mystery science

Grades K-5
Mini-Lesson: “How deep does the ocean go?”

VIDEO TRANSCRIPT

Hi, it's Doug. So I've got my snorkel and my mask with me. If you ever get the chance to go snorkeling, you should try it. It's so fun because there's all these interesting animals you can see, especially in a coral reef. And with a snorkel, you might know, you have to stay near the surface of the water. You can't go very deep because the snorkel is what lets you breathe. Someone named Bao has a question about the ocean. Let's give him a call now.

[Video Call]

-Hi, Doug.

-Hi, Bao.

-I have a question for you. How deep does the ocean go?

-That's a great question.

For a long time, no one knew how deep the ocean went or even what exactly was on the bottom of the ocean. In shallow waters, sailors would throw down an anchor, that's this thing right here, to keep their boat from moving. But sometimes sailors would go to throw the anchor over the side and realize, oh, the anchor isn't hitting the bottom. Whoa. The ocean must be really deep here. That made people wonder, how deep does the ocean go? How far down is the bottom? If you were a sailor or a scientist, What would you do if you wanted to figure this out? Now would be a good time to pause the video and discuss. Okay. You ready? Well, you might think if your rope wasn't long enough, just get a longer rope. And that's basically what sailors tried at first.

They'd throw a long rope with a weight on the end. They'd feel when it hit the bottom, then they'd measure the rope to see how far down it was to the bottom. But in some places, even then the weight might just keep going and going and going. I mean, sometimes the weight wouldn't hit the bottom until you used up three or maybe four miles of rope. And there were still other places where even that wasn't enough rope. Places where it seemed like the ocean might be deeper than five miles. Of course, you could always get more rope to measure it, but eventually scientists figured out an easier way to measure the ocean's depth, one that didn't require any rope at all. It's called Sonar. Instead of using rope, Sonar uses sound to figure out how deep the ocean is. Yes. Sound. It's actually the same thing that bats use to find their way around. Bats make a sound and then listen through the echoes of the sound to bounce off the objects around them. Both use sonar by sending sounds down toward the ocean bottom and then keeping track of how long it takes for the sounds to bounce back. Scientists can then use some simple math to calculate exactly how deep the ocean is in that spot. You see, the longer it takes the sounds to come back, the deeper the ocean bottom is. Using this new sonar technique, scientists were able to create incredibly detailed maps of the ocean floor. And they found something surprising. It turns out there are huge underwater mountains rising up from the bottom of the ocean. Now because it's so dark down there, we can't easily get photographs. What you're seeing here is an animation created using sonar. Some globes even have sonar maps of the ocean bottom. This is the globe I had when I was young. I still have it. And you can see Look right there in the middle of the Atlantic Ocean, right? There. There's actually an entire mountain range running all the way from the north pole to the south pole. It's just underwater.

When using sonar, scientists also discovered what you might consider to be the opposite of mountains. They found these. Underwater canyons or trenches. These are found in certain

parts of the ocean bottom. One of these trenches The Mariana trench is in the Pacific Ocean North of Australia, and it was discovered to contain the deepest place on earth. A spot so deep that you could fit all of Mount Everest inside of it. That's nearly seven miles deep over thirty six thousand feet. The only way to get down there is using special submarines. The pressure of the water on top of you is so great. It would otherwise crush you. Not many people have ever been down there. In fact, more people have been to the moon than have been to the deepest place on earth. But traveling to the bottom of the ocean is worth it. Every time a scientist or explorer visits the deep parts of the ocean, they find new creatures, strange creatures, like the anglerfish, a fish with giant ferocious teeth and a glowing lure dangling from the top of its head. Or creatures like this comb jelly, a relative of the jellyfish. Look at all those colors. Many people say they would love to travel to outer space and maybe discover aliens one day. But the truth is the bottom of the ocean might be just as interesting. Some of these creatures definitely look like aliens. So in summary, the ocean goes very deep. The deepest spot on earth is deeper than Mount Everest is tall. It's hard to get to the deep parts of the ocean, but every time someone goes, we find amazing new things. Maybe you'll be one of the people who discover something new down there someday. That's all for this week's question. Thanks, Bao, for asking it.