



I want to be a **SCIENTIST**

Written by Štěpánka Sekaninová · Illustrated by Honza Smolík

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18

Careers in **SCIENCE**
to pursue



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* INTRODUCTION *

Want to know what I'm researching? Dive into this book, and all will become clear.



Anthropology, dendrology, bryology, paleontology, archaeology, biology, pedology... All these tricky-to-pronounce words end in “-ology.” But what does that ending mean? It simply refers to a science or field of study. Scientists in these fields—anthropologists, dendrologists, bryologists, paleontologists, archaeologists, biologists, pedologists, and more—are called “-ologists.”

Now for the big question: Do you know what a dendrologist, meteorologist, anthropologist, bryologist, or herpetologist does? Maybe not? No worries—you’re about to find out! This book is packed with descriptions of scientists and their fascinating fields. You might already know what a teacher, actor, salesperson, or doctor does, but what about these specialists? By the time you finish reading, you might just discover a little scientist hiding inside. Let’s get started!

PALEONTOLOGIST



A PALEONTOLOGIST IS FASCINATED BY FOSSILS AND OTHER REMAINS OF ANCIENT LIFE ON PLANET EARTH. LIKE AN ARCHAEOLOGIST (ANOTHER SCIENTIST WHO STUDIES THE PAST), THEY ARE EAGER TO UNCOVER SECRETS FROM DEEP IN THE SOIL, UNDERGROUND, OR EMBEDDED IN ROCK.

DIFFERENCES BETWEEN PALEONTOLOGISTS AND ARCHAEOLOGISTS

Whereas archeologists focus on objects and other traces left behind by ancient humans, paleontologists study the plants and animals that lived on Earth millions of years ago. Over time, the remains of these organisms have turned to stone, or fossilized. Paleontologists work to uncover these fossils.

WHAT FOSSILS REVEAL

Fossils show paleontologists what ancient organisms looked like, what they ate, what hunted them, and how the plants and animals of the past are connected to those of today.

HURRAY FOR ROCKS!

Fossils are scattered all over the world. Before we can see them in a museum, they must first be discovered and extracted from rock by paleontologists.



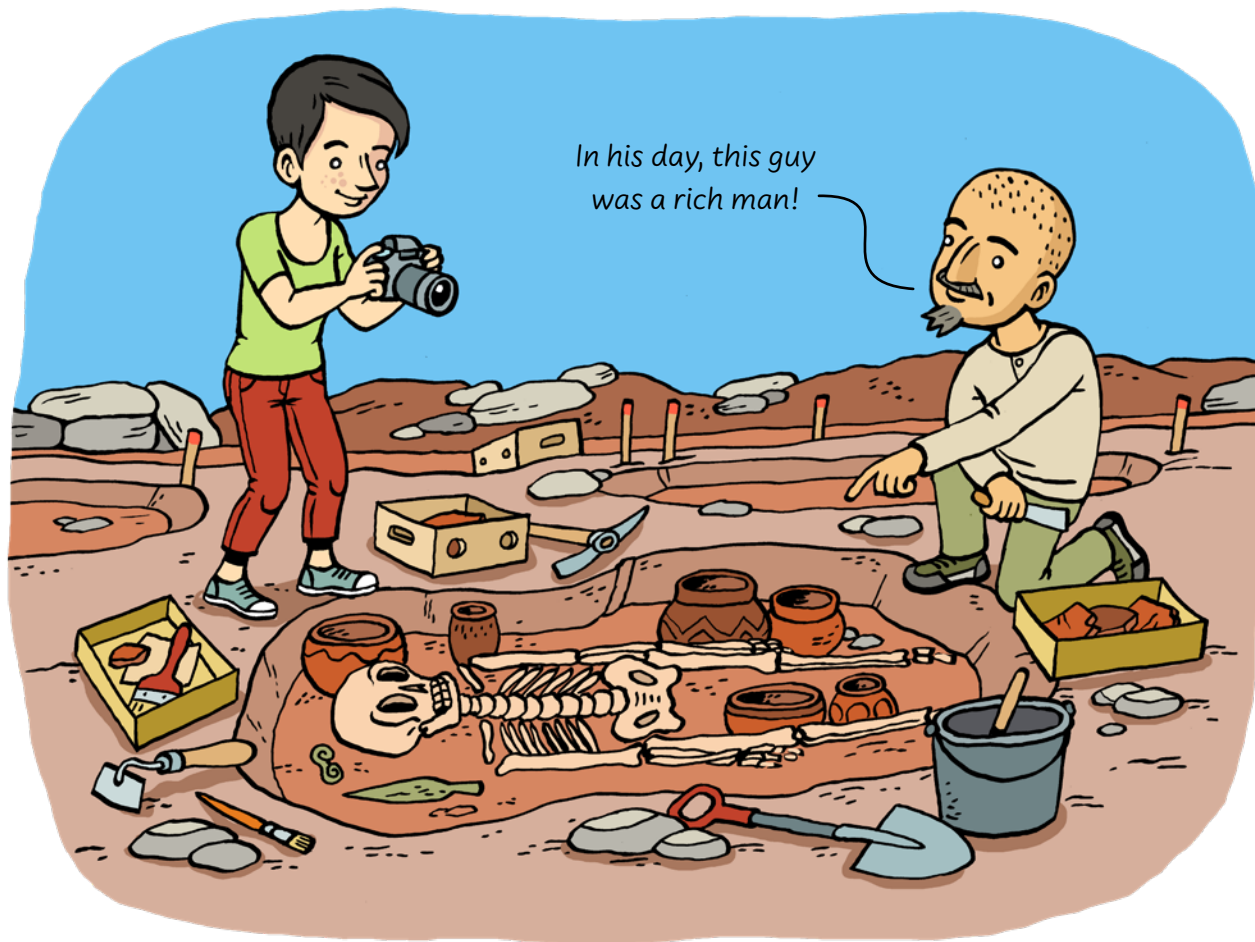
FOSSIL HUNTING

Not all rocks contain fossils. A paleontologist uses their knowledge and experience to find the right ones. This work goes beyond simple detective skills. Fossils are not found in igneous rocks—those formed from cooling lava or magma—nor in metamorphic rocks, which are created by heat and pressure transforming other rocks. Instead, fossils are found in sedimentary rocks. If a plant or animal becomes trapped in the settling sediment, it has a chance of becoming fossilized.

A PALEONTOLOGIST'S EQUIPMENT



* ARCHAEOLOGIST *



AN ARCHAEOLOGIST LOVES TO DIG IN THE GROUND IN SEARCH OF OBJECTS AND REMAINS FROM LONG-AGO CIVILIZATIONS. FRAGMENTS OF POTS, COINS, RUINS, BURIAL SITES, PREHISTORIC WASTE—SUCH ARTIFACTS BRING JOY TO ARCHAEOLOGISTS! THESE DISCOVERIES HELP THEM UNDERSTAND HOW HUMANS LIVED IN THE DISTANT PAST. WHEN EXPLORING BURIAL SITES, ARCHAEOLOGISTS MUST SEEK PERMISSION FROM DESCENDANT COMMUNITIES AND TREAT ALL FINDINGS WITH GREAT CARE AND RESPECT.

WHAT IS AN ARTIFACT?

An artifact is something made or modified for a specific purpose. Artifacts can be classified as movable or immovable, by their material (bone, metal, ceramic, wood, etc.), or by the purpose for which they were created (e.g., vessel, weapon, jewelry, fortification, grave, toy).



If a mysterious tool dug from the earth excites you, if you dream of discovering the remnants of a medieval platter or the grave of a distant ancestor, and if you're passionate about history, then archaeology may be the perfect career for you!

DETECTIVE ON A DIG

Nothing excites an archaeologist like the start of a dig. Will they uncover the remnants of a settlement or rare treasures? Along with handling a shovel, an archaeologist must be good with a pencil and graph paper to map out the location and details of their discoveries. Using a surveying tool, they measure the area and mark the exact spots where objects are found.

Give it a little water and this ancient sherd will be as good as new.



STICKING THINGS TOGETHER

Many archaeologists love jigsaw puzzles. If a skilled archaeologist finds many fragments—or sherds—of the same ceramic, they carefully piece them together. Fragments with decoration or with the same thickness are the easiest to put together. Next step? Figuring out how ancient people used the object.

Do not disturb, please—I'm localizing.



CLEANLINESS IS NEXT TO GODLINESS

An object that has been buried in the ground for centuries won't be clean. So, what should be done? An archaeologist must wash it carefully—very carefully—using only water and a toothbrush.

I wonder what this was used for?



* BRYOLOGIST *

I've just discovered a new species. Great!



A BRYOLOGIST IS A SCIENTIST WHOSE PASSION IS MOSS AND OTHER BRYOPHYTES. THE MOMENT THEY SEE MOSS, THEY MUST IMMEDIATELY EXAMINE, OBSERVE, DESCRIBE, AND CLASSIFY IT. A BRYOLOGIST ALSO TRAVELS A LOT IN SEARCH OF MOSS. THE MORE SPECIES THEY DISCOVER, THE HAPPIER THEY ARE. INSTEAD OF TAKING A BREAK IN THE OPEN AIR, THEY LIE ON THEIR BELLY IN THE MIDDLE OF A FOREST, HARD AT WORK. IF YOU MEET THEM IN THE FIELD, YOU'LL SEE THEM STUDYING MOSS UP CLOSE.



WHAT A BRYOLOGIST DOES

A bryologist studies moss by collecting different types to examine closely. Their goal is to describe and understand all kinds of moss and other bryophytes—small plants that don't have flowers or roots. Bryologists treat moss with deep respect because it's one of the oldest land plants. Moss has been growing in nearly the same form since the Paleozoic era, making it a kind of living fossil.



Do you see a mossy glade as more than just a soft spot to rest and instead, start looking closely at tiny plants and lichens? You are on your way to becoming a bryologist!

THERE'S MOSS AND THERE'S MOSS

Don't think bryologists spend all their time in mossy forests. Moss shows up in surprising places—like around a dripping faucet or between windows on a bus.

Everyone says that moss can't grow here. But look—it does!



WHY MOSS?

This humble plant is great at holding water, and helping to prevent floods. Moss is also one of the first plants to grow back after a fire, providing an important water source for other plants.

A BRYOLOGIST'S EQUIPMENT



FIELD OR OFFICE?

Don't think for a minute that an ornithologist spends all their time outdoors, watching birds through binoculars or recording bird calls. Most of their day is spent on a computer, studying what they've observed or analyzing test results.



WHAT AN ORNITHOLOGIST DOES IN THE FIELD

In the field, an ornithologist might count birds and study their nesting habits—how they build nests, raise their chicks, and find food. These scientists also watch courtship behaviors and tag birds to estimate population sizes and to determine whether a species is at risk. The data are later studied in the lab.



AN ORNITHOLOGIST'S EQUIPMENT



FOLDING TRAPS



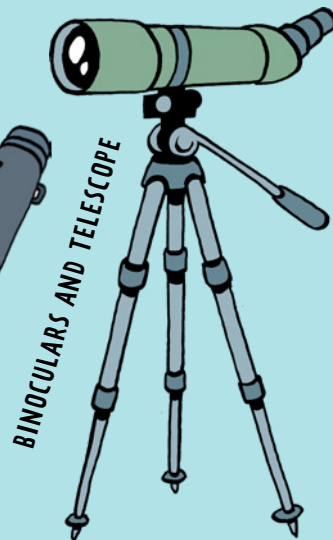
RECORDING EQUIPMENT



ROCKET AND MIST NETS



ORNITHOLOGIST'S RODS



BINOCULARS AND TELESCOPE

AN ORNITHOLOGIST'S WORK IN A NUTSHELL



- In the field, they study where different species live, and migrate, and how quickly birds reproduce.
- They track bird populations and the health of different species.

- They follow birds' movements and gather information on overall bird numbers.
- They work on projects to protect and care for birds.
- They also write reports and scientific studies.



AN ORNITHOLOGIST IN A LABORATORY

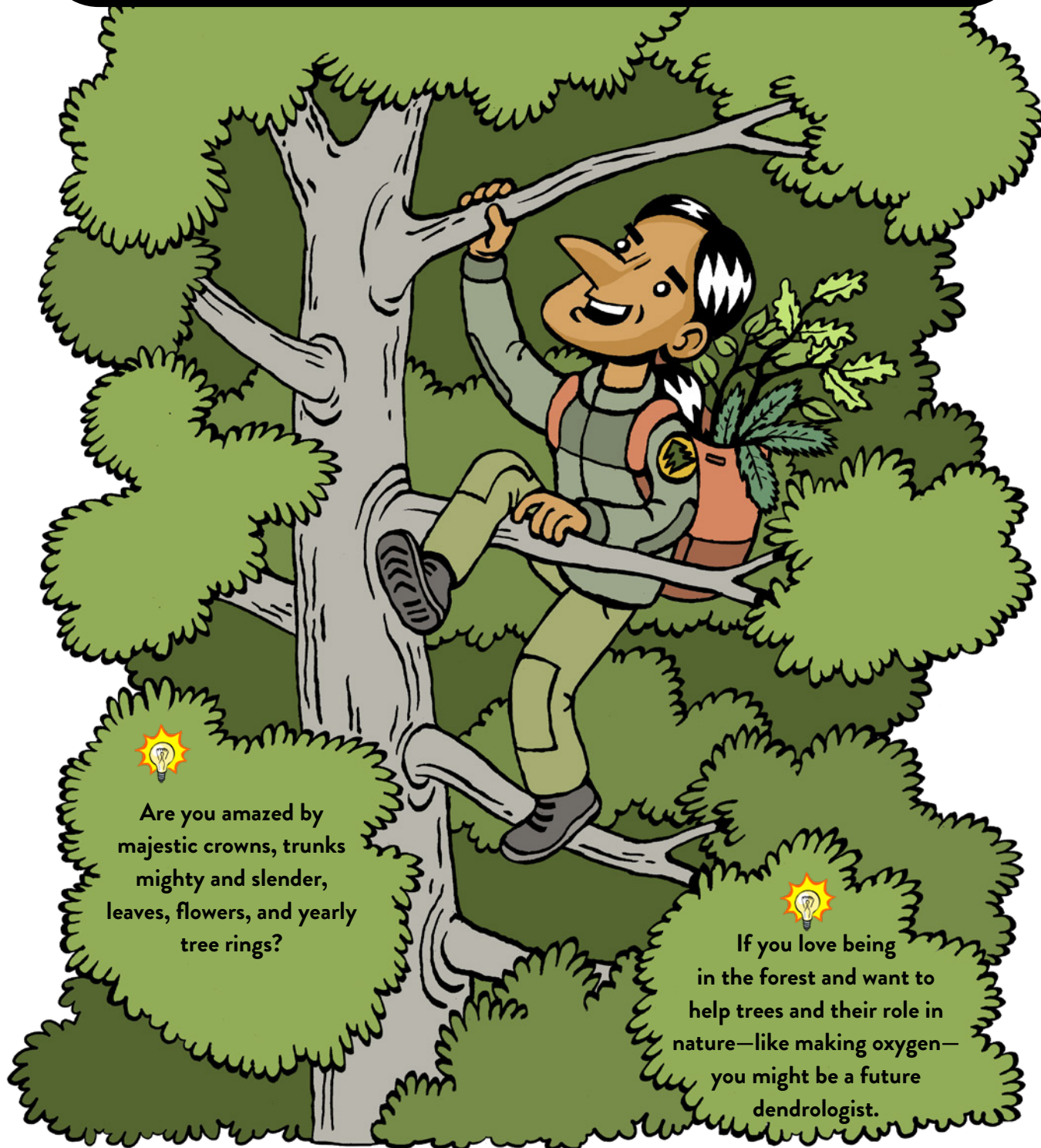
In a lab, an ornithologist can study feathers to learn about bird genetics. They might also observe birds that were injured or raised in captivity to better understand behavior, diet, or communication. After completing their research, they write about their findings and share them in science magazines and other publications.



Can you identify a bird by its song? If you see a bird you don't recognize, do you look it up? If you're curious about birds, maybe becoming an ornithologist is your dream!



* DENDROLOGIST *



A DENDROLOGIST IS A SCIENTIST WHO STUDIES TREES, SHRUBS, AND ALL OTHER WOODY PLANTS THAT GROW OR HAVE EVER GROWN ON EARTH. ASK THEM ANYTHING ABOUT LEAVES, NEEDLES, OR ANYTHING ELSE RELATED TO TREES, AND THEY WILL KNOW THE ANSWER.



WHAT A DENDROLOGIST DOES

First and foremost, dendrologists can recognize different species and subspecies of trees, shrubs, and other woody plants, spotting even the smallest differences between them. They use this knowledge to create guides that help others understand the world of plants. At the same time, they carefully describe newly discovered species.



* PEDOLOGIST *



A PEDOLOGIST CAN'T GET ENOUGH SOIL, SAND, OR CLAY. THEY DON'T MIND GETTING THEIR HANDS DIRTY—IN FACT, THEY LOVE IT! THEY KNOW A LOT ABOUT DIFFERENT TYPES OF SOIL AND EVEN ENJOY ITS SMELL!

HANDS IN THE SOIL

A pedologist studies different types of soil, looks at how they formed, and describes their characteristics. Some soils let water pass through easily and have lots of nutrients, making them more fertile. Others don't let water through and are infertile. A pedologist can spot these differences and give helpful advice to gardeners and farmers.



THE COLOR OF SOIL

Pedologists work outside, collecting samples of different types of soil. Once they have enough, they bring the samples back to the lab, and check things like color, texture, minerals, moisture, and temperature. There's a lot to do!

You might think that soil is just black or brown, but it can actually be a wide range of colors, like blue, red, and pink. The color of the soil helps pedologists understand how it formed and how it holds water.

There's nothing complicated about it. For instance, a blue soil has been wet for many years and the iron has been leached out of it.



Soil may seem plain, but if you look closely, you'll notice that one type might be dark and another light and powdery. To really understand the ground beneath your feet, you need to study it. Maybe you'd like to become a pedologist!

SOLVING PROBLEMS

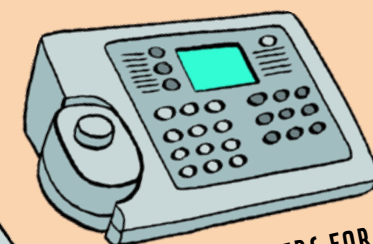
Being a pedologist means working on important problems. They help solve issues like soil loss or plants getting sick because of bad soil. Plants give us food, and soil is super important for the environment. It affects water, plants, and animals. Without soil, we couldn't live!



A PEDOLOGIST'S EQUIPMENT



SHOVEL AND PICK



PHOTOMETERS FOR CHLORINE MEASUREMENT



PHOTOMETER



PH METER FOR MEASURING SOIL MOISTNESS AND ACIDITY

* HYDROLOGIST *



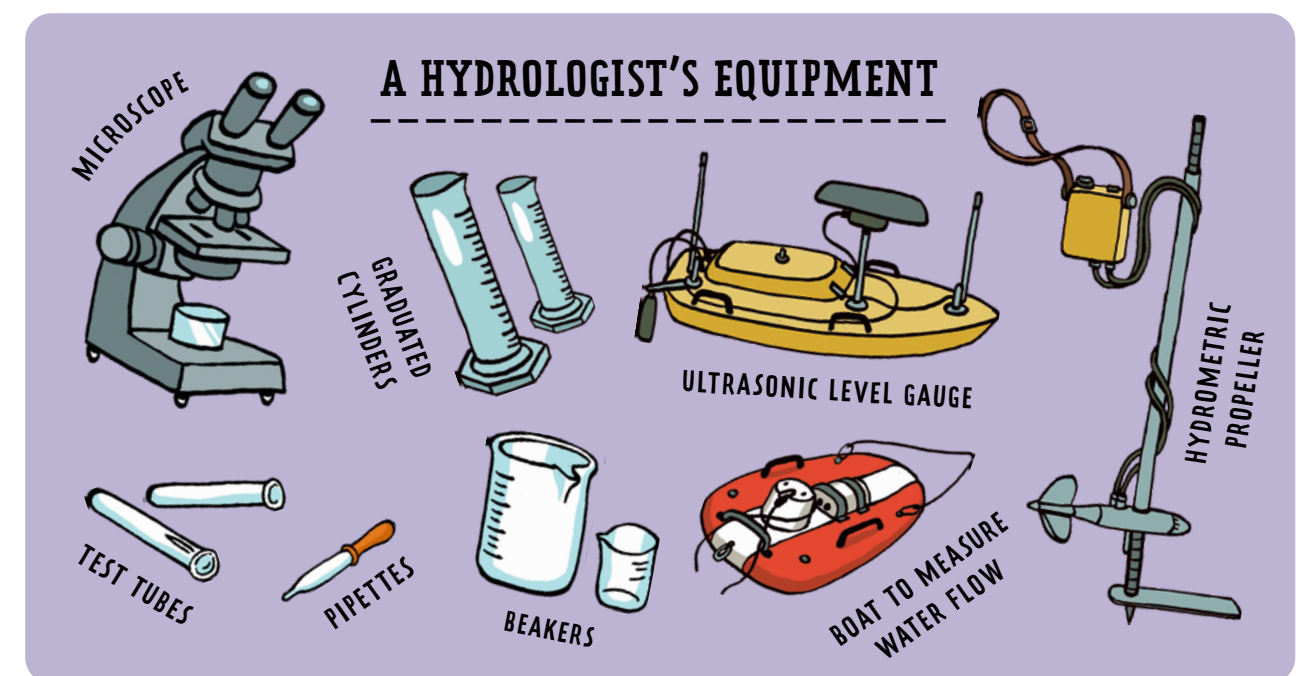
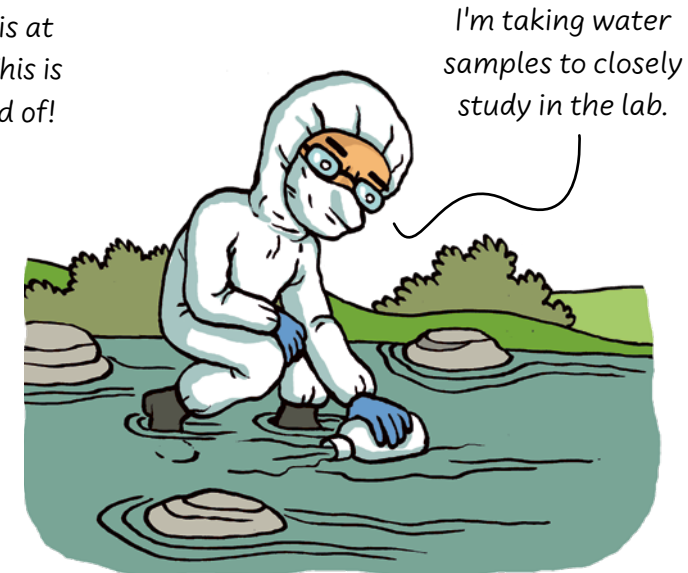
A HYDROLOGIST HAS CHOSEN TO SPEND THEIR LIFE STUDYING WATER. THEY LOOK AT WATER IN ALL ITS FORMS: AS STEAM, LIQUID, AND ICE. THEY STUDY HOW WATER MOVES, THE WATER CYCLE, AND THE PROPERTIES OF WATER ON THE SURFACE AND UNDERGROUND.



If you could, you'd grow fins and live in the water. Whether it's salty or fresh, water is everything to you. Water is life! How about becoming a hydrologist?

WHAT A HYDROLOGIST DOES

Hydrologists collect samples from rivers, lakes, and underground sources to see what's in the water. They study how rainfall affects rivers and look for any signs that the water is polluted. They also find ways to fix problems with water quality.



Would you like to be a **SCIENTIST**

when you grow up?

“No way!” you might say. “Science is boring!” But where on earth did you get that idea? Scientists often travel the world studying cool things – like moss, ancient bones, fish, music, and even other people! Join us as we take a peek into different sciences. Find out for yourself what it’s really like to be a scientist. For example, do you know what a bryologist does? You don’t? Want to find out?

**FIND
OUT**
inside!



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