge chamber room with walking passages sprouting off in all different directions.

**MARC OHMS:** Currently, we have over 146 miles of cave passages mapped. We really don't know the true extent of it because we have lots of passages we haven't even been in yet. If you look on the map in the Visitor Center, you'll see all these little things that lead to question marks, and those are exactly that-- we don't know. Those are question marks. Nobody's been in that one yet.

**MARC SANCHEZ:** Come with me for a second to the Himalayas-- Mount Everest. At its peak, Mount Everest is a little over 5 miles high. Now think about the 146 miles of caves that have been mapped at Wind Cave. If you were hovering over the cave, it would only be about 1 square mile-- not too impressive. But underground, those 146 miles look like a tightly wound ball of string. Spaghetti-like paths twist back and forth and go as deep as 500 feet below the ground.

And not all the paths are walkable. To be a caver means crawling into crevices and getting really dirty. Being nearly stuck in a crack hundreds of feet underground, not such a fun time if you ask me. But for cavers like Marc, that's just what the job calls for.

**MARC OHMS:** About a year ago, we went down into this passage called Shelob's Lair. And there was a tight spot that somebody found way back in the '70s called the Meat Grinder. And I was looking at the reports, and it's like, well, nobody's been back. And there was question marks back there, and it's like, well, I want to go to those question marks, of course. So we went there and kind of found out why nobody's been back.

Only one trip went through the Meat Grinder. I think it's because it is-- yeah, I bled. [LAUGHS] I mean, it tore my shirt off. It tore my skin up. And it's very tight. It's sub-8 inches. It's probably 7 and 3/4 inches and stuff for about 200 feet that it was nasty.

**MARC SANCHEZ:** In something like that, you're crawling along a passageway that's fewer than 8 inches high?

**MARC OHMS:** Yes.

**MARC SANCHEZ:** And then does it open up? Is there ever a payoff?

**MARC OHMS:** Yeah, luckily, it opened up on the other side, and then we get to the question marks. We're actually walking passages. So we were quite shocked then. We surveyed about 1,000 feet of new passages. And we left two question marks out of our own that had strong airflow coming out of, so we need to go back.

**MARC** And then you have to go back through the passageway?

**SANCHEZ:**

**MARC OHMS:** Yeah, that's-- yeah, it was probably-- yeah. I'm still healing on that one.

**MARC** One of the ways cavers try to figure out where to go next is by searching for wind. Think about it. If you were  
**SANCHEZ:** walking above ground near some rocks, say you pass a crack and feel a gust of wind, where is that coming from? That's a good indication that there's a void, an empty space somewhere beneath the ground, a void big enough to hold and move that wind. And that's exactly how the first explorers of Wind Cave figured out it was there.

[WIND GUSTING]

There's a 10-inch hole in the side of a cluster of rocks. This natural cave opening gusts with the unmistakable sound of wind. It can blow up to 30 miles an hour. And it's not just pushing out, either. The cave breathes in and out, and it's because of the weather, because of barometric pressure.

You see, the cave is so vast. There is so much space that it has its own air pressure system. Air pressure below the ground is constantly trying to match the atmospheric pressure above ground, commonly known as barometric pressure. When there's a low pressure system above the ground, which usually means cloudy skies and storms, air pressure inside the cave blows out. And when the skies are clear, a good indication of high barometric pressure, the cave takes a big breath in.

The land surrounding the Black Hills and Wind Cave has been occupied by the Lakota people for centuries, long before American settlers. Wind at the natural cave opening has been mythologized as a sacred area, which is key to the origin of the Lakota. It was the breathing that lured the first explorers of Wind Cave underground in the late 1800s.

Just imagine making your way into this hole in the ground. Nobody had ever been there before. There were no sidewalks or paths, definitely no electricity. The only source of light-- a candle. Otherwise, the cave is darker than night. Even with all those barriers, over the years, people continued to explore and map the cave. Maybe one tiny crevice leads to another path and another crevice which might open up into a new undiscovered room.

[MUSIC PLAYING]

Coming up, Marc Ohms goes looking for that next big room. And he's not about to let anything get in his way, not even a den of rattlesnakes.

**MOLLY BLOOM:** We can't do an episode of *Brains On!* without this.

[DISCORDANT FUTURISTIC SOUNDSCAPE]

**WHISPERING** Mystery Sound.

**VOICE:**

**MOLLY BLOOM:** Here it is.

[ANIMALS YIPPING, WIND GUSTING]

Any guesses?

**CARTER** Maybe a bird or a seagull.

**WHATLEY:**

**MOLLY BLOOM:** Excellent guess. Well, we will be back with the answer and give you another chance to guess in just a bit.

[MUSIC PLAYING]

**CARTER** Do you have a mystery sound you'd like to share with us?

**WHATLEY:**

**MOLLY BLOOM:** A question you want answered on the show?

**CARTER** Or maybe you just want to send us a drawing or a high-five.

**WHATLEY:**

**MOLLY BLOOM:** You can do all of that at [BrainsOn.org/Contact](http://BrainsOn.org/Contact).

**CARTER** Or you can find our mailing address at our website, [BrainsOn.org](http://BrainsOn.org).

**WHATLEY:**

**MOLLY BLOOM:** We love hearing from our listeners so much. They send us brilliant questions like this one.

**ARIA:** My name is Aria from Melbourne, Australia. My question is, do bears really eat honey?

**MOLLY BLOOM:** We'll be back with the answer during our Moment of Um at the end of the show, and we'll read the latest group of listeners to be added to the *Brains'* Honor Roll. And if you stay tuned to the very, very end, you'll hear a preview of our newest episode of *Smash Boom Best*, a debate show where we take two things, smash them together, and find out which one is best. This week, it's Loki versus Athena.

And listeners, we need your help. We're working on an episode all about spacesuits right now, and we want to hear from you. If you could invent a super suit of your very own that would help you with something right here on Earth, what would it do? Send us your super suit ideas at [BrainsOn.org/Contact](http://BrainsOn.org/Contact). We'll include some of your answers in that upcoming episode.

You are listening to a special national parks edition of *Brains On!* And before we get back to Wind Cave National Park, it's time to go back to that mystery sound. Let's hear it one more time.

[ANIMALS YIPPING, WIND GUSTING]

OK, so that was recorded on the South Dakota Prairie. Any new thoughts?

**CARTER** Would it be bats?

**WHATLEY:**

**MOLLY BLOOM:** Oh, good guess. Here's the answer.

**GREG** My name is Greg Schroeder. I'm the chief of resource management here at Wind Cave National Park. And that  
**SCHROEDER:** sound you just heard was a prairie dog jump-yipping.

**CARTER** Oh, wow. [CHUCKLES]  
**WHATLEY:**

**MOLLY BLOOM:** [CHUCKLING] Yeah. Prairie dogs are adorable. I saw them for the first time last summer, and they became my new favorite animal. They stand up on their hind legs, and they make those cute little yips. And they actually have a very complicated communication system with those yips, so it's not just for fun.

**GREG** There's been a lot of research done on what I'll call the language of prairie dogs. And it's a very complex  
**SCHROEDER:** language between normal yips back and forth and communication with each other saying either this is my territory, I live over here, don't come in here, or everything's fine, like the all-clear sign.

But they'll have distinct sounds for a badger that comes into their area, a coyote, an eagle. They'll let out a different size warning call. One of the other things that they do is you'll notice the grass height is always short on a prairie dog colony. That's so they can see their predators and basically warn each other. Once you hear it, you'll hear that call kind of almost echo across to prairie dog colony as they're kind of relaying it to each other.

**CARTER** Oh, wow.  
**WHATLEY:**

**MOLLY BLOOM:** Yeah, it's very cool.

**CHILDREN:** *Brains On!*

**MOLLY BLOOM:** Today, we have our headlamps on to explore the passageways of Wind Cave National Park. You can hear the rest of our series on national parks at BrainsOn.org. Just search for "National Park." Now let's go back to producer Marc Sanchez as he shines a light on some of the newest and oldest discoveries at Wind Cave.

**MARC** If you measure the amount of air that Wind Cave holds and compare that to the 146 miles of passageways and  
**SANCHEZ:** chambers, only 10% of the cave has been discovered. Part of Marc Ohm's job as a physical science technician for the park is to look for new caves, and that's just what he was doing in the spring of 2004.

**MARC OHMS:** There's a lot of cave out there to be discovered yet, so thinking, well, rather than necessarily pushing it from Wind Cave side, why not maybe try to find another entrance and come in from the back door, if you will? So yeah, so I was out purposely looking for that back door or that other entrance.

**MARC** Based on the geology of the area, Marc picked a spot to go searching for a hole that moved air. And he found  
**SANCHEZ:** one, but there were a couple of problems.

**MARC OHMS:** For starters, I couldn't fit. It's too small for human entry. Secondly, it had quite a few rattlesnakes dened up in it. I don't know which one was worse. So I had to wait for the rattlesnakes to leave, and then we're going to have to dig to enlarge this, enlarged enough for we can get into it.

So we have researcher who looked at that airflow and compared it to Wind Cave, and the patterns looked exactly the same. So we started removing the dirt, and it's just a nice, soft dirt floor that we had to remove. And then we started finding bones, and that was a whole other story. We thought, oh, it's probably just recent stuff. Maybe it's 100 years, something of that nature.

**MARC SANCHEZ:** So Marc asks some paleontologists to come check out what he's unearthed, and it turns out it's way older than he guessed.

**MARC OHMS:** We're not talking tens of years. We're not talking hundreds of years. We're talking at least 10,000-plus-year-old stuff. And we started finding critters at camels, horses. We're not talking the horse, cowboy horse, that's around today or anything. We're talking horses that are long gone extinct and camels and bears and things that we don't have around here anymore.

**MARC SANCHEZ:** Wow.

**MARC OHMS:** And then they did some carbon dating. We have a bison that's 35,000 years old. We have a horse that's 38,000 years old. So we're even getting older as we get down deeper into the dirt. So we're about 200 feet into that now, and we're still digging. We have good airflow coming out, and we're still finding this has just turned into a treasure trove of bones.

**MARC SANCHEZ:** There's a pretty good chance that this cave will be connected at some point to Wind Cave, but it's still too early to tell whether that's going to be the case. But since Marc was the one to find it, he was the one that got to name it. And since he's only been able to get down about 200 feet in the last 12 years, he calls it Persistence Cave.

**MARC OHMS:** It's been taking a while to get to point A to point B. And I said, just don't give up hope and be persistent, and that will pay off. This persistence will pay off, and we'll be into the big cave system.

**MARC SANCHEZ:** As the excavation continues, the limestone walls of Persistence will most likely share some features of Wind Cave. You may have seen other limestone caves with stalactites dripping from above and stalagmites protruding from the ground. Those icicle-looking formations take centuries to form. They use water that's slowly dripping through the mineral-filled ground.

Compared to those other limestone caves, Wind Cave is pretty dry. You'll only find a handful of stalactites and stalagmites there. Instead, its passageways are lined with different kinds of mineral formations-- frostwork, popcorn, and boxwork. Frostwork looks like pale crystal snowflakes protruding out in little tufts and spines. It reminds me a little bit of those clusters of coral you might see underwater in the ocean. The most delicious-sounding formation, popcorn, looks a little like bumpy Styrofoam bubbles that are sort of growing out of each other and out of the walls.

The most unique formation, however, is boxwork. In fact, 95% of the entire world's known boxwork is in this cave, and it is everywhere. It kind of looks like the stringy insides of a pumpkin or maybe a close-up picture of a spiderweb. I took one of the cave tours with a ranger named Earl. And he explained how boxwork is formed.



**EARL:** The limestone that we're in, it's really old. We're talking Mississippian era in geologic time-- 320, 350 million years old, older than the dinosaurs. And when this limestone was really young, it was flat. And above us, there were no prairies, there were no hills, it was all a sea. That sea trickled down into the cracks in the limestone, and it brought with it a bunch of different minerals. But most importantly, for the boxwork over there and also for things like frostwork, it brought with it a mineral called calcite. And that calcite got down into the cracks and hardened over a very, very long period of time.

Now, most limestone caves form because of a liquid called carbonic acid, and this cave is no different in that regard. These caverns filled up with carbonic acid, and that acid dissolved away the ceilings, the walls, and the floors. Now carbonic acid sounds pretty nasty, but it's really just soda pop. Most of us drink it almost every day. Soda pop, seltzer water-- CO2 and water. It's the basic acid that forms a lot of limestone caves.

But what happened in here that's different from a lot of caves is as it dissolved away those walls and ceilings and floors, it left exposed that mineral crack filling, the thing we call boxwork, the thing that had been put there so long before because it's harder than the limestone. And so it's sort of like if you built your home out of sugar bricks, but you use brick, mortar to hold it all together, what would happen when it rained?

**TOURIST:** [CHUCKLES]

**EARL:** Hey, you're laughing. What would happen?

**TOURIST:** It would dissolve.

**EARL:** Yeah, but what would be left behind?

**TOURIST:** The mortar [INAUDIBLE].

**EARL:** Yeah, the mortar. Exactly. The mortar skeleton of the sugar, that's gone. And that's all boxwork is, that webbing. It's just the calcite skeleton of the limestone that's no longer there.

**MARC SANCHEZ:** Boxwork and popcorn and frostwork leave distinctive patterns on all the limestone surfaces at Wind Cave. But when you're the first one to explore a cave, remember, you can't see any of it. Without a flashlight or a headlamp, you can't even see an inch in front of your face. It is pitch black. When a caver discovers a new room or chamber, sometimes, they can't even see where the walls are, even with a flashlight. For cavers like Marc Ohms, getting an accurate map of what a cave looks like is critical to exploration. And with the help of technology, that's becoming a little bit easier.

**MARC OHMS:** Nowadays, with some of the newest technology, we can have these laser things come in, and they just shoot dots everywhere. And every time it shoots a laser someplace, it takes the exact distance-- basically a compass reading and inclination, so it knows exact where it is. And because of that, we can just get insanely accurate 3D representations of the cave rooms and stuff. The downside of it, well, besides it being an expensive equipment, is that it takes a long time, so doing the entire cave under that is not going to happen anytime soon.

**MARC SANCHEZ:** So is that not something you would bring in on an initial phase of exploration?

**MARC OHMS:** Yeah, that's certainly correct. We'll still use the old technology for now, and then if we deem it's a really large room we want to get a good representation of or something like that, we'll kind of pick and choose where we want to do the more in-depth stuff.

**MARC SANCHEZ:** For now, the easiest and quickest way to get a picture of what a cave looks like is to have someone on your team sketch the room. So if you're an artist who doesn't mind crawling into tight spaces in near-total darkness, I think I have the perfect job for you.

**MARC OHMS:** Sketching in a cave is certainly an art in that everyone can do it, so you've got to have a good sketcher on your team. So if you can sketch well, you get invited on a lot of trips.

**MARC SANCHEZ:** So it's a pretty safe bet that Marc is going to have a really good sketcher on his team as he explores the depths of Persistence Cave.

**MARC OHMS:** The thrill of exploration for cavers is finding that next big room, the next passage. We want to see blackness. That's what we're looking for is blackness that goes on forever. We don't want to find the end of the cave. That means we're done. That's a letdown.

So we're looking for that new passage and that new thrill. And when you get into something, and you look around, and you don't see any footprints, you know you're the first person here, and you know this cave has been here for millions of years. And you look across a room, and a crystal sparkles, and you realize in the million years that that crystal has been there, it's never, ever, ever sparkled before because it's never had light on it before until your headlight made it sparkle.

That's pretty cool. I mean, there's not many places on this Earth that you can have that thrill of exploration. You know what I mean? It's been a long time since astronauts have even felt that. Until we land on Mars, that's it. So cavers right here in your own backyard can have that thrill of exploration and being the first person someplace.

[MUSIC PLAYING]

**MOLLY BLOOM:** I never thought of being in a cave like space exploration, but he is totally right. Carter, were there ever times in Yosemite where you felt like you were on another planet?

**CARTER WHATLEY:** Yes. It was in the Spider Caves near Yosemite Falls. And it was cramped spaces. It felt like on another planet because there was no one in there, and you saw spiderwebs in the cave.

[THEME MUSIC]

**MOLLY BLOOM:** That's it for this episode of *Brains On!* You can check out the rest of our series on national parks at our website, [BrainsOn.org](http://BrainsOn.org).

**CARTER WHATLEY:** *Brains On!* is produced by Marc Sanchez, Sanden Totten, and Molly Bloom.

**MOLLY BLOOM:** Many Thanks to Leslie Whatley, Lauren Dee, and Corey Schreppel.

**CARTER WHATLEY:** You can see photos of Wind Cave National Park on our Instagram.

**MOLLY BLOOM:** Or @Brains\_On.

**ELYSSA** And that's our Twitter handle, too.

**DUDLEY:**

**MOLLY BLOOM:** Now, before we go, it's time for our Moment of Um.

**VARIOUS** (OVERLAPPINGLY) Um. Um. Um. Um. Um. Um. Um. Um. Um.

**PERSONS:**

**ARIA:** Do bears really eat honey?

**DAVE GARSHELIS:** Bears do eat honey. I'm Dave Garshelis. I'm a bear research biologist, a bear scientist with the Minnesota Department of Natural Resources. It's a very attractive food for them. They don't find that much in the wild, but it is something that they really like. When they get to a bees' nest, not only did they eat the honey, but they eat the bees and all the eggs and the larvae and the pupae, and they scarf all of that up.

There's eight species of bears in the world, and most of them are what are called omnivores, which means they eat both meat and vegetation. But some of them, like the polar bear is the only species that's strictly a carnivore. It only eats meat. And the giant panda is the only species that only eats vegetation and only eats bamboo.

And then one of the species called the sloth bear concentrates primarily on insects. It really likes termites and ants. And actually, the scientific name of the sloth bear is *Mel ursinus*, and "Mel" in Latin means "honey." And so that bear is known for particularly liking honey. And actually, there's a scene in *The Jungle Book* where the bear, Baloo, which is a sloth bear, convinces the kid, Mowgli, to climb a cliff to knock down a bees' nest for him, and that's because they really like honey.

[MUSIC PLAYING]

**MOLLY BLOOM:** I'm very excited to read this list of sweet names. It's the *Brains'* Honor Roll, the wonderful listeners who keep us going by sending their amazing ideas, questions, mystery sounds, drawings, and high-fives. They are the best.

[MUSIC PLAYING]

[LISTING HONOR ROLL]

(SINGING) *Brains'* Honor Roll. Bye-bye.

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

**CARTER** Thanks for listening.

**WHATLEY:**

**MOLLY BLOOM:** And now a preview of *Smash Boom Best*, Loki versus Athena.

OK, it's time for the Sneak Attack.

**VARIOUS** Aha! Hoo-ha! Sneak attack.

**PERSONS:**

**MOLLY BLOOM:** And remember, the sneak attack is a mystery. Jed and Elyssa have no idea what it's going to be.

**ELYSSA** I'm ready. I'm ready.

**DUDLEY:**

**JED KIM:** Yeah.

**MOLLY BLOOM:** All right. Your surprise sneak attack is--

[DRUM ROLL]

--shark attack. How would your side defend against a shark attack? Would you use smarts, strength, diplomacy? Get creative and remember, there's more than one way through a horde of angry toothy sharks. Jed, you're up first. Let's hear how Loki would fend off a gang of angry sharks.

**JED KIM:** Well, this is actually quite easy. Loki is a shape-shifter. He can change into animals. So he would change into a killer whale, which can take down sharks. But he's also a trickster, so after he changes into a killer whale, he'd tie that shark's fins together and then drop an anvil on top of it.

[METAL CLANGING, GOOFY BOING]

**MOLLY BLOOM:** Shape-shifting, anvil dropper. Let's hear how Athena would handle those toothy fins.

**ELYSSA** She would have her Greek buds build a wooden shark, and their best diplomat would get inside the shark. It's  
**DUDLEY:** really cushy in there. There's oxygen supply. And he would join the swarm of angry sharks, chit-chat with them a little with all the wisdom Athena has imparted to her human mentees, and he would convince them to just go to a different part of the ocean, and no blood need be shed. The end.

**MOLLY BLOOM:** She's using her smarts, her strategy to get those sharks to go away.

**JED KIM:** If there's ever any evidence that Athena is totally boring, here you have it.

**ELYSSA** You don't want a bunch of shark friends?

**DUDLEY:**

**JED KIM:** I can change into a shark anytime I want. I'm a shark right now.

**ATHENA:** You're both in Poseidon's territory.

**MOLLY BLOOM:** Good point.

[THEME MUSIC] *Smash Boom Best.*

To hear the rest of this debate head to [SmashBoom.org](http://SmashBoom.org) or subscribe to *Smash Boom Best* wherever you get your podcasts.