

Lesson: “Where do animals find the water they need?”

VIDEO TRANSCRIPT

EXPLORATION VIDEO 1

Hi, it's Esther from the Mystery Science team. You see water around you in so many different places. You see it coming out of the faucet, shower, drinking fountains. You see water in the sink, in bottles, in bird fountains. You see water falling from the sky in raindrops or seeping into your socks when you splash in a puddle. Depending on where you live, you may also see bodies of water nearby. A body of water is a place a bunch of water collects in one spot. Bodies of water can be small, like a tiny pond at your local park or a stream behind your school, or they might be big and impressive, like a huge lake, a mighty river, or an enormous ocean. Bodies of water can be found all over the world. There are rivers in jungles and rivers in the middle of cities. There are lakes in the desert and lakes surrounded by forest. There are waterfalls that are only a trickle and waterfalls that sound like this. In some places, you might also see water change, especially during the winter. Check this out. Watch how this lake changes. This is the lake before the change, and this is the lake after. What do you see here? How is the water in the lake changing?

EXPLORATION VIDEO 2

What you're watching here is the water on the top of this lake freezing into ice. At first, the water in this lake is liquid. Liquid water is super familiar to you. It's what comes out of your shower. It's

what you drink from a water fountain. It's what these waves are made of. The raindrops rolling down your window, that's liquid water. The water you splash at your friend at the swimming pool, liquid water. But when water gets cold enough, it freezes. That means it turns from a liquid to a solid. We usually call solid water by a different name, ice. But ice is still water, just frozen. When something changes from a liquid to a solid or from a solid to a liquid, we say it has changed states. When water freezes, it goes from its liquid state, this, to its solid state, this. You're probably pretty familiar with ice too. Maybe you've had ice cubes in your drink. If you live someplace that gets cold, you might have seen ice hanging down in icicles like these. Frozen water looks and feels different from liquid water in a lot of ways. Like check this out. See this person holding a block of ice? Imagine this block of ice turned into its liquid state. What would happen?

EXPLORATION VIDEO 3

Frozen water and liquid water are both water, but it still makes a big difference whether water is in its solid state or its liquid state. In this picture, for instance, this person is holding ice in his hands. Because it's frozen solid, he can pick it up. If this was liquid water, that would be a lot harder to do. This would turn into something like this. It's hard to hold liquid water in your hands. It's so drippy, it slips right through. These differences show up in all the places we see water. See all this snow falling from the sky onto the ground? If you look at each snowflake really, really closely, you would see it looks like this. Snowflakes are teeny tiny pieces of frozen water. So, all this snow? You can think of it as millions and millions of tiny specks of ice. If all those tiny pieces of snow turn to their liquid form, it would look like this, puddles of liquid water everywhere. If you live somewhere that gets cold enough, you might also be used to seeing how things change when the top of a body of water freezes to ice, like we saw with that lake. A pond

like this can freeze over and become this. A river like this can become this. Even a waterfall like this can become this. Most places only get cold enough for water to freeze in the winter. But if a place stays cold enough year round, it can have ice and snow all the time. Like, check this out. This place is called the Arctic. There is much more water than land here, but some of the ocean water is so cold that a bunch of it is frozen into thick layers of ice and snow that float on top of the liquid ocean waves. As long as it stays cold enough, this ice and snow stays frozen all year. Take a look at this picture taken in the Arctic. Where do you see liquid water? Where do you see ice? Where do you see snow?

ACTIVITY INTRODUCTION VIDEO

In today's activity, you'll go on a trip to the Arctic to explore the different types of water you can find there. This is the Arctic. It's one of the coldest places on Earth. There's lots of water here, both liquid and solid. But water isn't the only thing in the Arctic. Despite it being such a cold place, it's also full of life. Many animals live in the Arctic, and animals need water to survive. But how do they use the water? And do different animals use water in different ways? That's what you're going to figure out. You will explore three different places in the Arctic. At each place, you'll observe the water and decide if it's liquid water, solid water, or both. Then you'll observe some of the animals that live there to try and figure out how they use that water to help them survive. You'll write down everything you notice in your water journal to help. Can you help us learn more about Arctic water? We'll get you started step by step.

ACTIVITY STEP 1

In today's activity, you'll work with a partner. If you're working alone, that's okay too. When you're ready to move on, click the arrow on the right.



ACTIVITY STEP 2

Get your supplies.

ACTIVITY STEP 3

Fold your water journal worksheet in half on the thick black line. To do that, flip over the paper. Make sure to line up the corners before creasing the paper. When you're done, it should look like this.

ACTIVITY STEP 4

Find the side of your sheet that says Place 1 and Place 2, then fold it in half like this. Make sure to line up the corners before creasing the paper. When you're done, your book will look like this. Open it up and you'll see Place 1, Place 2, and on the back, you'll see Place 3. Now that your water journal is ready, it's time to start your journey into the Arctic.

ACTIVITY STEP 5

Now you're ready to start your journey to the Arctic. Before we can figure out how animals use the water here, we have to know what states of water are found here. We're arriving at the first place now. Check it out. Discuss with your partner. Is the water here in a liquid state, solid state, or both?

ACTIVITY STEP 6

Here's what we said. We saw that this place has lots of waves splashing around. Because of that, we said that Place 1 is full of liquid water. Now let's record what we saw in our water journal. Circle liquid water for question one like this.

ACTIVITY STEP 7

Now that you've observed the water here, it's time to see how animals use the water in this place. Let's set off and explore. What's that over there? It looks like a group of humpback whales. Let's get a closer look. As you watch, pay attention to what they're doing in the water. Discuss with your partner. What do you notice the humpback whales doing in the water? We'll play the video a few times.

ACTIVITY STEP 8

Here's what we noticed. When we got closer to the whales, we noticed that they were swimming in the water, and we even saw them jump out of the water. Write down what you notice the humpback whales doing in your water journal here for question two. We're going to say that the whales were swimming and jumping in the water.

ACTIVITY STEP 9

I wonder if other animals in this place use water in a different way than what we just saw. Look over there. A group of orcas. Let's check it out. Once again, as you watch, pay attention to what the orcas are doing in the water. Try to notice as many things as you can. Discuss with your partner. What do you notice the orcas doing in the water?

ACTIVITY STEP 10

Here's what we noticed. The orcas were swimming through the water. They were also doing something else. They were catching and eating fish. Write down what you noticed the orcas doing in your water journal here for question three. Now that we've explored Place 1 together, you're ready to explore the next two Arctic places on your own.

ACTIVITY STEP 11

We're arriving at the second place in the Arctic now. Check it out. Discuss with your partner. Is the water here liquid, solid, both? When you're finished discussing, answer question four in your water journal.

ACTIVITY STEP 12

Now let's explore this place and see how animals use the water here. Look over there. It's a polar bear. Let's take a closer look. Pay attention to what it's doing. Try to notice as many things as you can. Discuss with your partner. What do you notice the polar bear doing?

ACTIVITY STEP 13

Answer question five in your water journal.

ACTIVITY STEP 14

Look over there, a group of seals. Let's take a closer look. Pay attention to what they are doing. Try to notice as many things as you can. Discuss with your partner. What do you notice the seals doing?

ACTIVITY STEP 15

Answer question six in your water journal.

ACTIVITY STEP 16

We're arriving at our last place in the Arctic now. Check it out. This place might not look like a watery place, but there is a lot of water here. Discuss with your partner. Is the water here liquid, solid, both? When you're finished discussing, answer question seven on the back of your water journal.

ACTIVITY STEP 17

Now let's explore this place and see how animals use the water here. There's something else over there. It's another polar bear. Pay attention to what it is doing. Try to notice as many things as you can. Discuss with your partner. How are the animals using the water here?

ACTIVITY STEP 18

Answer question eight in your water journal.

ACTIVITY STEP 19

What's that over there? I think I see something in the snow. It's a small, furry animal called an ermine. Let's see how it uses the water in this place. Pay attention to what it is doing. Try to notice as many things as you can. Discuss with your partner. How is the ermine using water in this place?

ACTIVITY STEP 20

Answer question nine in your water journal.

ACTIVITY STEP 21

Discuss. Why is water important to animals in the Arctic?

WRAP-UP VIDEO 1

Water exists on Earth in so many different forms. And whether it's a frozen lake, a rushing river, the deep bottom of the ocean, or a slushy puddle on the sidewalk, anywhere you can find water, you'll find life that depends on it. All animals need to drink water to survive. But as you saw in the activity, they also need it for so many other reasons. This is the Arctic Ocean. When we visited this place, you saw humpback whales and orcas swimming and hunting in the water. They both depend on these liquid ocean waters as a place to live. This water is their home. You might think of places with lots of ice and snow as being dangerous for living things. It's so cold. But as we saw here, some animals actually need to have ice and snow in the place where they live. In this icy part of the Arctic, seals use ice as a place to rest from all their hunting and swimming in the liquid ocean waters. We saw polar bears walking across the ice here too. And

here, in these piles of Arctic snow, we saw polar bears digging to make safe shelters for themselves and their babies. These ermine even use tunnels in the snow as their home. Imagine this. What if the ice and snow in the Arctic disappeared? How would life change for these animals?

WRAP-UP VIDEO 2

If the liquid water was not here, the animals living here would obviously be in trouble. And if the ice and snow was not here, the animals living here would be in trouble too. Lots of animals that live in the Arctic depend on ice and snow to survive. So if this place had less ice and snow, many animals would have a hard time surviving here. For example, seals would not be able to rest on the ice like they usually do. And remember, there's much more water than land near here. If these seals can't find ice to rest on, they might have to travel a long way to find a rock or a beach to rest on instead. They'd get really tired. And they're not the only animals who might be in trouble. If there was no frozen water here, polar bears couldn't make cozy snow dens to shelter their babies. That might put their babies in danger. These problems have happened in real life. When the weather warms up too much in the Arctic, some of the ice there melts. It changes from a solid to a liquid state. If too much ice melts, the animals that need ice to live have a harder time surviving. When water changes, life changes for the animals that need that water too. This is true all over the world. Even humans face these challenges. When way less snow and water falls in a place than usual, people can have a hard time finding enough water to drink, bathe, farm, and do other things we need to do. When much more of the water in a place freezes than normal, people can have a hard time doing things like traveling to school or work safely. Water is so important to you, to me, to animals, to everything on our beautiful planet. If

we're going to keep all living things on Earth healthy and happy, we have to pay attention to what's going on with water around us. Keep your eyes on the water and stay curious.