



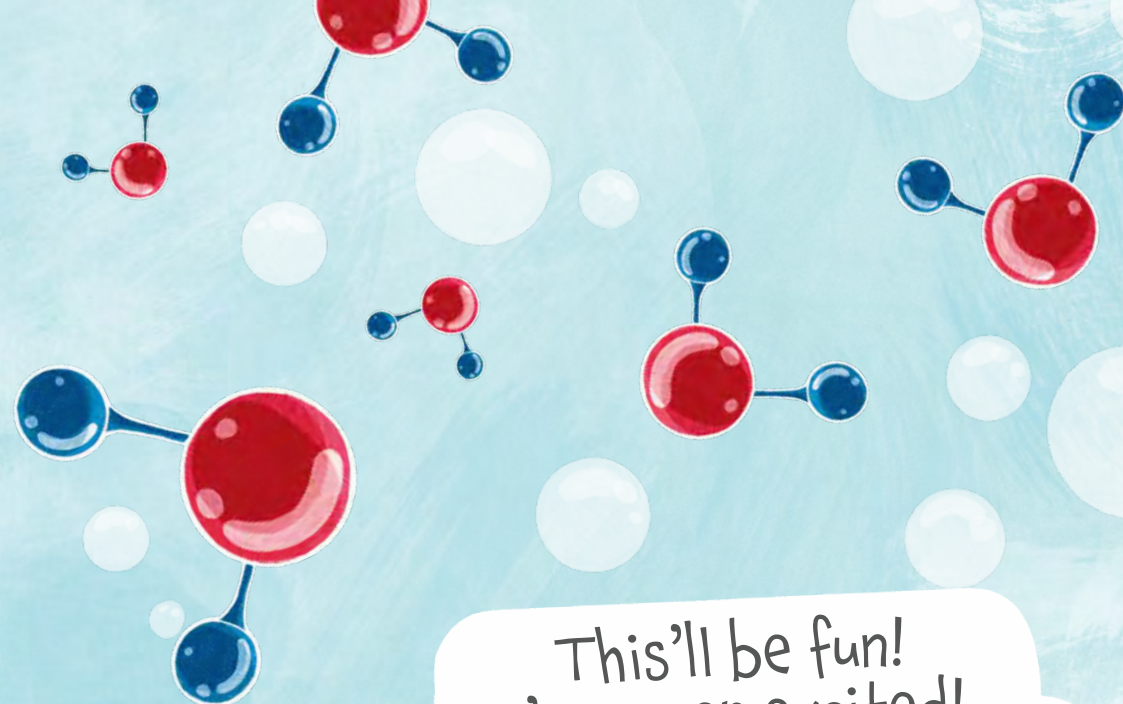
Wonderful WATER

Written by Petr Kostka and Jiří Dušek
Illustrated by Hannah Abbo



Contents

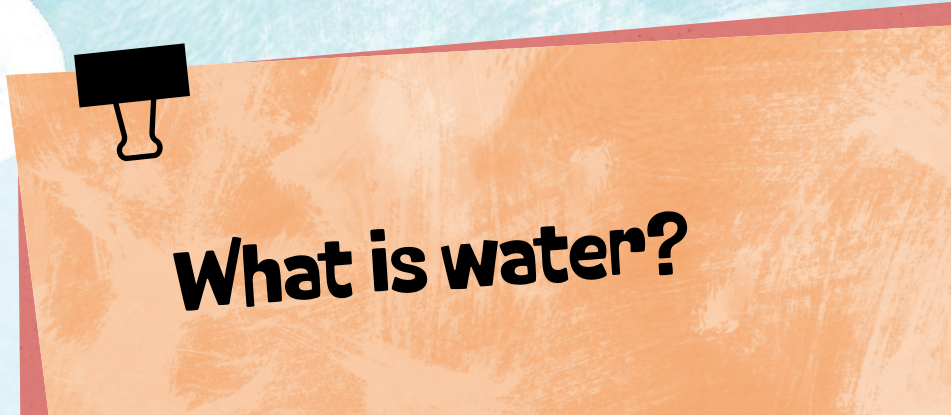
What is water?	3
Water is fun	4-5
Where did water come from?	6-7
Water in space	8-9
Water in the solar system	10-11
We are the universe.	12
A gigantic shower from space.	13
Life-giving water	14-15
Drinking the same water as the dinosaurs	16-17
Humans are vessels for water	18-19
How much water is in our food?	20-21
Water on planet Earth	22
Water is life	24-25
Life in water	26-27
From the clouds to the deep	28-29
Why doesn't weather stay the same?	30
The blue planet	31
The meteorologist's view	32-33
Where to get drinking water	34-35
You can't make anything without water	36
No water, no industry	38-39
Water, agriculture, and daily living	40-41
Water as energy	42-43
Water as a transport route	44-45
A most precious gift	46
World Water Day	47
Further details about water	48
Every drop is precious	50-51
Water and faith	52
Gods of water	53
Facts about water	54-56
How we measure water	57
Rivers and oceans	58-59
How to conserve water	60-61
Glossary	62
Resources Further reading About the creators	63-64



This'll be fun!
I'm super excited!



Let's get to
reading then!



Water is fun

Tell them that water is wonderful!

swimming



water balloons



jet skiing



hydroflying



paddleboarding



kayaking



rafting



water polo



scuba diving



water skiing



splashing



YES! It's tremendous fun.
Look what we can do
with water!

water fights



waterparks



water slides



surfing



Water activities are a blast. Let's
take a closer look at water, which
makes all of this fun possible!

Water in the solar system

Even with a small telescope, you can see the bright polar caps on Mars—they contain frozen water.

Mars

Earth

moon

Water on the moon

Water is hidden at the bottom of some craters around the north and south poles of the moon.

Mercury

Venus

Our solar system has a ton of water in the form of ice that's always frozen.

Jupiter

Europa

Saturn

Enceladus

However, water can also be hidden beneath an icy shell. Take Enceladus, a moon of Saturn, which is a giant ball of ice with a rocky core. Its bright, icy surface reflects more sunlight than any other body in the solar system. And deep below the ice, there's likely a vast ocean of liquid water.

Neptune

Uranus

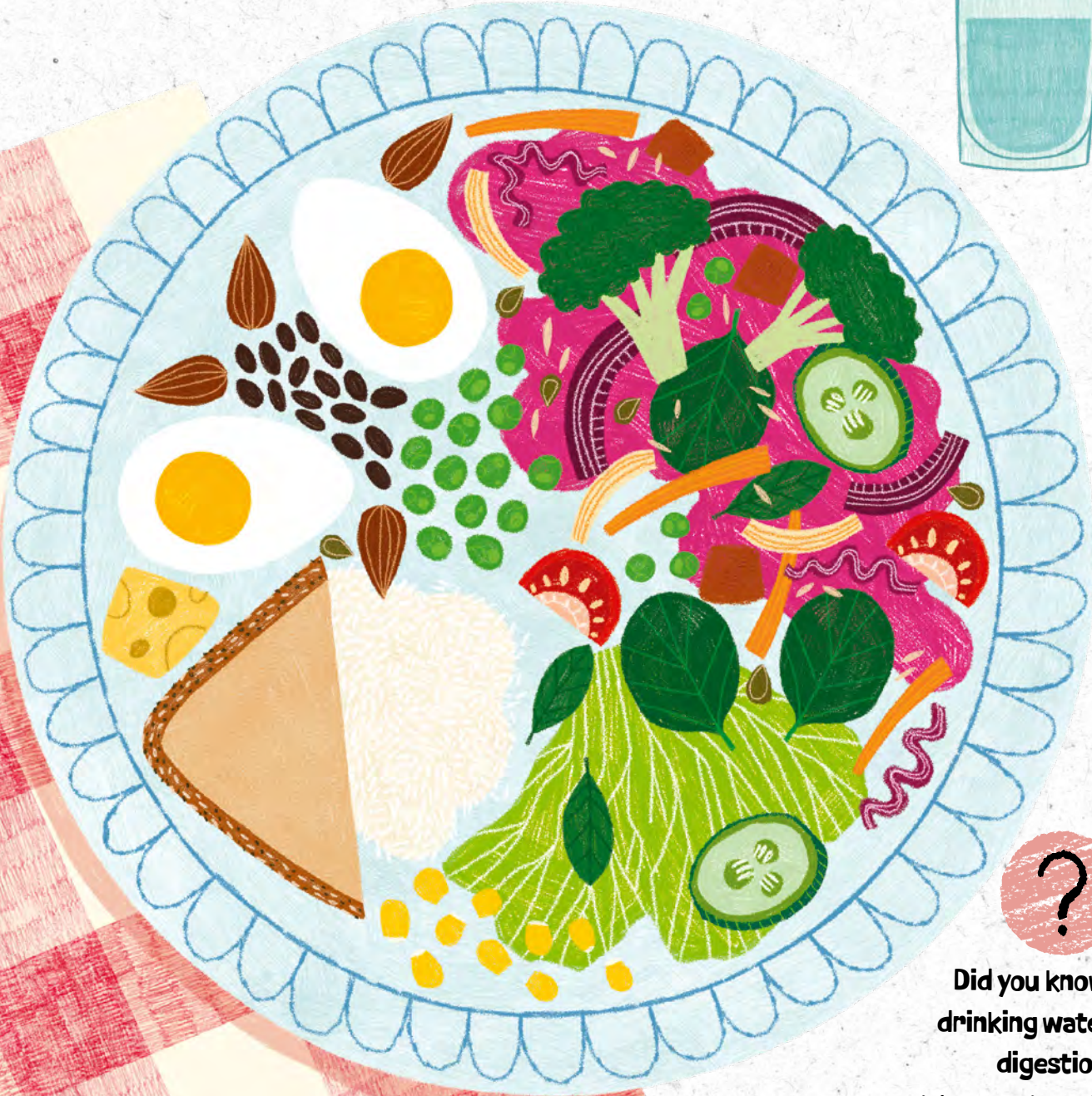
Oceans at the end of the world

Even more intriguing is Europa, a moon of Jupiter. Its surface is covered in ice, but below the ice lies an ocean up to 60 miles deep—meaning Europa may have several times more water than Earth. Could life—probably in the form of microbes—exist in its hidden ocean? It's hard to say, but one thing is certain—liquid water is essential for life as we know it.

Hmm... if space has water, maybe there are some aliens there?

How much water is in our food?

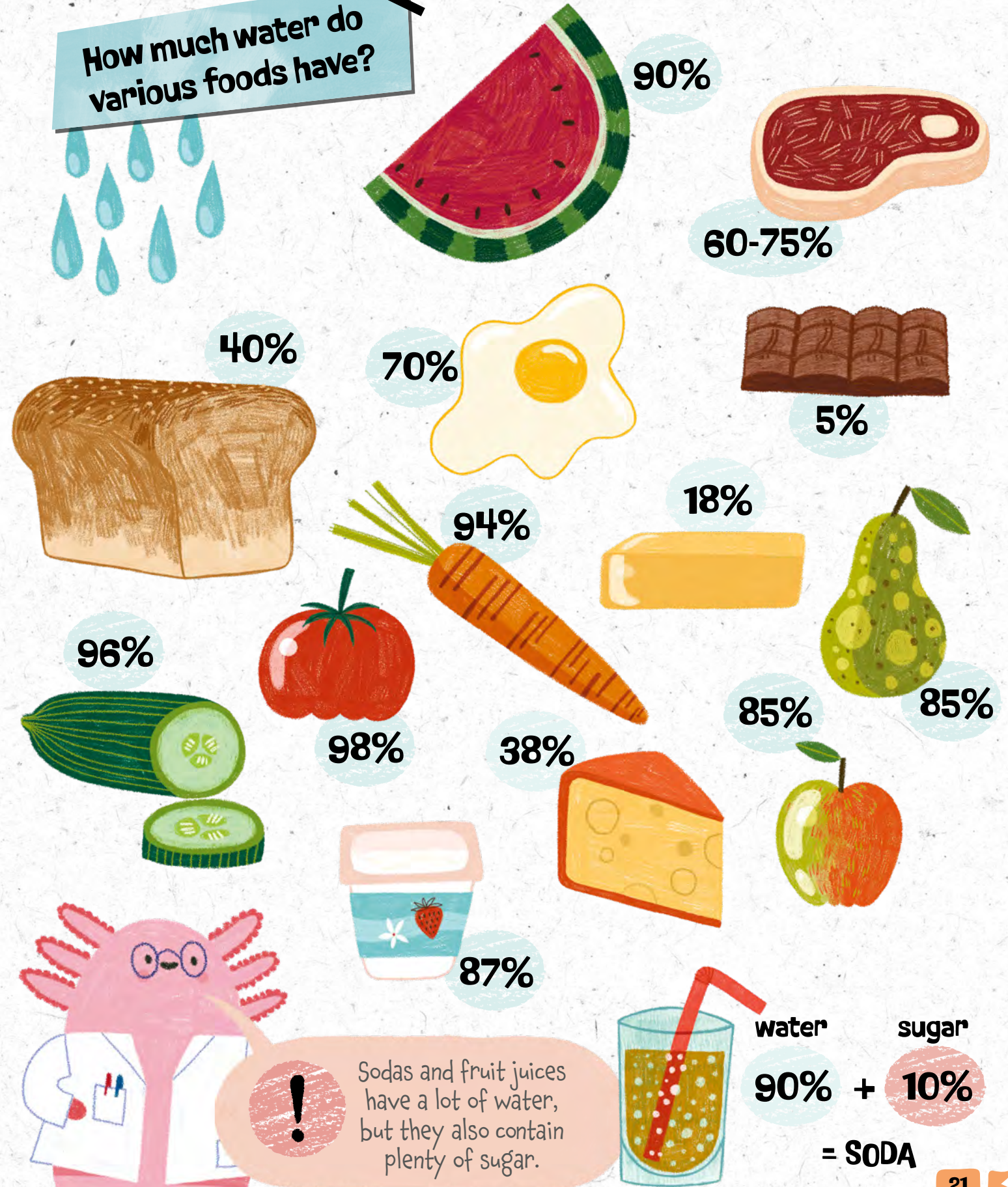
Almost all foods contain some water. If you track how much you drink each day, you can include the water you get from food as well. Soups, milk, yogurt, vegetables, and fruit are all good sources.



Did you know that drinking water helps digestion?

Drink water throughout the day, not just when you're thirsty. Feeling thirsty means your body already needs water!

How much water do various foods have?



Sodas and fruit juices have a lot of water, but they also contain plenty of sugar.

life in water

Earth's water is full of amazing creatures such as fish, turtles, and colorful coral reefs. Ocean plants make oxygen—which many living things need to breathe—and every plant and animal in the sea helps keep Earth healthy and beautiful!

Some animals, including dolphins and whales, need to come up for air, while others, such as fish, are able to breathe underwater.

Some creatures that live very deep in the ocean glow in the dark because there's no sunlight so far below.

From the clouds to the deep

The water cycle

The water cycle is the continuous, circular way water moves from the ground to the sky and back again. The sun, gravity, Earth, and the moon are all part of this process.

Evaporation

The sun heats up water—from oceans, lakes, rivers, puddles, soil, plants, and animals—and some of it changes from liquid to vapor.

Condensation

The water vapor rises into the air. As it goes higher, this vapor cools down and turns back into tiny water droplets, which combine to make clouds.

Precipitation

When the clouds get too big and heavy with water, it starts to rain or snow.

Collection

The droplets or snowflakes fall back to Earth, filling up streams, rivers, and lakes—and seeping into the ground, where it collects as groundwater.

The cycle starts over again with evaporation.

In one heavy storm, about 130 million gallons of rain can fall on just one square mile.

Every day, about 300 cubic miles of water rise into the air from oceans, lakes, and rivers. Then, the same amount falls back to Earth as rain or snow. In fact, one billion tons of rain fall every minute, but it is not equally distributed. Some areas get a lot of rain, some very little.

No water, no industry

Water is a basic need for almost everything we do. In factories, it's used to rinse and process raw materials, clean, and cool machines. During the production of goods, water is necessary for chemical reactions to take place.

Hard to believe, right?

You can't make a car without water.

~ 39,000 gallons

Making one car uses enough water to fill about 600 bathtubs!

~ 7 gallons

Do you know what's needed to make glass? A lot of energy for heat, silica sand, and . . . water.

Look how much water is used to produce common items:

What clothes are in your closet? Water was used to make them, too. For example, you can't make jeans, sneakers, or T-shirts without water.

~ 2,100 gallons

The average US family's water use for 10 days.

~ 250 gallons

~ 660 gallons

Enough to flush a toilet 440 times.

And of course, water is also used to make computers and gaming devices.

~ 3,190 gallons

~ 3,500 gallons

Even school desks, backpacks, notebooks, and pencils are made using water.

~ 2 gallons

~ 80 gallons

~ 120 gallons

Whoa! The amount of water needed to make the paper for this book would be enough for an elephant to give herself 10 showers!

Even modern technology needs water! The big storage facilities of companies such as Google and Facebook use water to cool their servers, which are the brains behind things like artificial intelligence.

Water as a transport route

People have used waterways for transportation for a very long time. Before many roads existed, rivers and seas were the best way to travel and move goods. Ancient coastal people used trade routes along the shore and then sailed out into the open sea to search for new places and opportunities.



drakkar, a Viking warship



caravel, an explorer ship

This kind of ship of ship that was part of Christopher Columbus's 1492 voyage.



Spanish galleon



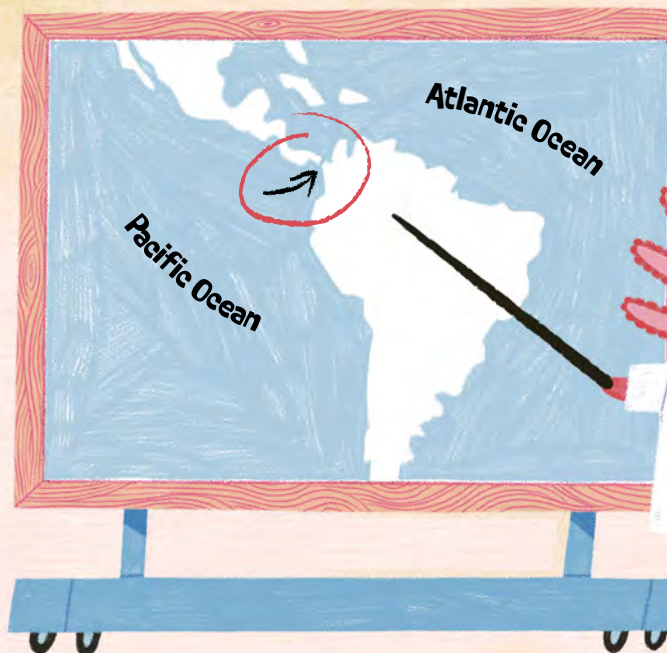
steamship



Egyptian reed boat

More than a hundred years ago, the Panama Canal was completed. It linked the Atlantic and Pacific Oceans. What a shortcut!

It's no surprise that people started building their own waterways too. As early as the thirteenth century BCE, Egyptians connected the Mediterranean Sea and the Red Sea with a simple canal, which was the start of what we know today as the Suez Canal. In the seventh century CE, China built a canal almost 1,250 miles long, linking Beijing and Hangzhou. Today, canals are also built between rivers, connecting whole continents with water routes.



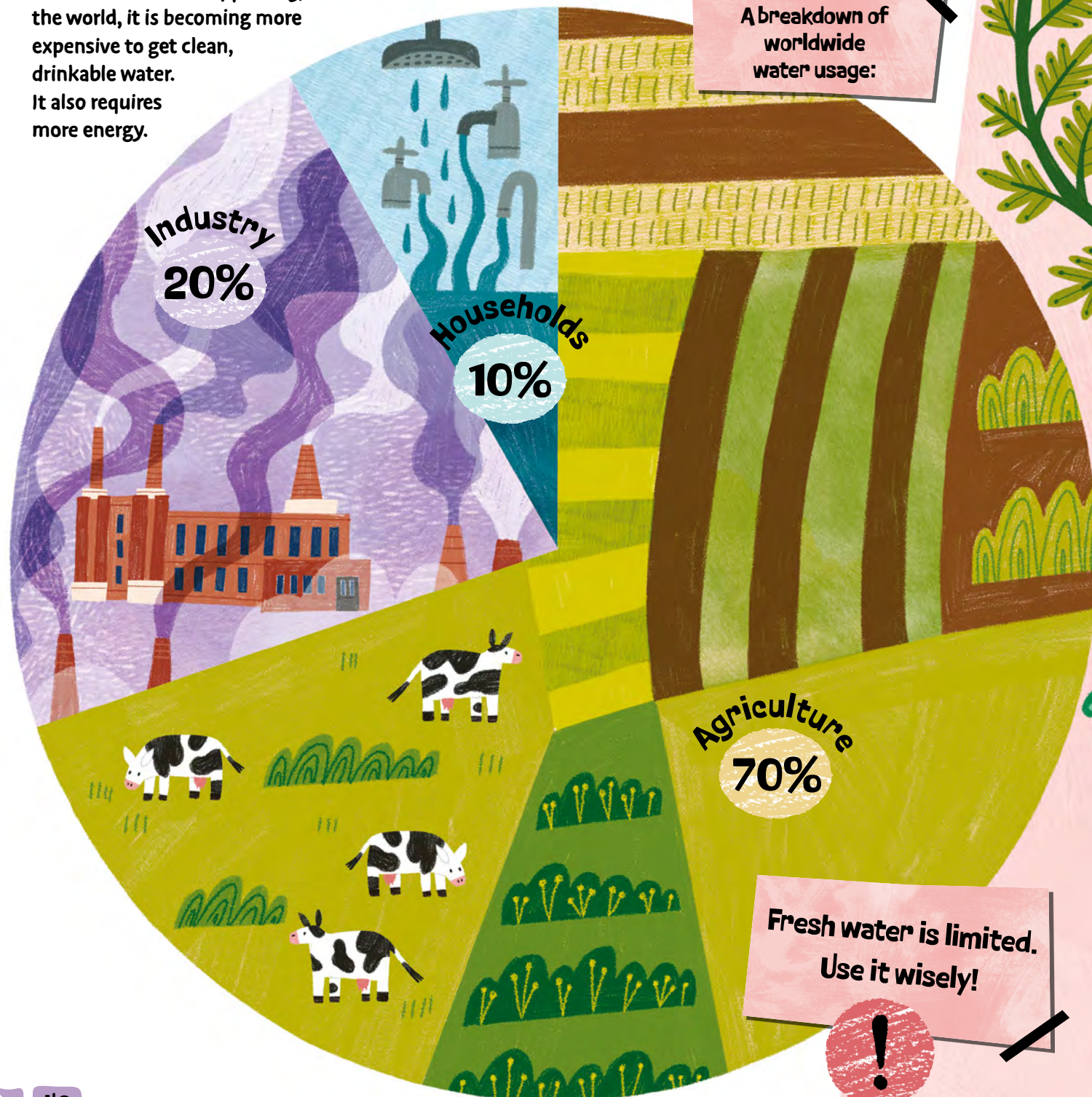
The largest container ships are about 1,312 feet long, which is roughly the length of four football fields! They can carry more than 20,000 special containers that hold goods—such as eight million microwaves, for example, or over 200 million bananas. You would need more than 1,000 giant airplanes or 50 of the world's longest trains to carry that much!



container ship

A most precious gift

Water was easier to find and use when Earth was less populated, but today, with increasing water use and so many more people, it's not as simple. That's why it's important to treat water like the precious resource it is. Water itself isn't disappearing, but all around the world, it is becoming more expensive to get clean, drinkable water. It also requires more energy.



World Water Day

March 22

In 1968, the European Union established a plan called the European Water Charter, to protect its limited freshwater resources. And since 1993, World Water Day, created by the United Nations, is celebrated annually on March 22.

In July 2010, a UN resolution recognized that every human has the right to water and sanitation.

World Water Day celebrates water, but it also raises awareness of the billions of people who still don't have access to safe water.

Water is the common property of humanity.

Water belongs to everyone.

If you drink water straight from the ground or catch rainwater, it's free. But when water needs to be cleaned, moved, or made in a special plant, it costs money.

I'm the best gift ever!



Wonderful WATER



DIVE INTO THE MYSTERIES OF WATER!

Where does water come from? How does it shape life, power cities, and connect the whole planet? From ocean depths to outer space, *Wonderful Water* explores the water cycle, weather, energy, and the essential role water plays in our bodies and the Earth. With playful illustrations and kid-friendly science, this book makes a splash for young nature lovers.



TARGET GROUP



ECO EDUCATION



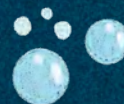
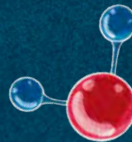
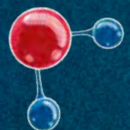
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VOCABULARY



LEARNING



ISBN 978-80-00-08077-2



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