mystery science

Grades K-5
Mini-Lesson + Activity: “How do squirrels find the acorns they hide?”

VIDEO TRANSCRIPT

MINI-LESSON VIDEO 1

Hey, it's Esther. Forgetting where you put something is so frustrating. You can think and search, but sometimes it's only after you find it again in the weirdest place that you finally remember putting it there. Someone named Devin is curious if squirrels ever have this problem. Let's give Devin a call now.

[Video Call]

- Hi, Esther.

- Hi, Devin.

- I have a question for you. How do squirrels find the acorns they hide?

- That's a great question.

Maybe you've seen a squirrel hiding acorns before. It digs a hole in the ground, drops in an acorn or some other tasty seed, then covers it up. Burying seeds is a way to save extra food for times when less food is available, like in the winter. It's kind of like how people store food to eat later. Saving enough food for the entire winter is hard work, especially when there are thieves around ready to steal seeds. That's why many squirrels are sneaky. Notice how this one is using leaves to disguise its hiding spot? Nothing to see here, thieves. Some squirrels also choose a variety of hiding spots. That way, even if some seeds get stolen or damaged, they still have

plenty saved in other places. It's kind of like how you might keep pencils at your desk, but also keep some in your backpack or with your art supplies so you always have one handy. For a squirrel, hiding seeds is only the first step. To have enough food all winter, it has to find them again. And one squirrel might hide hundreds or thousands of seeds. People used to think that maybe squirrels didn't keep track of the food they hid—they just used their great sense of smell to sniff out any hidden seeds, regardless of who hid it. But scientists made a surprising discovery. Even when several squirrels hid seeds in the same area, and there are plenty to sniff out, each squirrel is more likely to return to its own hiding spots. That's like finding your car among all the others in a parking lot. It looks like squirrels remember where they hide food. But how? To figure this out, let's imagine you are a squirrel. You're looking for food near your home when you spot it: the perfect acorn. You dash with it across the park over to a row of trees and decide that here, between these two, is the best hiding spot. Remember this spot because you want to find this acorn again. Okay. Weeks go by, and winter arrives. You're busy with other squirrel business when you start to get hungry. It's time to find that perfect acorn again. But how? The park looks different in the winter, and yet some things look familiar, like this big group of rocks. They're covered in snow now, but they're still in the same spot. What else do you notice is still in the same place?

MINI-LESSON VIDEO 2

Along with these rocks, maybe you noticed this bench is still in the same place. So is this wide open area, and this row of four trees, including these last two. And buried between them, yes, it's the perfect acorn, right where you hid it. Other things stay the same, too, like the things that are closer together or farther apart, and the direction of your home. Scientists think that squirrels can remember details like this. They have the ability to remember how things are arranged in a

space, like home is here, a good tree for acorns is here, and seeds are hidden here. Scientists think that squirrels get to know the area around their home so well that they form a kind of map in their minds. This ability is called spatial memory. You might not realize it, but you use spatial memory a lot like squirrels do. Like, if I went into your room and moved things around, I bet you'd notice. You know that space really well, just like a squirrel knows the space where it lives. Give this a try. In your mind, see if you can picture how to get from your classroom to your school's front door. Think about what's close by and what's further away. Maybe there's something that reminds you where you need to turn. You might not remember every detail, but you probably know the general path. And the next time you go that way, try to notice more. Like a squirrel, you're building a kind of map in your mind of where things are around you. So, in summary, while squirrels do have a great sense of smell, they seem to rely more on spatial memory to find the seeds they hide. They're able to remember how things are arranged in the space around their home and use that mental map to return to their hiding spots. You can practice thinking like a squirrel, too! Notice what's behind you right now. Then wait five minutes to try to describe what's there without peeking. See how much you can remember. While spatial memory is pretty amazing, sometimes you still can't remember where something is. That happens to squirrels, too. And that's a good thing! Hidden acorns that don't get found may grow into beautiful trees. That's all for this week's question. Thanks, Devin, for asking it.

This week, we have a special activity. We'll show you a trick that you can use to memorize all kinds of things. So check it out if you have time.

ACTIVITY INTRODUCTION VIDEO

In today's activity, you're going to play a game called Memory Master. Winning the game is easy. All you have to do is remember what you see. Take a look at these three pictures for 15 seconds and try to lock them into your memory. Ready, set, go! You're looking at a bee, cherries, and socks. Now I'm going to take the pictures away and ask you to remember these three things. Here we go. The pictures are gone. Can you remember what they were? Here they are again. Did you remember them? Great! If not, don't worry. You're going to learn a trick that will make it easy to remember three things, five things—or even 10 things. You can use this same trick to remember anything, whether it's the stuff you need to take to school or a list of vocabulary words for class. We'll show you how to get started, step by step.

ACTIVITY STEP 1

Get your supplies. You need paper and a pencil. When you're done with this step, tap the arrow on the right.

ACTIVITY STEP 2

Here are three things to remember: a cat, a hat, and a fish. Do not write them down just yet. This part is about remembering, not taking notes. When you think you can remember them all, go to the next slide.

ACTIVITY STEP 3

Now use your paper and pencil. Write the name or draw a picture of all of the things that you can remember. Can you remember all three? If you draw, your drawing can be very simple—it doesn't have to look like ours did.

ACTIVITY STEP 4

Here are the three things we asked you to remember. Don't worry if you didn't remember them all. The next slide tells you a useful trick that will make remembering them easy.

ACTIVITY STEP 5

Maybe you tried to remember by repeating the words like this: *cat, hat, fish, cat, hat, fish.* But you can only remember a few words that way. To help us remember, we made up a very short story. My cat likes to wear a hat and watch my pet fish. We thought of a picture that showed our story. Here's another story. The cat was surprised when a fish jumped out of a hat. If you think of that picture, it's easy to remember—cat, fish, and hat. You can make up any story. You can put the things you want to remember in any order.

ACTIVITY STEP 6

Now that you know our trick, try this challenge. Here are five things to remember: a flower, a rabbit, an ice cream cone, a pair of pants, and a scarf. Make up a story with all five things in it, and imagine a picture that shows your story. Don't write or draw anything just yet—just use your imagination. If it helps, you can talk out loud and tell your story. When you're ready, go to the next slide.

ACTIVITY STEP 7

Now use the paper and pencil. Write the name or draw a picture of each thing you remember. Can you remember all five things? If you can't remember them all, that's okay. With practice, you'll get better at making up stories and imagining pictures. When you are done, go to the next slide.

ACTIVITY STEP 8

Here's our story. I once met a rabbit that was wearing pants and a scarf. The rabbit was eating an ice cream cone. I said I didn't know rabbits ate ice cream. I thought they ate flowers. Did you remember all five things? If you did, you're doing better than most people. The average person can only remember three or four things. A story helps you remember more because it connects the things you're trying to remember. Once you think of one thing, the story helps you remember the rest.

ACTIVITY STEP 9

This is when it gets really hard. Here are seven things to remember. That's a lot! There's a balloon, a bus, a drum, a duck, an elephant, a party hat, and a trumpet. Can you make up a fun story that has all of these things in it? Don't write or draw anything yet. Just imagine a picture that shows your story. Take your time and think it through. There's no rush. When you're ready, go to the next slide.

ACTIVITY STEP 10

Now use the paper and pencil. Think about your story. Write the name or draw a picture of each thing you remember. Can you remember all seven things? If you can only remember a few,

that's fine. With practice, you'll get better at making up stories and remembering them. When you're done, go to the next slide.

ACTIVITY STEP 11

Any story that connects all of the pictures will help you remember them. Here's our story. The elephant could not fit inside the bus, so it rode on top, wearing a crown made of balloons and playing a trumpet. Its friend, the duck, beat on a drum and wore a party hat. Everybody danced when the bus drove by. If you manage to remember all seven things, congratulations—you're doing much better than most people!

ACTIVITY STEP 12

You can stop if you like, but if you want to try a super tough challenge, here are ten things you can try to remember. If ten seems like too many, just try to remember five. There are five in the top row, a banana, eyeglasses, a hammer, a monkey, and a cookie. There are five more in the second row. Scissors, an owl, a spoon, a teapot, and a mouse. Take your time and make up a story with as many things as you can. Don't write or draw anything yet. Just imagine a picture.

ACTIVITY STEP 13

Now use your paper and pencil. Write the name or draw a picture of each thing that you remember. There were ten things, and that's a big challenge. But take your time. Think about your story. You may be surprised at how many you remember. When you're done, go to the next slide.

ACTIVITY STEP 14

Did you make up a story with all ten things in it? Here's our story. When Owl had a tea party, everything went wrong. Mouse got stuck in the teapot. Owl tried to get Mouse out with a spoon and a hammer. There was only one cookie, so Monkey put on Owl's eyeglasses and used the scissors to cut the cookie in half. Monkey ate all of the bananas.

ACTIVITY STEP 15

You've finished the activity, and you're on your way to having a great memory. You'll get better with practice. You can make up a story about things you need to bring to school, or stuff you need to buy at the store. You can stop here. Your brain might be a little tired, but for anyone who wants to keep practicing right now, we have some practice slides. You can start by remembering five things, then add on five more things. And finally, add on five more to make 15 things to remember. Have fun, and stay curious!