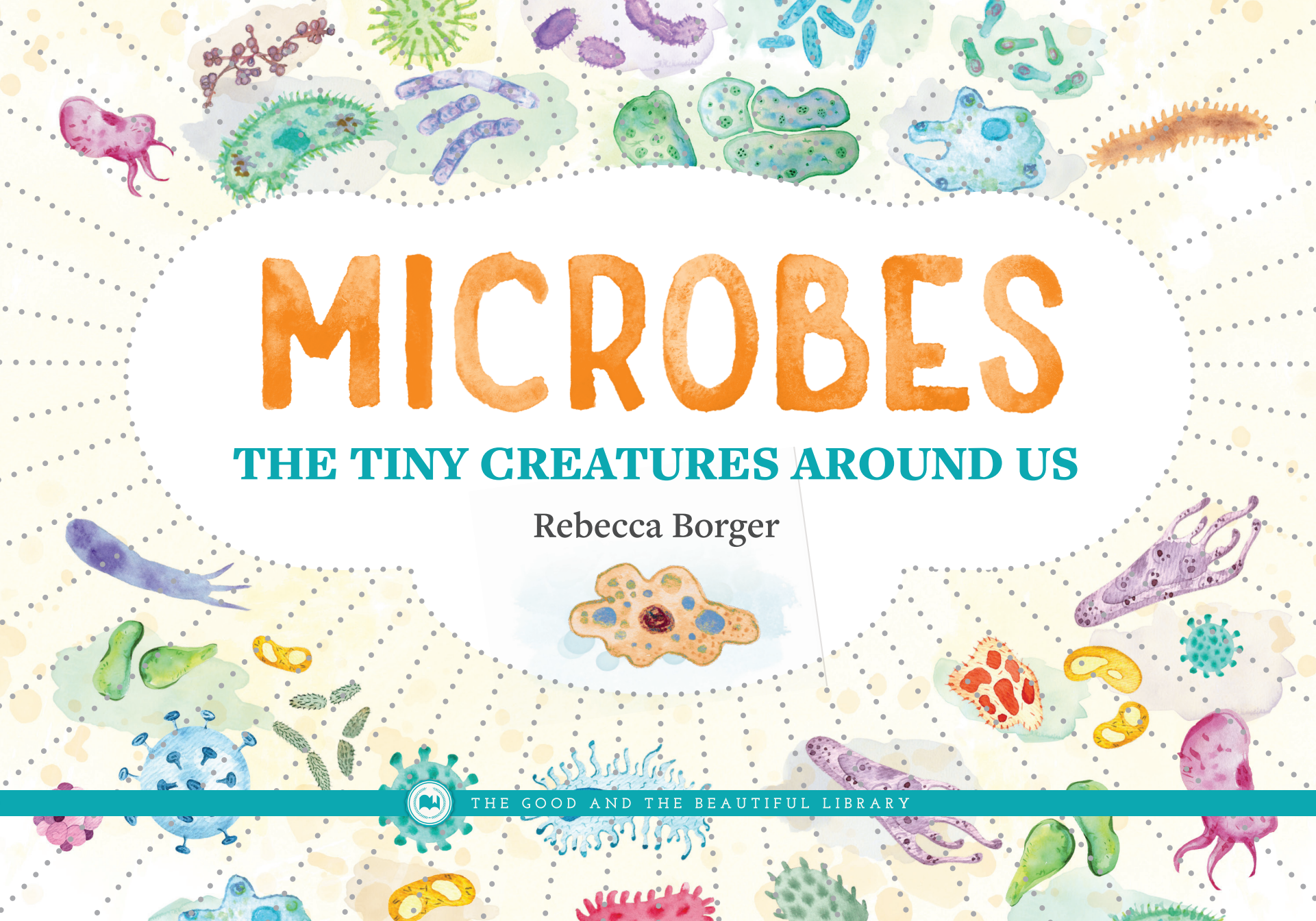


The background of the entire cover is a vibrant, watercolor-style illustration of various microorganisms. These include purple and blue elongated bacteria, green and blue amoeba-like cells, orange and yellow oval structures, and several virus-like particles with spiky surfaces in green, blue, and pink. The organisms are scattered across a light yellow background with a pattern of small grey dots.

MICROBES

THE TINY CREATURES AROUND US

Rebecca Borger



THE GOOD AND THE BEAUTIFUL LIBRARY

There are tiny creatures all around us—



smaller than a
LADYBUG

smaller than an
ANT



smaller than an



APHID

smaller than a **GRAIN of SAND** you can hold in the palm of your hand.



Sometimes they are so small you cannot
see them with your own two eyes.

They can be so small that more than 200,000 of them would
fit on the period at the end of this sentence.

200,000

Two hundred thousand!

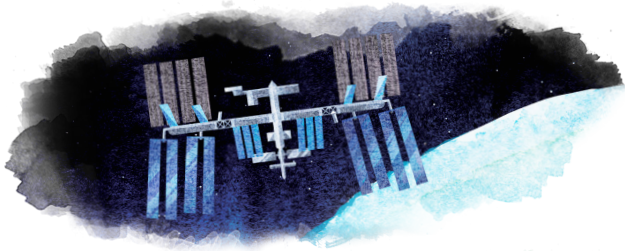
Microbes live **everywhere**.

They live where there are people, plants, and animals—

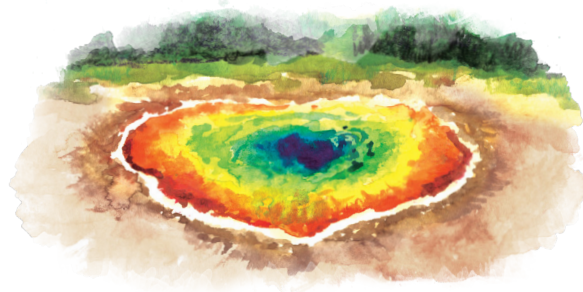


and they live where no people, plants, or animals can ever live.

You can find them up in space
(at the International Space Station) . . .



and in the deepest
part of the ocean
(in the Mariana
Trench).



You can find them at national parks
(in the Morning Glory Rainbow Pool
at Yellowstone National Park) . . .

When it is clear and dark, step outside. Look up at the velvet black sky.

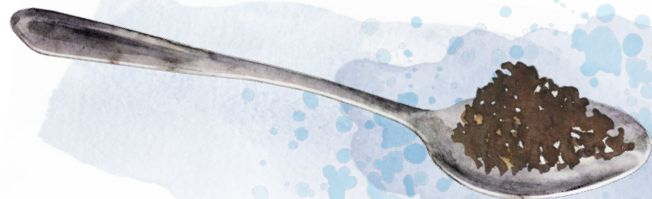
Stars shimmer and wink above your head, stretching on and on and on.

Some appear large and bright; others appear small and faint.

There are stars that are invisible to your own two eyes,
even with a telescope.

Can you count all the stars?

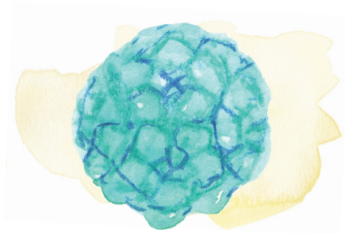
Scientists believe that there are more microbes
in our world than there are stars in the sky!



Not only that, but there are more microbes
in a teaspoon of soil than there are people on
the whole entire earth!



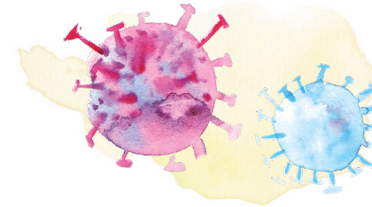
VIRUSES are the smallest of all microbes and cause illnesses, including these:



COMMON COLD



INFLUENZA



CORONAVIRUS

Viruses are unique among microbes because they are not considered true living creatures. Viruses cannot do anything on their own; they need a **HOST**



(a human, plant, or animal, for example) in order to do anything.



Now you can see why this microscopic world has more tiny living creatures than there are stars in the sky!

Microbes are the tiny creatures around us that help keep our world healthy.

They are on the outside and the inside of you and me and help our bodies do wonderful things like digest food and fight disease.



Microbes help form delightful and healthful things like bread and cheese,

and they can cause illnesses like strep throat or an ear infection.

A microbe may have helped form the antibiotic that helps you get better from that strep throat or ear infection!



MICROBES

THE TINY CREATURES AROUND US

Did you know there is an invisible world just as varied as the world you can see with your own two eyes? This invisible world is the world of microbes: tiny living creatures doing amazing jobs from on your very own skin to in the deepest parts of the ocean. Enjoy beautiful watercolor illustrations as you journey through this book to uncover an unseen world full of wonder. Each page will help you learn more about these tiny creatures and the important roles they play in our world.



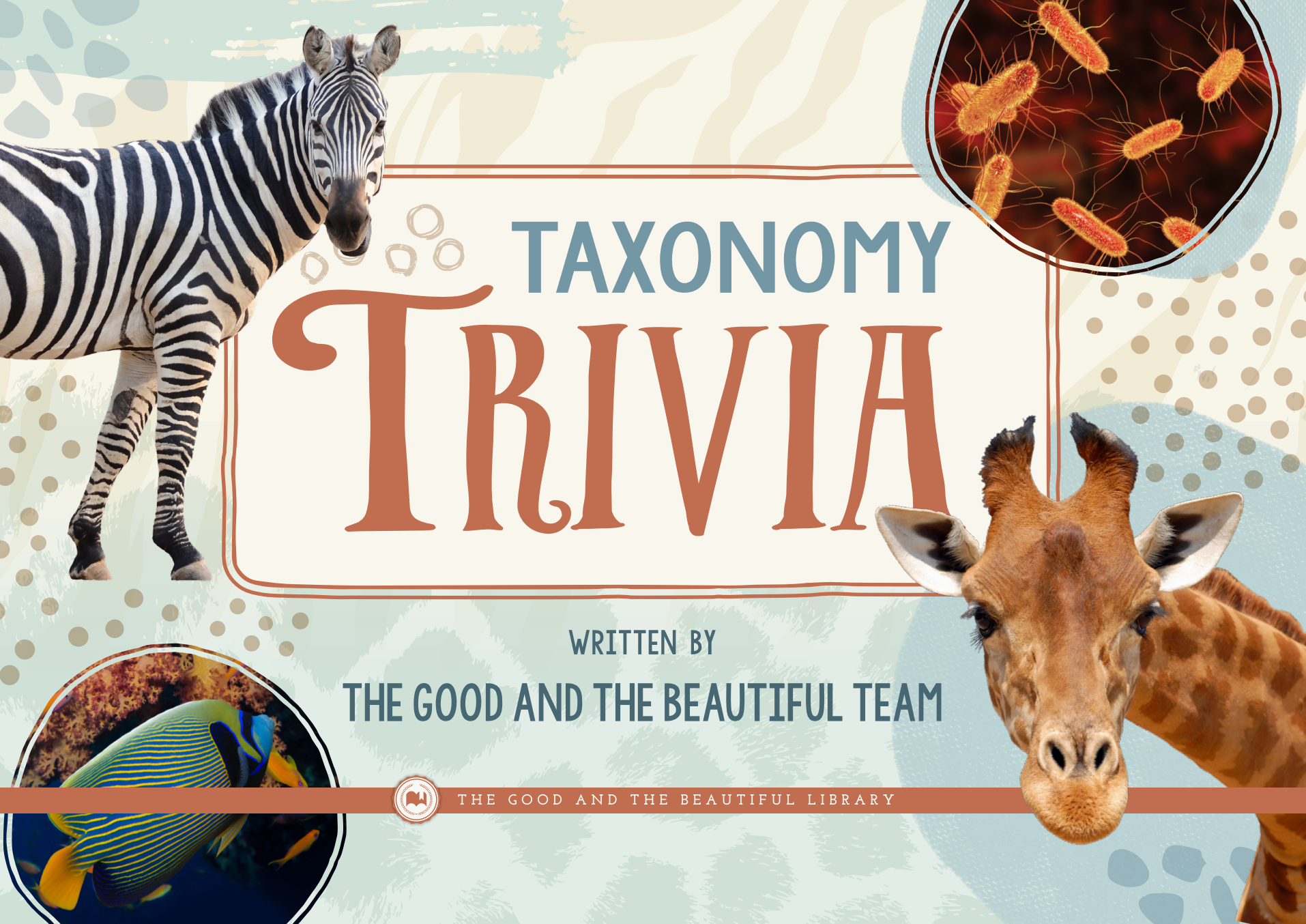
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TAXONOMY TRIVIA

WRITTEN BY
THE GOOD AND THE BEAUTIFUL TEAM



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WHAT IS THE MOUNTAIN LION MOST CLOSELY RELATED TO?

A. TIGER B. HOUSE CAT C. DOG D. LION

A mountain lion, otherwise known as a cougar, is not really a lion at all, but instead is more closely related to the **HOUSE CAT**. Mountain lions (cougars) purr and meow like other small cats, even though they are deadly hunters.



AS A MEAT EATER, A RAVEN IS IN THE SAME ORDER AS A HAWK.

A. TRUE B. FALSE

FALSE. The raven, though it mostly eats meat, is actually the largest member of the Passeriformes order, or perching birds. With a wingspan of over 1.3 m (4 ft), the raven is an intelligent bird, able to kill animals as large as young sheep. Ravens have even learned how to lead wolves to their prey, giving these birds the advantage of knowing where to scavenge what is left of the kill later on. These beautiful birds can make a variety of vocalizations.

WHICH BIG CAT LIKES WATER BEST?

- A. LEOPARD B. LION C. JAGUAR D. TIGER

TIGERS often live around wet habitats such as tropical rainforests, swamps, and wetlands. They are excellent swimmers who will often dive into the water with great enthusiasm. Sometimes tigers find food to eat in the water; however, these playful cats may just plunge into the refreshing water to keep cool on a sultry day.



WHAT IS THE FASTEST ANIMAL ON EARTH?

- A. PEREGRINE FALCON B. CHEETAH C. HUMMINGBIRD D. SAILFISH

When this incredible bird swoops down to grab its prey, you would not want to be anywhere close by. With powerful wings and a sleek body, it can dive through the air with a speed topping 300 km (186 mi) per hour! With the cheetah clocking just 114 km (71 mi) per hour, the **PEREGRINE FALCON** wins the race for speed by a landslide.



THE AMERICAN PRONGHORN ANTELOPE IS MOST CLOSELY RELATED TO THE GIRAFFE.

A. TRUE B. FALSE

TRUE. The American pronghorn antelope is not actually an antelope at all. Unlike true antelope, such as those belonging to the family Bovidae (gazelles and impalas), the American pronghorn antelope is not closely related to sheep and cattle. Rather, it is the only living species in the family Antilocapridae, making its closest living relative the giraffe.



WHICH OF THESE LITTLE PLANTS IN THE AIZOACEAE FAMILY SURVIVES BY PRETENDING TO BE A ROCK?

A. FAIRY ELEPHANT'S FEET B. CARPET OF STARS

C. LITHOPS D. CHILEAN SEA FIG

LITHOPS are small two-leaved plants native to southern Africa and are commonly called "living stones." They grow to only 2.5–5 cm (1–2 in) wide and stay flush to the ground. They can be incredibly difficult to find in their natural habitat because they look like small rocks. There are at least 37 species of this unique little plant that come in a variety of colors, including brown, pink, orange, green, and gray. Many have a small white, yellow, or pale orange daisy-like flower that blooms during early winter.



THE PENGUIN IS THE ONLY BIRD THAT CAN SWIM UNDERWATER.

A. TRUE B. FALSE

FALSE. There are actually a few birds that can swim underwater! Two outstanding examples are the American dipper and the cormorant. American dippers can not only “fly” underwater, but they can also walk on the bottoms of swiftly moving streams! They are also North America’s only aquatic songbird. The cormorant will float in the water with only part of its neck and bill out of the water. When it spots a tasty meal, it will dive and swim underwater, propelling itself with both its feet and its wings!

SALTWATER FISH AND FRESHWATER FISH ARE CLASSIFIED SEPARATELY.

A. TRUE

B. FALSE

FALSE. All fish are classified as vertebrates (although hagfish have no vertebrae) and are grouped into classes by their skeletal framework: Agnatha (jawless), Chondrichthyes (cartilaginous), and Osteichthyes (bony). Although fish vary drastically in their habitats and have differing cells that allow them to or prevent them from living in salt water, this is not part of their scientific classification.



TAXONOMY TRIVIA

THE WORLD IS FILLED WITH CARNIVOROUS
PLANTS, FASCINATING MAMMALS, AND
MUCH MORE!



In this colorful book, you will find that taxonomy, the classification of organisms, is complex and involves more than meets the eye. Through fascinating trivia that is both fun and engaging, you will learn about the classification of familiar and unique plants and animals, even some you may have never heard of.



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