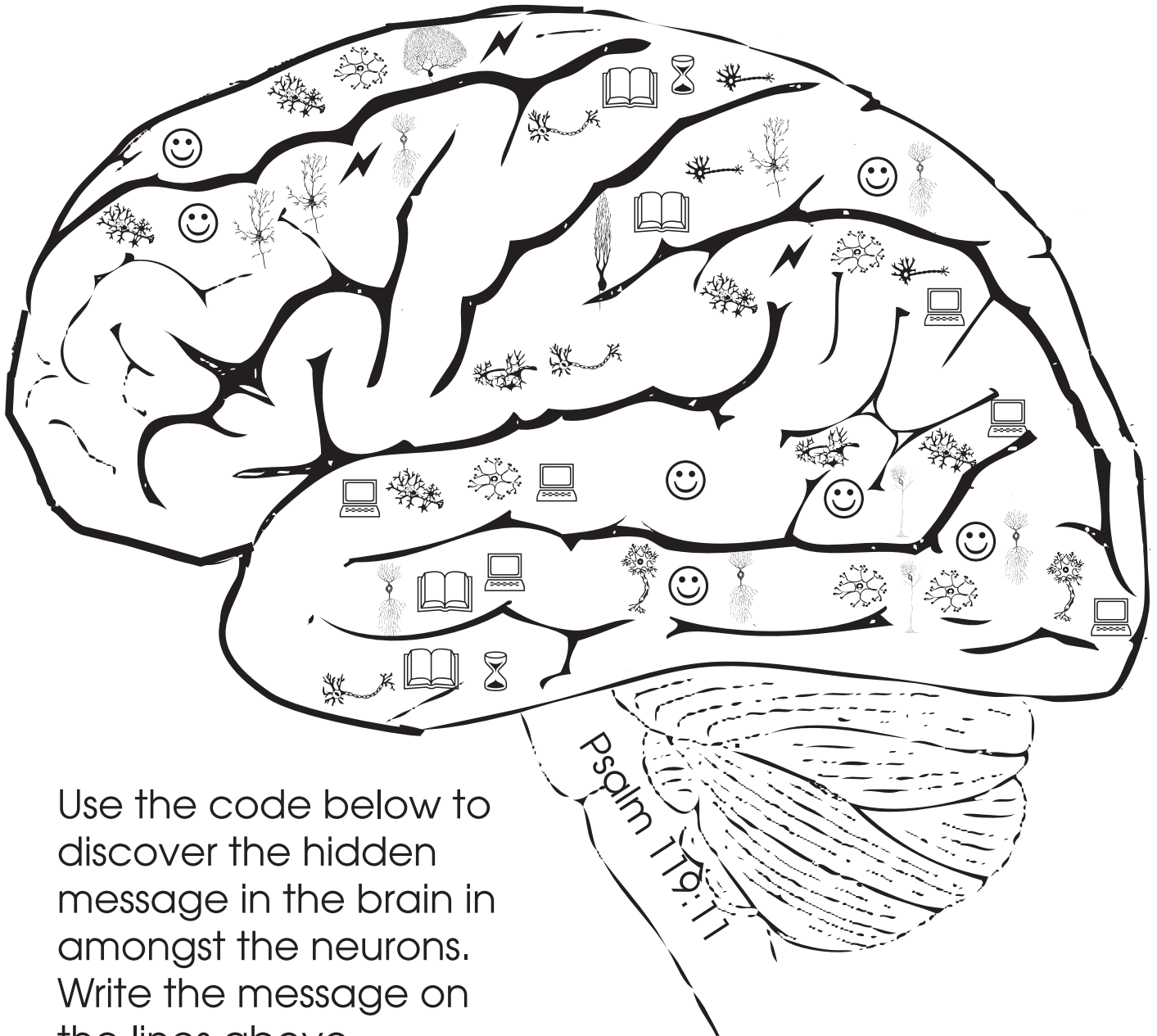


ACTIVITY SHEET 8



Use the code below to discover the hidden message in the brain in amongst the neurons. Write the message on the lines above.

A D E G H I M N O R S T U V W Y



ACTIVITY SHEET 9: (2 pages)

The nervous system is made up of the brain, spinal cord and nerves which reach to all parts of the body.

The brain has the following main parts:

1. **cerebrum** – the largest part of the brain with two **hemispheres**
 - **right** hemisphere – abstract thinking – music, colours, shapes, creativity. It controls the right side of the body.
 - **left** hemisphere – analytical thinking – maths, logic, speech. It controls the left side of the body.

The cerebrum controls voluntary movement, **speech, intelligence, memory** – short term and long term memory, emotions, sensory processing. The **cerebral cortex** is the outermost part of the brain used for storage. The cerebrum can be further divided into **lobes**:

- **frontal** lobe – behind the forehead, where complex **thinking** like **planning, imagining** and **reasoning** take place;
 - **parietal** lobes – behind the frontal lobes, where the sensory cortex processes messages such as those related to touch, **taste** and temperature and the motor cortex which controls movement;
 - **occipital** lobes – at the rear of the brain, where the visual cortex processes **sight**;
 - **temporal** lobes – near the ears, where **hearing** is processed and memory retrieval also takes place.
2. **cerebellum** – this part of the brain is responsible for **coordination, balance** and **movement**.
 3. **thalamus** – this is in the central part of brain and processes and coordinates sensory messages such as **touch**.
 4. **hypothalamus** – this regulates functions like **temperature**, thirst, appetite, and **sleep** patterns and the release of hormones from pituitary **gland**.
 5. **pituitary** gland – this produces **hormones** regulating **growth, puberty**, metabolism, water and mineral balance and the body's response to **stress**.
 6. **hippocampus** – processes memories and is part of the **limbic** system which includes the olfactory bulb (processes **smell**) and the **amygdala** which deals with **emotions**.
 7. **brain stem** – is a complex **switchboard** for the brain and the rest of the body through the spinal cord. It regulates the automatic functions for survival such as **breathing, digestion, heart rate**, blood pressure. It has three parts:
 - **midbrain**
 - **pons**
 - **medulla** oblongata
 8. **spinal cord** – runs down centre of spinal column connecting the brain with nerves going to the rest of the body

The most common nerve cells in the brain are:

1. **neurons** (about 100 billion) - these send messages through **electrical impulses** which travel down their long arms called **axons** and then cross the gap (synapse) to the next neuron by using **neurotransmitters (chemicals)** which allow the electrical current to be carried across the **synapses**. When thoughts are repeated over and over they form **pathways** in the brain making it easier for the message to

travel that way. This why it becomes easier and easier to do things when they are repeated over and over again.

2. **glia** – these are the working partners for the neurons. They eat dead neurons, destroy pathogens, supply nutrients and oxygen to the neurons, surround neurons and hold them in place, **insulate** one neuron from another with a covering called **myelin**, and clear neurotransmitters from the synapses once they have done their work.

The brain needs to be cared for so that it functions well.

1. Eat healthy foods – especially foods with calcium and potassium.
2. **Exercise** and play in the outdoors to give it plenty of oxygen.
3. Use **protection** by wearing a **helmet** when riding a bike or playing sports where the head could get knocked.
4. Stay away from **alcohol**, **drugs** and **tobacco** which damage the nerve cells and affect many different parts of the brain.
5. Use your brain by doing **challenging activities** like puzzles, problem solving, reading, music or art. Try it now and see if you can discover the bold, underlined words in this fact sheet in the word find below?

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

ACTIVITY SHEET 10:

Label the parts of the brain and nerve cell from the names below:
neuron, axon, frontal lobe, cerebrum, brain stem, parietal lobe, cerebellum
dendrites, temporal lobe, occipital lobe, nucleus, soma, presynaptic terminal.

