Weird & Wonderful NATURE

Lenka Chytilová • Liza Murphy

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Written by Lenka Chytilová • Illustrated by Liza Murphy

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The children were in the garden on a summer's day. 'My tomatoes are ripe, Emma!' cried Henry with delight. 'Come and have one while they're fresh!'
'I must eat my banana first, before it spoils,' said Emma. 'It's a pity that nature creates good things that last such a short time. It has to keep making more. Wouldn't it be better if bananas and tomatoes stayed fresh for several years?'

The children were thrilled to learn that nature makes things that last decades and others that are gone in a flash. They decided to find out more. They set about investigating what makes nature so weird and wonderful...

Henry and Emma realized that nature has lots and lots of incredible qualities. Would you like to know about them?

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Nature is...

TRANSIENT AND LONG-LASTING

Some things in nature are over so quickly that we barely notice them. But others last decades or even hundreds of years. Let us look at some natural phenomena and how long they last. With some, you may be surprised by how much or little time they take.

UP TO 8 HOURS 58 MINUTES

RAINBOW

When the sun shines at the same time as rain is falling, we might see a rainbow, which results from light refracted in the drops. This sight usually lasts a few minutes only. In 2017, a rainbow in Taiwan was timed at almost nine hours.

UP TO 179 DAYS

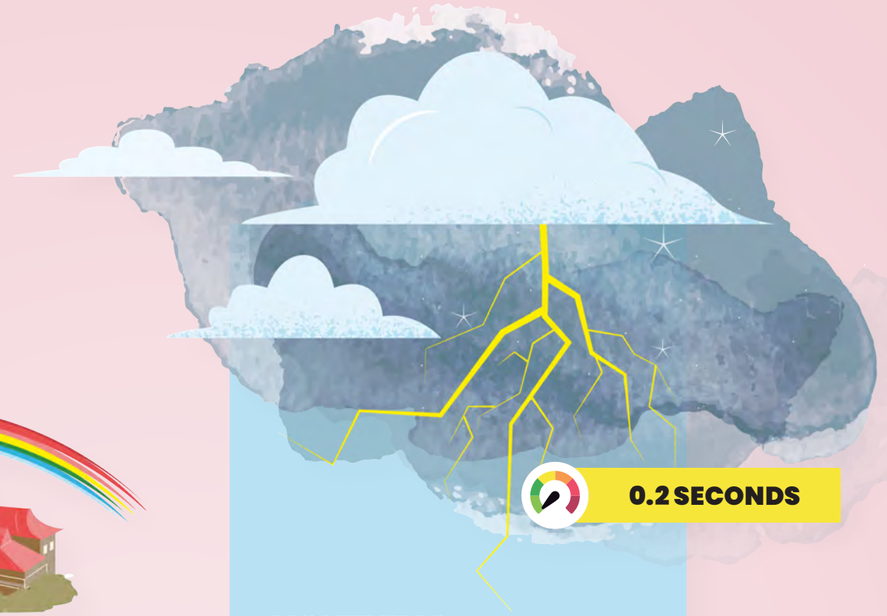
POLAR NIGHT

In regions close to the North or South Pole, for part of the year the sun never rises! The length of the polar night depends on distance from the pole. It may last just a few days; at the pole itself, it lasts half a year!

GROWTH OF DRIPSTONE

The formation of dripstone is one of the slowest processes in nature: 1 mm of matter takes up to 15 years to form. So next time you are in a cave, be careful not to touch the stalactites and stalagmites!

1 MM PER 15 YEARS



0.2 SECONDS

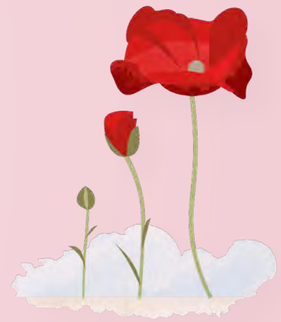
LIGHTNING

During an electrical storm, lightning reaches the ground in less than a second. The sound of thunder travels more slowly than light. How long it takes for us to hear it depends on our distance from the storm.

4.5 SECONDS

WATER IN THE NIAGARA FALLS

The group of waterfalls on the border between the USA and Canada is one of the world's most famous natural monuments. A drop of water from the highest fall takes less than 5 seconds to fall. Of course, it is followed by another and another, endlessly...



10 HOURS

A POPPY IN FLOWER

Plants flower in order to attract pollinators, make fruit and reproduce. The poppy is in flower all summer long, and the flowers are open for up to 10 hours a day.

UP TO 2 YEARS

DECOMPOSITION OF A BANANA SKIN

From the moment when you peel a banana and throw away its skin until this skin decomposes fully, about half a year must pass. This depends on the conditions for decomposition, of course.

For comparison, the average lifespan of a human is between 70 and 80 years.

100 DAYS

TOMATO GROWTH

From the moment we plant tomatoes, we must wait about 100 days until we can enjoy them. A red, juicy crop of tomatoes needs a lot of water and sun.

Nature is...

HARD AND SOFT

Some things are said to be 'as hard as rock'. But which rock? Some rocks are harder than others. Plus, some materials are harder than many rocks and minerals. But nature has also created things that are fine and soft, such as the fresh moss we find in the forest.

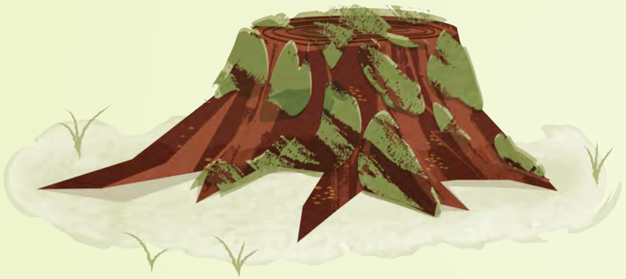
SHELL OF THE MACADAMIA NUT

Which nut is the toughest to crack? Well, the macadamia has the hardest shell. But it's definitely worth breaking into: it contains lots of minerals, healthy fats, and vitamins A and B.

The bigger the hailstones, the greater their momentum as they fall from storm clouds.

HAILSTONES

Ice in the form of hail can be a real pain in summer. Although they don't seem particularly dangerous, and the Mohs Hardness Scale ranks them as a softer material, hailstones can catch us out by the speed at which they fall.



MOSS

When we think of softness in nature, we think of moss. Mosses are important for their ability to absorb water and their soil-strengthening roots. The softness of moss is due to the fact that it is composed of many small plants growing together.

COTTON

Cotton fibre comes from cotton seeds. Before the cotton fabric is woven, the seeds must be processed, cleaned and spun. Although it is a very soft natural material, textile fibre is remarkably strong.

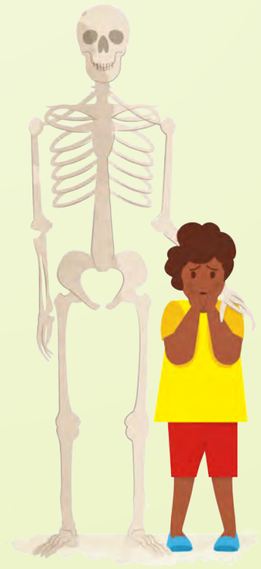
SO SOFT, YET SO STRONG

BALSA WOOD

The woods of different trees vary in their hardness. Among the softest is balsa from South America. As it is also very light, it is ideal for the making of rafts, life-saving aids and models of various kinds.

GRAPHITE

Graphite is a common feature of the school pencil case. It is one of the softest minerals, which makes it so easy to use. Pencils come with graphite (often called 'lead') of different degrees of hardness. Softer lead makes a darker mark, and so is ideal for drawing!



Rankings in hardness scales are determined by the ability of materials to scratch others.

HUMAN BONES

To carry the muscles, nerves and other organs, human bones have to be really strong. The hardest are the bones of the skull, such as the petrous part of the temporal bone, which protects the inner ear.

DIAMOND

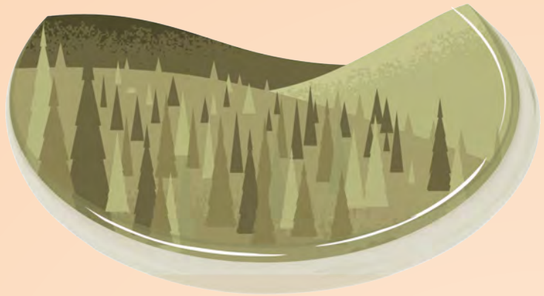
In terms of natural hardness and resistance, the diamond is out alone at the top of our standings. Indeed, it is used to make instruments for the cutting of other materials, such as glass. It is also used as an ornament in jewellery, of course.

ONE OF THE HARDEST MATERIALS IN THE WORLD

Nature is...

LOUD AND QUIET

When we think of sounds of nature, we tend to imagine something quiet and soothing from the forest or the sea. But nature can make quite a racket too, and it does so quite often. Boom! A loud noise will startle and attract the attention of all living creatures in the vicinity.



20 DB

FOREST

The forest is considered one of the quietest of all natural environments. Nowadays, when there is so much noise pollution about, the calm of the forest can have a healing effect.

85 DB

OCEAN

Sounds of the ocean are often used as 'white noise', which is set at a soothing frequency to drown out other sounds. But the ocean itself can be very noisy, especially when in contact with a rocky coastline.

FALLING SNOW

Unlike other meteorological phenomena, snowfall is basically silent. Although snow is composed of ice, ice crystals in the form of snowflakes are often soft and fluffy.

120 DB

THUNDER

During an electrical storm we see lightning before we hear thunder. The lightning is what actually makes the sound—it heats the air around and causes it to rapidly expand and vibrate, which creates thunder.

180 DB

EXPLOSION OF KRAKATOA

One of the loudest recorded sounds in human history rang out in 1883, with the eruption of the volcano Krakatoa in Indonesia. It is said that this was heard as far away as Australia!

INAUDIBLE TO HUMANS

PLANT SOUNDS

Did you know that plants make sounds too, particularly when stressed? But as these sounds are at ultrasonic frequencies, they are inaudible to humans.

60 DB

NORMAL HUMAN VOICE

When humans are not shouting, singing or talking over each other, their conversation is conducted at around 60 dB, which is considered a moderate noise level.

The loudest sound made by a human was a scream with a volume of over 120 decibels.

TUNGUSKA

In 1908, an astounding explosion occurred in Siberia for reasons still unknown. So great was its force that 80 million trees in the area were uprooted and incinerated. It may have been caused by the impact of a meteor, although no remains of such a thing have been found.

Nature is...

STINKY AND SWEET-SMELLING

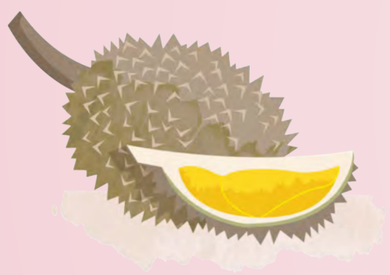
Enchanting scents and terrible stinks both have a place in nature. Their purposes include attracting a pollinator to a flower, showing that fruit is ripe, or indicating that food is past its best and no longer fit to eat.

PEACH

Smell is crucial for the survival of the peach and other attractive plants. For its large stone to end up in the earth, so allowing a new tree to grow, such a fruit must be eaten by a human or other mammal.

DURIAN

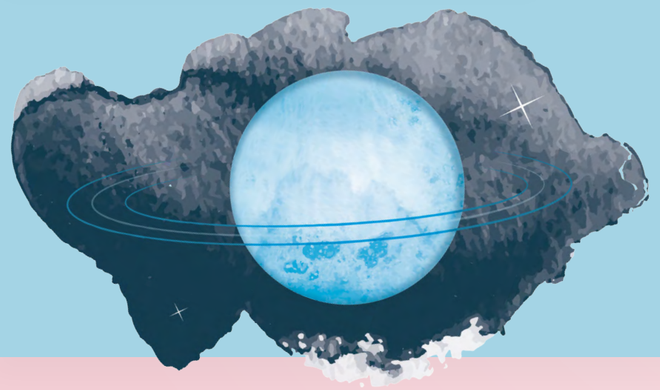
Many gourmets are put off by the smell of the durian. It has been compared to the odour of rotten onion, overripe cheese, even the toilet. In some countries, durians are banned on public transport.



RAFFLESIA

The flower of this plant is almost one metre in diameter. By giving off a stink like rotting meat, it attracts pollinators (flies and other insects) that feed on carrion. What a clever trick!

STINKS LIKE ROTTEN EGGS



THE PLANET URANUS

The atmosphere on Uranus is said to smell like rotten eggs! This is due to a high hydrogen sulphide content. But it also contains very little oxygen, so it would be impossible to breathe there.

GARLIC

Although garlic is very healthy, its odour can be unpleasant, especially from the mouth of someone who has eaten it. Garlic and other bulbous plants contain sulphur compounds that don't smell good to humans.

A SMELL LOVED ALL OVER THE WORLD

VANILLA

The scent of vanilla is said to be the most popular among humans, even across countries and cultures. For many, it evokes a sense of home and other pleasant feelings.

LAVENDER

Some people don't like the scent of lavender. Others love it and believe it to have healing properties. It is added to soaps, bath salts and fragrant shoe sachets for its calming effect.

THE AFTER-RAIN SMELL

Following spring or summer rain, especially after a period of drought, the air has a typical earthy smell caused by bacteria in the soil. This scent is known as petrichor.

As nature contains an infinite number of wonderful things and phenomena, to mention them all would be impossible. If any of our topics are of special interest to you, we hope you will explore them further.

Below is a list of sources we used when putting together this book. They may also come in handy for you.

National Geographic https://education.nationalgeographic.com
ScienceAlert www.sciencealert.com
Guiness World Records www.guinnessworldrecords.com

WEIRD AND WONDERFUL NATURE

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Do you ever wonder about the incredible diversity of nature, and about all the things nature can do? It makes lightning that is gone in the blink of an eye but also dripstones that take hundreds of years to form. It can have a wonderful smell – just think of vanilla – but also give off a stink that almost knocks you over.

Nature is a superhero in so many ways. Would you like to know what else it can do? If so, then this is the book for you! As you read and learn, you are sure to be charmed by the uniqueness of the natural world around us.

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