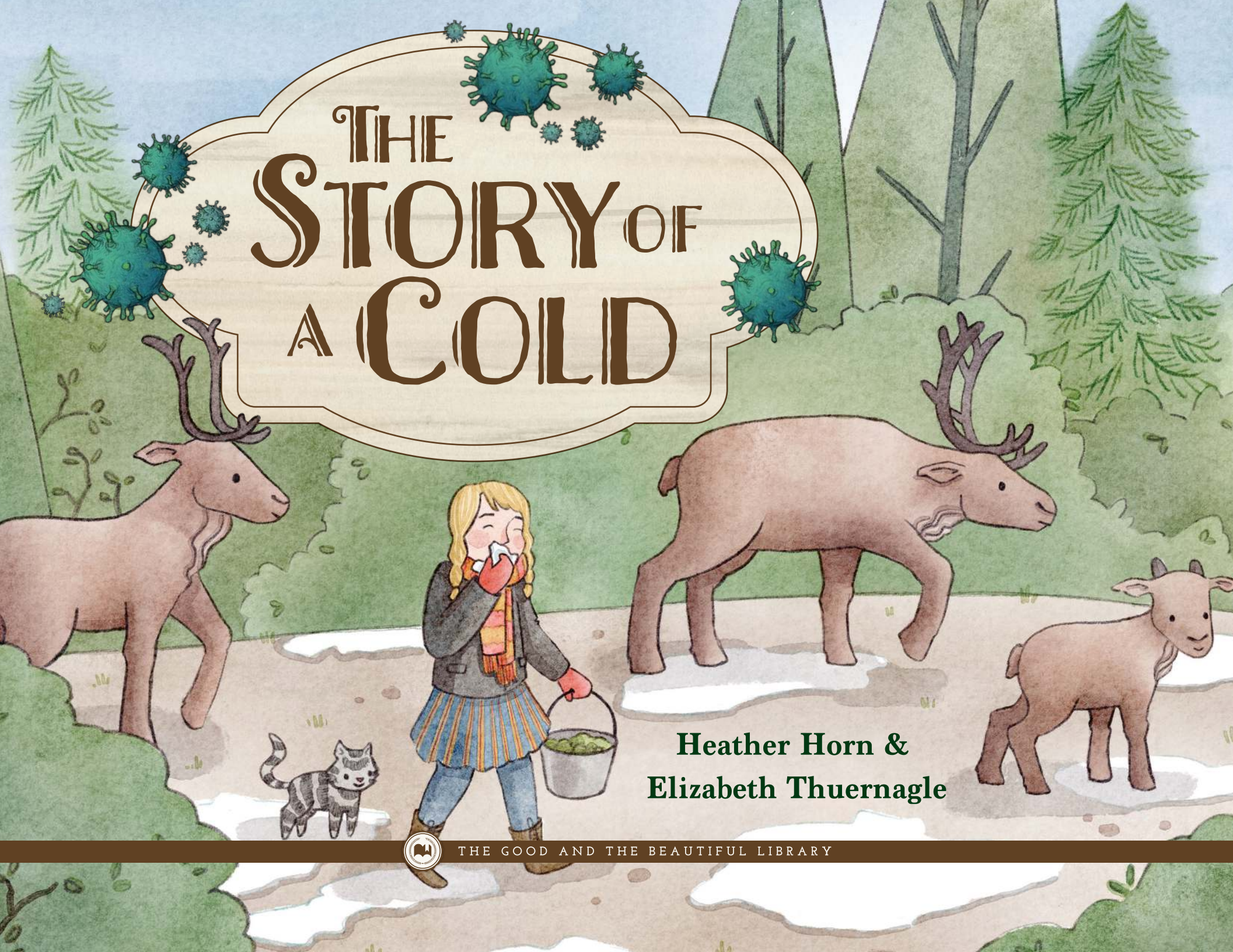




# THE STORY OF A COLD

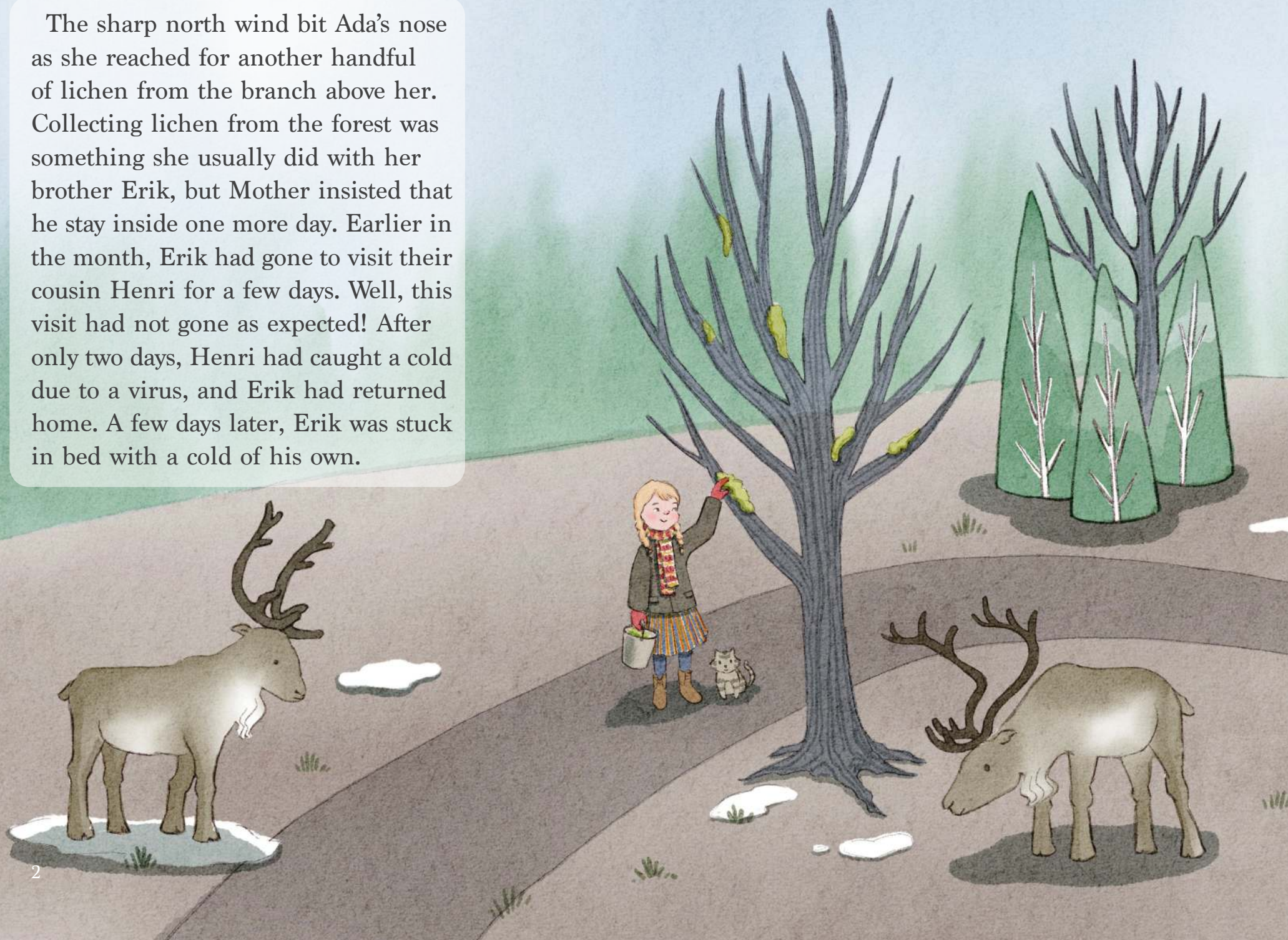
**Heather Horn &  
Elizabeth Thuernagle**



THE GOOD AND THE BEAUTIFUL LIBRARY



The sharp north wind bit Ada's nose as she reached for another handful of lichen from the branch above her. Collecting lichen from the forest was something she usually did with her brother Erik, but Mother insisted that he stay inside one more day. Earlier in the month, Erik had gone to visit their cousin Henri for a few days. Well, this visit had not gone as expected! After only two days, Henri had caught a cold due to a virus, and Erik had returned home. A few days later, Erik was stuck in bed with a cold of his own.



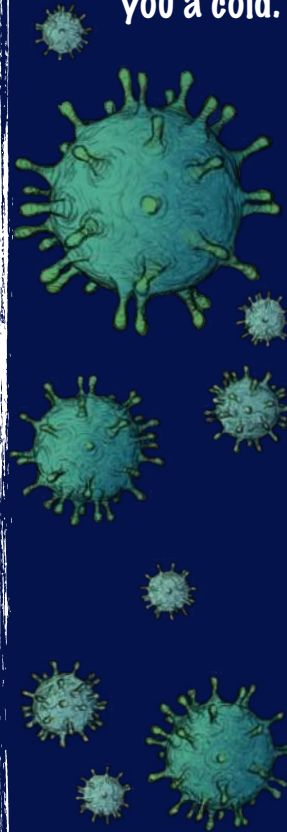




## The virus lives in Erik's body.

**Day 1**  
**1:00 p.m.**

A cold is caught when a cold-causing virus enters your body. Viruses (also called germs or microbes) are so small that they can be seen only through the most powerful of microscopes. Though they are small, they can wreak havoc on your body! There are over 200 different kinds of viruses that can give you a cold. That's why colds are so common.



A cold virus can enter your body when you come in contact with an infected person's saliva (spit) or mucus (snot), such as when he or she coughs or sneezes near you. The virus enters your body through your eyes, nose, or mouth. Another way to catch a cold is from touching a contaminated surface. For example, if an infected person sneezes viral particles into his or her hand and then touches a doorknob, the virus can survive on that surface for up to 24 hours. Then, you come along and touch that same doorknob and your face and unknowingly transmit the virus into your body.







Ada closed her eyes for what she thought was a few minutes, but when Grandmother came in, her clock told her otherwise. She had fallen asleep for two hours!

With a snuffle and a sneeze, Ada sat up to greet Grandmother.

Grandmother set down the tray she was holding and handed Ada a tissue. “I have brought you some chicken soup, crackers, fruit, and water. A healthy meal with nutrients like vitamin C and zinc helps keep your immune system strong. I also want you to drink lots of water today. Taking in lots of fluids like soup, water, and juice will help your body flush out the virus. Keep that box of tissues handy—you will need it.”

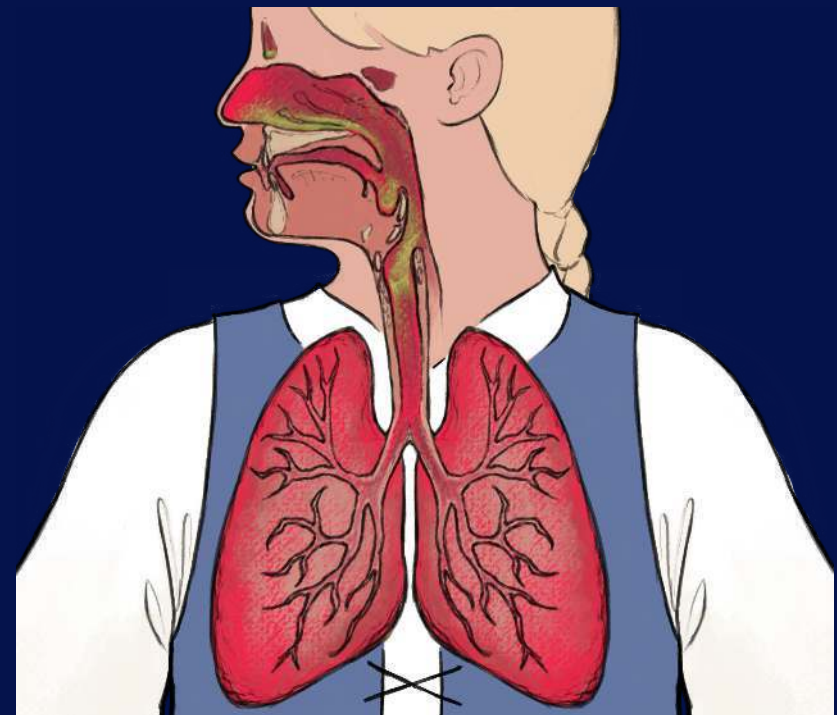
She was right; Ada’s wastepaper basket was soon filled with used tissues. Ada’s congested nose turned into a flowing faucet. She spent the afternoon coughing, sneezing, and blowing her nose. Her body was kicking out the virus.

## Ada begins sneezing and sniffing.

**Day 3**  
**1:15 p.m.**

The viral particles are still attacking Ada’s respiratory system, and her body is responding through mucus production and other common symptoms.

By the second or third day, the virus is typically at its highest count, so symptoms are usually the worst. The cold symptoms mentioned are actually caused by your body’s response to the virus.





As the days passed, Ada slowly felt better. Her fever broke, she had more energy, and her coughing and sneezing let up. She was finally well enough to spend more time with her family.

“Good morning, everyone! I am feeling so much better, thanks to Grandmother,” Ada announced to everyone as she came into the kitchen.

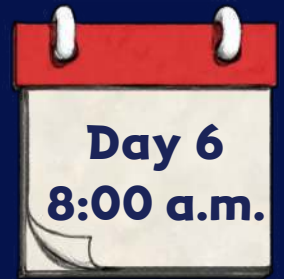




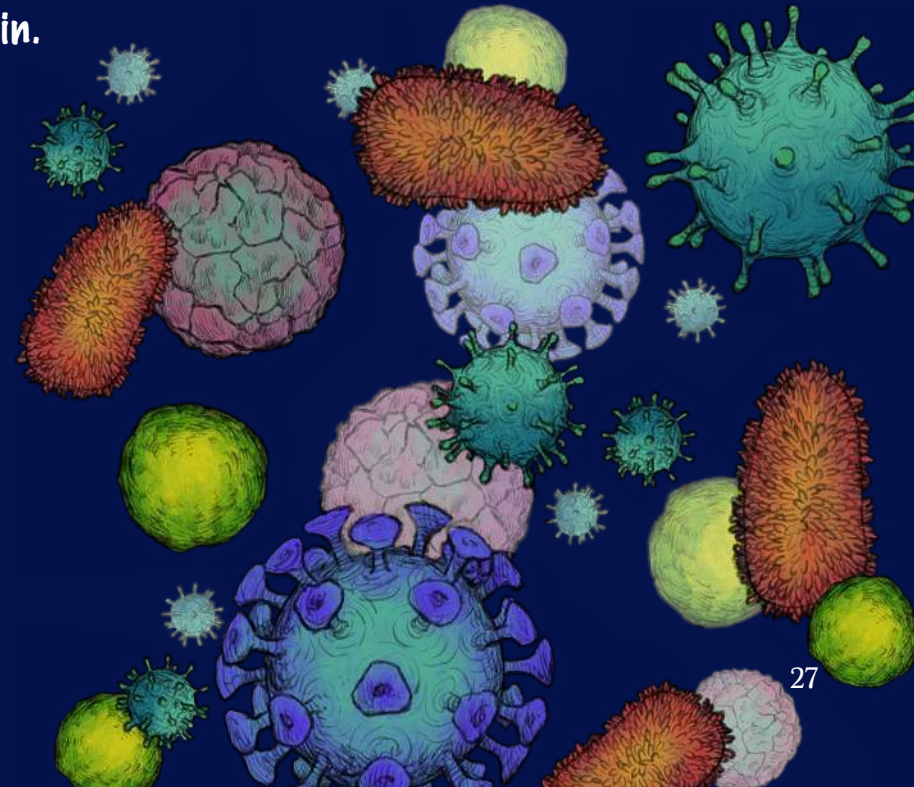


“And to your strong immune system!” Grandmother added. “We all need to help our bodies stay strong with a healthy breakfast. Now go wash your hands with warm, soapy water to wash away the germs so they do not get passed to the rest of us.”

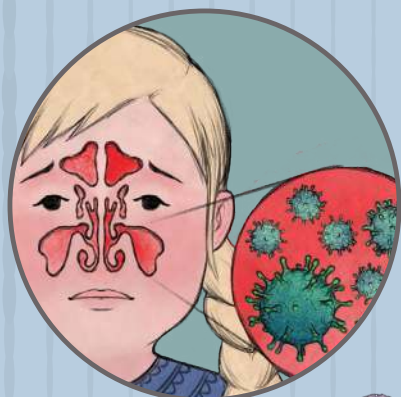
**Ada's fever breaks,  
and she starts feeling  
better.**



Now Ada's immune system has the antibodies for that virus, so if she accidentally passes it on to Grandmother, Grandmother can't pass it back to her because she's already immune to that specific virus. This is also why Ada's brother Erik couldn't catch her cold again, because he had already had that cold. However, remember there are over 200 different strains of the common cold, and currently, she's immune to only one strain.







# THE STORY OF A COLD



Have you ever caught a cold and wondered what it is, where it came from, how to treat it, and where it goes after you feel better? Learn the answers to these and many more questions in this book about a Finnish girl named Ada, who learns firsthand the science behind catching and treating a cold when she herself becomes sick.



■ ORIGINAL PUBLICATION

 **THE GOOD AND THE BEAUTIFUL**  
[goodandbeautiful.com](http://goodandbeautiful.com)

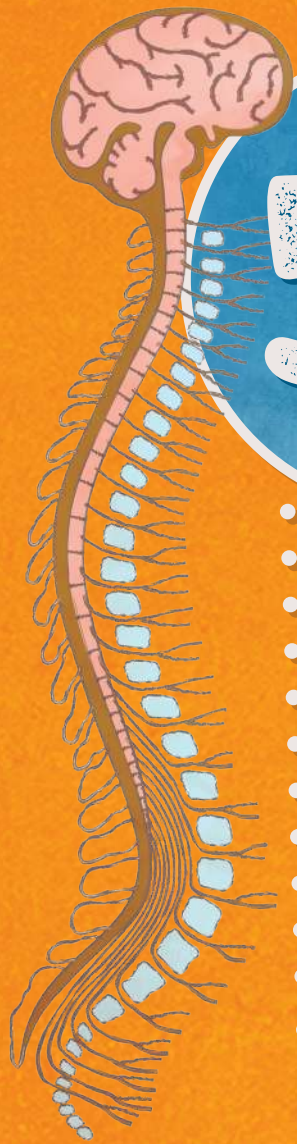
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ISBN 978-1-952920-83-7  
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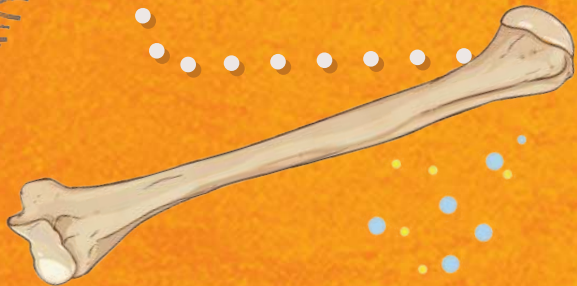
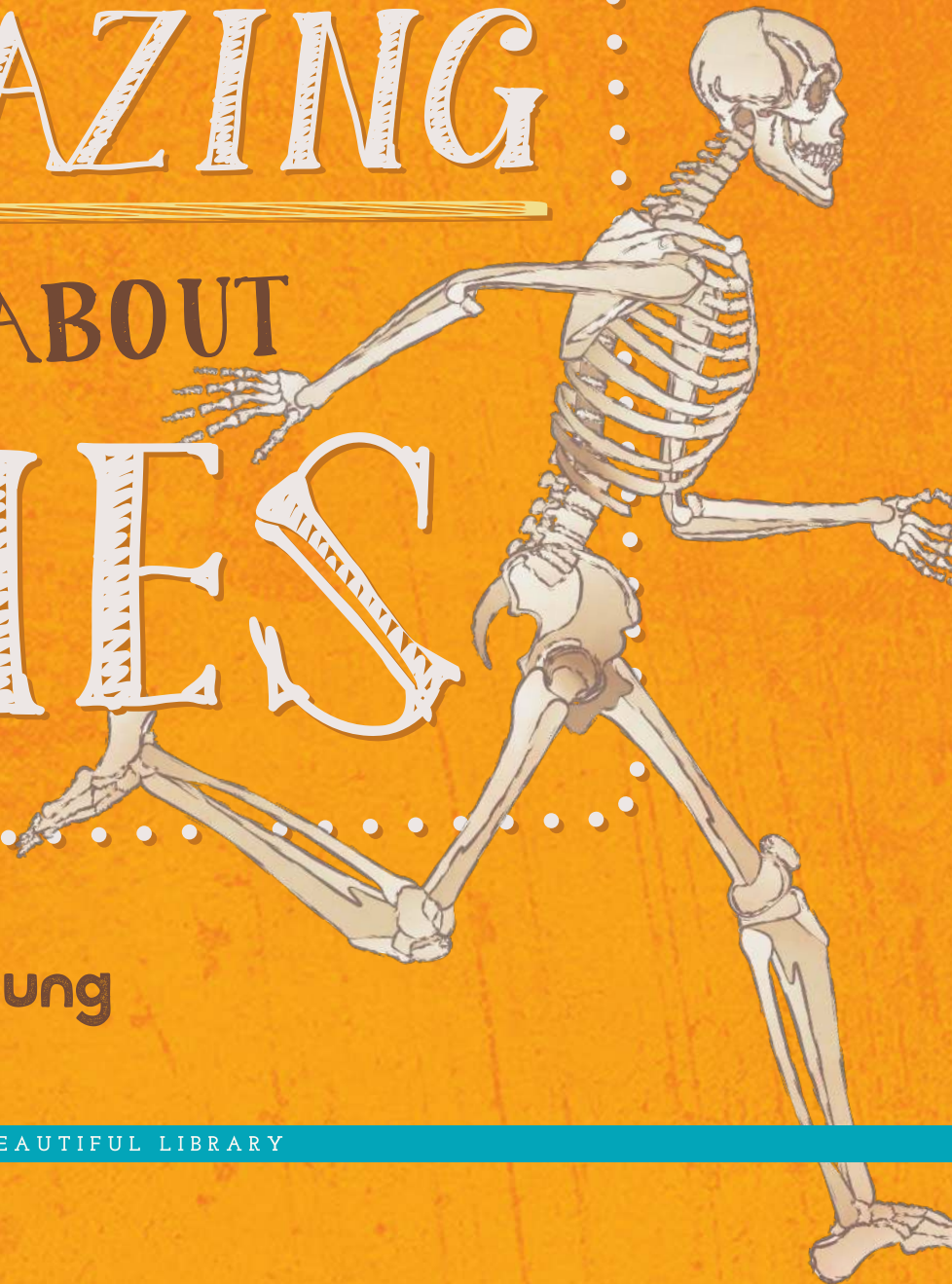


50

AMAZING

FACTS ABOUT

BONES



Jessica Jung



THE GOOD AND THE BEAUTIFUL LIBRARY



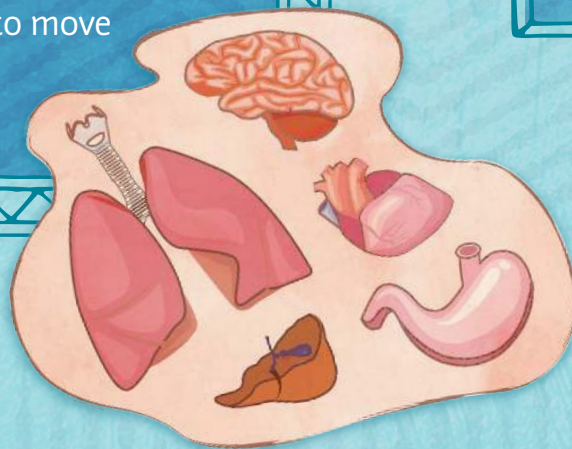
### FACT 01

Bones are alive! They grow, strengthen, and—amazingly—can even repair themselves!



### FACT 03

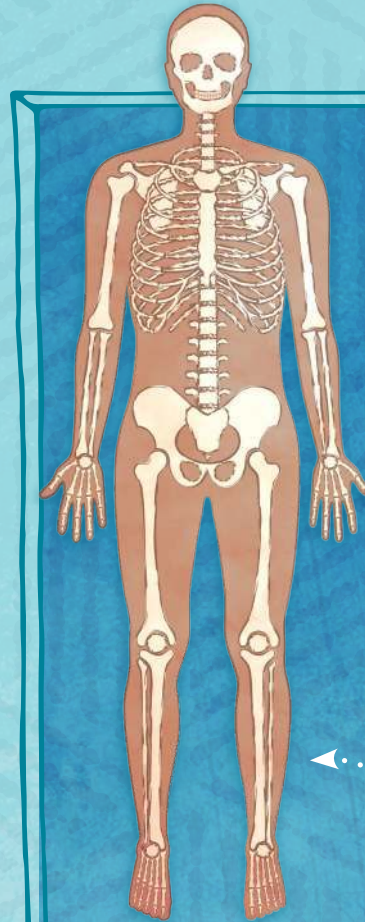
Without bones you would be a squishy, shapeless blob of skin and organs, resting helplessly on the floor, unable to move or walk about.



### FACT 02

The human *skeletal system* is made up of bones that provide

- 1 a framework of support,
- 2 protection for our delicate internal organs, and
- 3 the ability to move our bodies.



SKELETAL SYSTEM

# BONE — BASICS





## FACT 08

Did you wake up taller today? It's possible! Your bones do most of their growing at night while you're sleeping.



## FACT 09

The location where new bone growth forms is called a growth plate, or **epiphyseal** [ep-uh-FIZ-ee-uhl] **plate**. It is made of cartilage and is found toward the ends of the long bones in your arms, legs, hands, and feet. This growth plate will permanently “close” once you’ve reached your full height, usually around the age of 15 for girls and 16 for boys. How much more growth do you still have?

X-RAY OF A  
CHILD'S KNEES

EPIPHYSEAL  
PLATES

Made of cartilage,  
your bones' epiphyseal plates  
will close once you  
have grown to your  
full height.

CLOSED  
EPIPHYSEAL  
PLATES IN AN  
ADULT BONE



## FACT 24

Have you ever visited or seen pictures of the Eiffel Tower in Paris, France? The tower's curved iron beams were inspired by the shape of the curved upper portion of the femur and its natural strength in holding up weight. Furthermore, the femur's sturdy crisscross-shaped bone fibers also inspired the metalwork pattern of this iconic tower.

## FACT 25

Your smallest bone is the **stapes** [STA-pees]. This stirrup-shaped tiny bone in your middle ear is responsible for sending sound vibrations to your inner ear. Although minuscule in size, measuring only 2–3 mm (0.08–0.12 in), this bone plays a big role in proper hearing function.



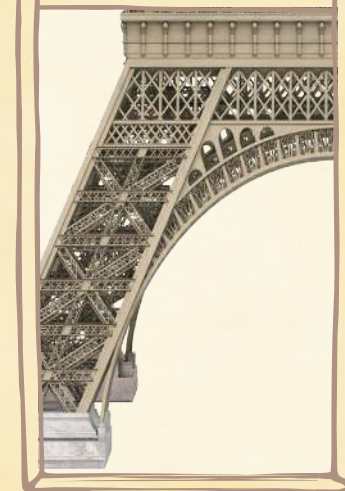
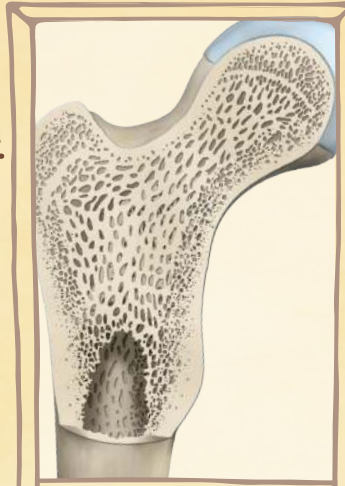
STAPES

NOTE:  
bones are  
not to  
scale



FEMUR

INTERNAL FIBERS  
OF THE FEMUR



BASE DETAIL  
OF THE EIFFEL  
TOWER



EIFFEL TOWER



# COMPOSITION

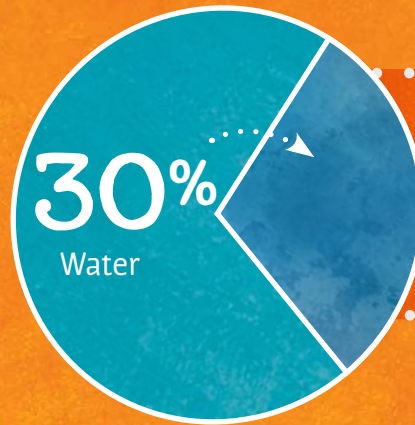
## FACT 37

The hard part of bone is made up of an extremely strong, yet flexible, protein called **collagen**. This is reinforced by the mineral called calcium to add greater resiliency and hardness to the bone's framework.

COLLAGEN  
MOLECULE  
STRUCTURE



## BONE CONTENT



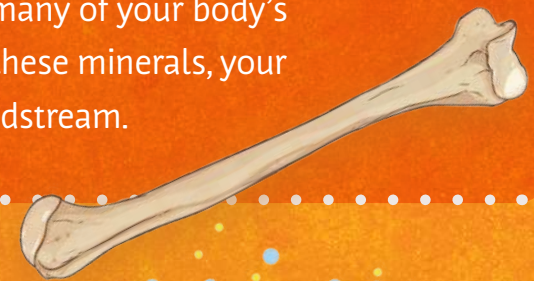
## FACT 38

Bones are made up of about 30% water.

## FACT 39

Your bones act as storehouses for calcium and phosphorus, which are important minerals for many of your body's functions. When your body needs these minerals, your bones release them into your bloodstream.

RELEASE OF MINERALS  
INTO BLOODSTREAM





## X-RAY OF AN ADULT ARM SHOWING A FRACTURED BONE

### FACT 44

There are many different types of bone breaks, also called *fractures*. An *X-ray* can help a doctor determine if a bone is broken and show the type of break it is by taking a picture that goes through your skin down to your bones!

# BONE BREAKS

### FACT 45

Sometimes a broken bone can be moved back into place by a doctor, and a stiff *cast* will be worn to keep the bone in position to allow it to heal straight. Not all broken bones can be placed in casts, however. Broken toes, ribs, or collarbones are examples of bones that may have to heal by themselves. Sometimes a broken toe will be taped to a neighboring toe, while a broken finger may be put in a special soft cast called a *splint*. Other times surgery may be required for severe breaks, such as a shattered bone. Pins can be placed around the fracture to hold the bone in place while it heals.



PINS HOLDING A FRACTURED BONE IN PLACE



BROKEN ARM SET IN A CAST



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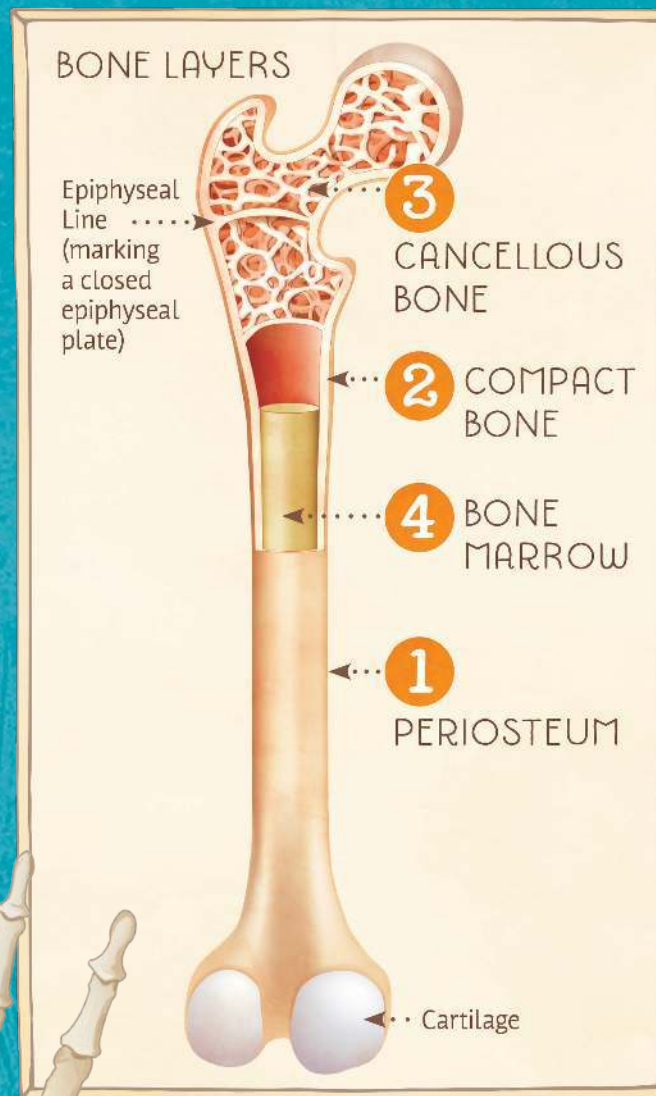


ORIGINAL PUBLICATION



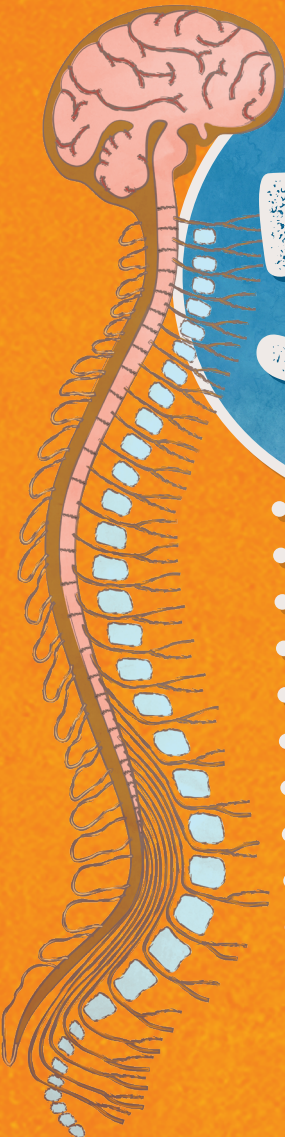
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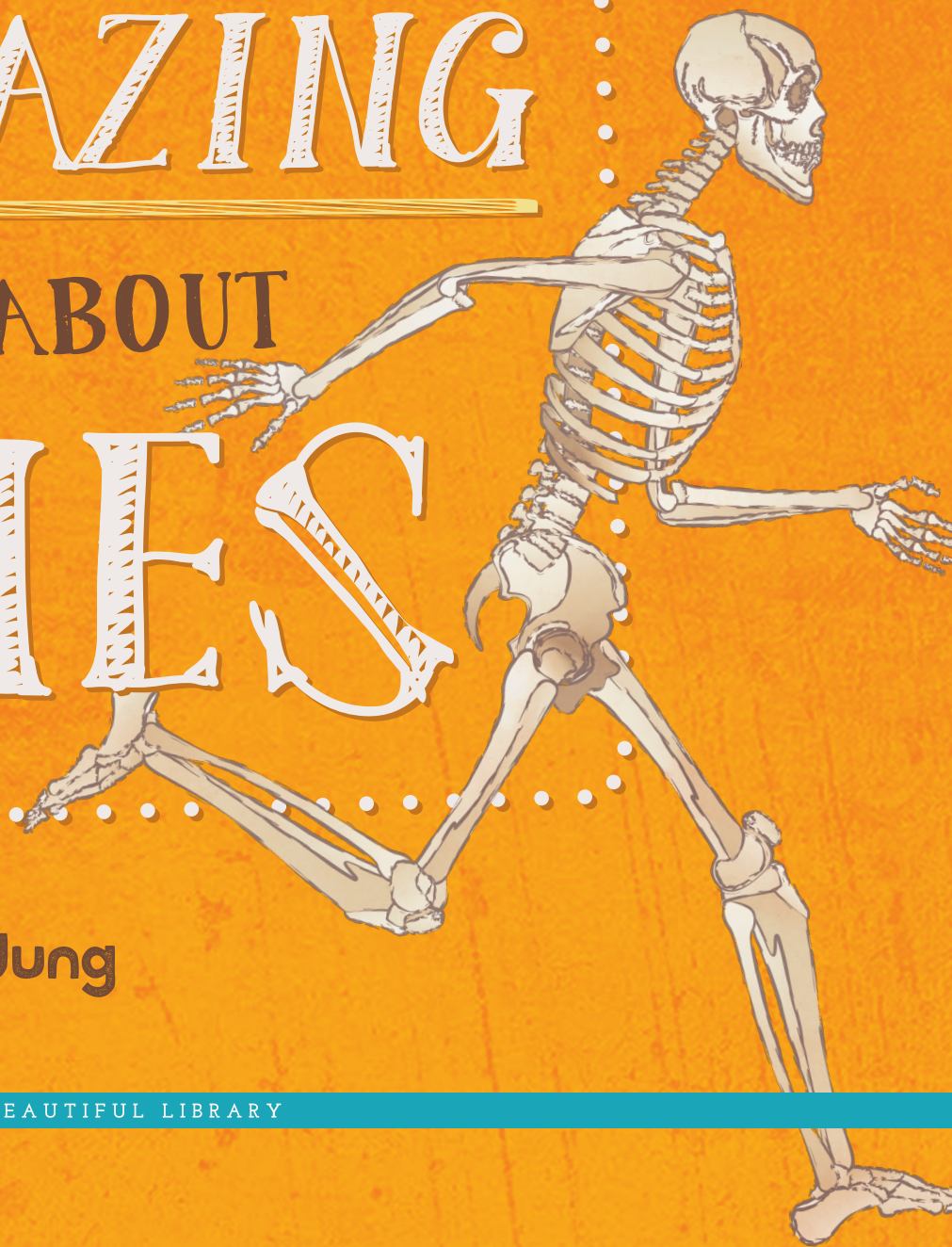


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AMAZING

FACTS ABOUT

BONES



Jessica Jung



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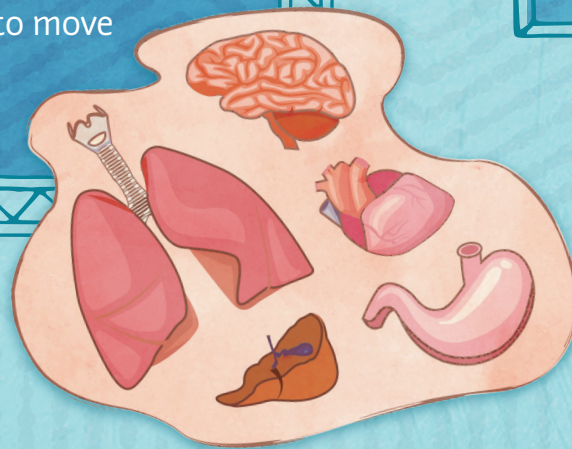
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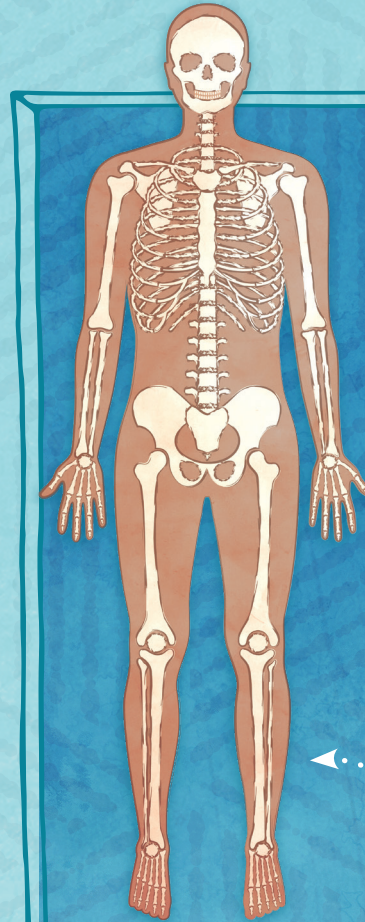
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CLOSED  
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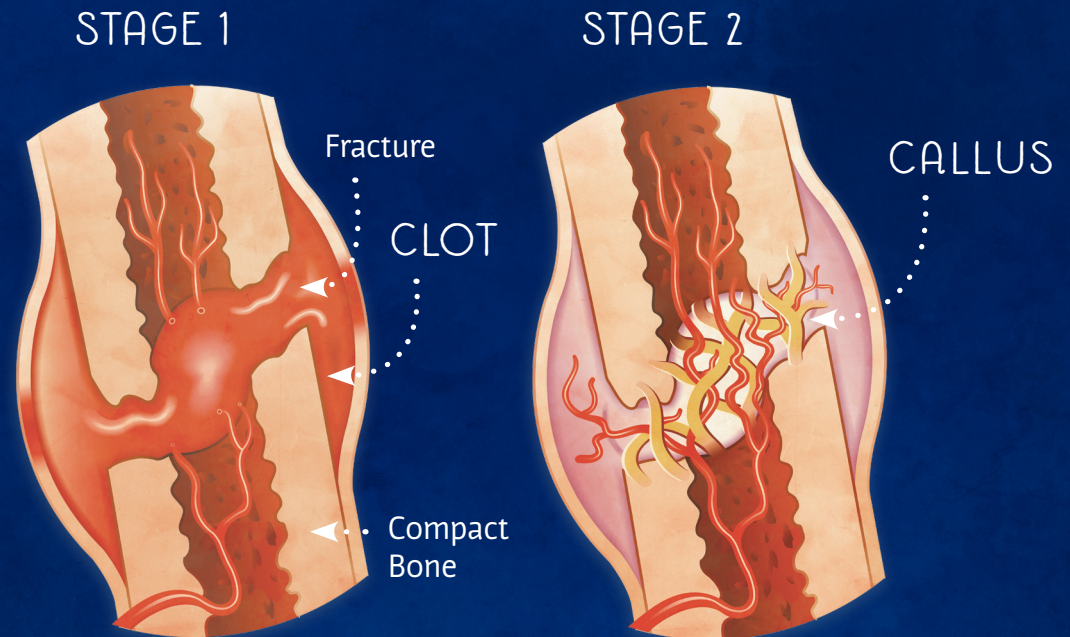


BROKEN ARM SET IN A CAST



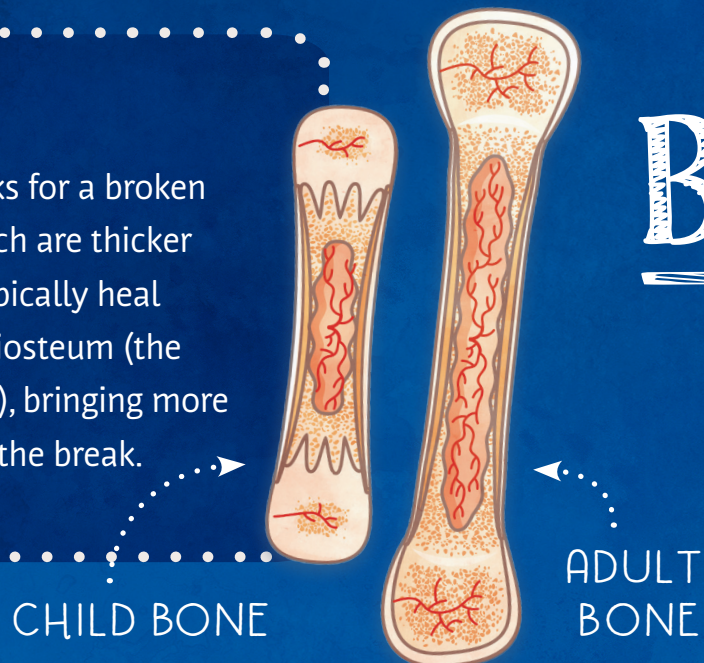
## FACT 48

Because our bones are alive, they heal on their own using a very unique process. At first, blood rushes to the broken area to form a **clot**. Next, special bone-making cells called **osteoblasts** surround the break and begin to form a network of fibers called a **callus**. The callus is rough and bumpy at first, but it eventually dissolves and smooths out as new bone and blood vessels form to close the gap.



## FACT 49

It takes anywhere from 3 to 12 weeks for a broken bone to heal. Children's bones, which are thicker and stronger than adults' bones, typically heal faster. Children also have more periosteum (the outermost vascular layer of a bone), bringing more nutrients and oxygen to the site of the break.



# BONE — HEALING



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## BONE LAYERS

Epiphyseal Line  
(marking a closed epiphyseal plate)

3

CANCELLOUS BONE

2

COMPACT BONE

4

BONE MARROW

1

PERIOSTEUM

Cartilage

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