



I want to be a SCIENTIST

Written by Štěpánka Sekaninová • Illustrated by Honza Smolik



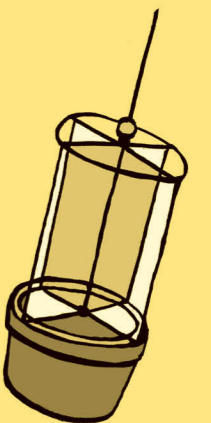
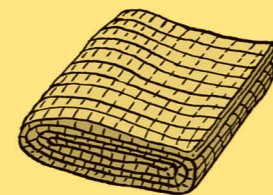
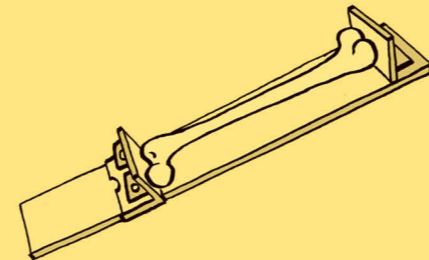
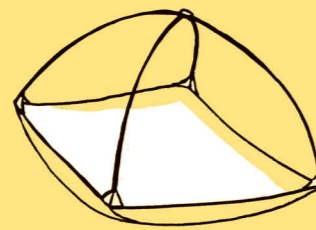
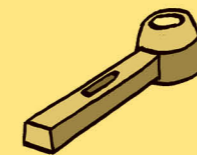
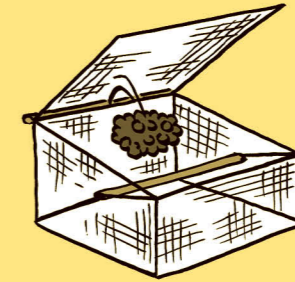
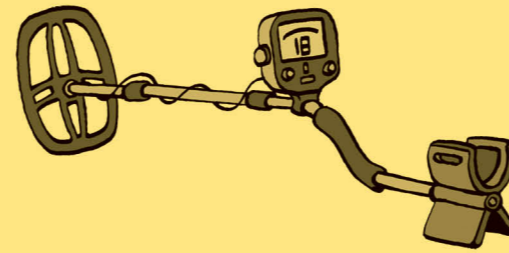
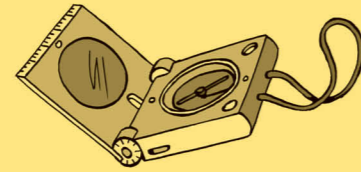
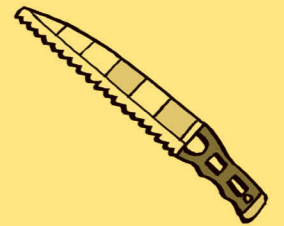
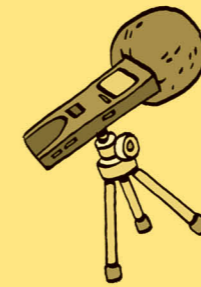
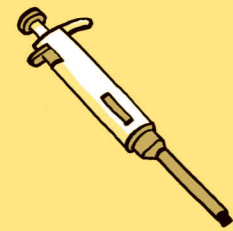
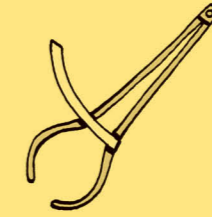
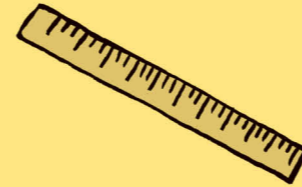
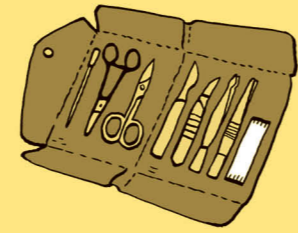
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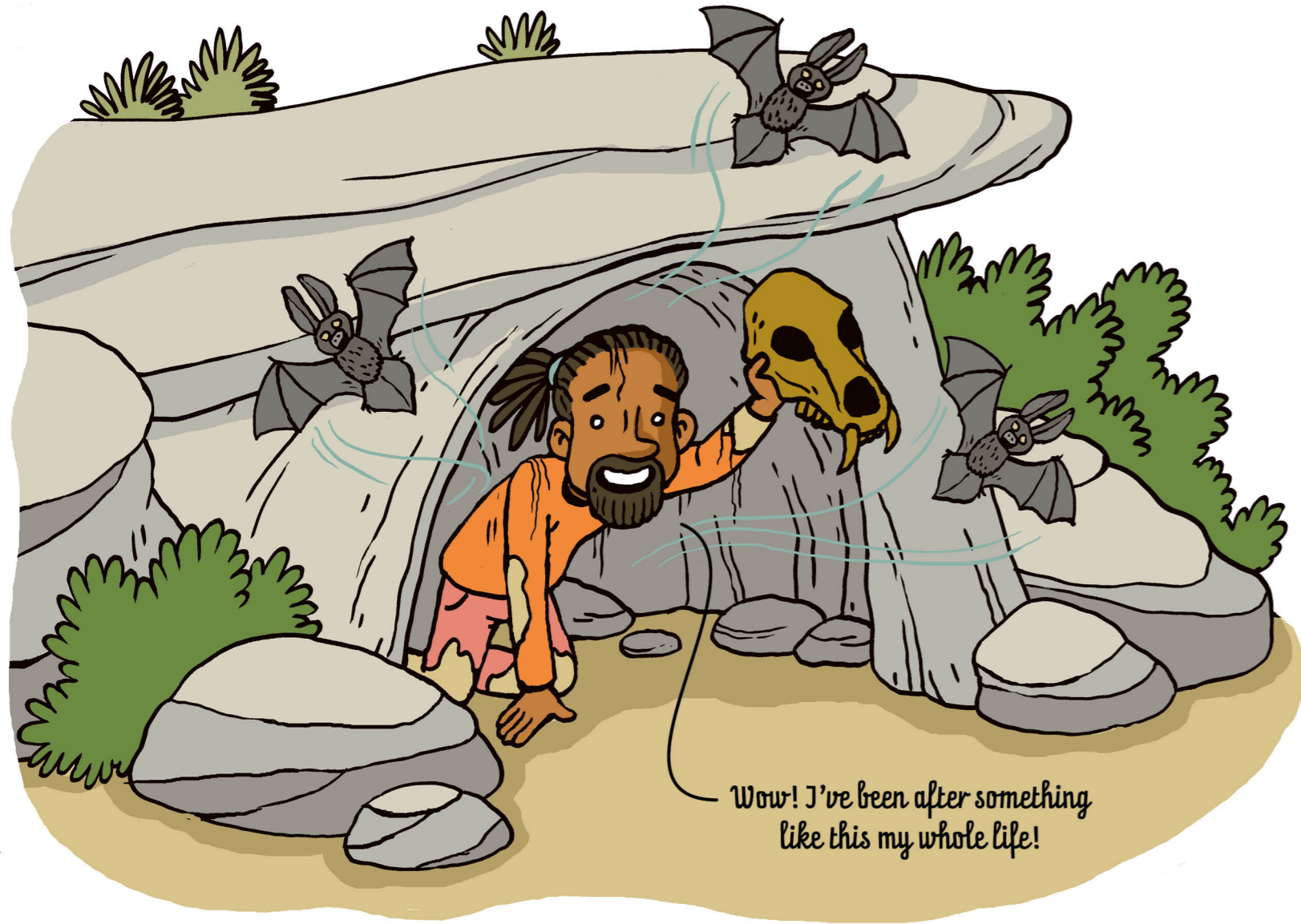
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Careers in SCIENCE
to pursue





* PALAEOLOGIST *



A PALAEOLOGIST IS FASCINATED BY FOSSILS AND OTHER REMNANTS OF EARLIER LIFE ON PLANET EARTH. LIKE AN ARCHAEOLOGIST, ANOTHER SCIENTIST WITH AN INTEREST IN TIME LONG GONE, THEY ARE KEEN TO MAKE DISCOVERIES ABOUT THE PAST FROM DEEP IN THE SOIL, UNDERGROUND OR INSIDE ROCK.

DIFFERENCES BETWEEN PALAEOLOGIST AND ARCHAEOLOGIST

Whereas archaeologists focus on objects and other traces left behind by earlier humans, palaeontologists research plants and animals we would have encountered on Earth millions of years ago. Over this long period, remains of these organisms have turned to stone, i.e. fossilized. Palaeontologists search hard for these fossils.

WHAT FOSSILS REVEAL

Fossils show palaeontologists what long-ago organisms looked like, fed on, were hunted by, and how the plants and animals of earlier times are connected with those of today.

HURRAY FOR ROCKS!

Fossils are scattered all over the world. To earn our admiration, they must first be discovered and extracted from rock by palaeontologists.



FOSSIL HUNTING

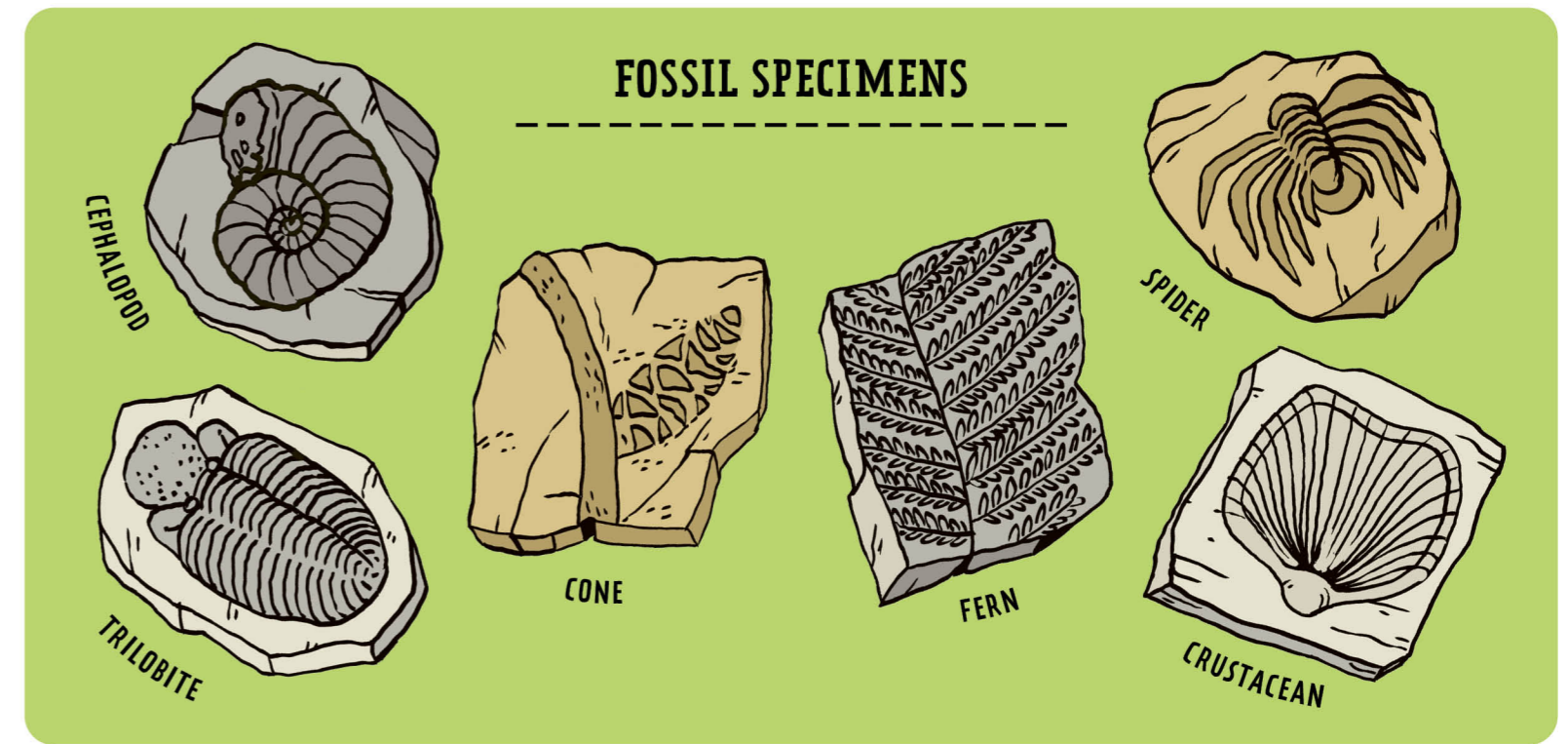
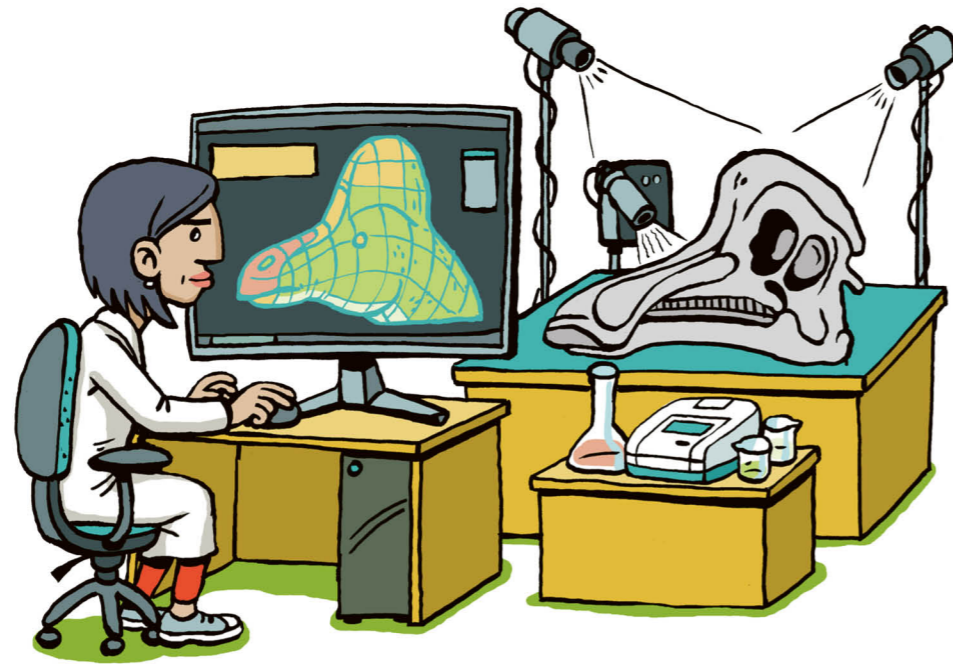
Not all rock contains fossils. A palaeontologist knows where to look for them based on their knowledge and experience. This is more than just detective work. Fossils are not found in igneous rock – i.e. rock that formed from cooling lava or magma; nor are they found in rock formed by pressure and high temperature transformation from other rock. So fossils must be looked for in sedimentary rock. If a plant or other organism got into this as it was settling, it would certainly be fossilized.

A PALAEOLOGIST'S EQUIPMENT

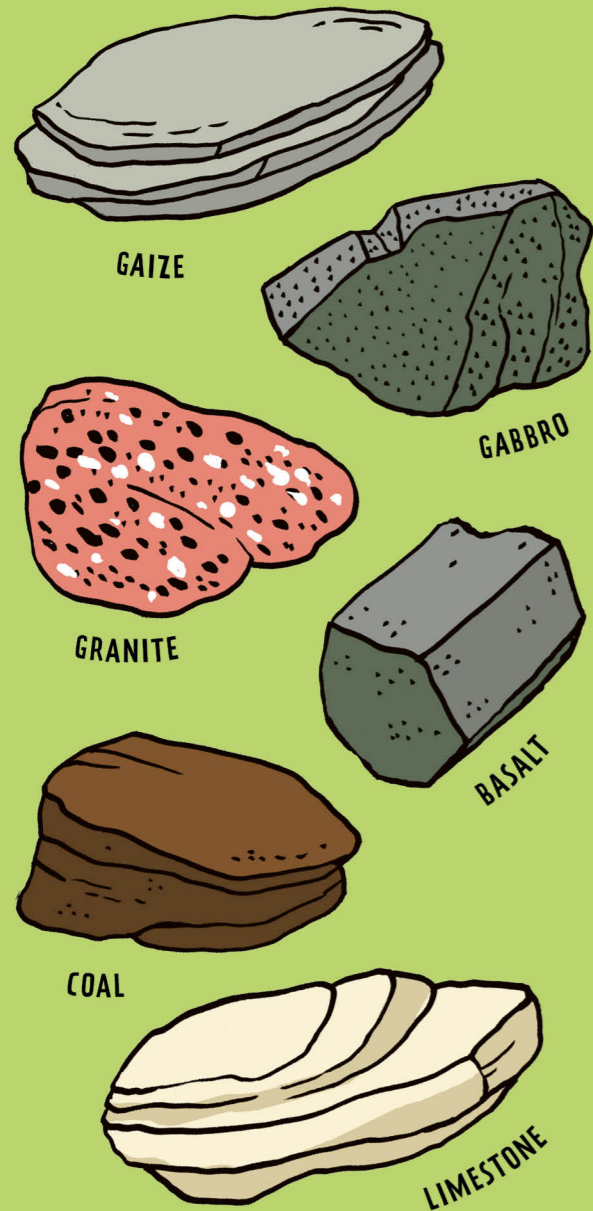


ONCE A FOSSIL IS FOUND

A palaeontologist's activities are divided between field work and laboratory work. Once samples have come to light, they are examined and analysed. The purpose of this research is to determine what prehistoric plants and animals were like, how they evolved and changed through the ages, and, following from that, how our planet as a whole has developed and transformed.

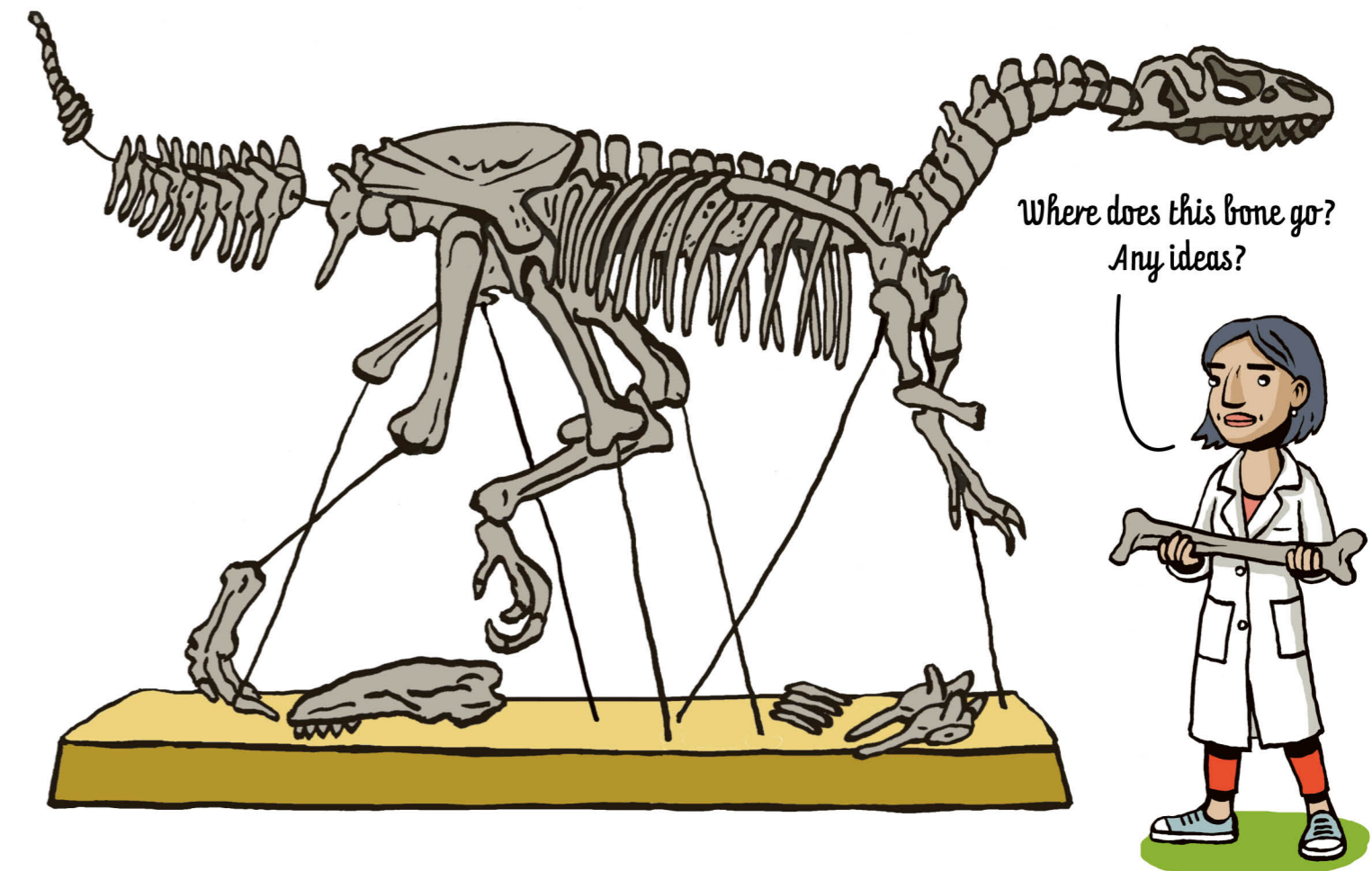


ROCK SPECIMENS



IT'S NOT JUST ABOUT FOSSILS

Palaeontologists aren't only interested in fossilized organisms. Their sphere of influence includes bones of prehistoric animals – dinosaurs, of course, but also prehistoric ancestors of animals of today. Palaeontologists gather these together and figure out from them not only what a given animal looked like, but also how it lived.



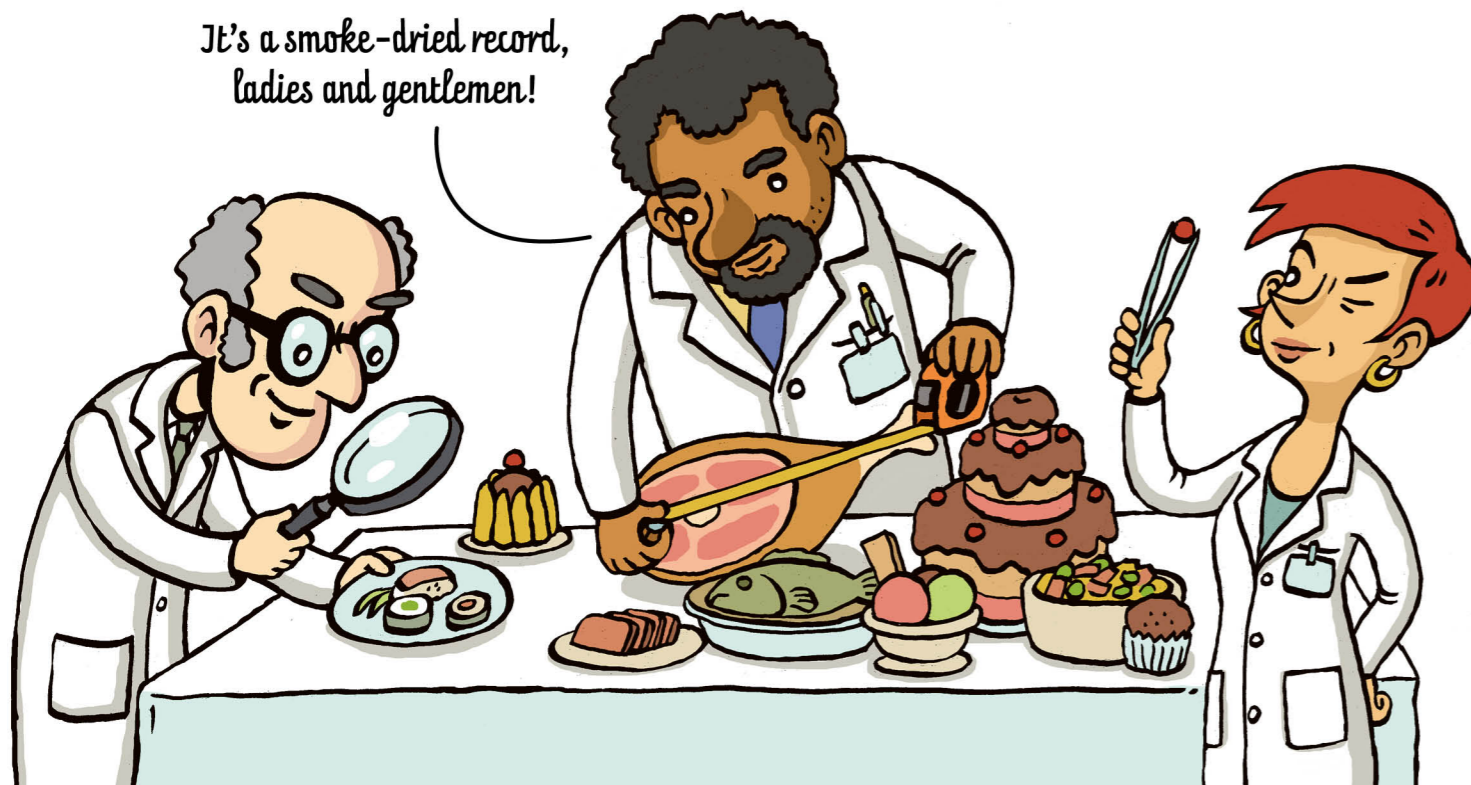
Lightbulb icon: Trilobites, dinosaurs, prehistoric lizards – this is your world. You come across a suspicious rock and straight away you start to study it. What if it really does contain a rare fossil? Is a career as a palaeontologist in your future?

TYPES OF PALAEOLOGY

- PALEOBOTANY** – specializes in prehistoric plants.
- PALEOOZOLOGY** – specializes in prehistoric animals.
- PALEOEKOLOGY** – examines relations between prehistoric organisms and their environments.
- PALEONTOLOGY** – addresses life in different geological periods.
- MICROPALAEONTOLOGY** – studies microfossils.

* BROMATOLOGIST *

It's a smoke-dried record, ladies and gentlemen!



A BROMATOLOGIST ENJOYS FOOD AND EVERYTHING ABOUT IT. THIS DOESN'T MEAN THEY ARE A BIG EATER. THEY ARE CONCERNED WITH THE QUALITY OF THE PRODUCTS ON THEIR PLATE OR IN THEIR CUP. YES – A BROMATOLOGIST IS A GENUINE FOOD SCIENTIST.

WHAT A BROMATOLOGIST MIGHT DO

- A bromatologist works on ways of making healthy foods – such as dishes low in sugar and fat – taste as good as unhealthy foods, so that in future we will favour the healthy over the unhealthy.
- A bromatologist also thinks up new flavours of yogurt and ice cream, plus what to mix them with and how to do it. The result must be pleasing to the eye as well as on the tongue. A yogurt or an ice cream may taste good, but what if it is unpleasantly lumpy or full of ice crystals? In their mixing, testing and tasting, a bromatologist experiments with a vast range of ingredients and substances, over and over again.



- Bromatologists also think about ways to store food. They look for economical ways to preserve important substances, colours and tastes, and explore how food products can be dried or pasteurized. They analyse food composition at the factory where it is made, testing it for calorie count, allergens, nutrients, sugar, fat, vitamins and trace elements. Based on the bromatologist's analysis, the producer then labels the product so that the customer will know about the nutrients that enter their body by eating it.




It's still pretty tasteless. No problem – I'll figure out what to do with it.



QUESTIONS A BROMATOLOGIST ASKS

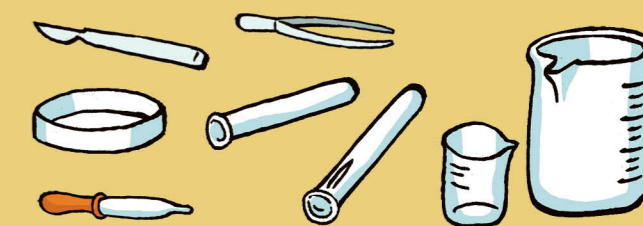
How long does a particular food stay fresh? How should it be cooked and processed to make the most of its taste and not lose important nutrients and vitamins? Which preservatives can be used to retain its taste even if it is kept for several months? How can freshness be guaranteed? Is this food a healthy option?

 Everyone likes good food. But for you it is a passion. If you enjoy checking what food is made of and what vitamins it contains, seeing how long it stays fresh and learning the best ways of keeping it so, you may be a future bromatologist.

A BROMATOLOGIST'S EQUIPMENT



KITCHEN EQUIPMENT



LABORATORY EQUIPMENT



Ring fever - oh dear. It's our job to find a cure.

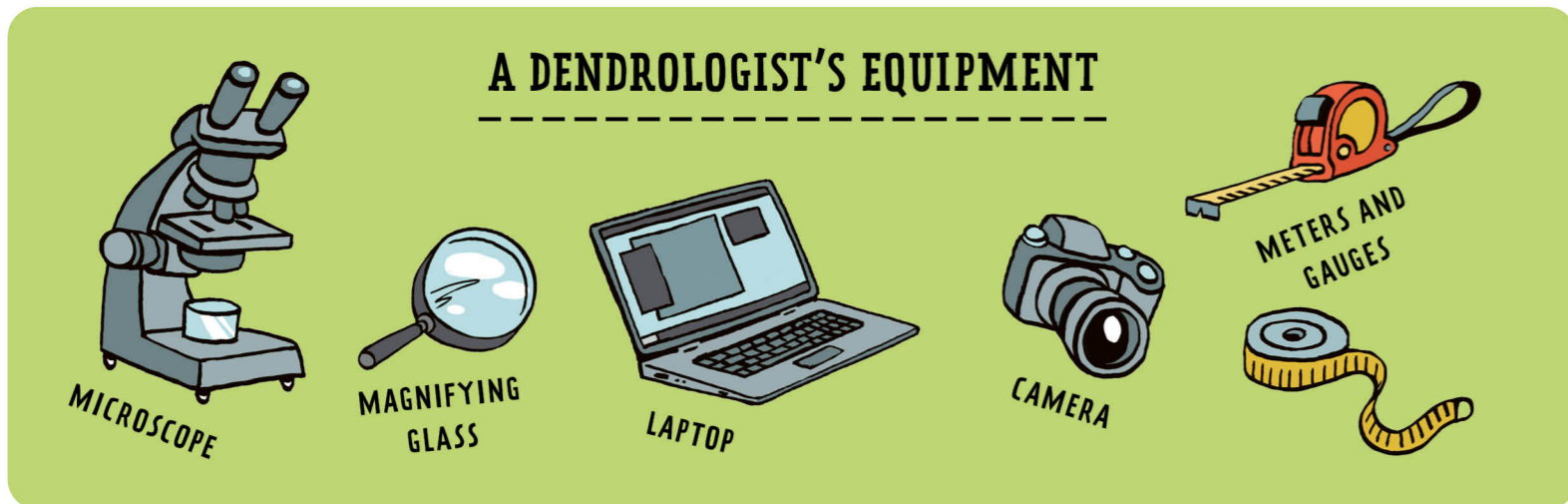
CONES, POLLEN, BARK

Dendrologists study not only the generalities of trees and other woody plants. They also need to know about their leaves, needles, cones, fruit, blossom, bark, intricate roots systems ... basically their entire anatomy. It is their job to find out what all the individual parts are for. They also study pollen and reproduction in woody plants.

Today's trees are great. But I'm most interested in fossils of woody plants of old.



Have you ever seen anything more perfect than a cone?



* GLACIOLOGIST *



A GLACIOLOGIST DOESN'T MIND HEAVY WINTERS. QUITE THE OPPOSITE: THEY ARE FASCINATED BY ICE AND SNOW ALMOST TO THE POINT OF OBSESSION! THEY EXAMINE THEM DAILY, IN GREAT DETAIL. NO ONE ON EARTH KNOWS ICE AND SNOW BETTER THAN A GLACIOLOGIST.

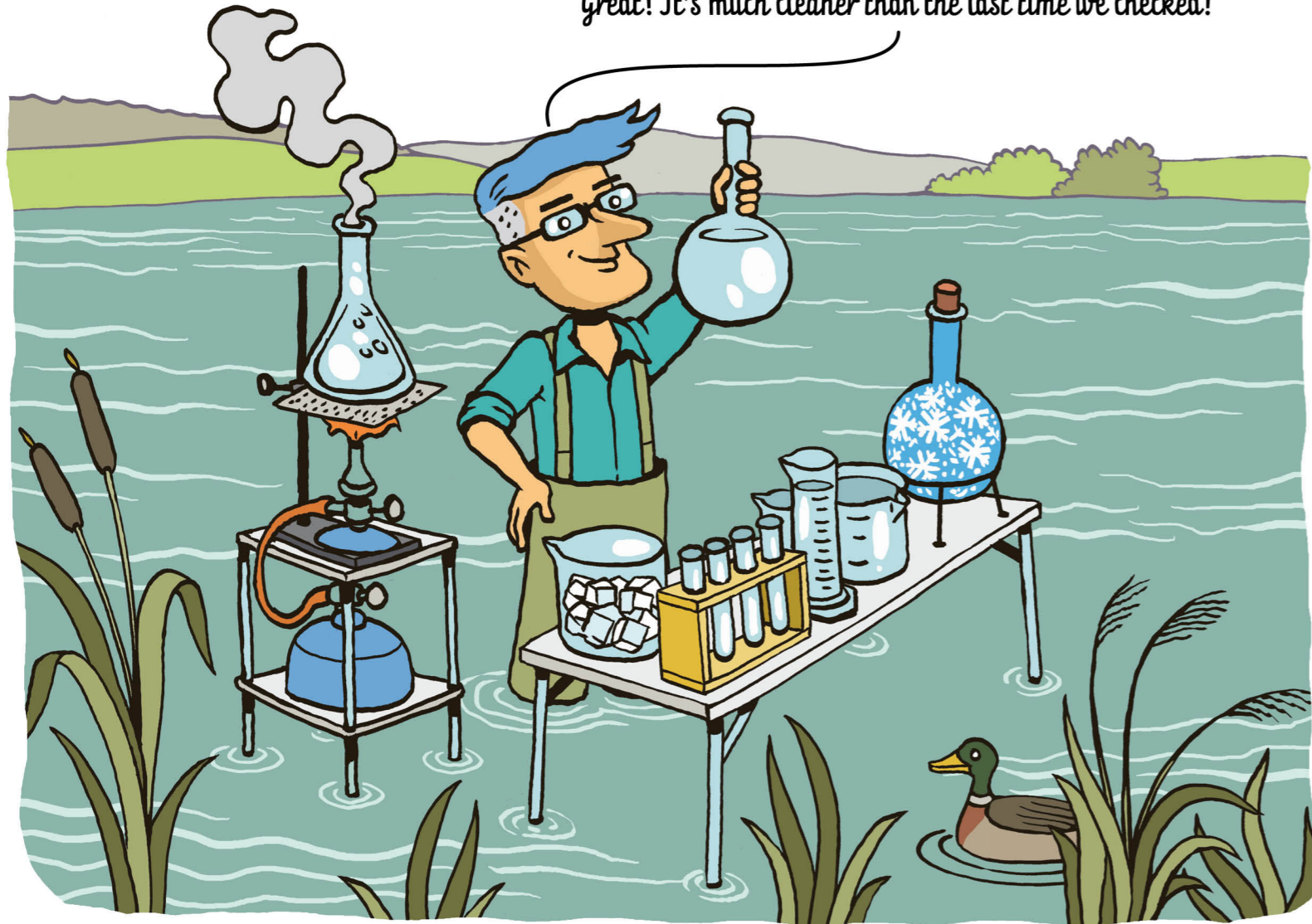
GLACIER RESEARCH

A glaciologist studies glaciers, analysing their movement and growth as well as changes in them related to climate change. They are also interested in snow and ice caps on mountains and areas of permanently frozen ground (permafrost).



* HYDROLOGIST *

Great! It's much cleaner than the last time we checked!



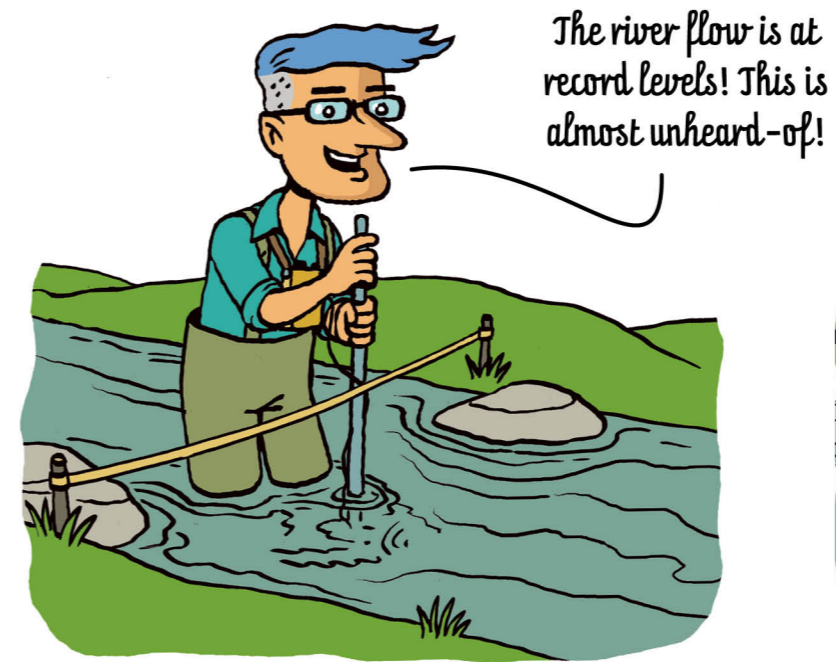
A HYDROLOGIST HAS DECIDED TO DEVOTE THEIR WORKING LIFE TO THE STUDY OF WATER. THEY EXAMINE WATER IN ALL ITS STATES: VAPOUR, LIQUID AND SOLID. THEY STUDY HOW AND WHY WATER SPREADS, THE WATER CYCLE PROCESS, AND PROPERTIES OF SURFACE WATER AND GROUNDWATER.



If you could, you would grow fins and spend your life in it. Water, the most practical of all things, salt or fresh. Water is everything to you. Water is life. How about becoming a hydrologist?

WHAT A HYDROLOGIST DOES

Hydrologists collect samples of surface water and groundwater and analyse their state and composition. They explore river basins as well as measuring precipitation and studying its effect on river flow. They regularly check water quality and purity and for possible water contamination, and they propose ways out of undesirable situations.



The river flow is at record levels! This is almost unheard-of!



I'm taking water samples for close examination in the lab.



I see that the water level keeps falling. This dreadful drought!

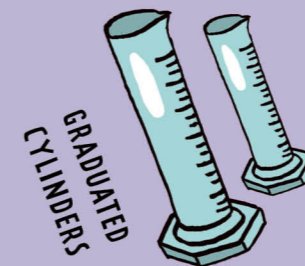


Where do the distributaries lead? I hope I've got this right...

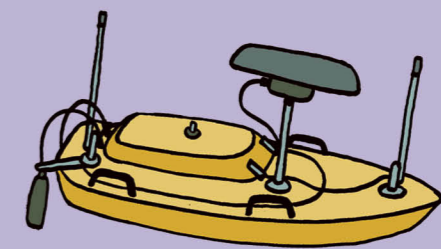
A HYDROLOGIST'S EQUIPMENT



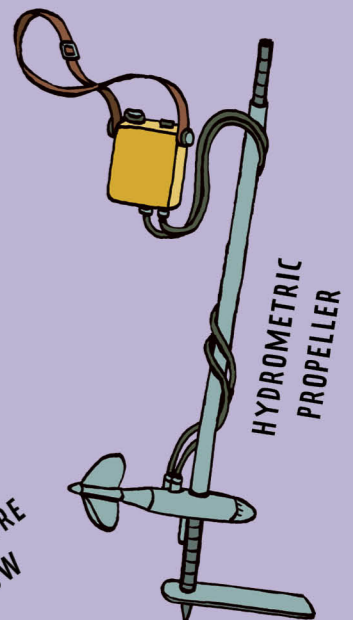
MICROSCOPE



GRADUATED CYLINDERS



ULTRASONIC LEVEL GAUGE



HYDROMETRIC PROPELLER



TEST TUBES



PIPETTES



BEAKERS



BOAT TO MEASURE WATER FLOW

