

**GET EXCITED
ABOUT THE BRAIN!**

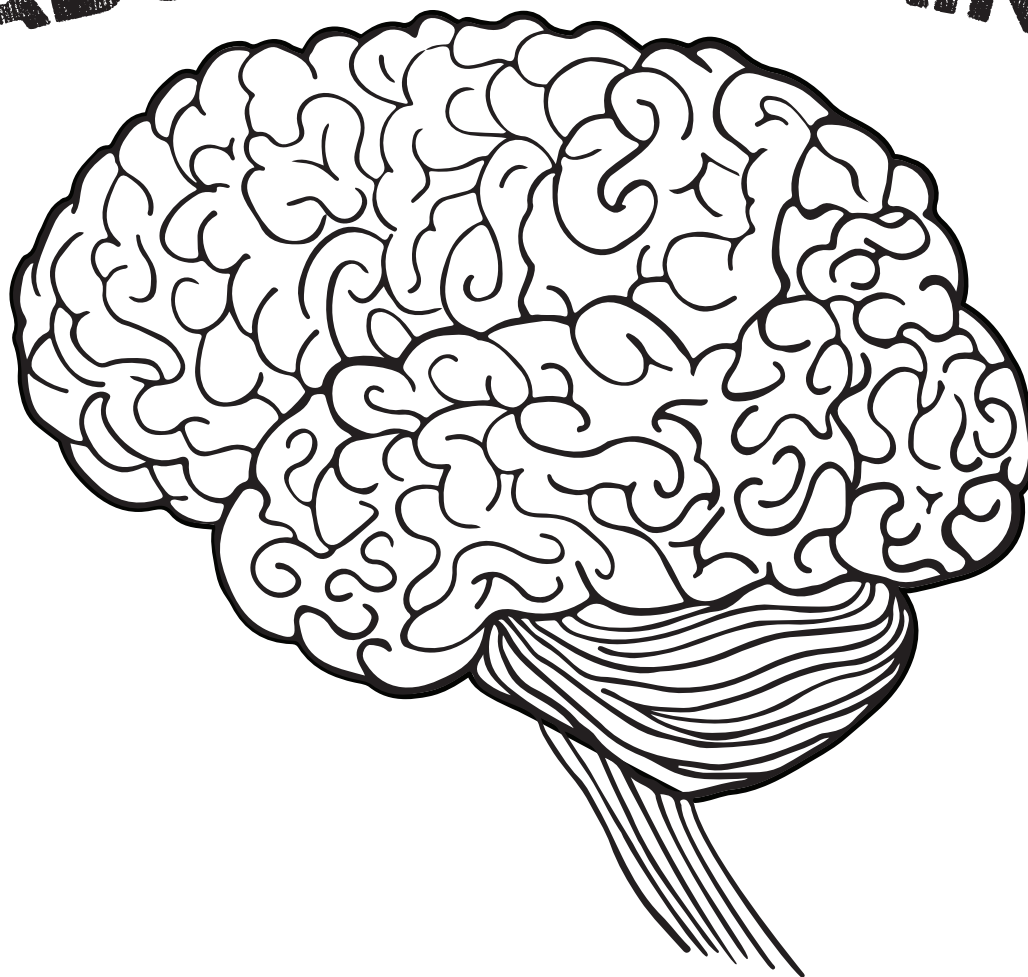


**A COLORING &
ACTIVITY BOOK
FOR KIDS AGES 8-12**

From the **NATIONAL INSTITUTE of MENTAL HEALTH**

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The National Institute of Mental Health (NIMH) is the lead federal agency for research on mental disorders. NIMH is one of the 27 Institutes and Centers that make up the National Institutes of Health (NIH), the nation's largest medical research agency. NIH is part of the U.S. Department of Health and Human Services.

PARTS OF THE BRAIN

PARIETAL LOBE

Helps you understand language and process information from your five senses

FRONTAL LOBE

Aids in complex thinking, learning, and problem-solving

OCCIPITAL LOBE

Receives and makes sense of visual information, such as recognizing faces and objects

CEREBELLUM

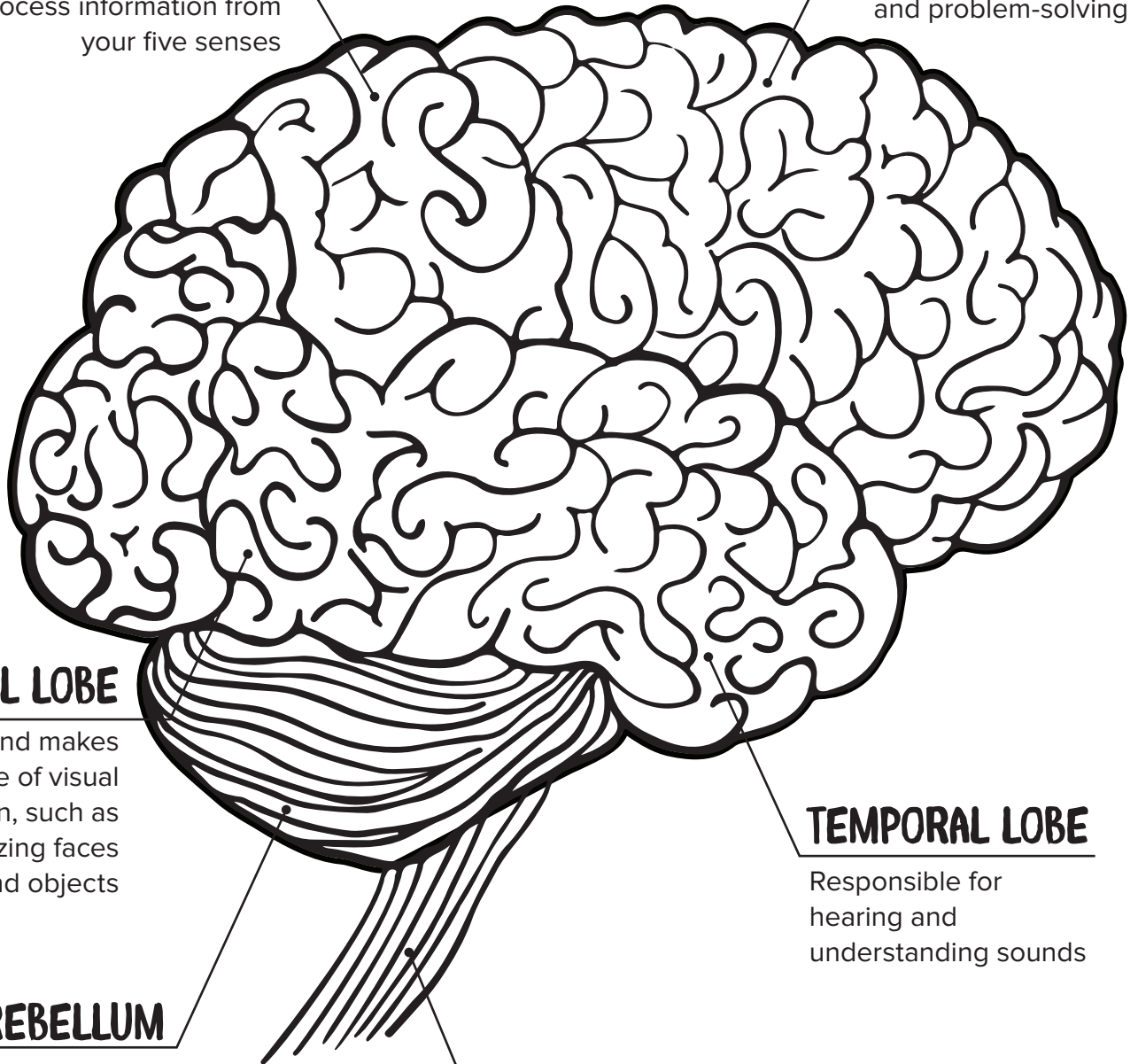
Responsible for balance and coordination

TEMPORAL LOBE

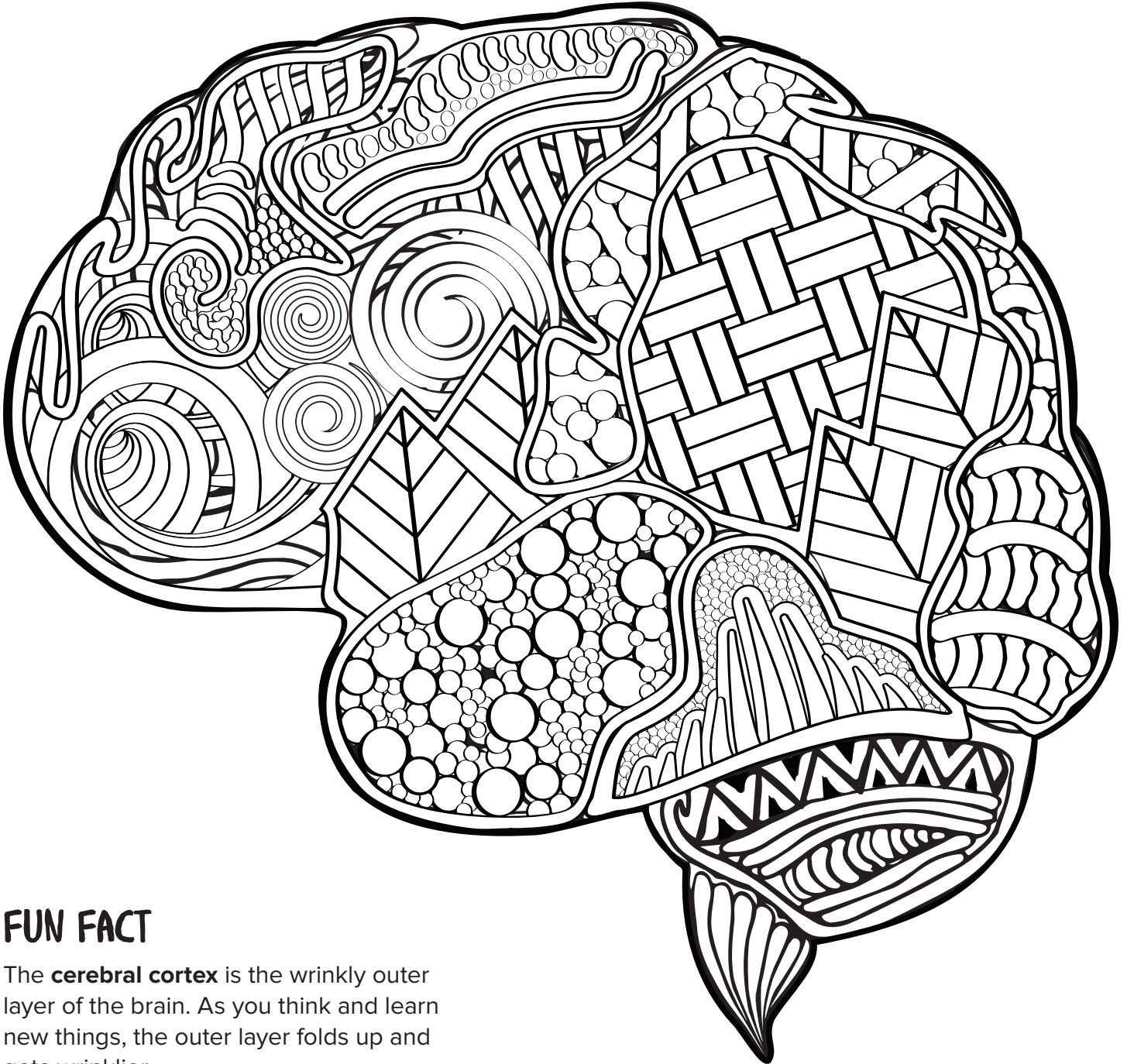
Responsible for hearing and understanding sounds

BRAIN STEM

Controls your basic body functions, such as breathing, temperature, and heart rate



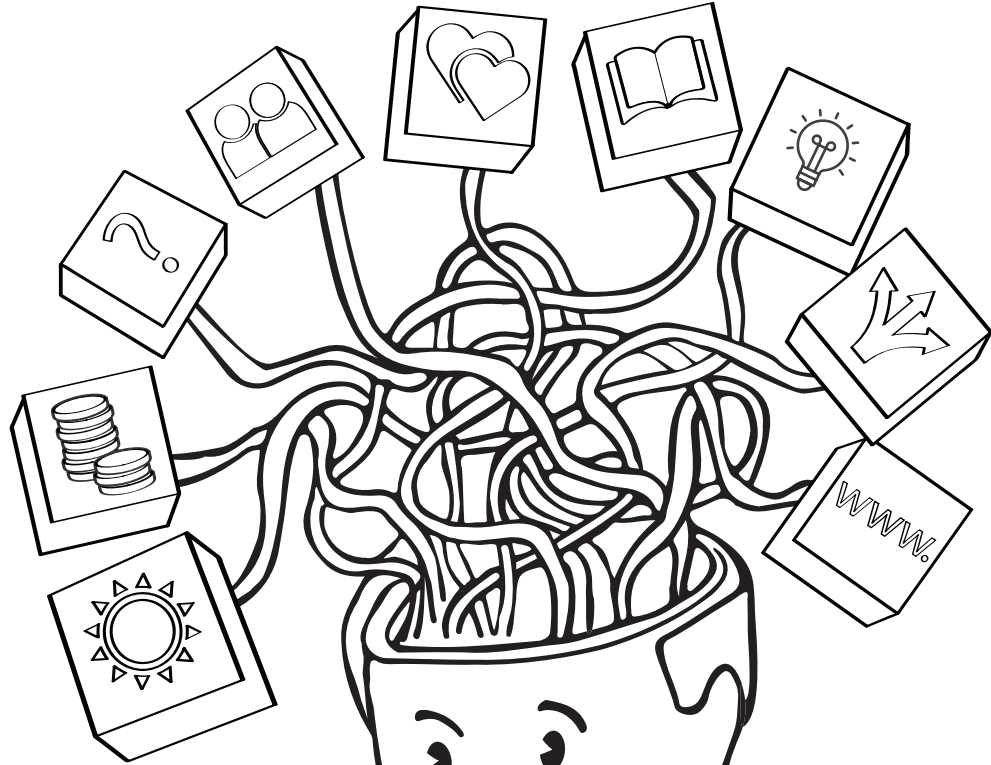
THE CEREBRAL CORTEX



FUN FACT

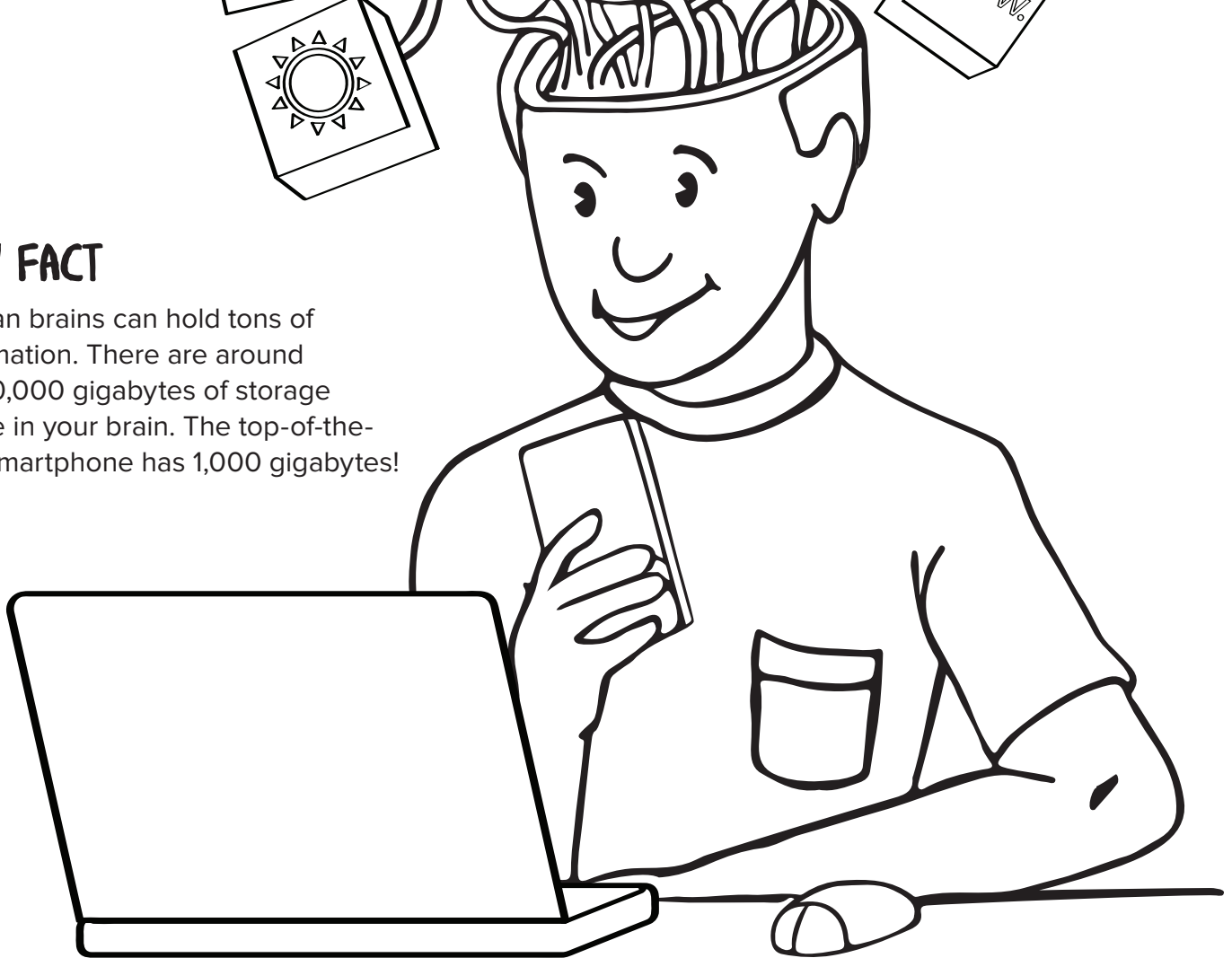
The **cerebral cortex** is the wrinkly outer layer of the brain. As you think and learn new things, the outer layer folds up and gets wrinklier.

YOUR BRAIN AND MEMORY

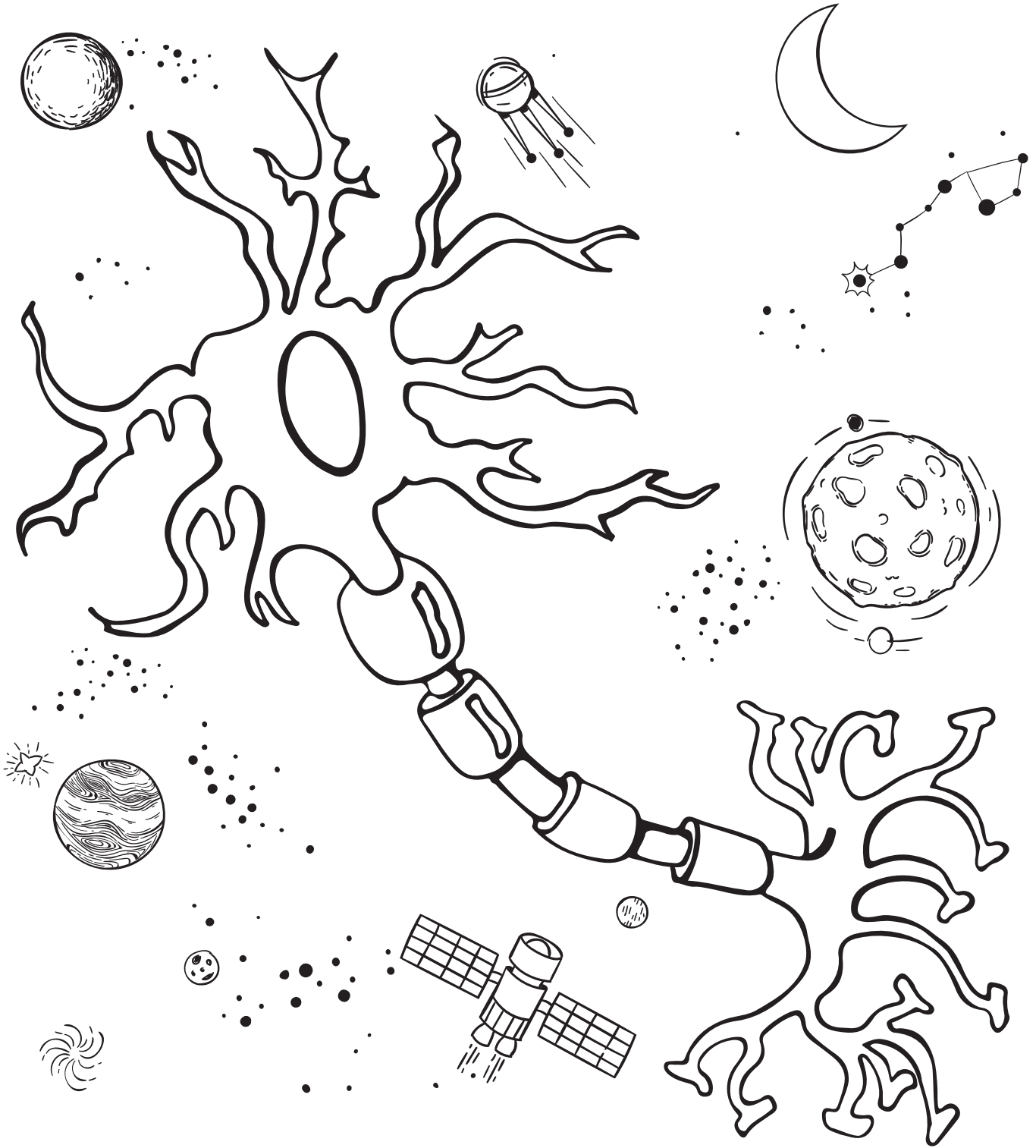


FUN FACT

Human brains can hold tons of information. There are around 2,500,000 gigabytes of storage space in your brain. The top-of-the-line smartphone has 1,000 gigabytes!



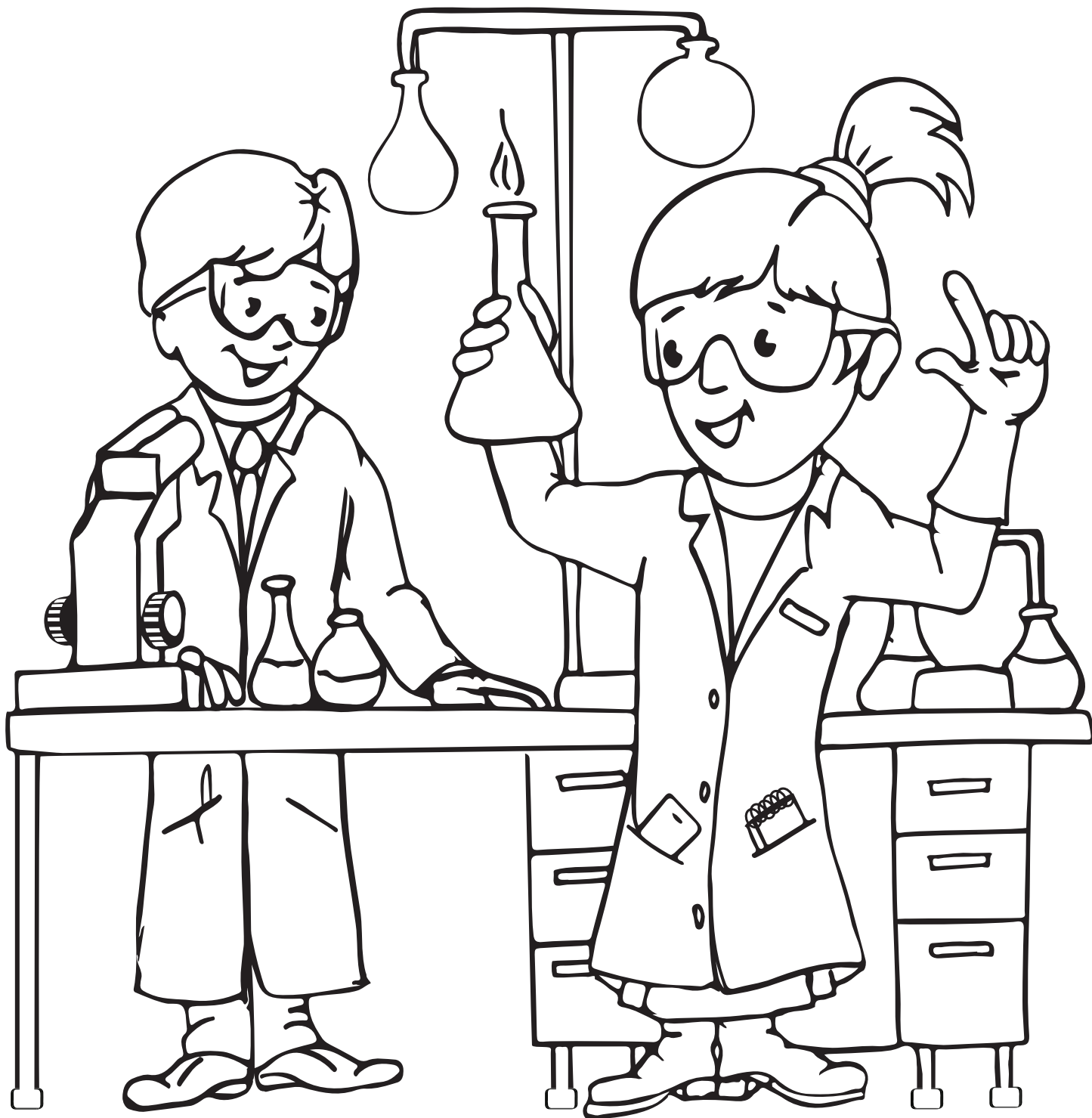
NEURONS IN THE BRAIN



FUN FACT

Neurons are cells that send information in your brain. There are three main **types of neurons**: sensory **neurons**, motor **neurons**, and **interneurons**. All three have different roles and play an important part in communicating with the rest of the body. Your brain has about 100 billion neurons (that's 100,000,000,000!), which is about the same as the number of stars in the Milky Way galaxy.

BRAIN GROWTH



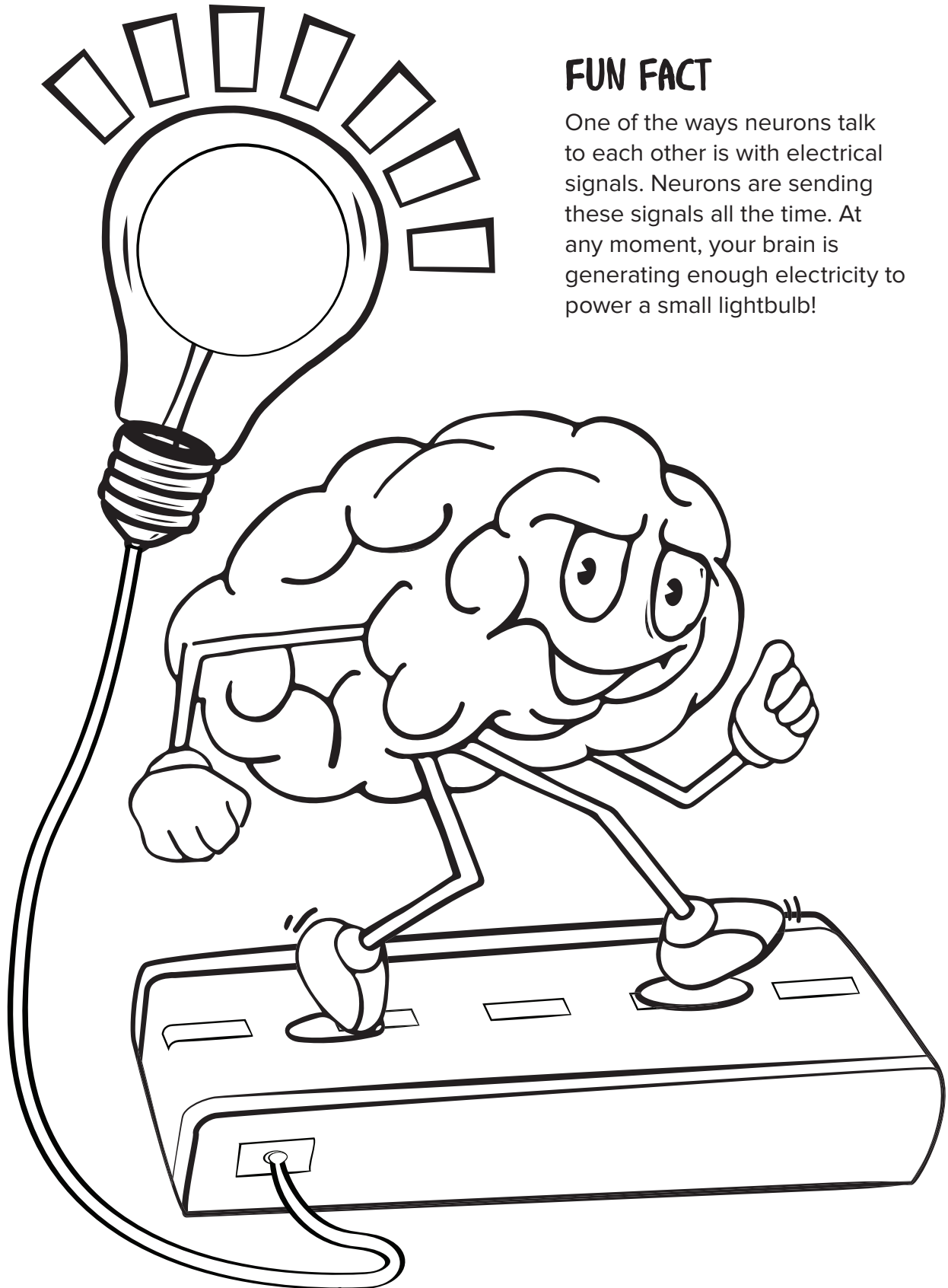
FUN FACT

The human brain grows a lot between birth and the teenage years. Girls' brains grow and mature a little sooner than boys' brains. For girls, the brain reaches its largest physical size at around 11 years old. For boys, the brain reaches its largest size around age 14. Of course, this difference in age does not mean either boys or girls are smarter than one another!

BRAIN POWER

FUN FACT

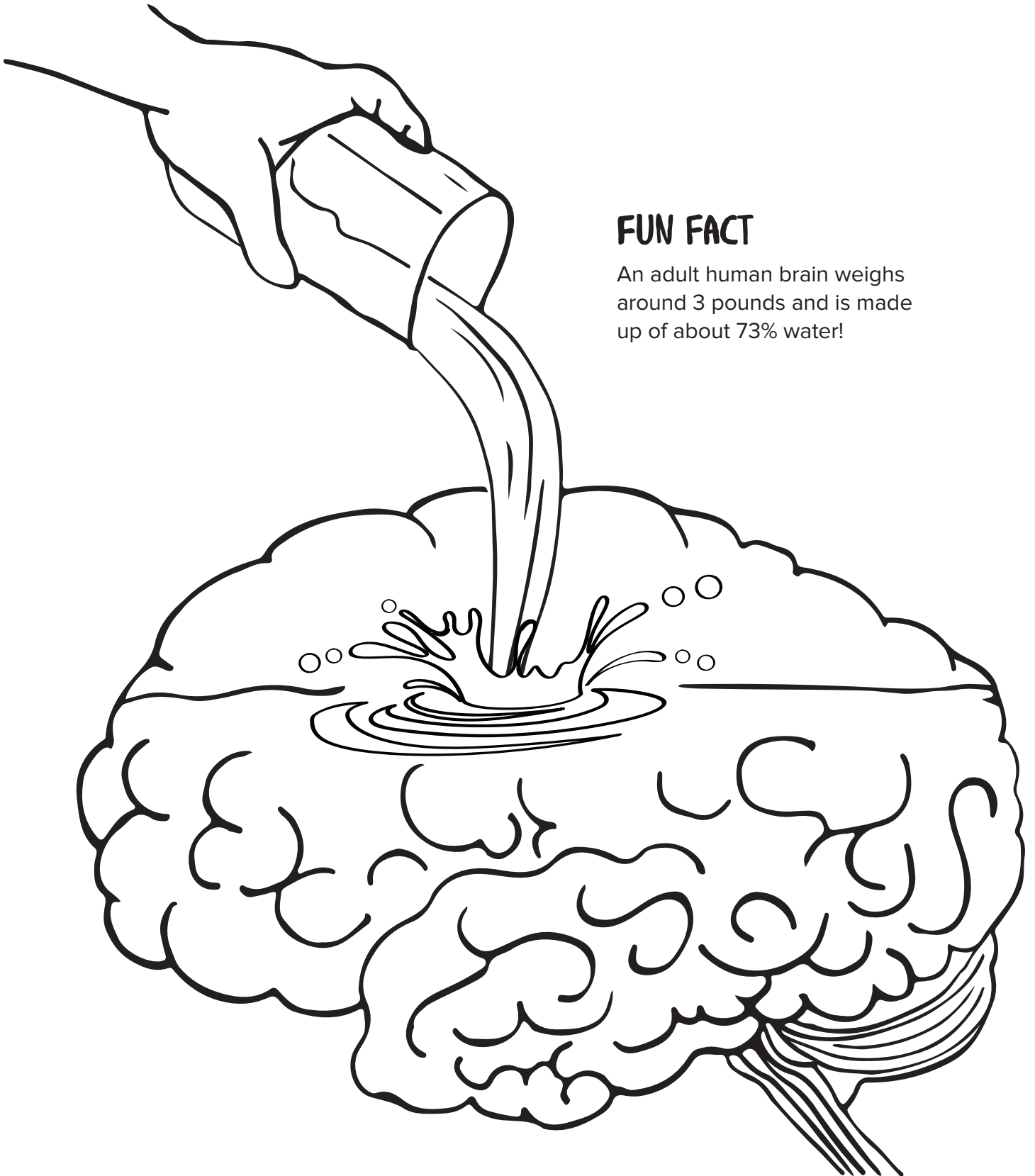
One of the ways neurons talk to each other is with electrical signals. Neurons are sending these signals all the time. At any moment, your brain is generating enough electricity to power a small lightbulb!



WATER IN YOUR BRAIN

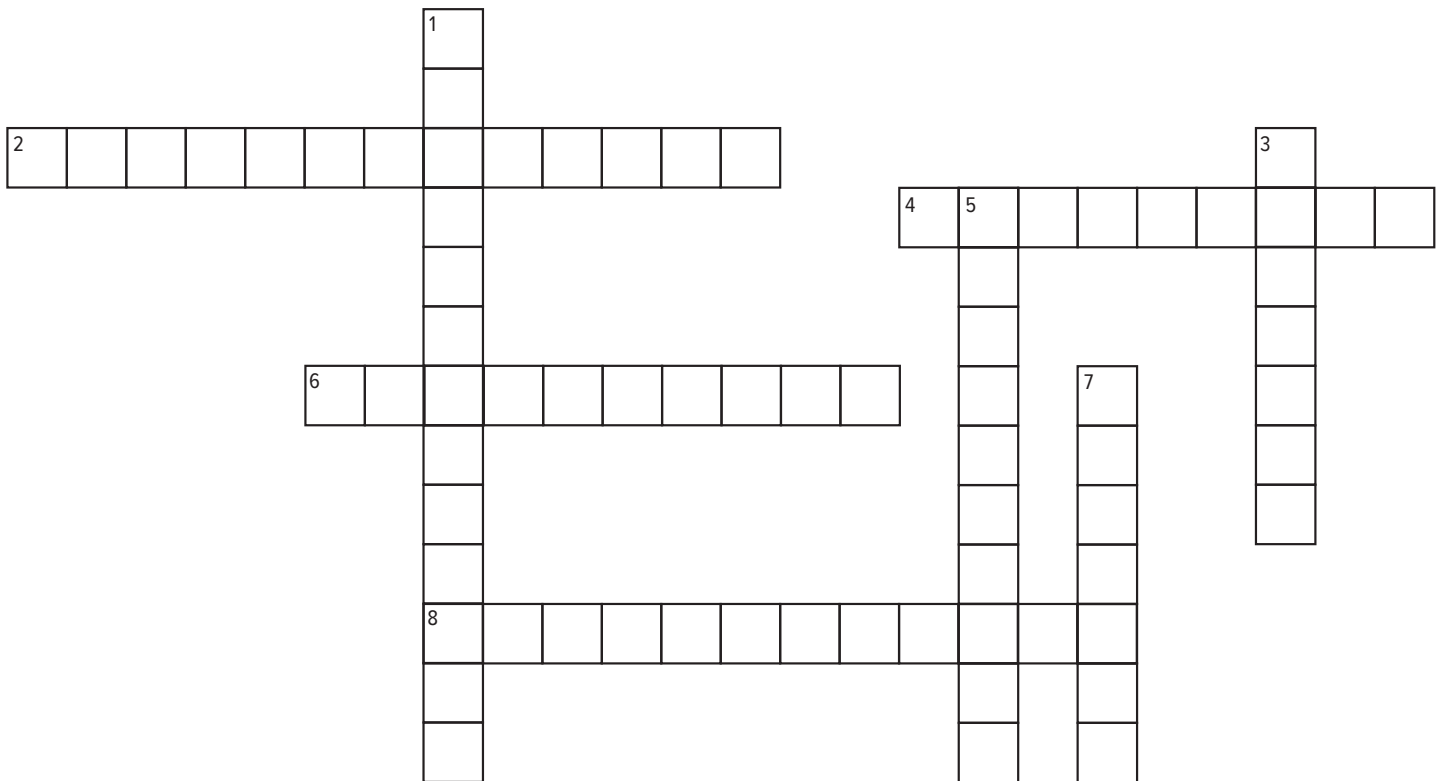
FUN FACT

An adult human brain weighs around 3 pounds and is made up of about 73% water!



TEST YOUR KNOWLEDGE OF COMMON MENTAL HEALTH DISORDERS AND TERMS

Use the word bank to solve the crossword clues below.



WORD BANK

Anxiety

Neuroscience

Recover

Schizophrenia

Depression

Psychotherapy

Resilience

Treatment

ACROSS

2. Another word for talk therapy, which can help people with a variety of mental disorders and emotional difficulties
4. A general word for getting medical care for a physical or mental illness
6. A mood disorder that causes people to feel extremely sad or hopeless
8. The field of study that researches how the brain works, diseases, and disorders

DOWN

1. A disorder that affects a person's ability to think and feel clearly and to behave appropriately
3. A general word that means to heal or get better
5. The ability to handle and recover from tough times or situations
7. A feeling of being really worried or fearful

Answers can be found on page 12.

A CRYPTIC MESSAGE ABOUT THE BLOOD VESSELS IN YOUR BRAIN

Solve the math problems, then use the letters below your answers to decode the hidden message in the blanks below.

7×4	3×0	7×8	2×1	3×7	5×5	6×1	5×7	9×2	8×2	1×5	10×9	8×4
A	B	C	D	E	F	G	H	I	J	K	L	M

3×1	6×4	9×6	1×1	4×10	2×2	6×11	2×6	10×6	2×7	10×2	5×6	9×9
N	O	P	Q	R	S	T	U	V	W	X	Y	Z

HIDDEN MESSAGE

$\frac{30}{32}$ $\frac{24}{18}$ $\frac{12}{90}$ $\frac{40}{21}$ $\frac{4}{4}$ $\frac{0}{24}$ $\frac{40}{25}$ $\frac{28}{0}$ $\frac{18}{90}$ $\frac{3}{24}$ $\frac{35}{24}$ $\frac{28}{12}$ $\frac{4}{66}$ $\frac{28}{28}$ $\frac{0}{90}$ $\frac{24}{4}$ $\frac{12}{4}$ $\frac{66}{21}$ $\frac{120,000}{4}$

$\frac{32}{18}$ $\frac{18}{90}$ $\frac{90}{21}$ $\frac{4}{4}$ $\frac{24}{60}$ $\frac{25}{21}$ $\frac{0}{4}$ $\frac{90}{4}$ $\frac{24}{21}$ $\frac{24}{90}$ $\frac{2}{4}$ $\frac{60}{18}$ $\frac{21}{3}$ $\frac{4}{30}$ $\frac{4}{24}$ $\frac{21}{12}$ $\frac{90}{40}$

$\frac{18}{0}$ $\frac{25}{90}$ $\frac{30}{24}$ $\frac{24}{24}$ $\frac{12}{2}$ $\frac{90}{60}$ $\frac{28}{21}$ $\frac{18}{4}$ $\frac{2}{4}$ $\frac{24}{21}$ $\frac{12}{90}$ $\frac{66}{4}$ $\frac{28}{18}$ $\frac{90}{3}$ $\frac{90}{30}$ $\frac{66}{24}$ $\frac{35}{12}$ $\frac{21}{40}$

$\frac{0}{0}$ $\frac{40}{40}$ $\frac{28}{28}$ $\frac{18}{18}$ $\frac{3}{3}$ $\frac{21}{21}$ $\frac{3}{3}$ $\frac{2}{2}$ $\frac{66}{66}$ $\frac{24}{24}$ $\frac{21}{21}$ $\frac{3}{3}$ $\frac{2}{2}$ $\frac{66}{66}$ $\frac{35}{35}$ $\frac{21}{21}$ $\frac{30}{30}$

$\frac{14}{14}$ $\frac{24}{24}$ $\frac{12}{12}$ $\frac{90}{90}$ $\frac{2}{2}$ $\frac{4}{4}$ $\frac{66}{66}$ $\frac{40}{40}$ $\frac{21}{21}$ $\frac{66}{66}$ $\frac{56}{56}$ $\frac{35}{35}$ $\frac{35}{35}$ $\frac{28}{28}$ $\frac{90}{90}$ $\frac{25}{25}$ $\frac{14}{14}$ $\frac{28}{28}$ $\frac{30}{30}$

$\frac{66}{66}$ $\frac{24}{24}$ $\frac{66}{66}$ $\frac{35}{35}$ $\frac{21}{21}$ $\frac{32}{32}$ $\frac{24}{24}$ $\frac{24}{24}$ $\frac{3}{3}$!

Answers can be found on page 13.

FASTER THAN A SPEEDING NEURON!

Unscramble the words below by rearranging the order of the letters. Then use those words to fill in the blanks in the paragraph below, and learn more about how fast the neurons in your brain work!

T R O O M
D R O L W
R U N N E O S
L A N G I S S

N A I R T
S A G E M E S S
B I N A R
L I O N S M I L

There are _____ of _____ in your brain that tell your body what to do. These neurons send more _____ in your _____ than all the text messages sent by mobile phones in the entire _____. They send information in your brain at more than 150 miles per hour, which is as fast as a _____. But if you need to act quickly, _____ neurons can send _____ at more than 200 miles per hour. That's fast!

Answers can be found on page 14.

ALL ABOUT THE BRAIN

Search up, down, forward, backward, and diagonally to find the hidden words.
Put your brain to the test, and see how many you can find!

J	B	T	N	G	Z	O	T	E	H	V	X	S	X	S
C	Q	R	A	C	N	O	C	X	C	S	L	E	R	P
B	K	E	O	S	U	I	U	C	S	N	T	B	U	K
W	M	S	W	C	T	V	K	E	I	R	A	M	M	L
Q	C	E	H	E	Q	E	P	N	O	P	B	L	A	C
P	R	A	J	U	L	X	E	C	I	Q	I	N	A	T
C	E	R	E	B	E	L	L	U	M	H	G	T	L	B
P	N	C	B	R	A	I	N	U	H	U	T	A	A	H
Q	V	H	B	Q	C	J	C	E	A	Z	R	N	T	L
G	N	I	R	A	E	H	Z	G	S	O	B	E	E	A
C	R	O	I	V	A	H	E	B	P	S	T	U	I	T
E	M	O	T	I	O	N	S	M	L	M	P	R	R	N
E	B	O	L	G	Z	H	E	P	S	E	A	O	A	O
W	A	Z	P	G	W	T	X	X	N	L	T	N	P	R
G	B	P	E	J	S	X	V	C	W	L	R	S	B	F

BALANCE
CEREBELLUM
FRONTAL
LOBE
PARIETAL
TASTE
TOUCH

BEHAVIOR
CORTEX
HEARING
NEURONS
RESEARCH
TEMPORAL
WELLNESS

BRAIN
EMOTIONS
LANGUAGE
OCCIPITAL
SMELL
THINKING

Answers can be found on page 14.

ANSWERS TO ACTIVITY PUZZLES

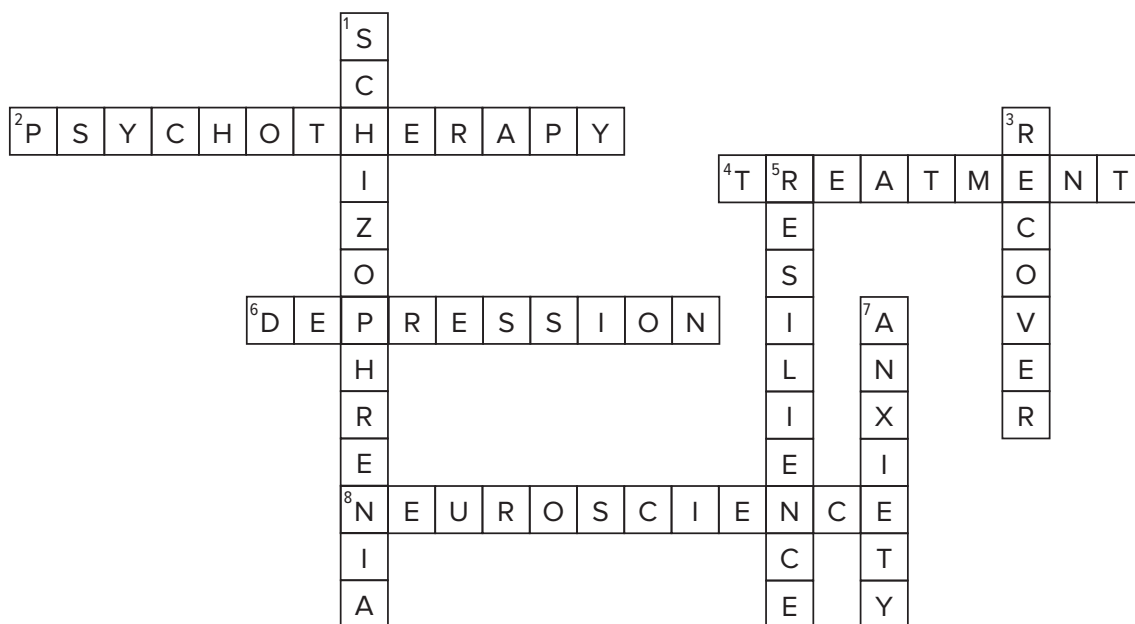
ANSWERS TO "TEST YOUR KNOWLEDGE OF COMMON MENTAL HEALTH DISORDERS AND TERMS"

ACROSS

2. Psychotherapy
4. Treatment
6. Depression
8. Neuroscience

DOWN

1. Schizophrenia
3. Recover
5. Resilience
7. Anxiety



ANSWERS TO “A CRYPTIC MESSAGE ABOUT THE BLOOD VESSELS IN YOUR BRAIN”

7 x 4	3 x 0	7 x 8	2 x 1	3 x 7	5 x 5	6 x 1	5 x 7	9 x 2	8 x 2	1 x 5	10 x 9	8 x 4
28	0	56	2	21	25	6	35	18	16	5	90	32
A	B	C	D	E	F	G	H	I	J	K	L	M

3 x 1	6 x 4	9 x 6	1 x 1	4 x 10	2 x 2	6 x 11	2 x 6	10 x 6	2 x 7	10 x 2	5 x 6	9 x 9
3	24	54	1	40	4	66	12	60	14	20	30	81
N	O	P	Q	R	S	T	U	V	W	X	Y	Z

HIDDEN MESSAGE

$\frac{Y}{30} \frac{o}{24} \frac{u}{12} \frac{r}{40} \frac{b}{0} \frac{r}{40} \frac{a}{28} \frac{i}{18} \frac{n}{3} \frac{h}{35} \frac{a}{28} \frac{s}{4} \frac{a}{28} \frac{b}{0} \frac{o}{24} \frac{u}{12} \frac{t}{66} \frac{120,000}{}$

$\frac{m}{32} \frac{i}{18} \frac{l}{90} \frac{e}{21} \frac{s}{4} \frac{o}{24} \frac{f}{25} \frac{b}{0} \frac{l}{90} \frac{o}{24} \frac{o}{24} \frac{d}{2} \frac{v}{60} \frac{e}{21} \frac{s}{4} \frac{s}{4} \frac{e}{21} \frac{l}{90} \frac{s}{4}.$

$\frac{l}{18} \frac{f}{25} \frac{y}{30} \frac{o}{24} \frac{u}{12} \frac{l}{90} \frac{a}{28} \frac{i}{18} \frac{d}{2} \frac{o}{24} \frac{u}{12} \frac{t}{66} \frac{a}{28} \frac{l}{90} \frac{l}{90} \frac{t}{66} \frac{h}{35} \frac{e}{21}$

$\frac{b}{0} \frac{l}{90} \frac{o}{24} \frac{o}{24} \frac{d}{2} \frac{v}{60} \frac{e}{21} \frac{s}{4} \frac{s}{4} \frac{e}{21} \frac{l}{90} \frac{s}{4} \frac{i}{18} \frac{n}{3} \frac{y}{30} \frac{o}{24} \frac{u}{12} \frac{r}{40}$

$\frac{b}{0} \frac{r}{40} \frac{a}{28} \frac{i}{18} \frac{n}{3} \frac{e}{21} \frac{n}{3} \frac{d}{2} \frac{t}{66} \frac{o}{24} \frac{e}{21} \frac{n}{3} \frac{d}{2}, \frac{t}{66} \frac{h}{35} \frac{e}{21} \frac{y}{30}$

$\frac{w}{14} \frac{o}{24} \frac{u}{12} \frac{l}{90} \frac{d}{2} \frac{s}{4} \frac{t}{66} \frac{r}{40} \frac{e}{21} \frac{t}{66} \frac{c}{56} \frac{h}{35} \frac{h}{35} \frac{a}{28} \frac{l}{90} \frac{f}{25} \frac{w}{14} \frac{a}{28} \frac{y}{30}$

$\frac{t}{66} \frac{o}{24} \frac{t}{66} \frac{h}{35} \frac{e}{21} \frac{m}{32} \frac{o}{24} \frac{o}{24} \frac{n}{3}!$

ANSWERS TO "FASTER THAN A SPEEDING NEURON!"

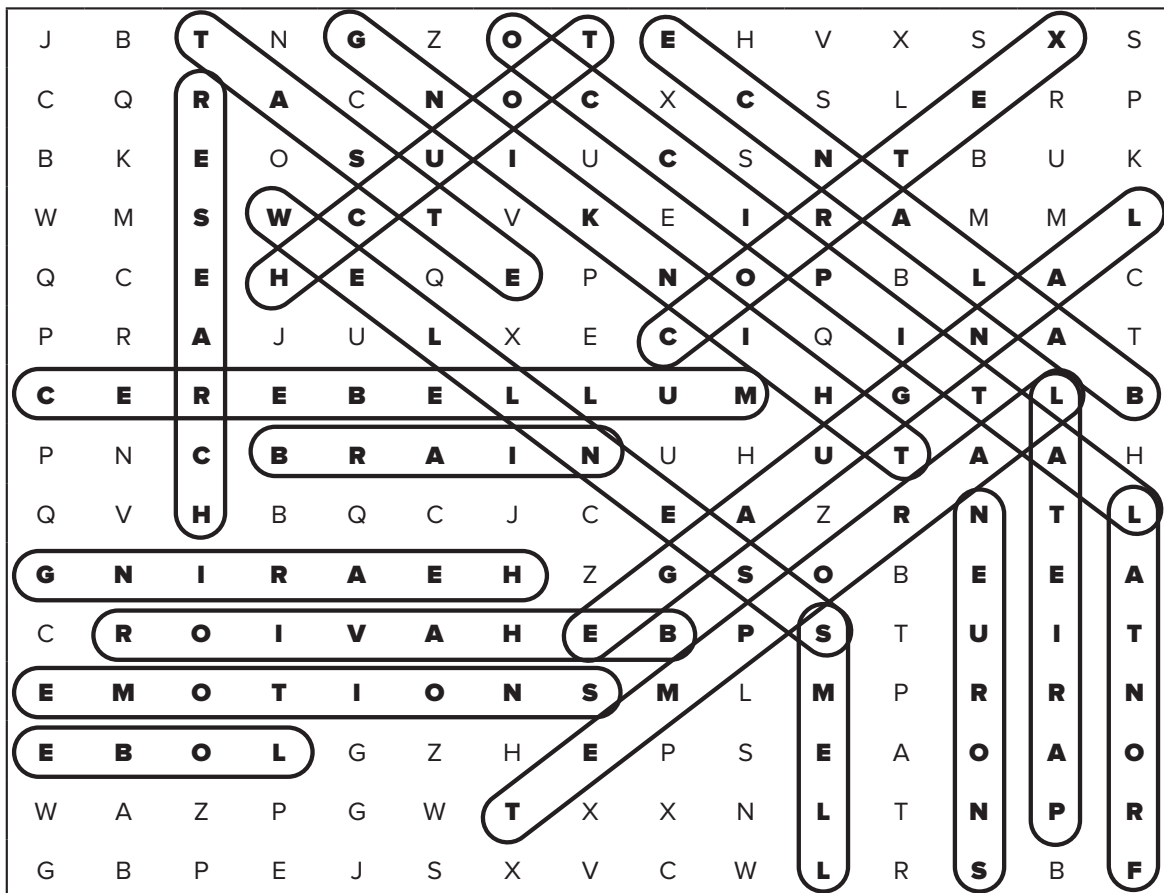
UNSCRAMBLED WORDS

Motor
World
Neurons
Signals

Train
Messages
Brain
Millions

There are **millions** of **neurons** in your brain that tell your whole body what to do. These neurons send more **messages** in your **brain** than all the text messages sent by mobile phones in the entire **world**. They send information to your brain at more than 150 miles per hour, which is as fast as a **train**. But if you need to act quickly, **motor** neurons can send **signals** at more than 200 miles per hour. That's fast!

ANSWERS TO "ALL ABOUT THE BRAIN"





National Institute
of Mental Health

U.S. DEPARTMENT OF HEALTH
AND HUMAN SERVICES
National Institutes of Health
NIH Publication No. 20-MH-8117

For more information about mental health,
visit the NIMH website at **www.nimh.nih.gov**.
For information on a wide variety of health
topics, visit the National Library of Medicine's
MedlinePlus service at **<https://medlineplus.gov>**.