

For Dr. Jonathan Baylin,
Thank you for sharing your
amazing brain with me.



For the adults reading this:

Brains are complicated! There is a lot of information packed into this book. Take your time exploring. Read different sections on different days. Have a short conversation and come back to the topic another time. See page 37 for more tips. Above all, let curiosity and connection be your guide.

Here is a suggested path to help you navigate:

3	Introduction	22-25	Becoming the Boss of Your Brain
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10-13	Eight Senses & Where the Brain Gets Its Information	30-31	Fun and Useful Facts about the Brain
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The spark for every laugh with a friend, every creative idea, every word you say, and move you make comes from a part of your body that you've probably never seen...

YOUR AMAZING BRAIN!



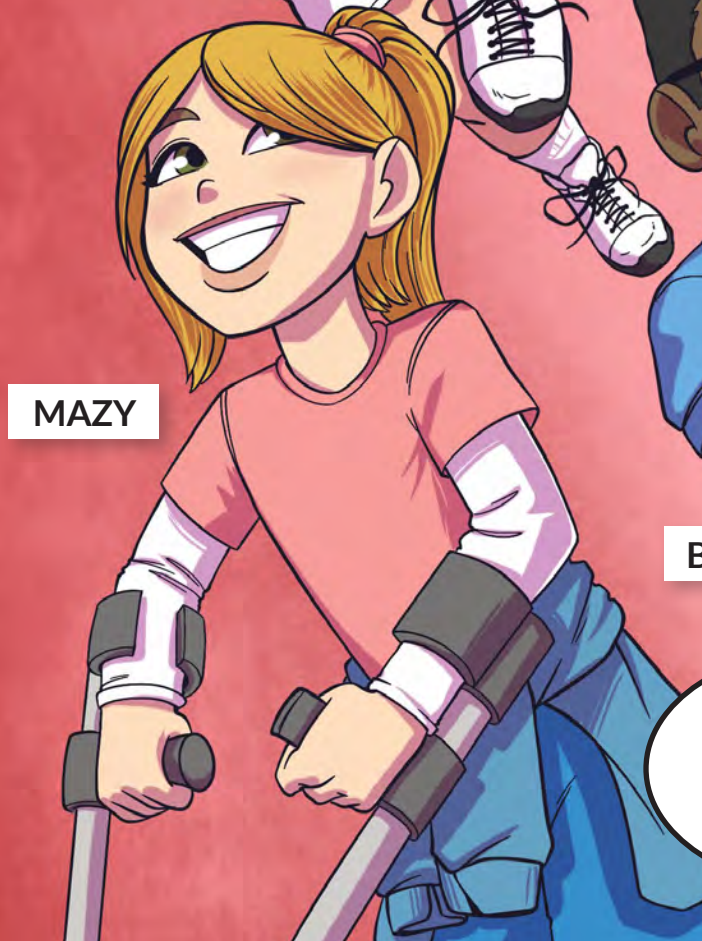
JEFF



KIYA



ELLA



MAZY



BYRON

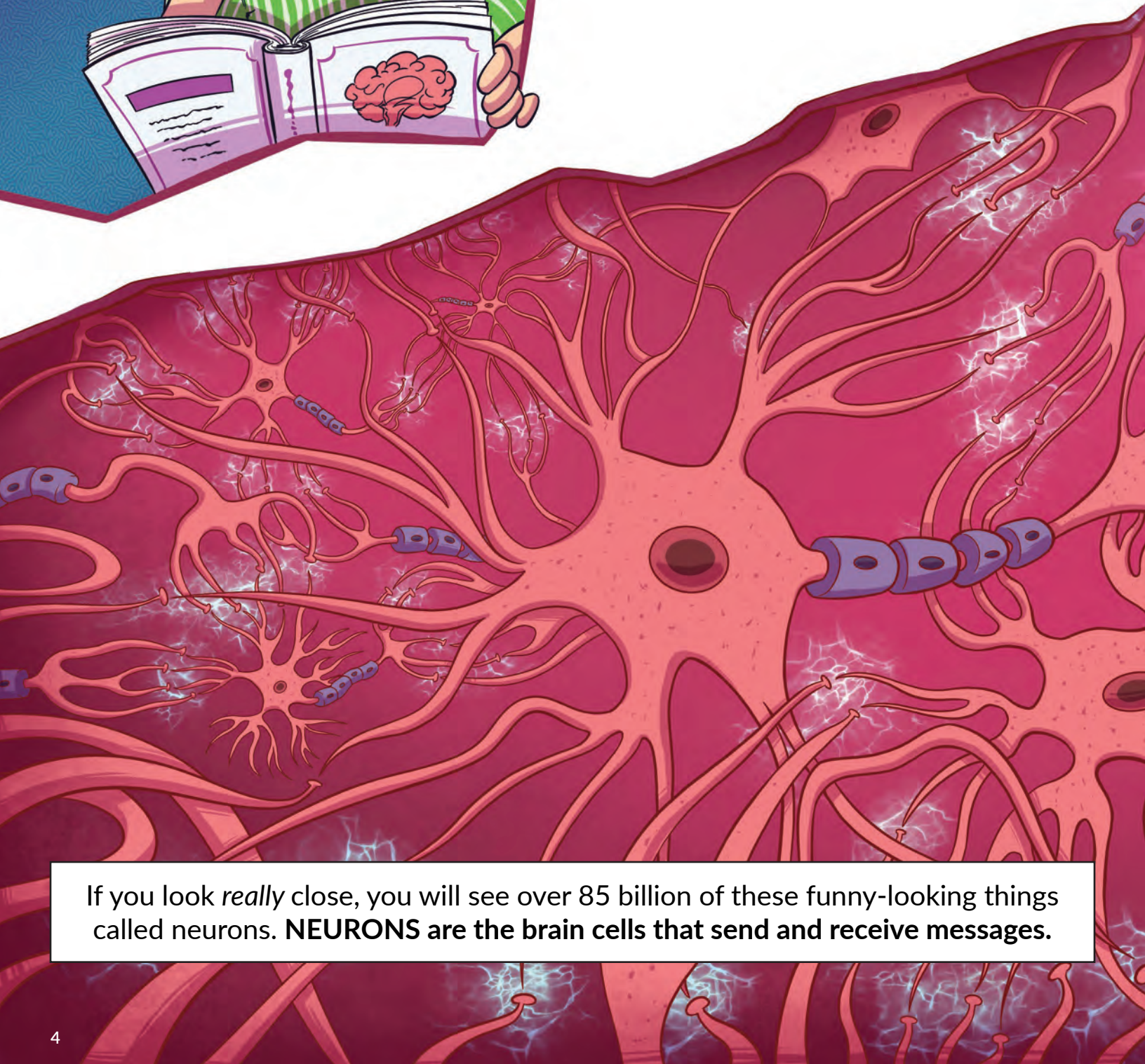
It's true! If you are reading these words, you have an amazing brain at work!



A CLOSER LOOK

You might have seen pictures of the brain that look like a lumpy, pink blob.

But if you look a little closer, you'll see a moving masterpiece of chemicals, electricity, and **tiny little working parts** called **CELLS**.



If you look *really* close, you will see over 85 billion of these funny-looking things called neurons. **NEURONS** are the brain cells that send and receive messages.

Get to Know a Neuron!

SOMA
[SOH-MUH]
THE BODY OF THE CELL

NUCLEUS
[NOO-KLEE-UHS]
INSTRUCTION MANUAL

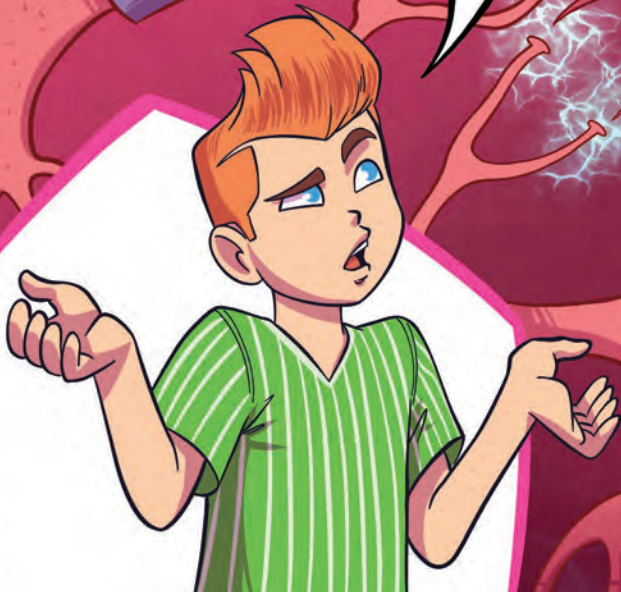
DENDRITES
[DEN-DRYTES]
MESSAGE RECEIVERS

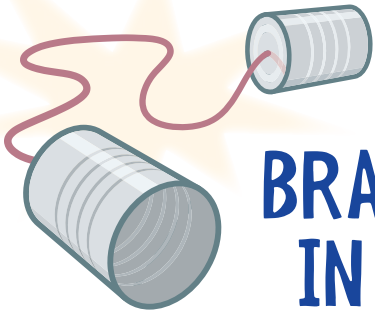
AXON
[AK-SUN]
MESSAGE SENDER

MYELIN SHEATH
[MY-UH-LUHN]
MESSAGE PROTECTOR
AND ACCELERATOR

Dendrites? Axon?
Myelin sheath?
What do all these
funny words have to
do with me?

The messages your neurons
are passing around make it
possible for you to do, well,
everything!





BRAIN CELLS IN ACTION

Brain cells team up to get stuff done. They connect across long distances like the most complicated game of telephone you can imagine!

Here's how it works...

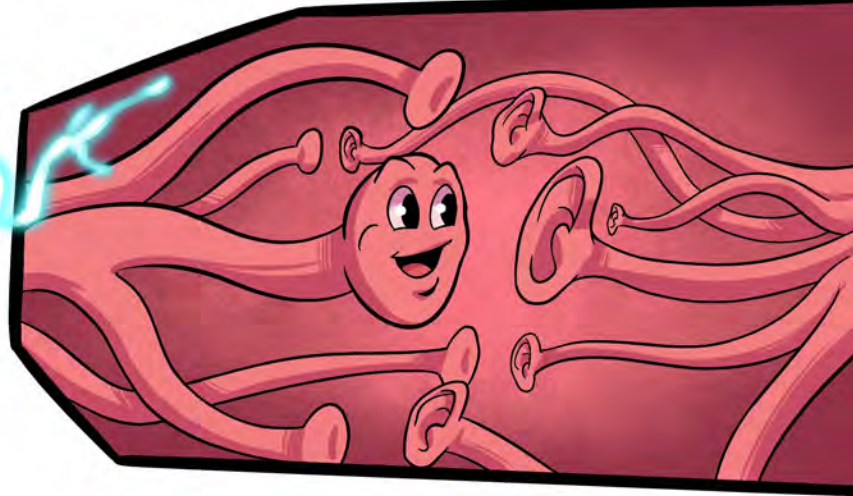
1. Dendrites listen for a message, a **little package of chemicals called NEUROTRANSMITTERS.**

2. Soma says, "Message received. Pass it on!"

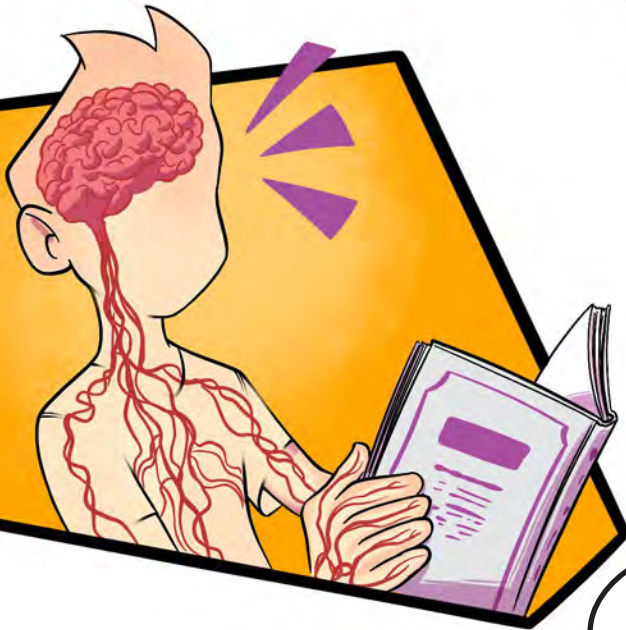
3. Axon sends the message.

4. When there's a protective myelin sheath, the message zooms even faster down the axon.

5. Then, electricity pushes the message into the **SYNAPSE**—that little space between two neurons, for the next listening dendrites.



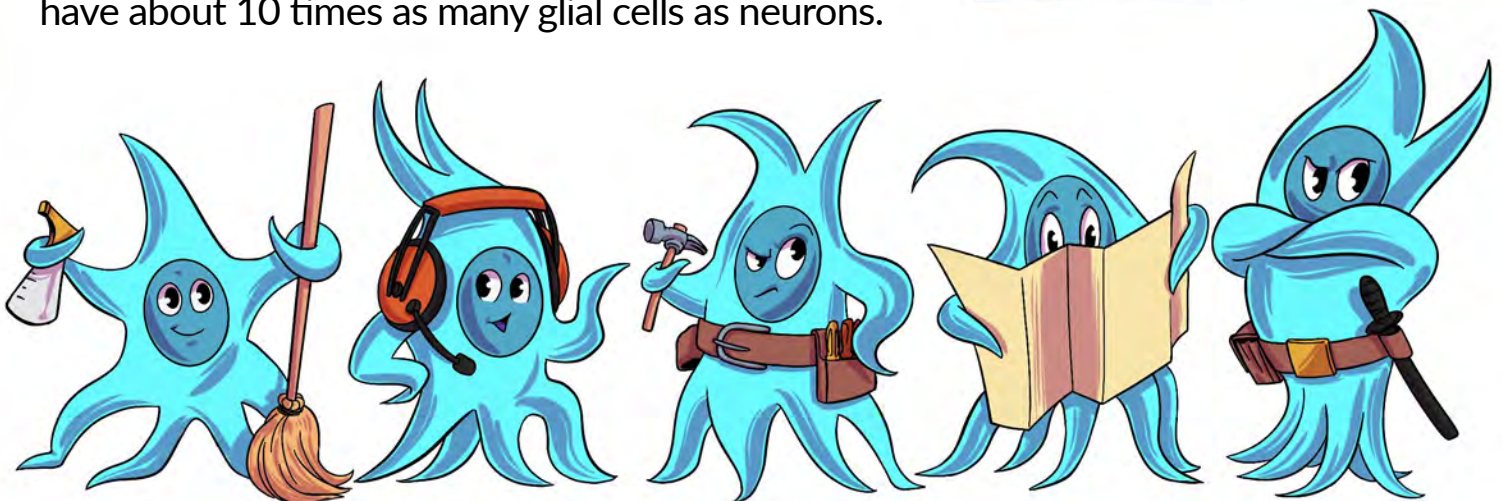
6. This cycle repeats about a gazillion times with little messages flying from neuron to neuron all over your brain and out into your body.



*But wait!
There's more!*



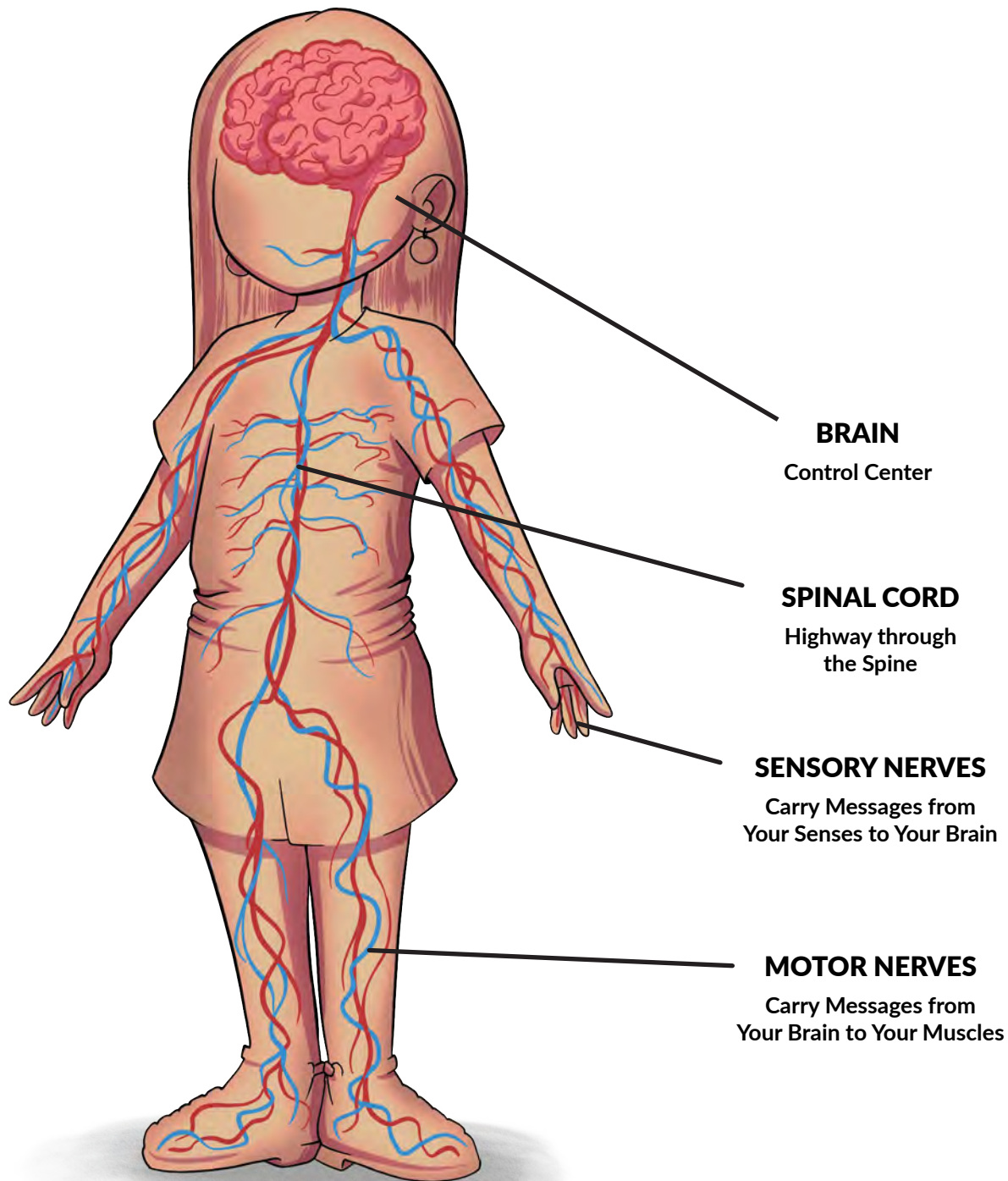
GLIAL [GLEE-uh] **CELLS** are the other main type of brain cell. They do a lot to keep the brain running smoothly! “Glia” [GLEE-uh] comes from the Greek word for glue because one of their jobs is to hold neurons in place. They wrap around axons to speed things along, like insulation on a wire. Glia also bring food and oxygen to neurons and even clean up after them. Fun fact: Humans have about 10 times as many glial cells as neurons.

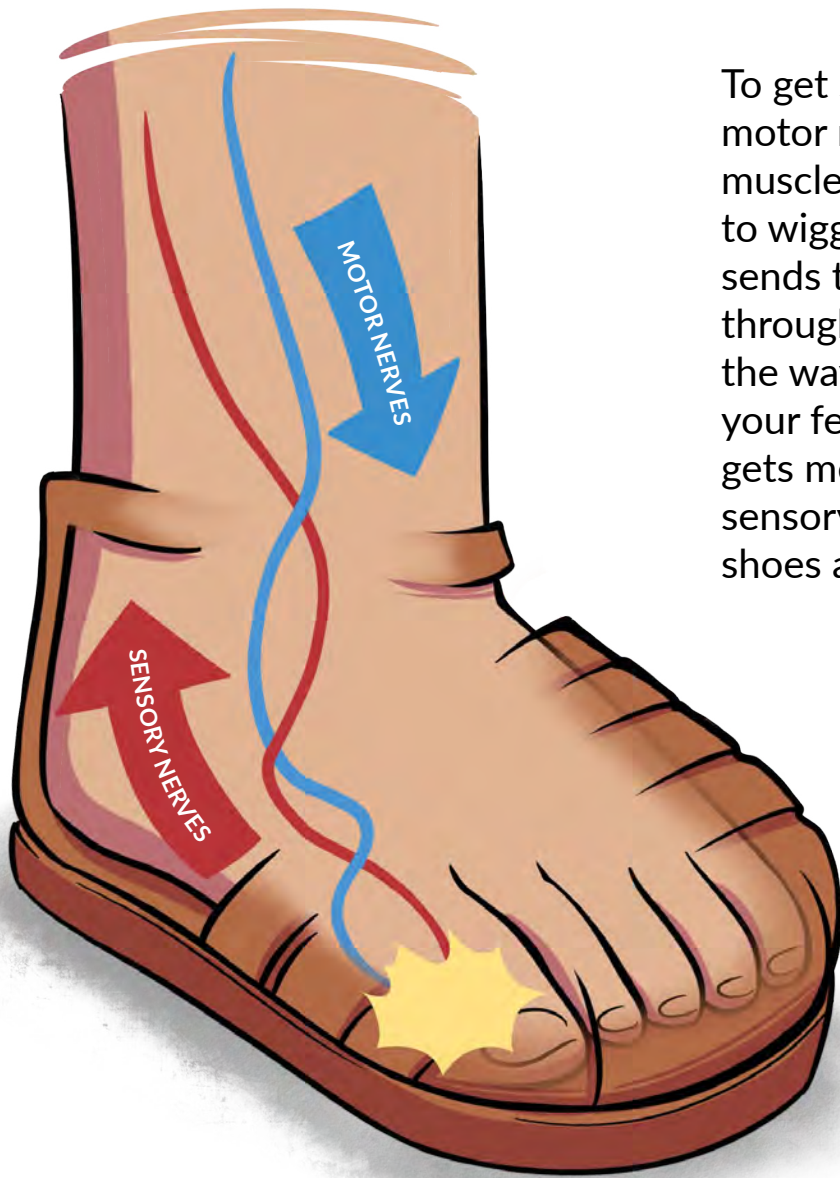


YOUR NERVOUS SYSTEM

Your brain doesn't work alone. The network of connections between your body and brain is called the **NERVOUS SYSTEM**... not because it's scared, but because it is made up of nerves.

NERVES are groups of neurons that send information from your brain to your body and back to the brain.





To get stuff done, your brain uses motor nerves that reach every muscle in your body. If you want to wiggle your toes, your brain sends the message, "WIGGLE," through the spinal cord and all the way down to little muscles in your feet and toes. The brain also gets messages back from your sensory nerves, like, "Hey! These shoes are too small."

Tell those motor nerves in your arm and hand to flip the page so you can learn more!

