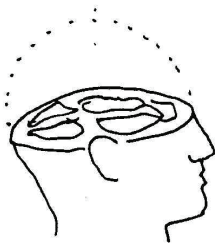


ACTIVITY 1.4 Color a PET scan

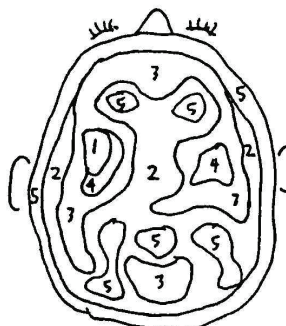
PET stands for Positron Emission Tomography. To prepare for a PET scan, the patient must drink a solution that has radioactive sugar molecules in it. Areas of the brain that are active use more sugar than areas that are inactive. The PET scanner can “see” the radioactive sugar as it is used by the brain and translates this into a color image. Areas of the brain that are highly active appear red. Areas that are less active are blue or purple.

Use the numbers to color this PET image. Sharp colored pencils work best.

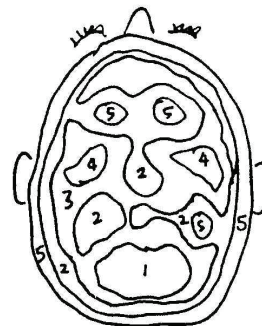
1 = red 2 = blue 3 = green 4 = yellow 5 = purple



This is the section of the brain that is being scanned.



This is how the section looks when the patient's eyes are closed.



This is how the section looks when the patient's eyes are open.

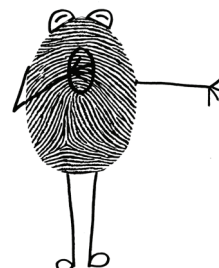
ACTIVITY 4.1 “The Brain Song”

Here is a silly song about some of the parts of the brain. You can download the audio tracks at this web address: www.ellenjmchenry.com/BrainCurriculum.

THE BRAIN SONG

I woke up Monday morning, just like I always do;
Without my PONS to get me up, I'd sleep the whole day through.
My faithful old MEDULLA had worked all through the night,
To keep my heart and lungs working right.

Oh, my brain stem works so hard,
It does so many things I disregard (oh, how very boring)
Thinking about my CEREBELLUM is a snore,
Without it, though, my head would hit the floor.



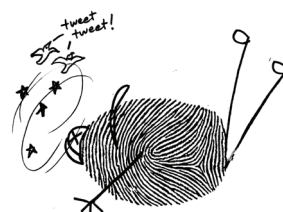
I jumped up out of bed, then, and dressed without a fuss;
I was getting signals from my HYPOTHALAMUS.
I went out to the kitchen for cereal and a bowl,
But what a sight for my OCCIPITAL!

Pans and dishes filled the sink.
My TEMPORAL LOBE could smell the garbage stink (oh, how very awful)
Thinking about the chores that waited for me there
Was more than my poor FRONTAL LOBE could bear!



I fled that great disaster using MOTOR CORTEX nerves,
I hurdled over forks and crumbs and Friday night's hors d'oeuvres.
My FRONTAL LOBE decided to take me out the door,
But I really wish I'd seen that apple core!

As I gazed up at the ceiling,
My TEMPORAL LOBE could “hear the birdies sing” (oh, how very lovely)
Thinking I'd made my poor PARIETAL go lame,
My LIMBIC SYSTEM felt a sense of shame.



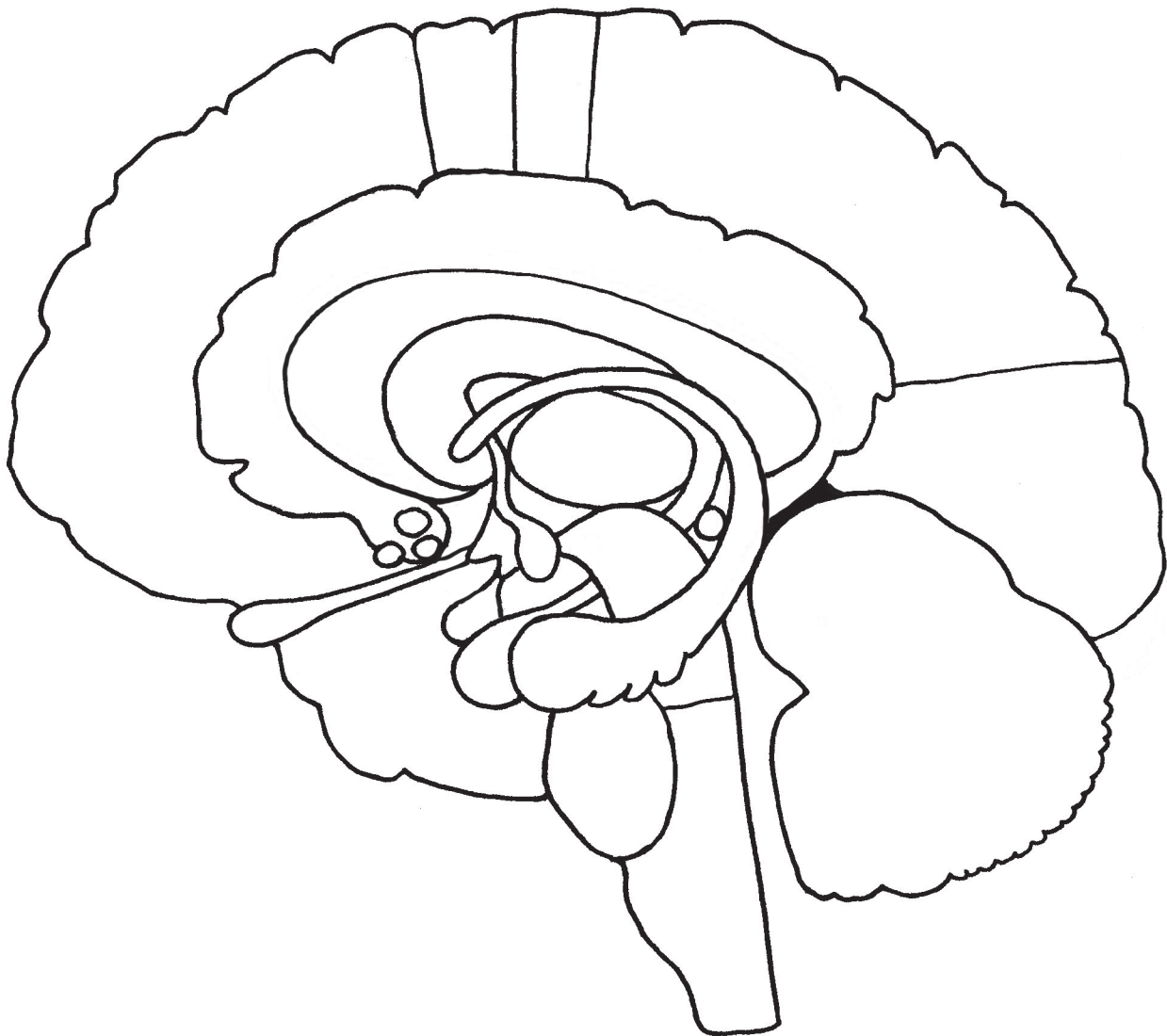
Oh, my HIPPOCAMPUS would make sure
The memory of this day would long endure (oh, how very poignant)
Thinking I'd better get some help with my hygiene,
I dialed 1-800-42-GET-IT-CLEAN!



ACTIVITY 4.3 Color-coded brain parts again

This activity is just like the one you did on page 10, except that we have added the parts deep inside the brain. Decide on a color code and make the parts of the brain match their boxes in the key. (If you run out of colors, use patterns like dots or stripes.) This diagram is not identical to either diagram in this chapter, but that's okay because brain diagrams are rarely the same. You can figure it out!

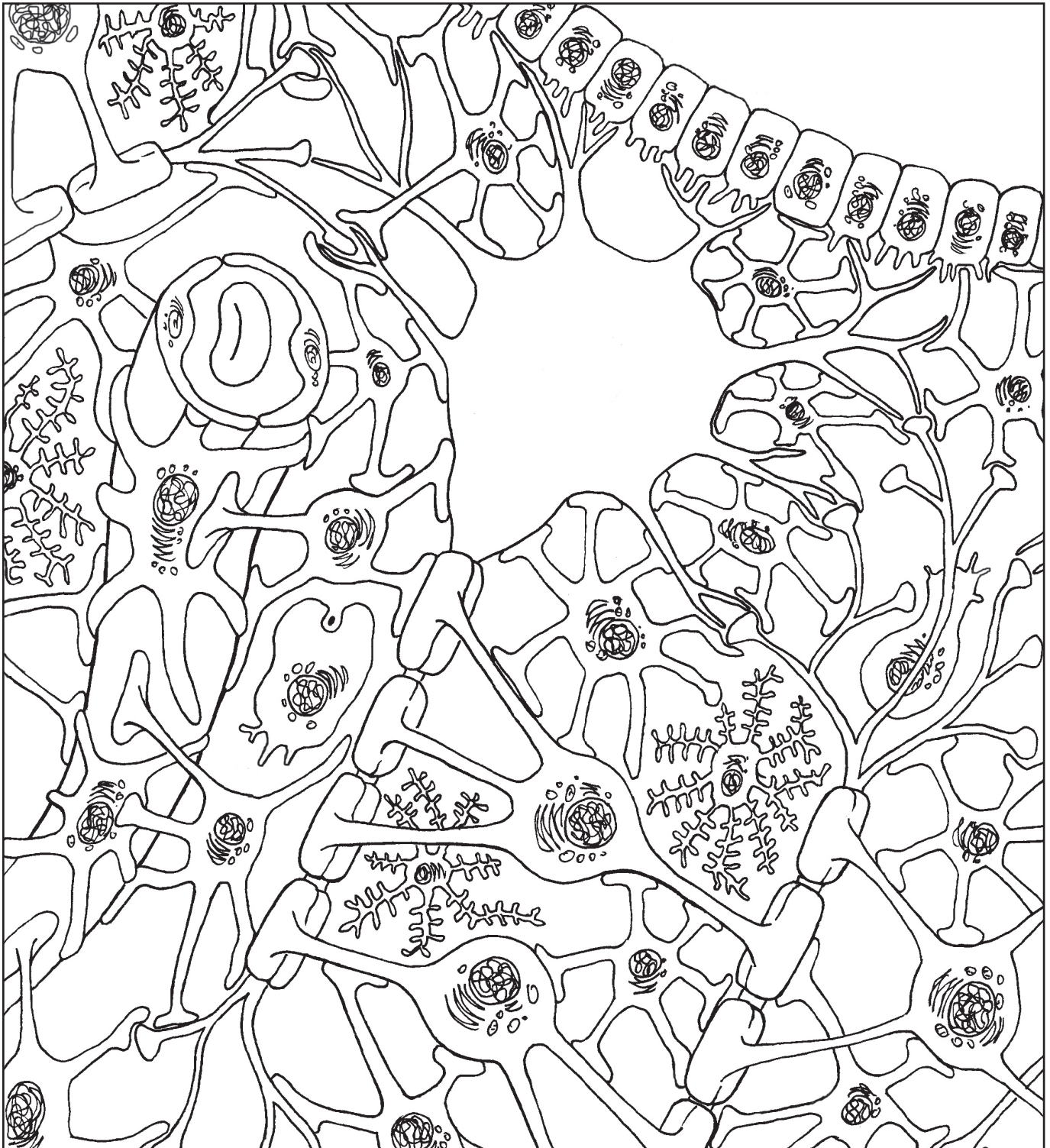
- | | | |
|--|--|--|
| <input type="checkbox"/> cerebellum | <input type="checkbox"/> occipital lobe | <input type="checkbox"/> parietal lobe |
| <input type="checkbox"/> sensory cortex | <input type="checkbox"/> motor cortex | <input type="checkbox"/> frontal lobe |
| <input type="checkbox"/> cingulate gyrus | <input type="checkbox"/> corpus callosum | <input type="checkbox"/> fornix |
| <input type="checkbox"/> hippocampus | <input type="checkbox"/> thalamus | <input type="checkbox"/> hypothalamus |
| <input type="checkbox"/> amygdala | <input type="checkbox"/> pituitary | <input type="checkbox"/> olfactory bulb |
| <input type="checkbox"/> mid-brain | <input type="checkbox"/> pons | <input type="checkbox"/> medulla oblongata |
| <input type="checkbox"/> temporal lobe | <input type="checkbox"/> basal ganglia | <input type="checkbox"/> pineal gland |
| | | <input type="checkbox"/> mamillary body |



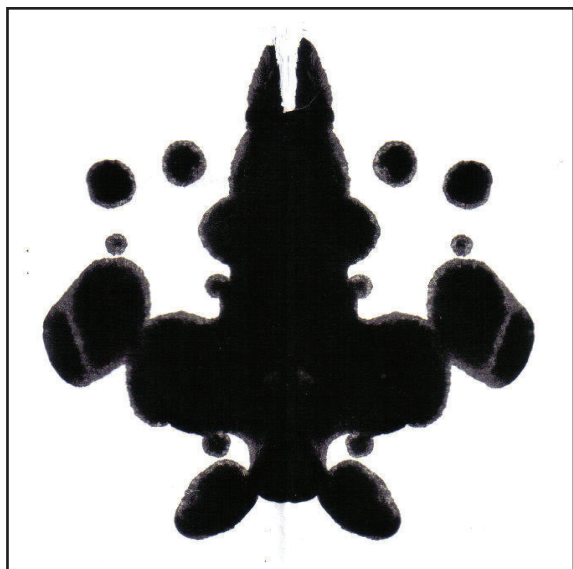
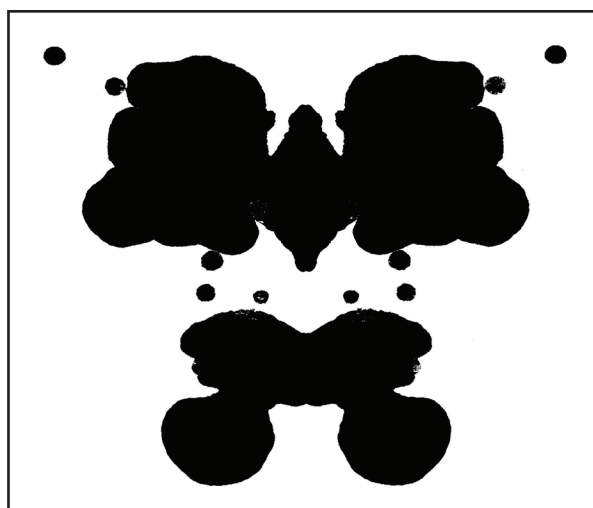
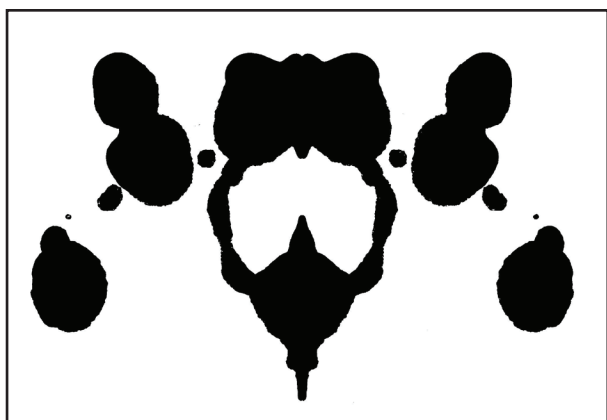
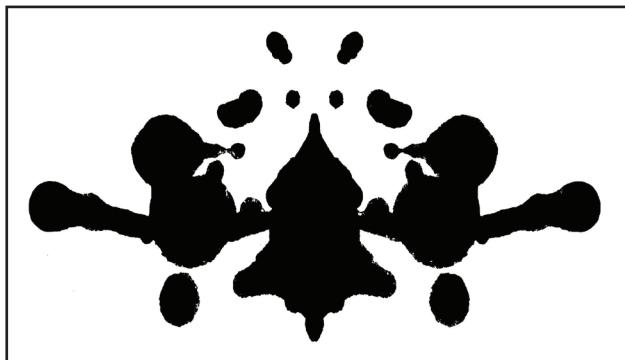
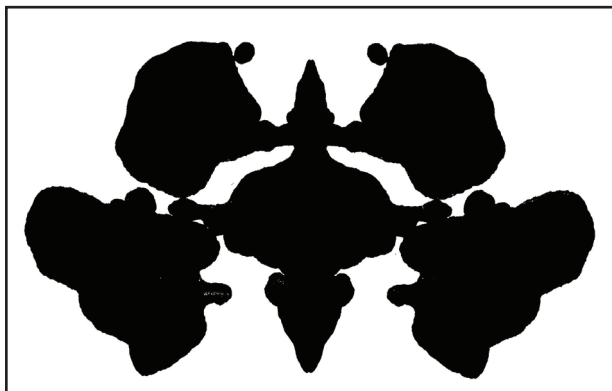
ACTIVITY 5.3 Color these brain cells

You've seen several images of brain tissue. Now it's your turn to choose the colors. Put the color into the square, then color the appropriate areas on the diagram. Cerebrospinal fluid can be white if you want to do less coloring. Also, draw some cell parts inside that neuron's cell body. (Make it look like the other cell bodies.)

- | | | | |
|-------------------------------------|---|------------------------------------|--|
| <input type="checkbox"/> astrocytes | <input type="checkbox"/> oligodendrocytes | <input type="checkbox"/> neurons | <input type="checkbox"/> cerebrospinal fluid |
| <input type="checkbox"/> microglia | <input type="checkbox"/> ependymal cells | <input type="checkbox"/> capillary | <input type="checkbox"/> red blood cell |

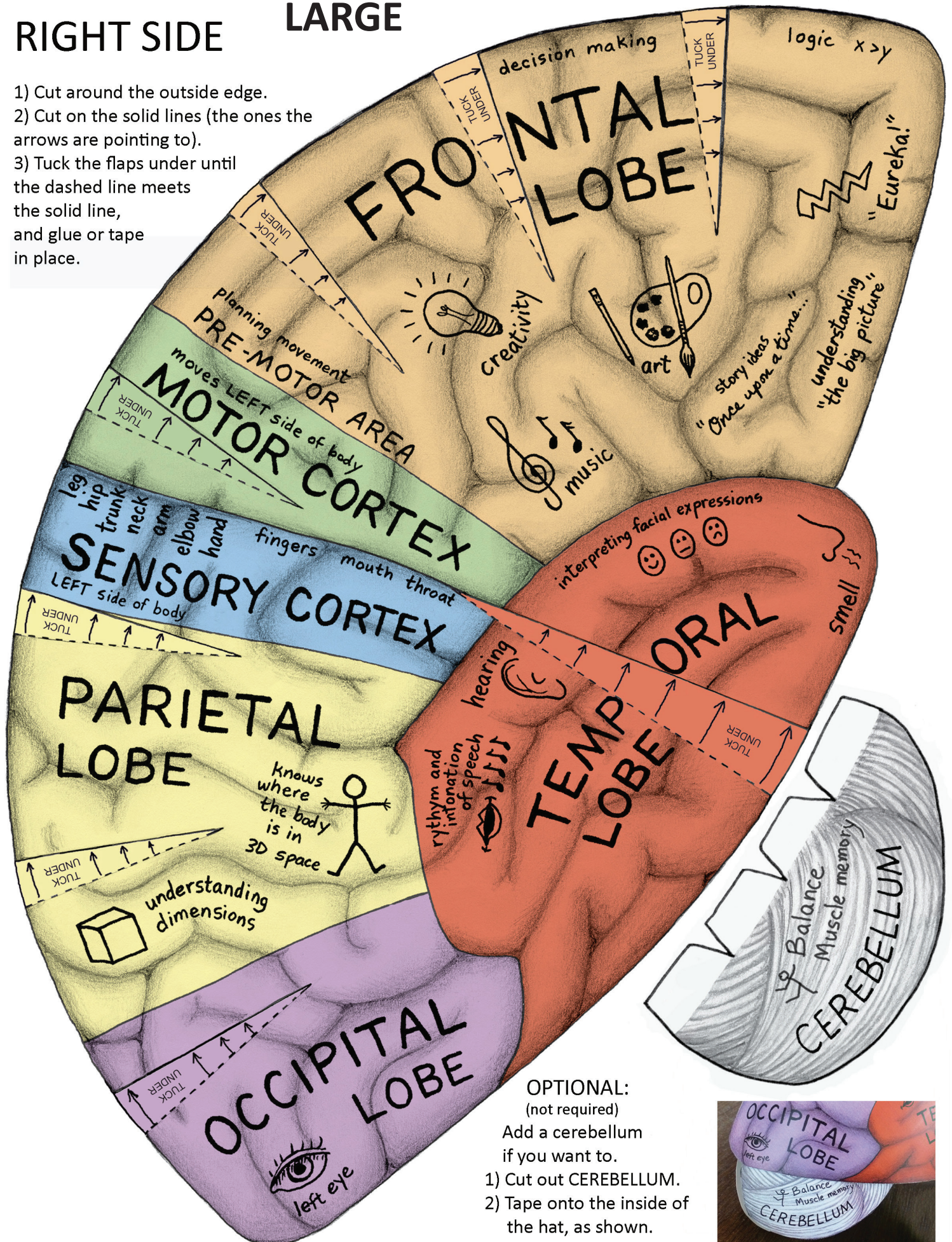


Just for fun, here is an ink blot test we made up. What do you see in each blot? After taking it yourself, you might want to have several other people try it and see how their answers compare to yours. Remember, there is no right answer. Whatever you see is your right answer. Each person's brain has its own interpretation.



RIGHT SIDE LARGE

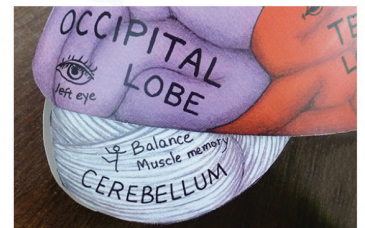
- 1) Cut around the outside edge.
- 2) Cut on the solid lines (the ones the arrows are pointing to).
- 3) Tuck the flaps under until the dashed line meets the solid line, and glue or tape in place.



OPTIONAL:
(not required)

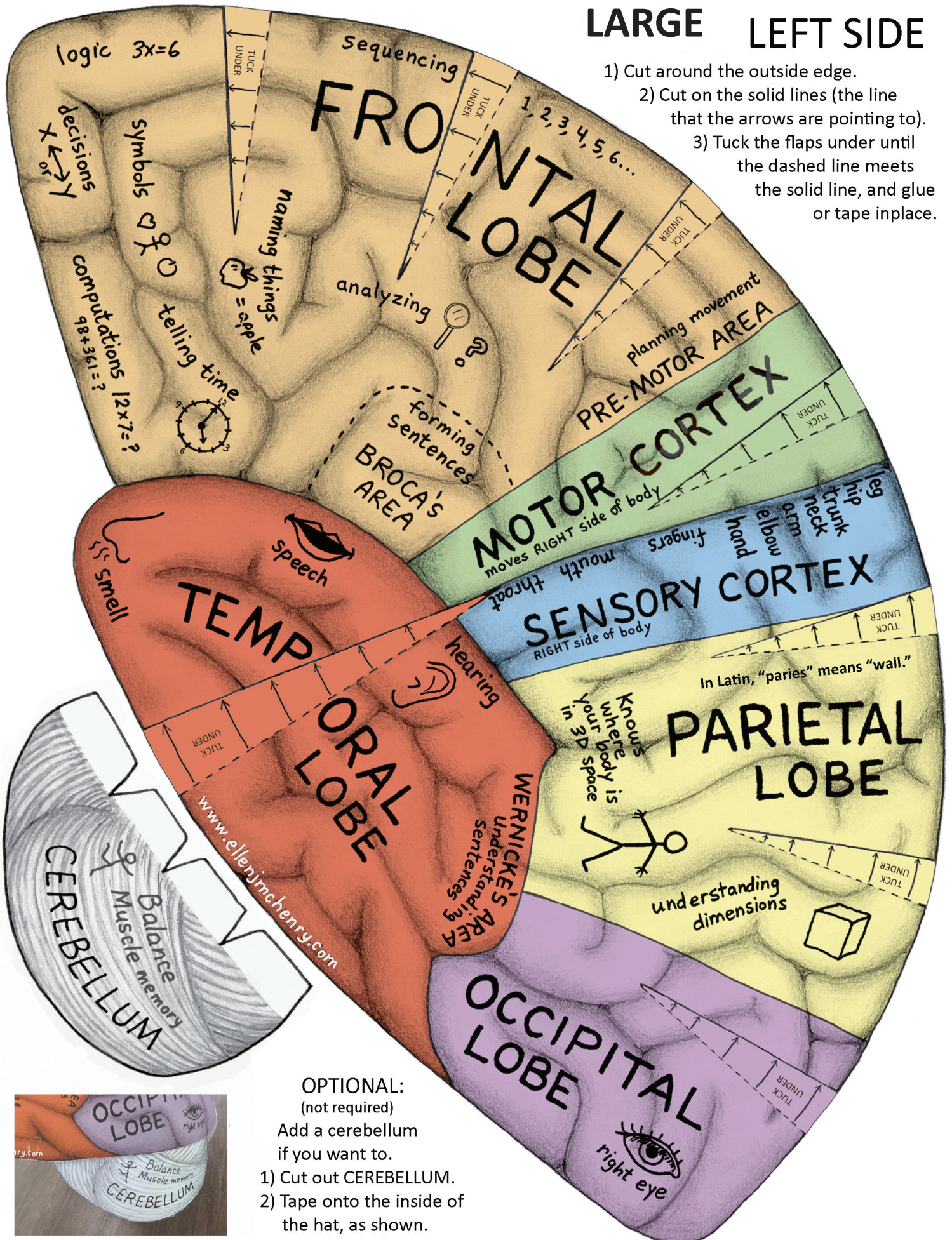
Add a cerebellum
if you want to.

- 1) Cut out CEREBELLUM.
- 2) Tape onto the inside of the hat, as shown.



LARGE LEFT SIDE

- 1) Cut around the outside edge.
- 2) Cut on the solid lines (the line that the arrows are pointing to).
- 3) Tuck the flaps under until the dashed line meets the solid line, and glue or tape in place.



OPTIONAL:
(not required)

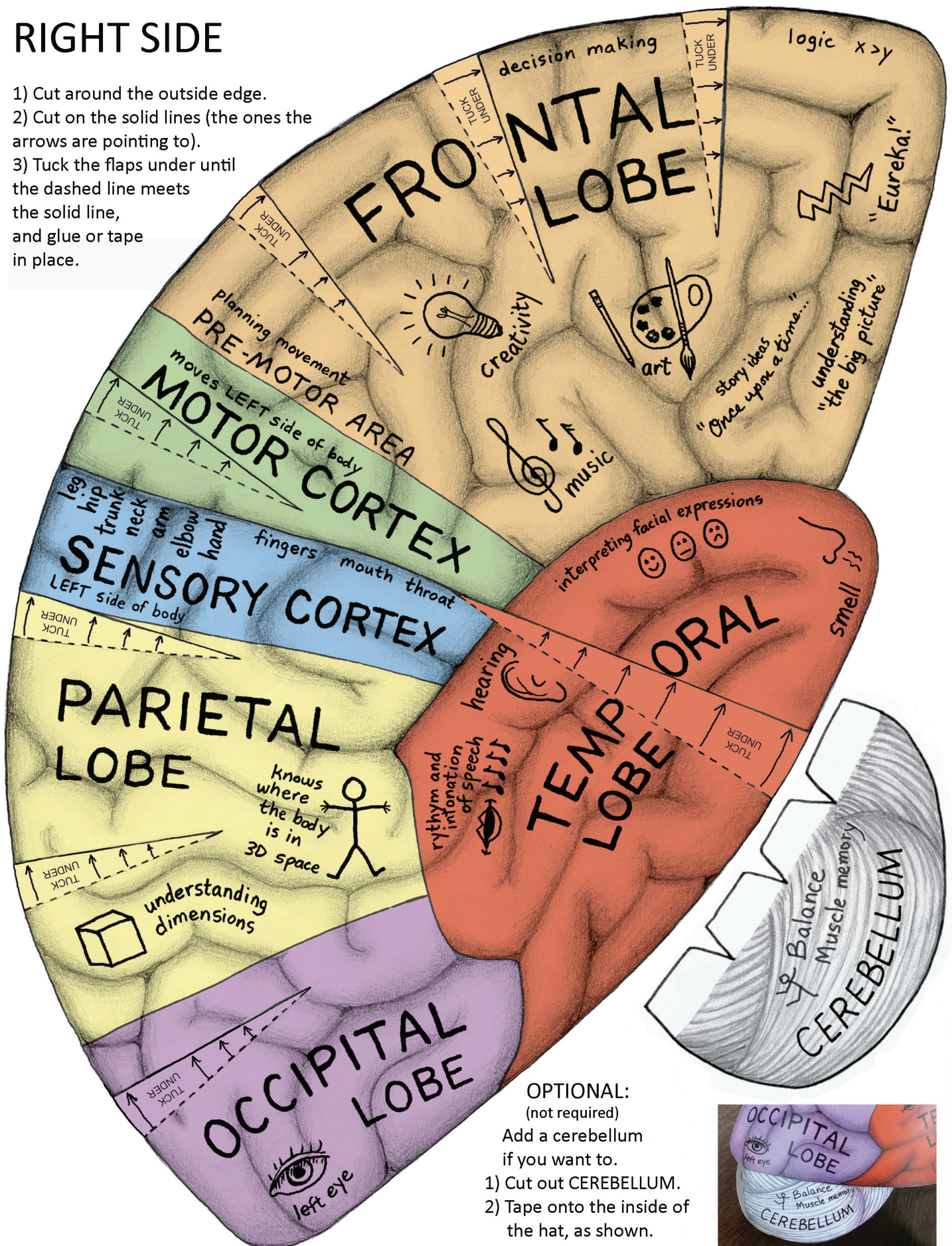
Add a cerebellum
if you want to.

- 1) Cut out CEREBELLUM.
- 2) Tape onto the inside of the hat, as shown.



SMALL RIGHT SIDE

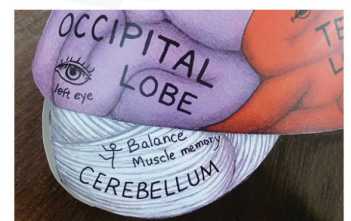
- 1) Cut around the outside edge.
- 2) Cut on the solid lines (the ones the arrows are pointing to).
- 3) Tuck the flaps under until the dashed line meets the solid line, and glue or tape in place.



OPTIONAL:
(not required)

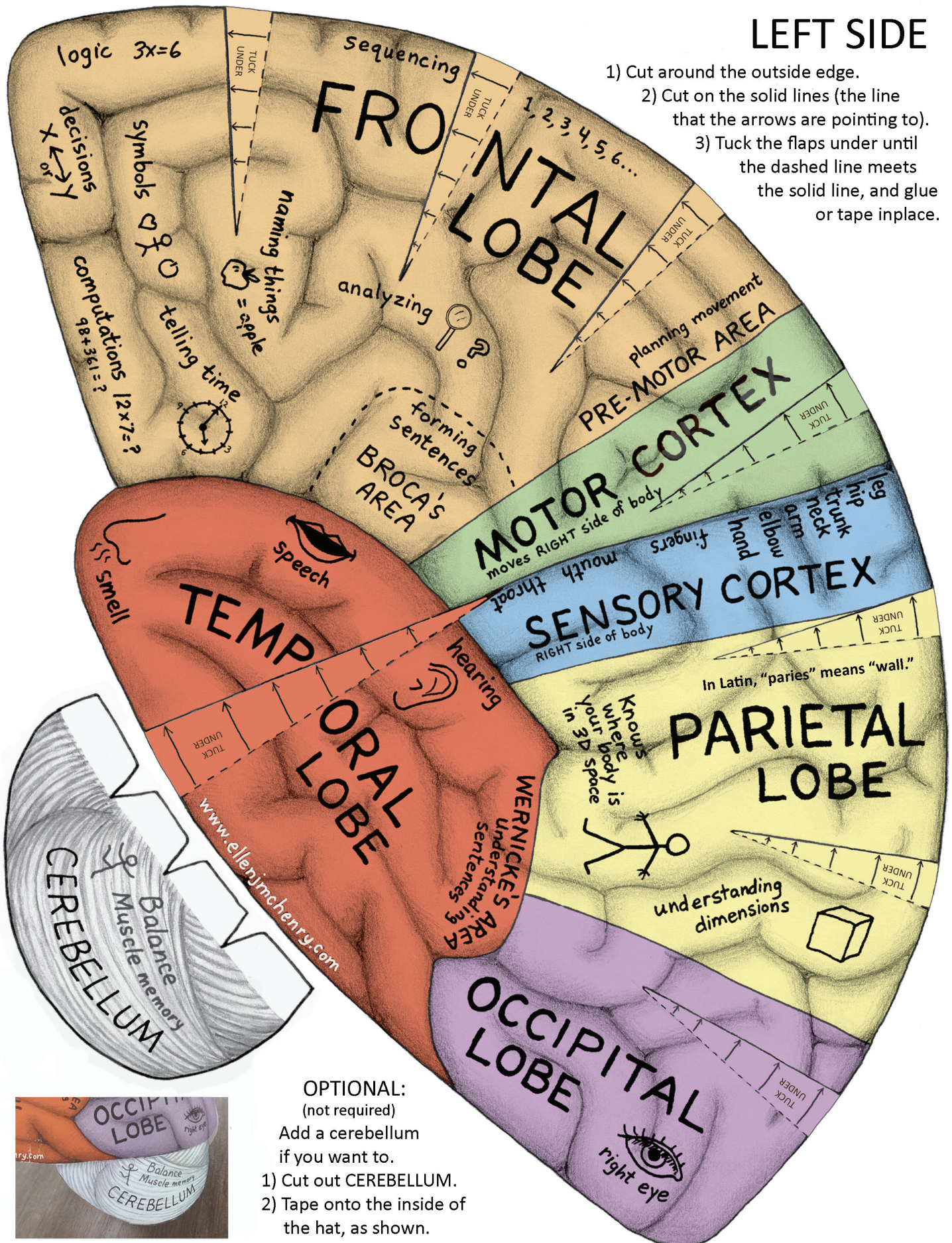
Add a cerebellum
if you want to.

- 1) Cut out CEREBELLUM.
- 2) Tape onto the inside of the hat, as shown.



SMALL LEFT SIDE

- 1) Cut around the outside edge.
- 2) Cut on the solid lines (the line that the arrows are pointing to).
- 3) Tuck the flaps under until the dashed line meets the solid line, and glue or tape in place.

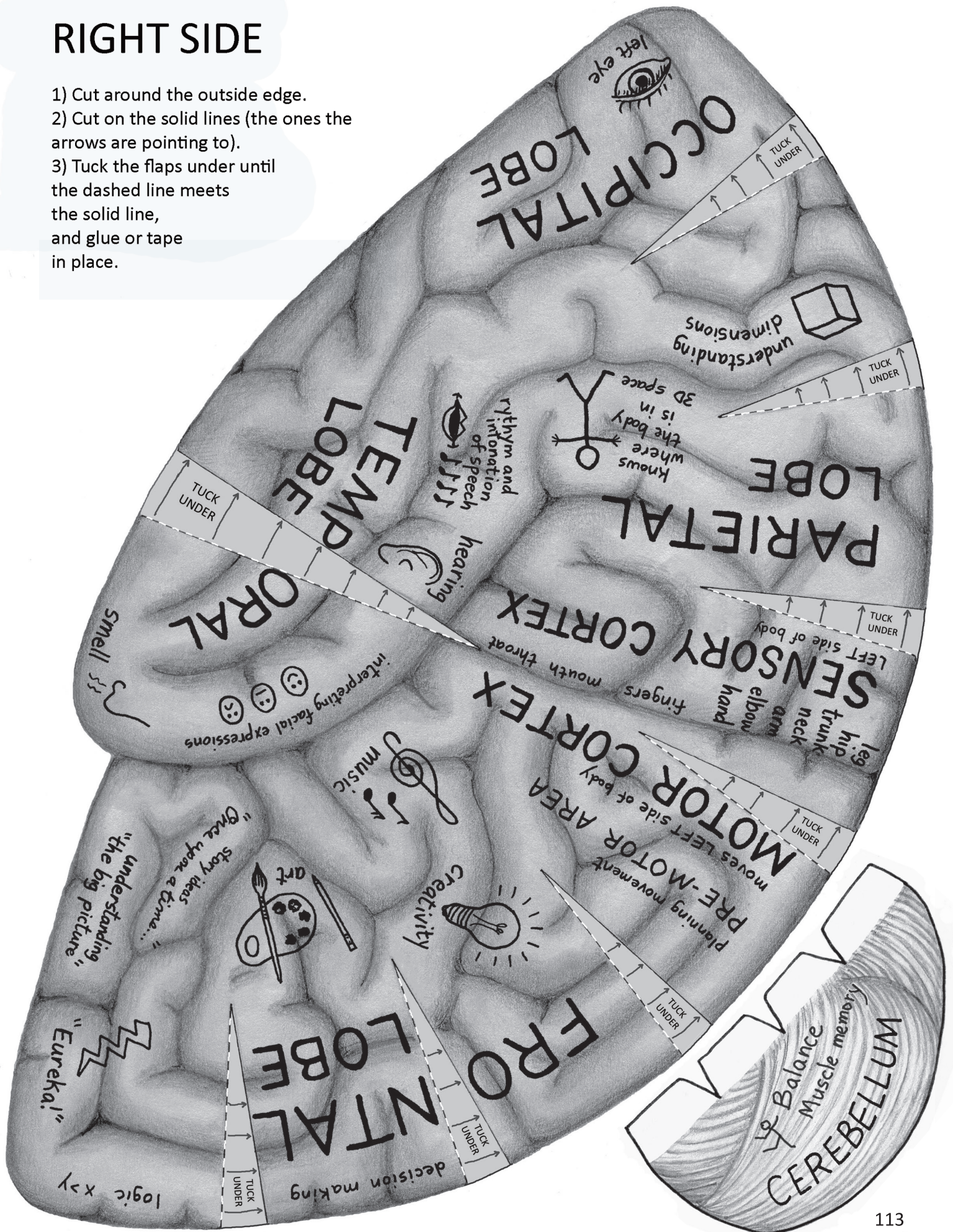


- 1) Cut around the outside edge.
- 2) Cut on the solid lines (the line that the arrows are pointing to).
- 3) Tuck the flaps under until the dashed line meets the solid line, and glue or tape in place.



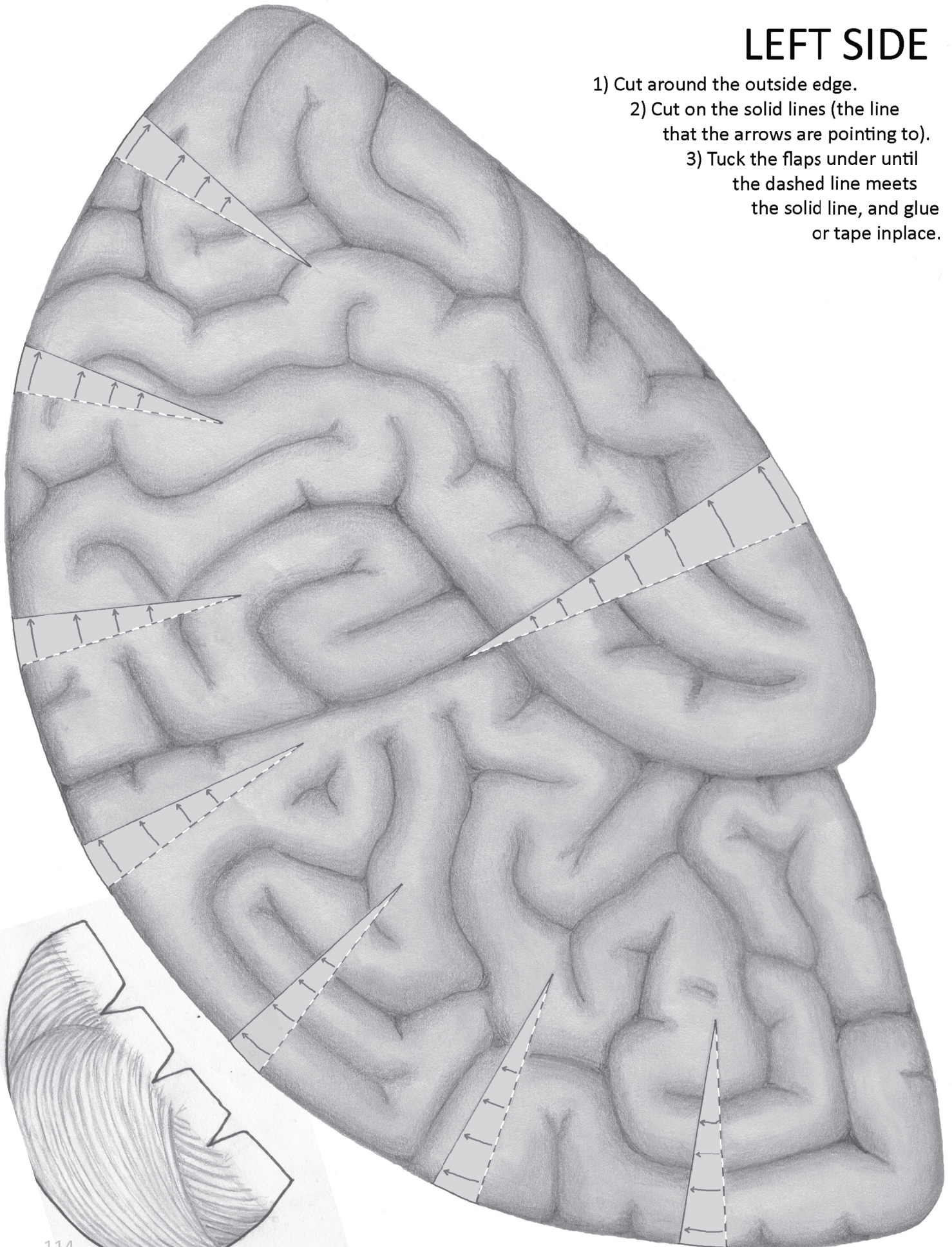
RIGHT SIDE

- 1) Cut around the outside edge.
- 2) Cut on the solid lines (the ones the arrows are pointing to).
- 3) Tuck the flaps under until the dashed line meets the solid line, and glue or tape in place.



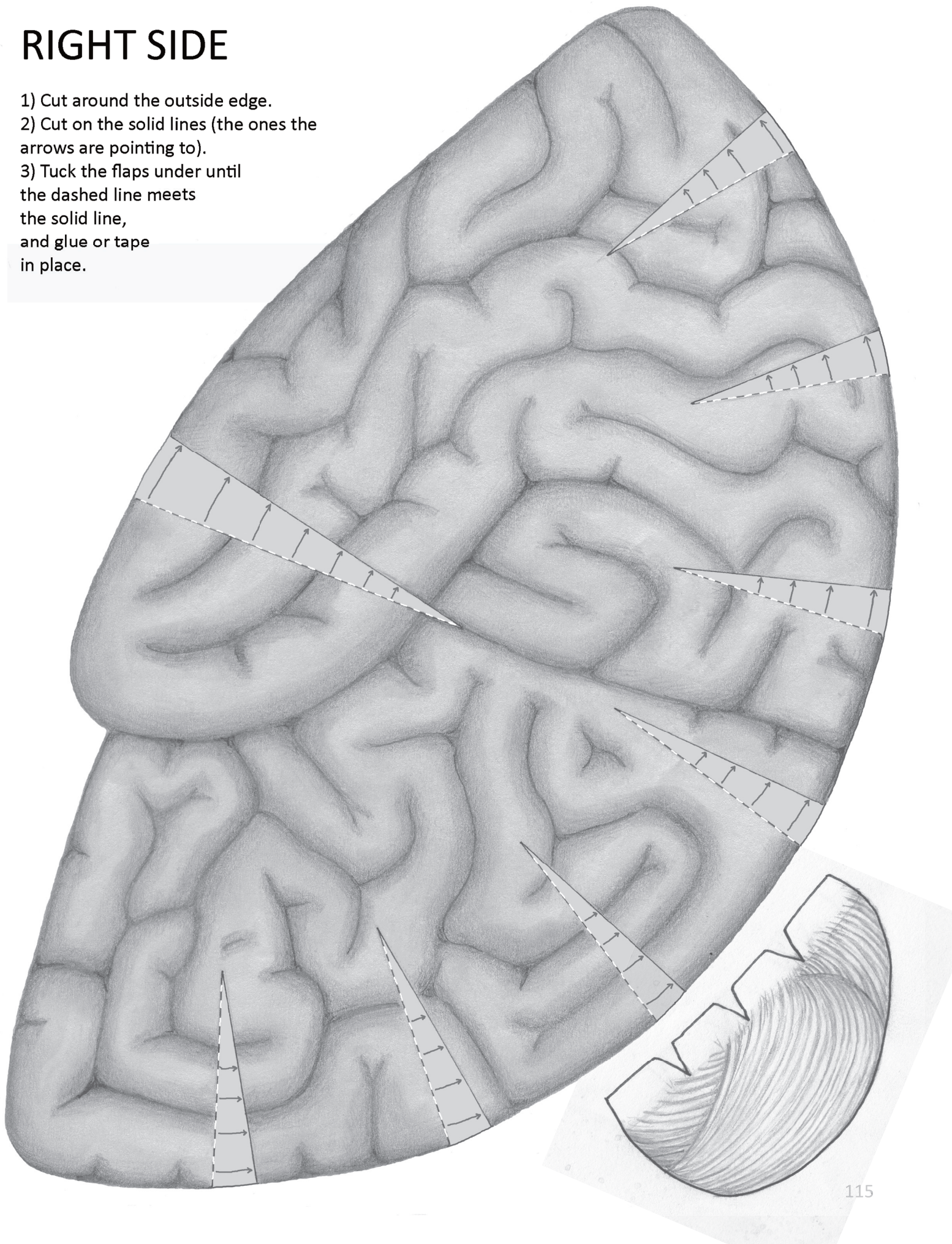
LEFT SIDE

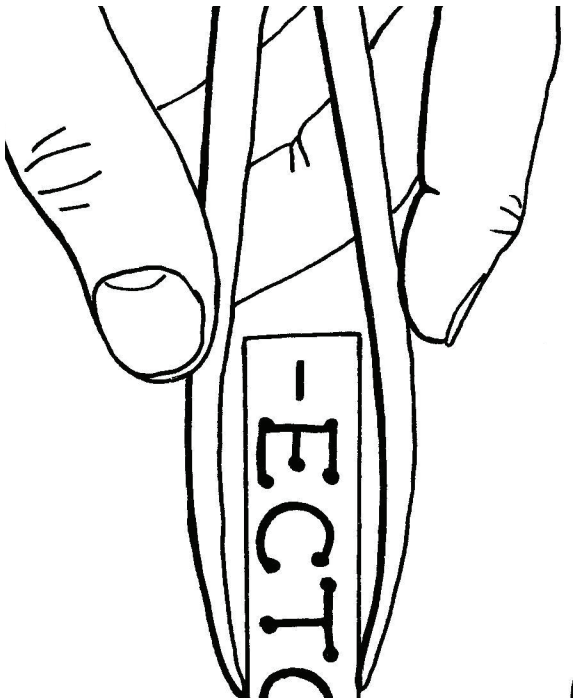
- 1) Cut around the outside edge.
- 2) Cut on the solid lines (the line that the arrows are pointing to).
- 3) Tuck the flaps under until the dashed line meets the solid line, and glue or tape in place.



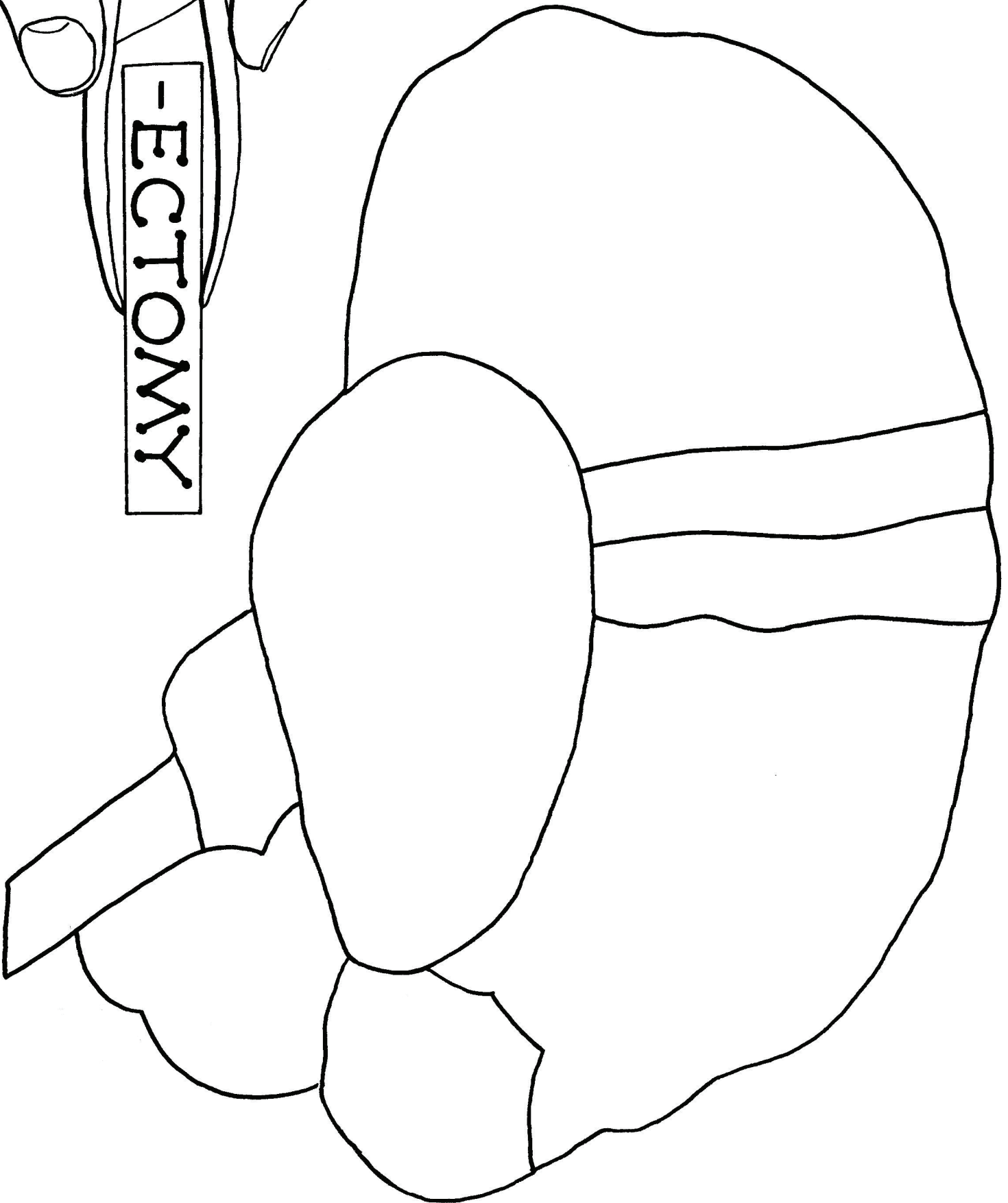
RIGHT SIDE

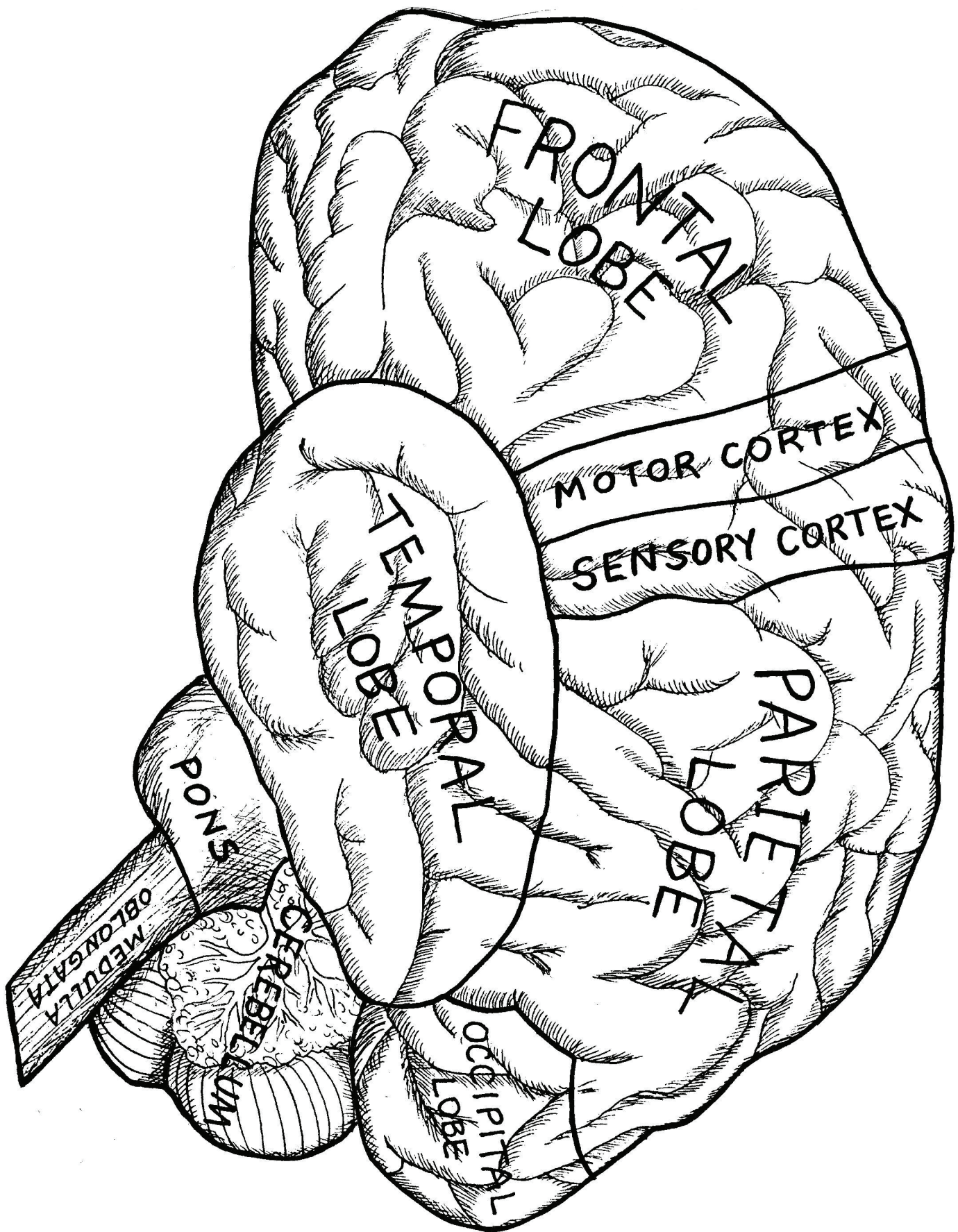
- 1) Cut around the outside edge.
- 2) Cut on the solid lines (the ones the arrows are pointing to).
- 3) Tuck the flaps under until the dashed line meets the solid line, and glue or tape in place.





-ECTOMY



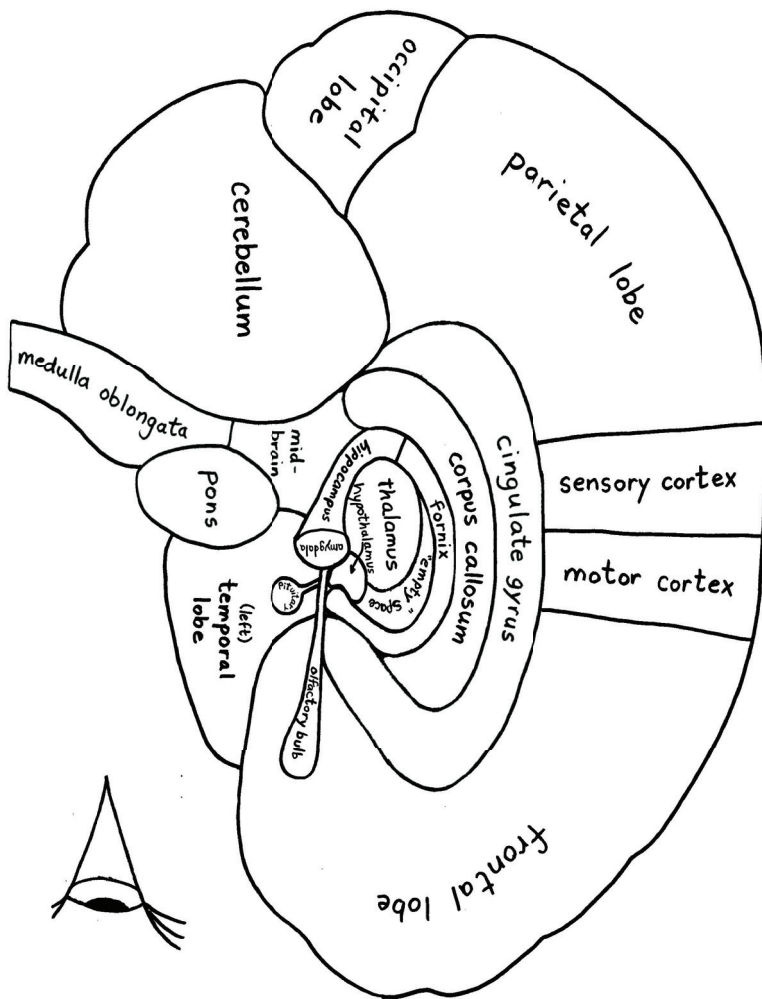
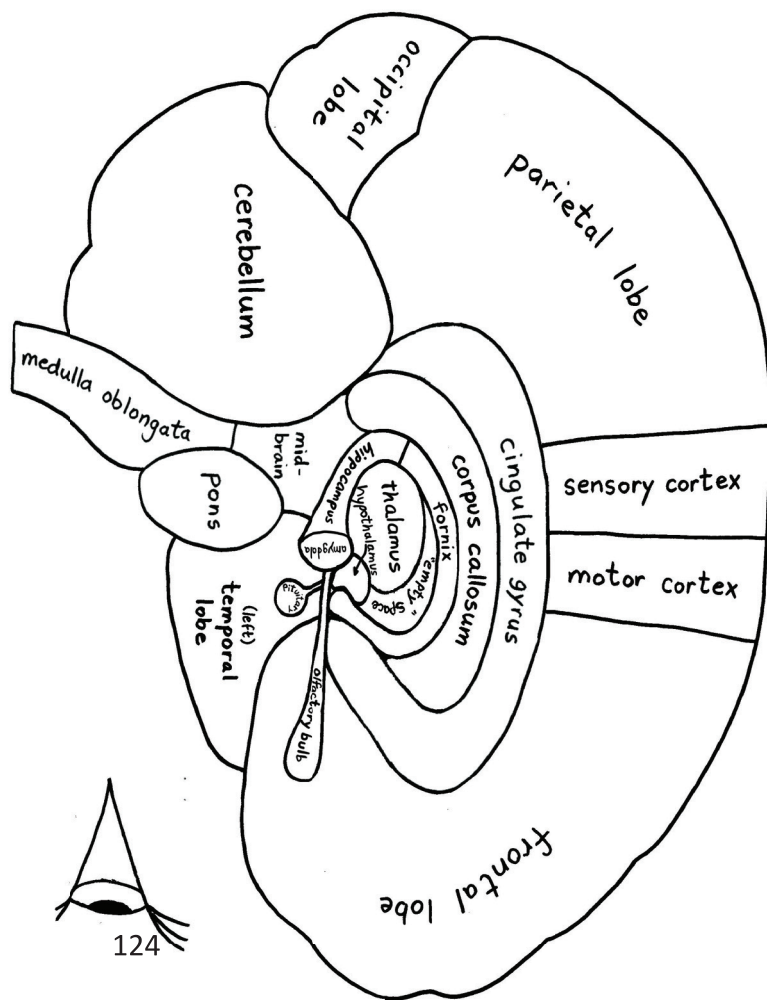
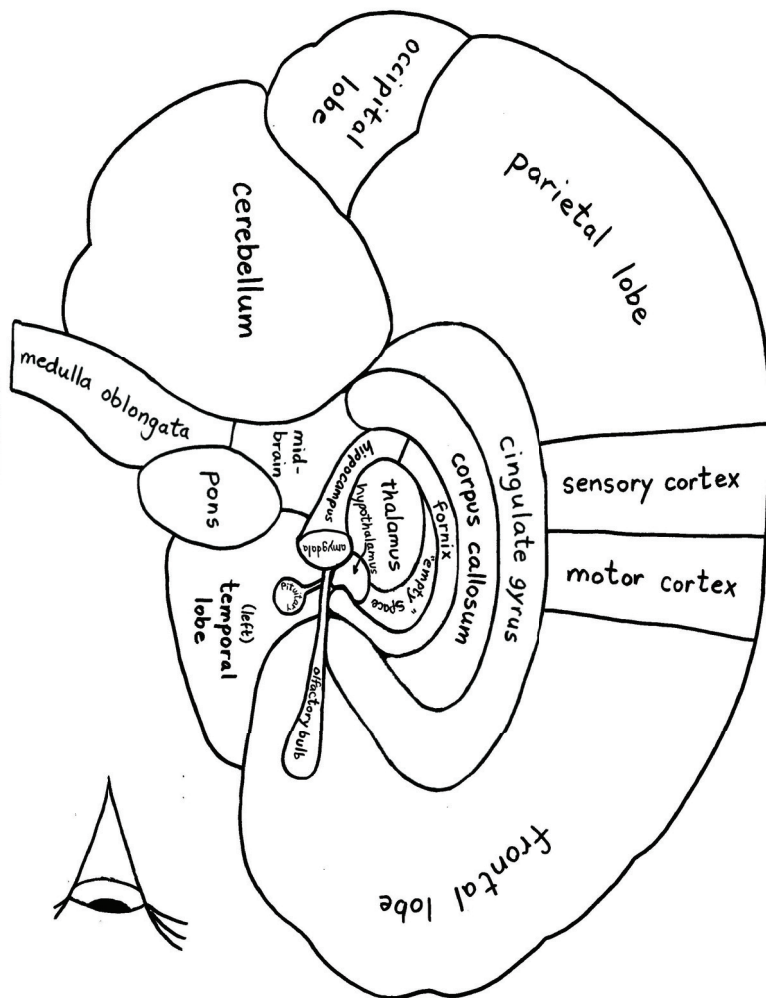
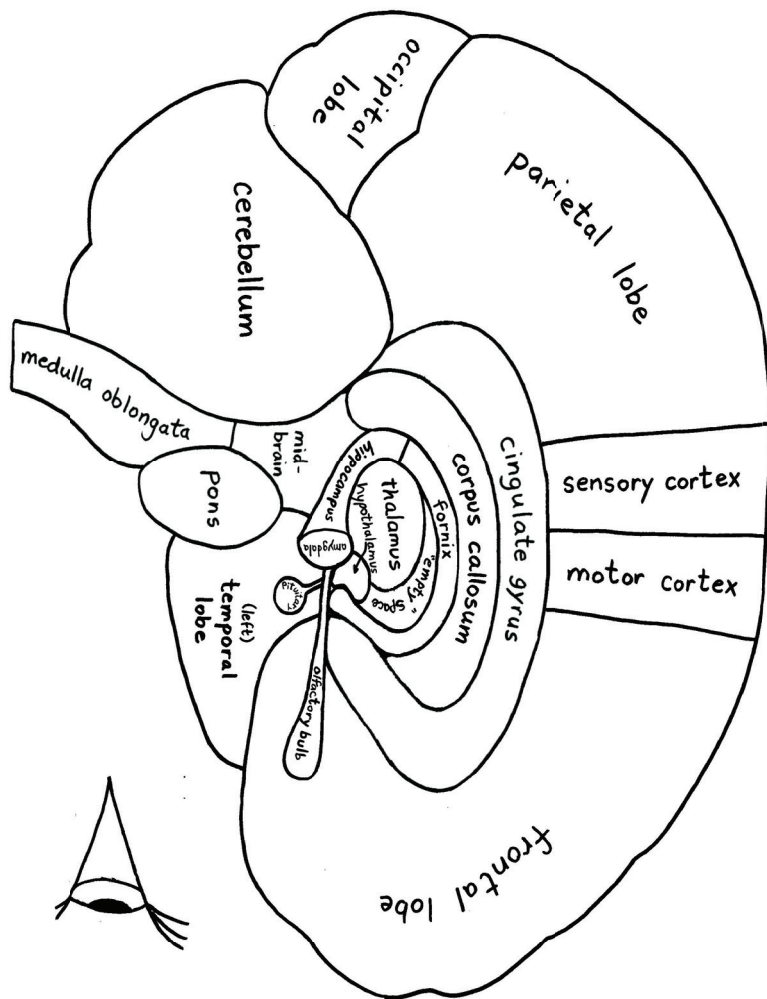


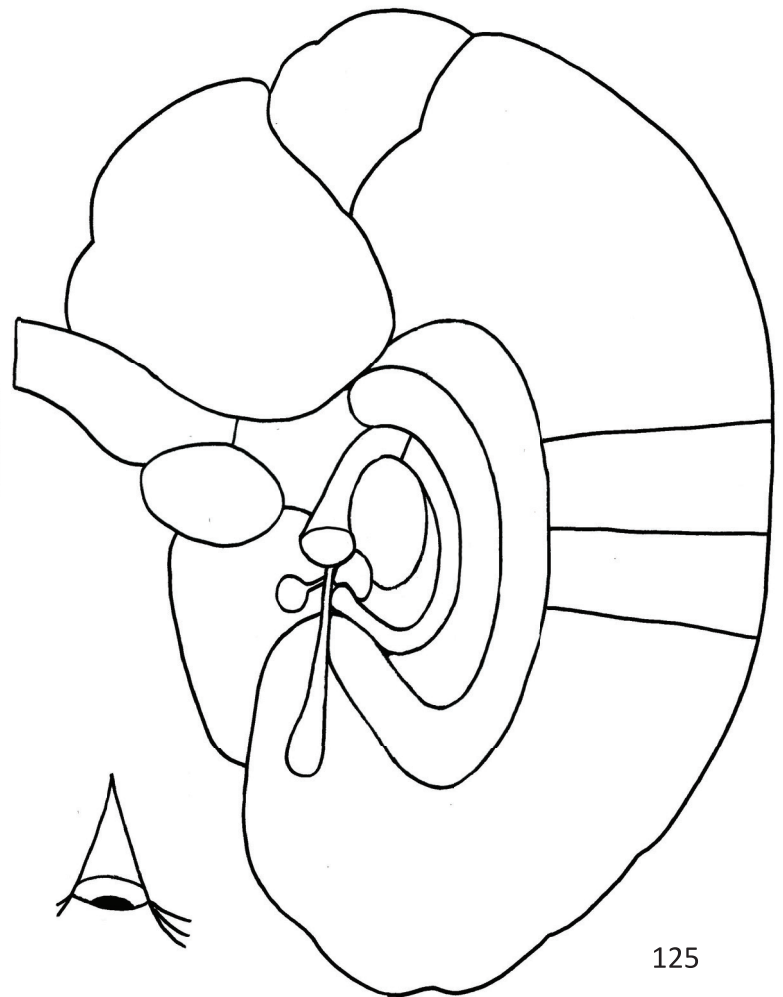
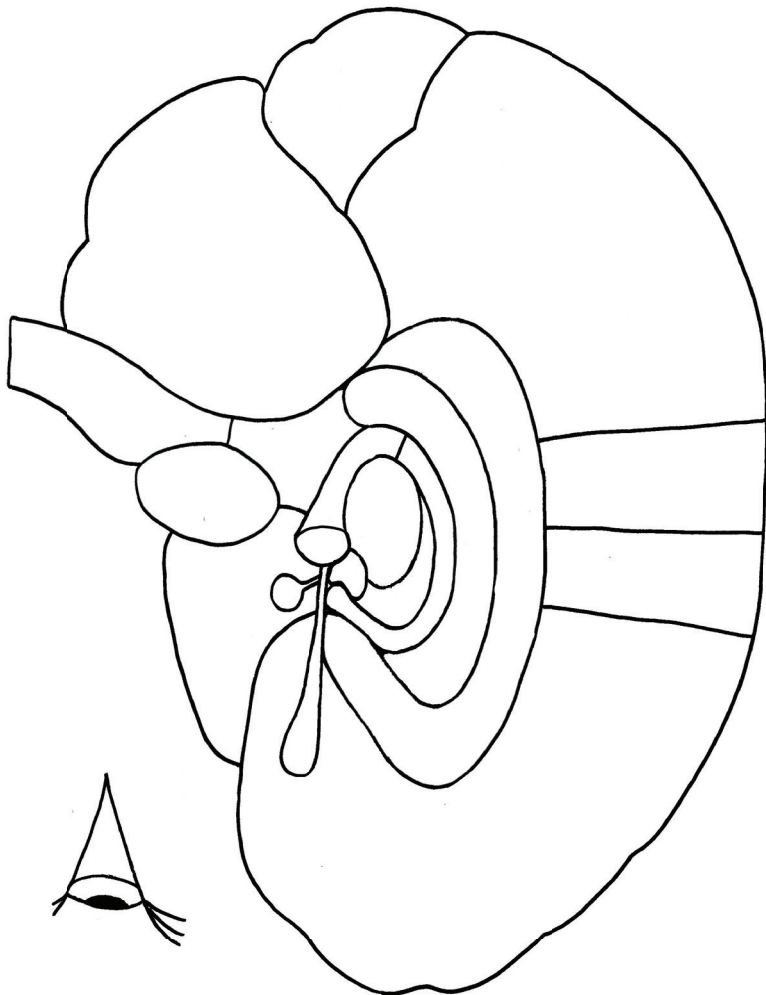
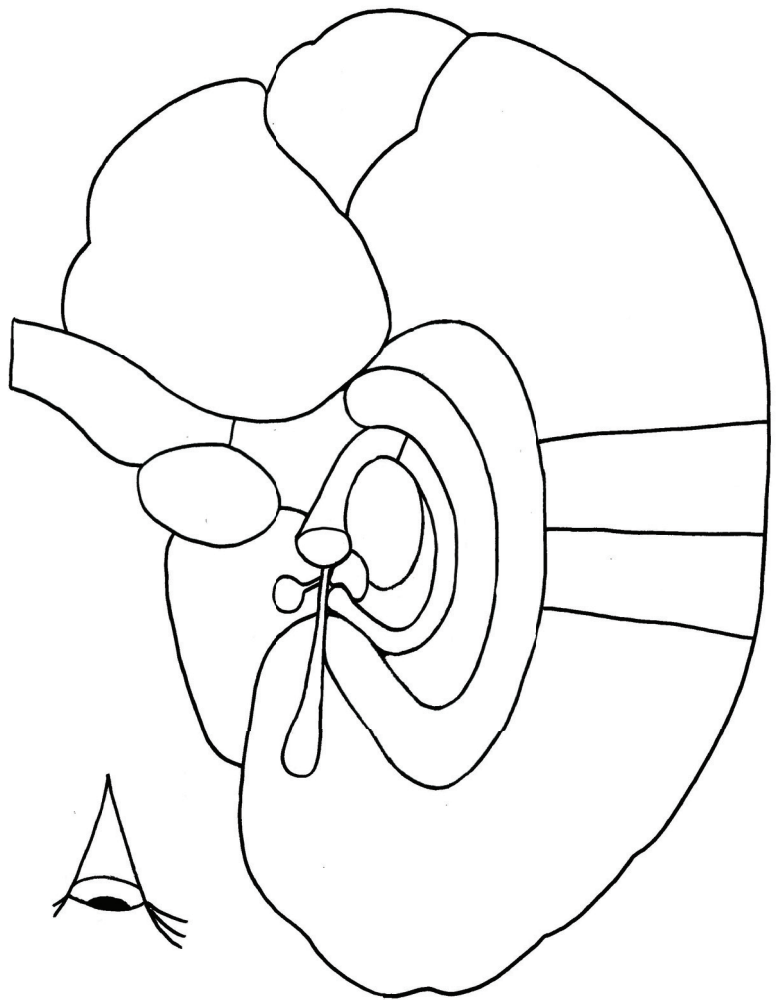
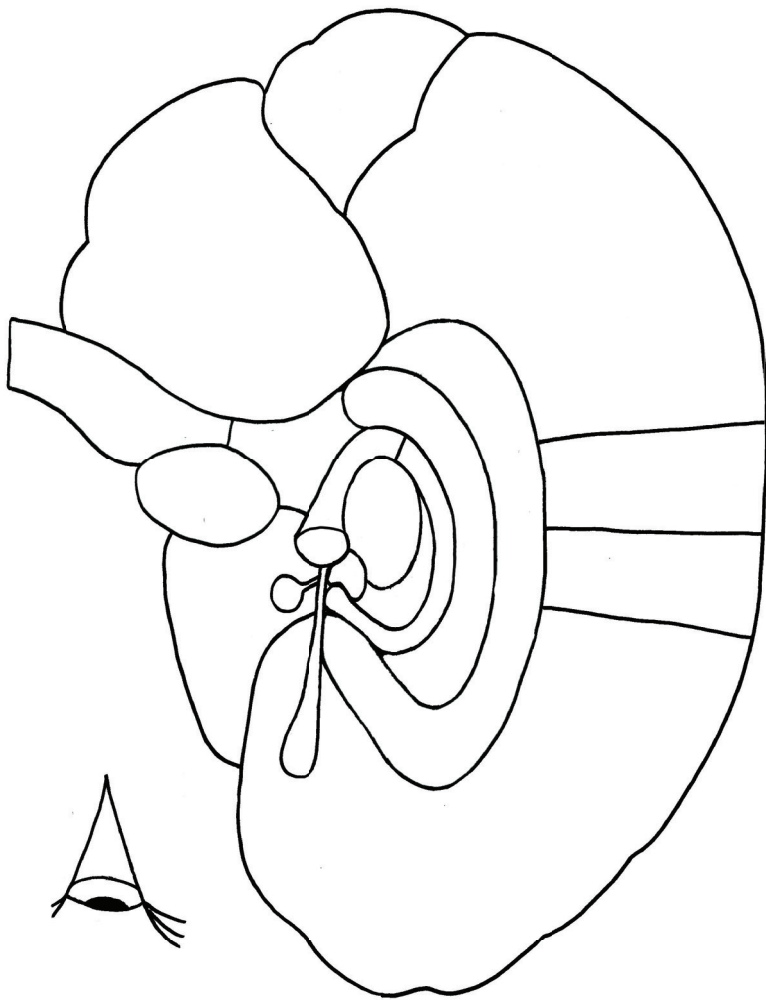
PRINT ONE COPY FOR EACH STUDENT

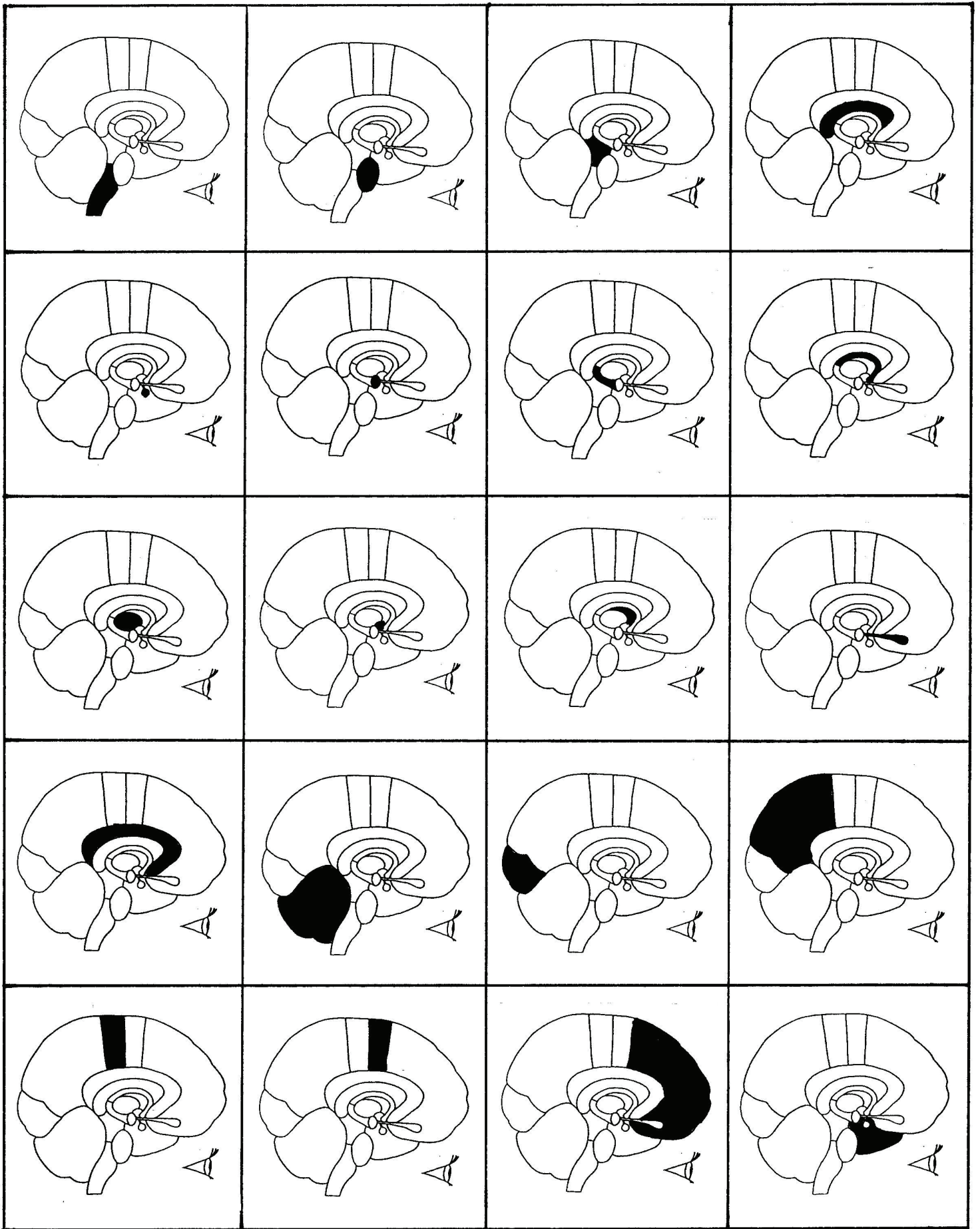
<p>You may receive any brain part if you can answer this question: About how much does a human brain weigh?</p> <p>1.5 KG (3 POUNDS)</p>	<p>You may receive any brain part if you can answer this question: About how thick is the outer cortex of the cerebrum?</p> <p>1/2 CM (1/4 INCH)</p>	<p>You may receive any brain part if you can answer this question: What kind of scan is in color and can show the brain working?</p> <p>PET</p>
<p>You may receive any brain part if you can choose the correct number: How many gallons of blood does the brain receive every hour, 1, 8, 28 or 80? (8)</p>	<p>You may receive any brain part if you can answer this question: What connects the right and left sides of the cerebrum?</p> <p>CORPUS CALLOSUM</p>	<p>You may receive any brain part if you can answer this question: What is the correct name for the brain's "gray matter"?</p> <p>(CEREBRAL) CORTEX</p>
<p>This lobe of the brain is between the sensory cortex and the occipital lobe.</p> <p>PARIETAL LOBE</p>	<p>This part of the brain is between the frontal lobe and the sensory cortex.</p> <p>MOTOR CORTEX</p>	<p>If you hit the back of your head and "see stars" this is the lobe that is affected.</p> <p>OCCIPITAL LOBE</p>
<p>This part of the brain is located right at the top of the spinal cord.</p> <p>MEDULLA</p>	<p>This is part of the brain stem and is located between the medulla and the cerebrum.</p> <p>PONS</p>	<p>You may collect any brain part if you can say which brain part produces the hormone "melatonin" which helps you sleep.</p> <p>PINEAL GLAND</p>
<p>This part of the brain can't function when your eyes are closed.</p> <p>OCCIPITAL LOBE</p>	<p>This part of your brain is right behind your forehead.</p> <p>FRONTAL LOBE</p>	<p>This lobe listens to music.</p> <p>TEMPORAL LOBE</p>
<p>This part of your brain could be called your "alarm clock."</p> <p>PONS</p>	<p>You may receive any brain part if you can answer this question: What is the correct name for one of the curving ridges on the surface of the brain?</p> <p>GYRUS</p>	<p>You may receive any brain part if you can answer this question: What is the main function of the hippocampus?</p> <p>MEMORY</p>

<p>This part of your brain grows rapidly and almost reaches adult size by the age of two.</p> <p>CEREBELLUM</p>	<p>This part of your brain allows you to be graceful. It coordinates your movements.</p> <p>CEREBELLUM</p>	<p>This lobe is connected to your eyes.</p> <p>OCCIPITAL</p>
<p>This part of the brain receives information from the skin.</p> <p>SENSORY CORTEX</p>	<p>This lobe of your brain is where your speech center is located.</p> <p>TEMPORAL LOBE</p>	<p>This part of your brain can sense the texture of your dog's fur.</p> <p>SENSORY CORTEX</p>
<p>This part of the brain makes the decision to move and then sends signals to the motor cortex.</p> <p>FRONTAL LOBE</p>	<p>Collect any brain part if you know which part is right below the thalamus and controls hunger.</p> <p>HYPOTHALAMUS</p>	<p>This lobe thinks in three dimensions and keeps track of where your body is in space.</p> <p>PARIETAL LOBE</p>
<p>This part of your brain decides whether you will wear the red shirt or the blue shirt today.</p> <p>FRONTAL LOBE</p>	<p>This lobe is where your sense of smell is located.</p> <p>TEMPORAL LOBE</p>	<p>This part of your brain sends out electrical signals to move your muscles.</p> <p>MOTOR CORTEX</p>
<p>Your vomit reflex is located in this part of the brain.</p> <p>MEDULLA OBLONGATA</p>	<p>This brain part wakes you up in the morning.</p> <p>PONS</p>	<p>This part of your brain works with your inner ear to give you your sense of balance.</p> <p>CEREBELLUM</p>
<p>This brain part keeps your heart and lungs working while you sleep.</p> <p>MEDULLA OBLONGDATA</p>	<p>This is the lobe of your brain where you add and subtract numbers.</p> <p>FRONTAL LOBE</p>	<p>This name of this brain part means "little brain."</p> <p>CEREBELLUM</p>

<p>You may receive any brain part if you can answer this question: What stops most chemicals from entering the brain? BLOOD-BRAIN-BARRIER</p>	<p>You may receive any brain part if you can answer this question: Which side of the brain is more creative and musical? RIGHT</p>	<p>You may receive any brain part if you can answer this question: Which side of the brain is more logical? LEFT</p>
<p>You may receive any brain part if you can answer this question: Which side of the brain uses words and symbols to name things? LEFT</p>	<p>You may receive any brain part if you can answer this question: Which side of the brain is good at drawing and sculpting? RIGHT</p>	<p>You may receive any brain part if you can answer this question: Which side of your brain controls the left side of your body? RIGHT</p>
<p>This lobe of your brain is right under the “crown” of your head, where your hair sprouts out from a central point. PARIETAL</p>	<p>This part of your brain allows you to know what your body parts are doing even when you have your eyes closed. PARIETAL</p>	<p>This part of your brain is where your coughing and sneezing reflexes are located. MEDULLA OBLONGATA</p>
<p>-ECTOMY Remove your parietal lobe</p>	<p>-ECTOMY Remove your cerebellum</p>	<p>-ECTOMY Remove your motor cortex</p>
<p>-ECTOMY Remove your frontal lobe</p>	<p>-ECTOMY Remove your temporal lobe</p>	<p>-ECTOMY Remove your occipital lobe</p>
<p>-ECTOMY Remove your medulla</p>	<p>-ECTOMY Remove your pons</p>	<p>-ECTOMY Remove your sensory cortex</p>







MAKE ONE COPY ON CARD STOCK

MEDULLA OBLONGATA	PONS	MID-BRAIN	CORPUS CALLOSUM
PITUITARY	AMYGDALA	HIPPOCAMPUS	FORNIX
THALAMUS	HYPO- THALAMUS	VENTRICLE (empty space)	OLFACTORY BULB
CINGULATE GYRUS	CEREBELLUM	OCCIPITAL LOBE	PARIETAL LOBE
SENSORY CORTEX	MOTOR CORTEX	FRONTAL LOBE	TEMPORAL LOBE