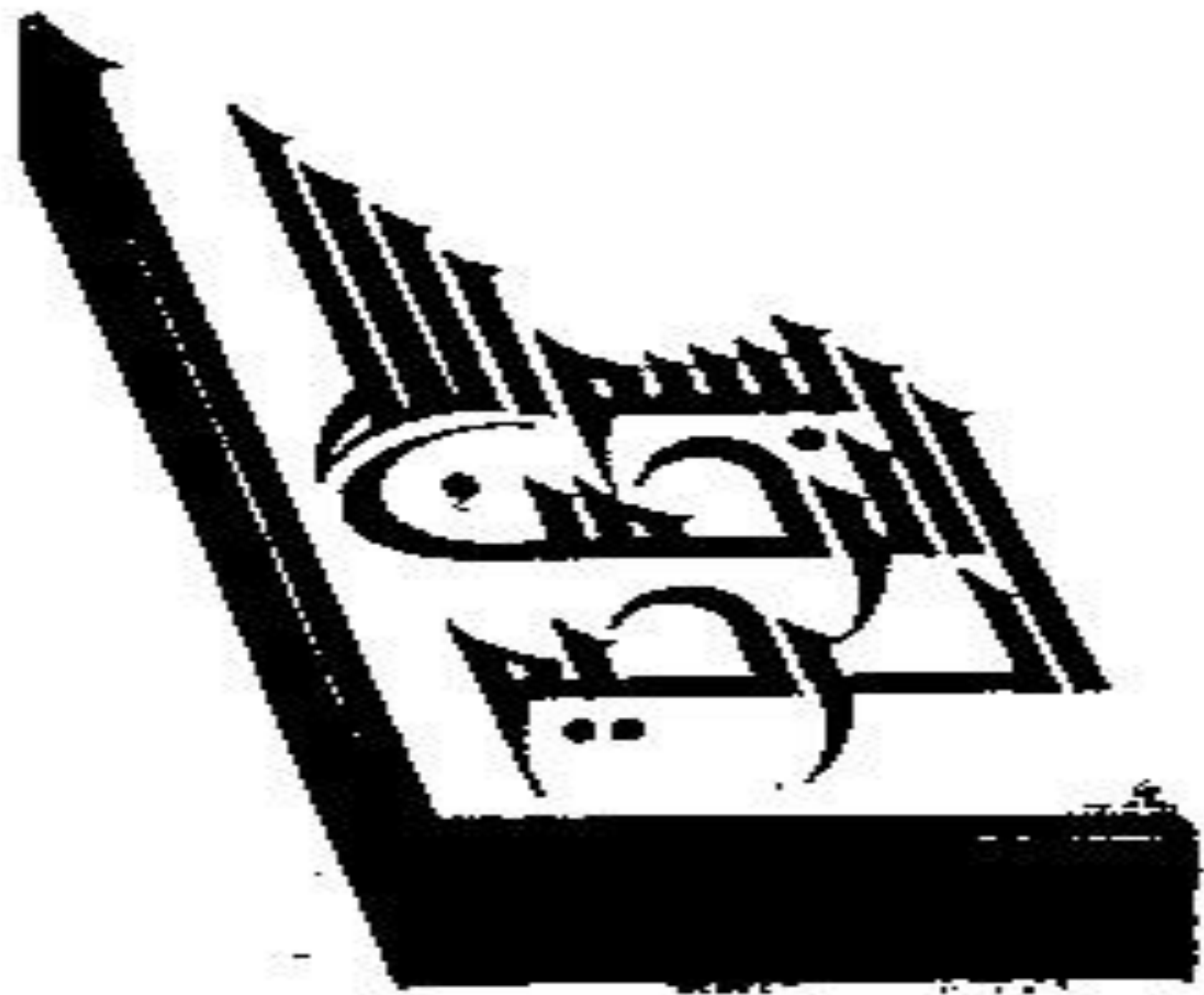
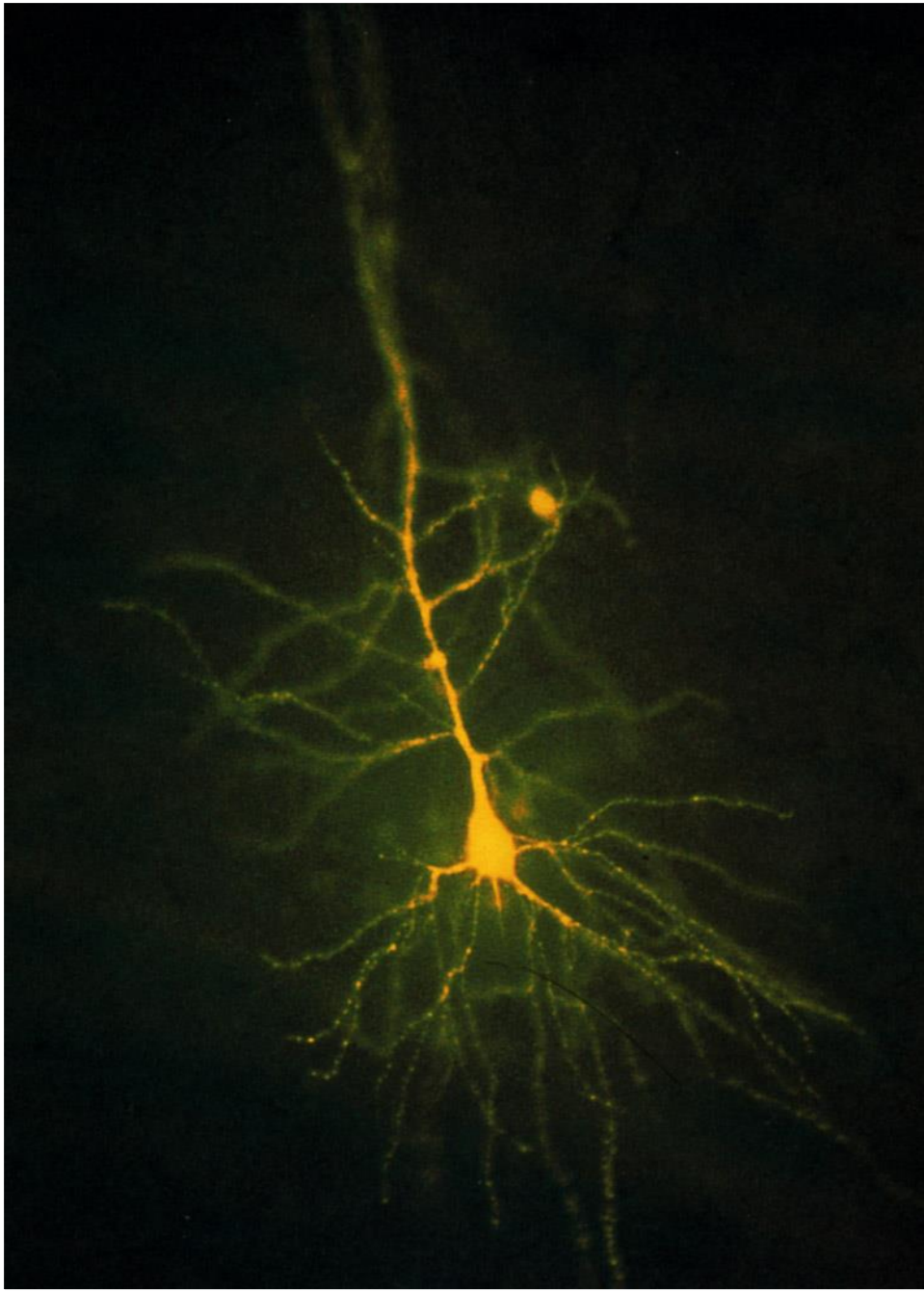




قشر مغز

**Cerebral
Cortex**



Brain!!!



smoky
shrew



0.176 g

36 M

short-tailed
shrew



0.347 g

52 M

mouse



0.416 g

71 M

hamster



1.020 g

90 M

star-nosed
mole



0.802 g

131 M

rat



1.802 g

200 M

eastern mole



0.999 g

204 M

guinea pig



3.759 g

240 M

marmoset



7.78 g

634 M

agouti



18.365 g

857 M

galago



10.15 g

936 M

owl monkey



15.73 g

1468 M

capybara



76.036 g

1600 M

squirrel monkey



30.22 g

3246 M

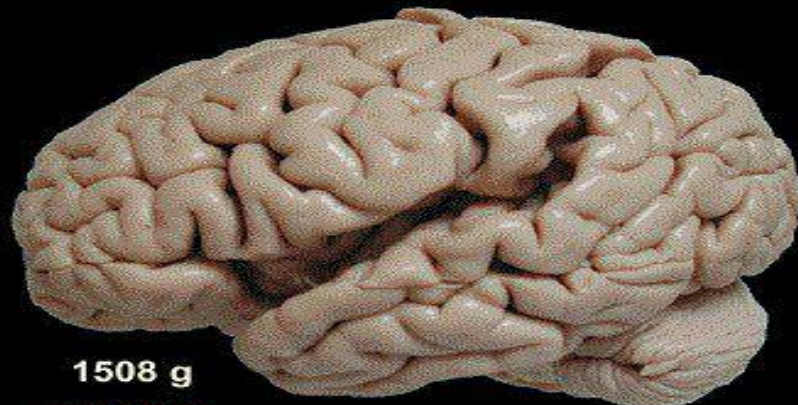
capuchin monkey



53.21 g

3690 M

human



1508 g

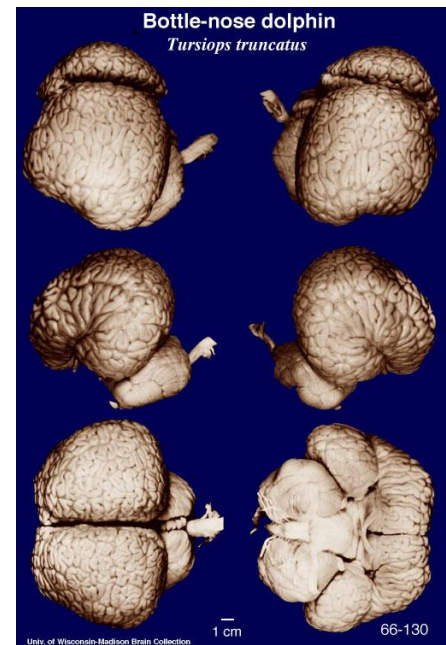
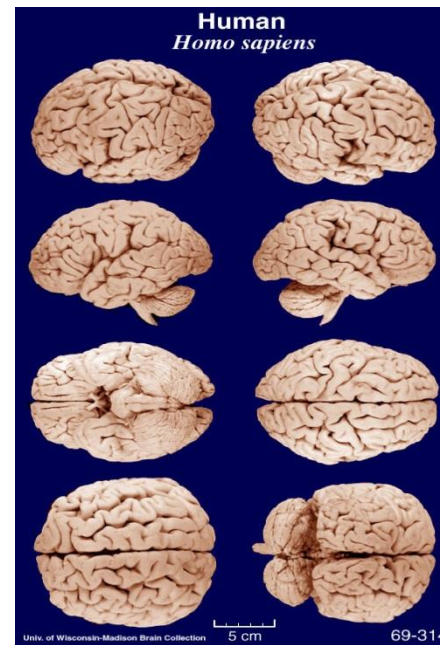
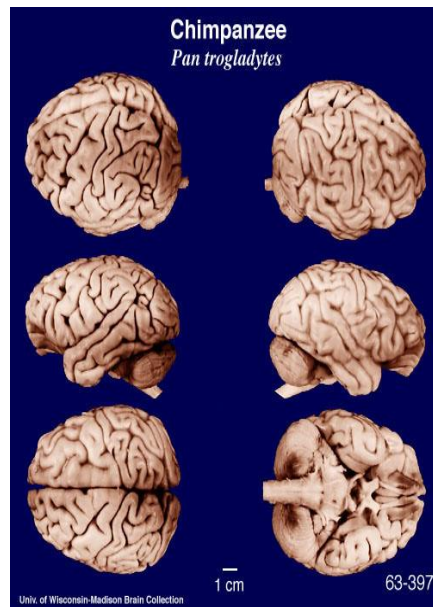
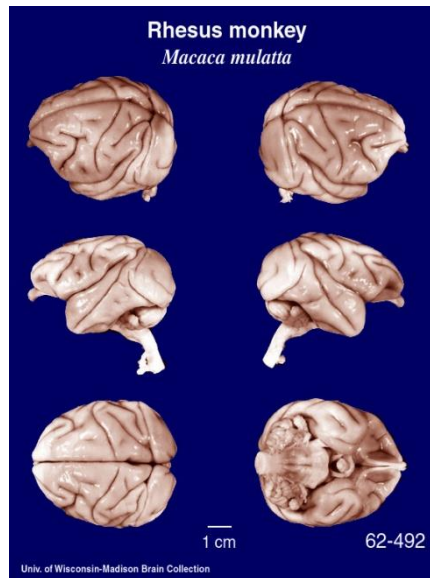
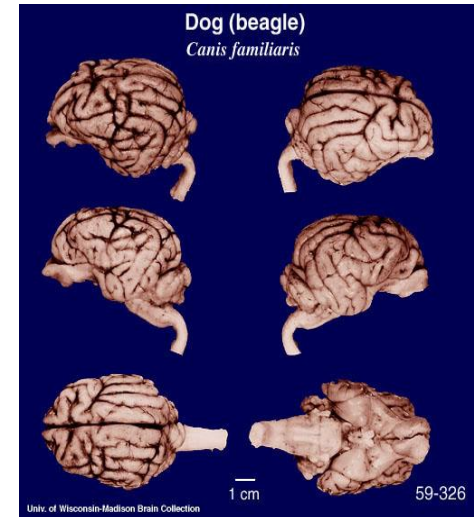
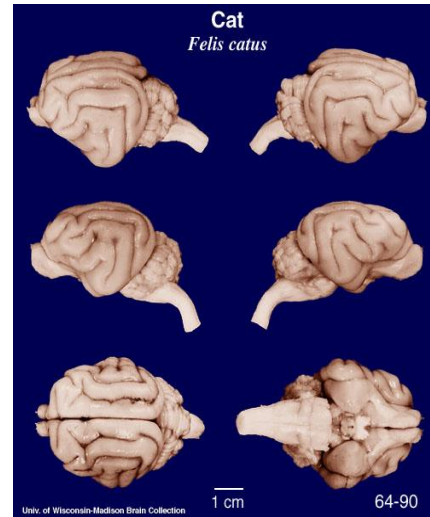
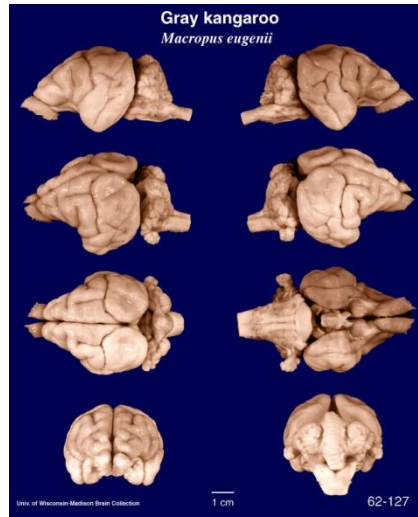
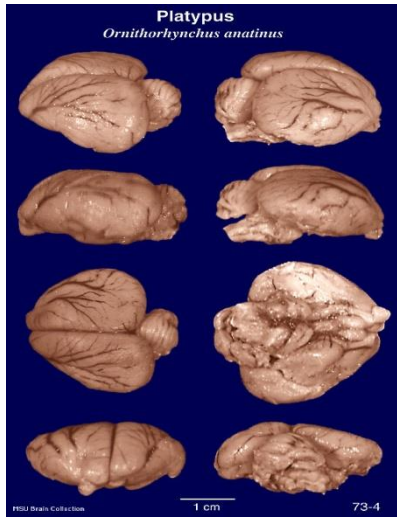
86000 M

macaque monkey

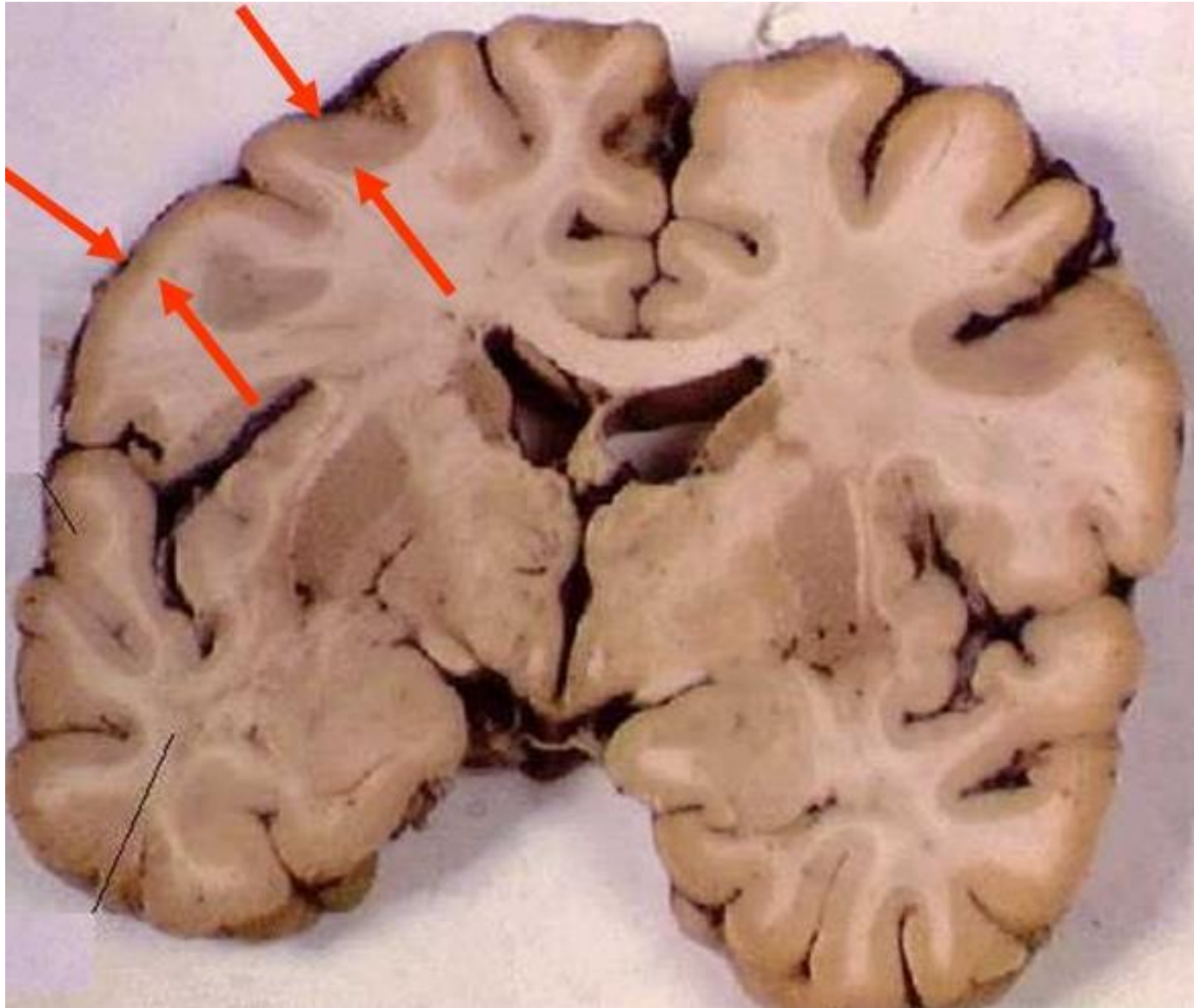


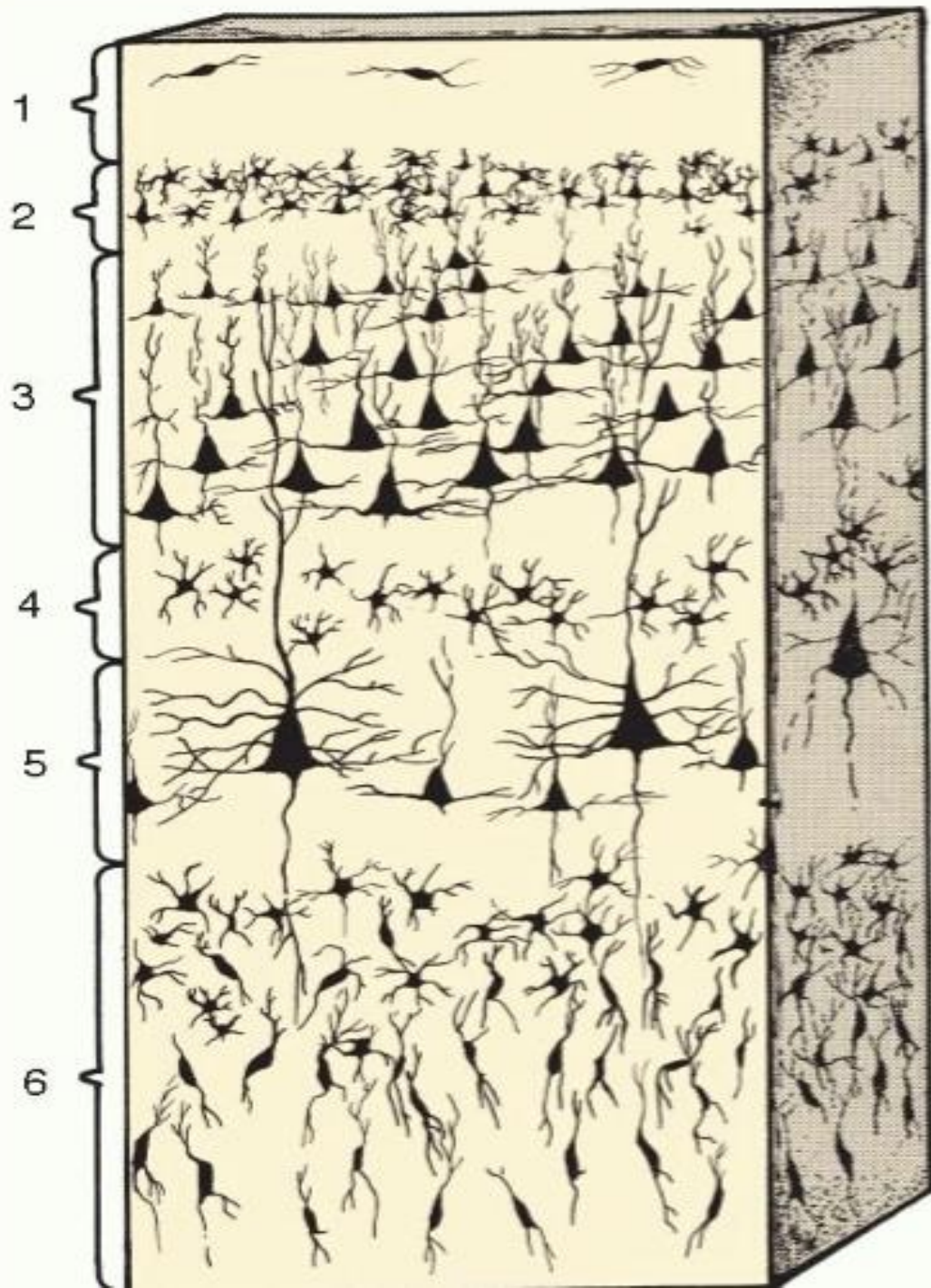
87.35 g

6376 M

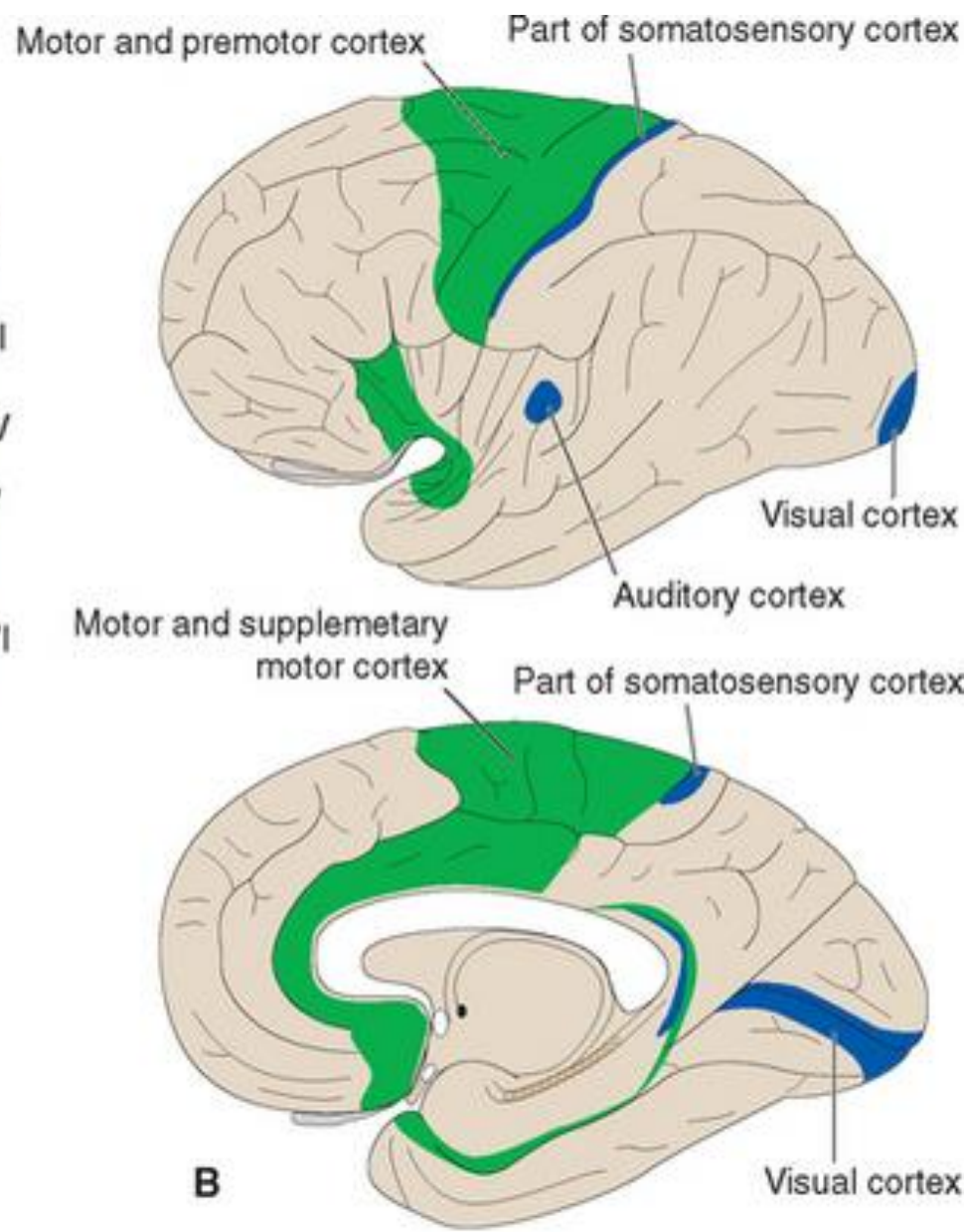
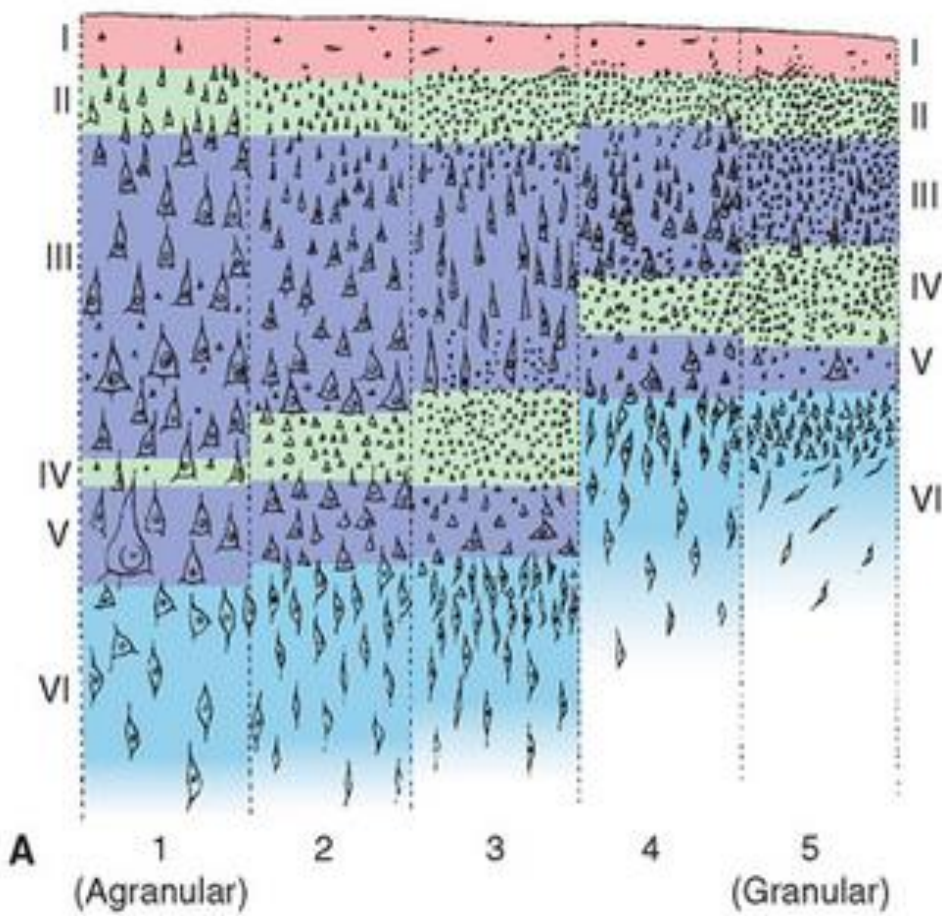


Cerebral cortex

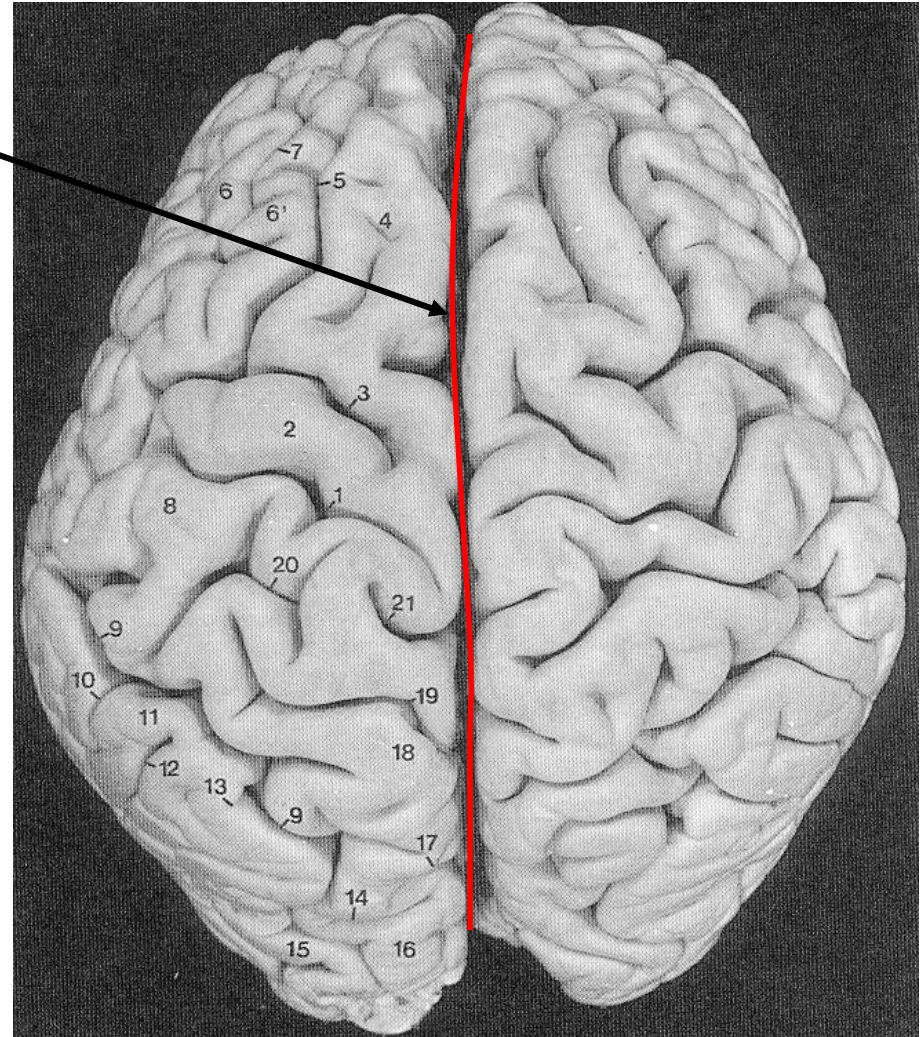
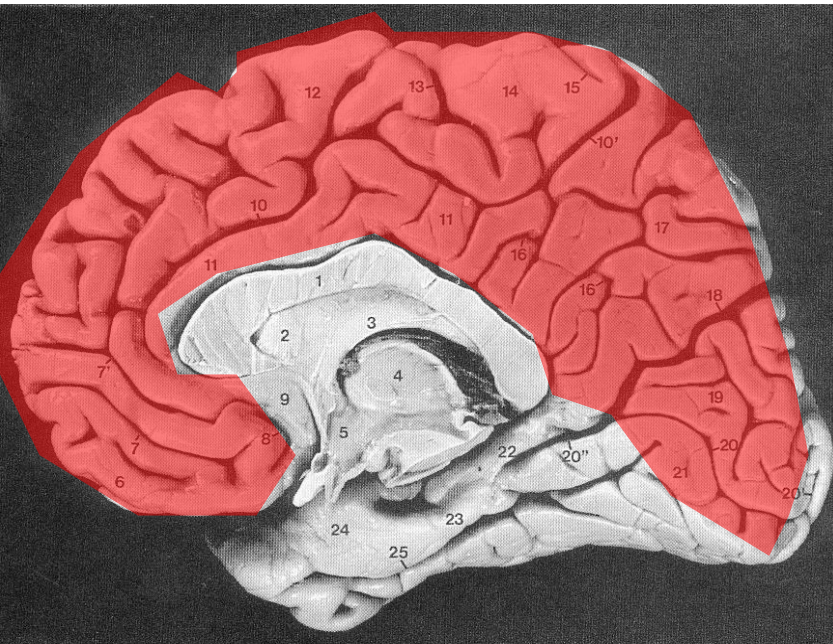


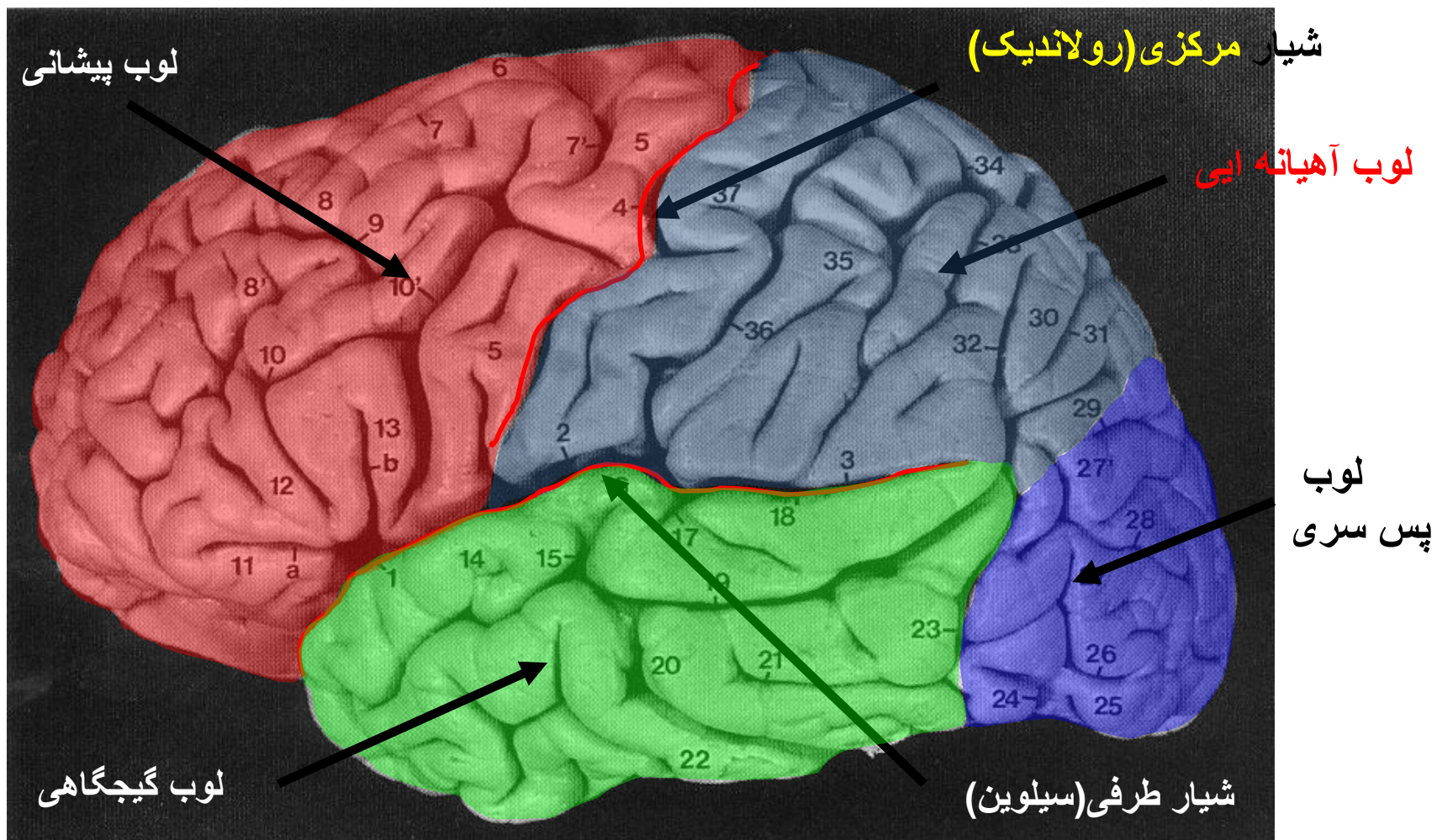


- I. لایه مولکولار
- II. لایه گرانولار خارجی
- III. لایه پیرامیدال خارجی
- IV. لایه گرانولار داخلی
- V. لایه پیرامیدال داخلی
- VI. لایه پلی مورفیک

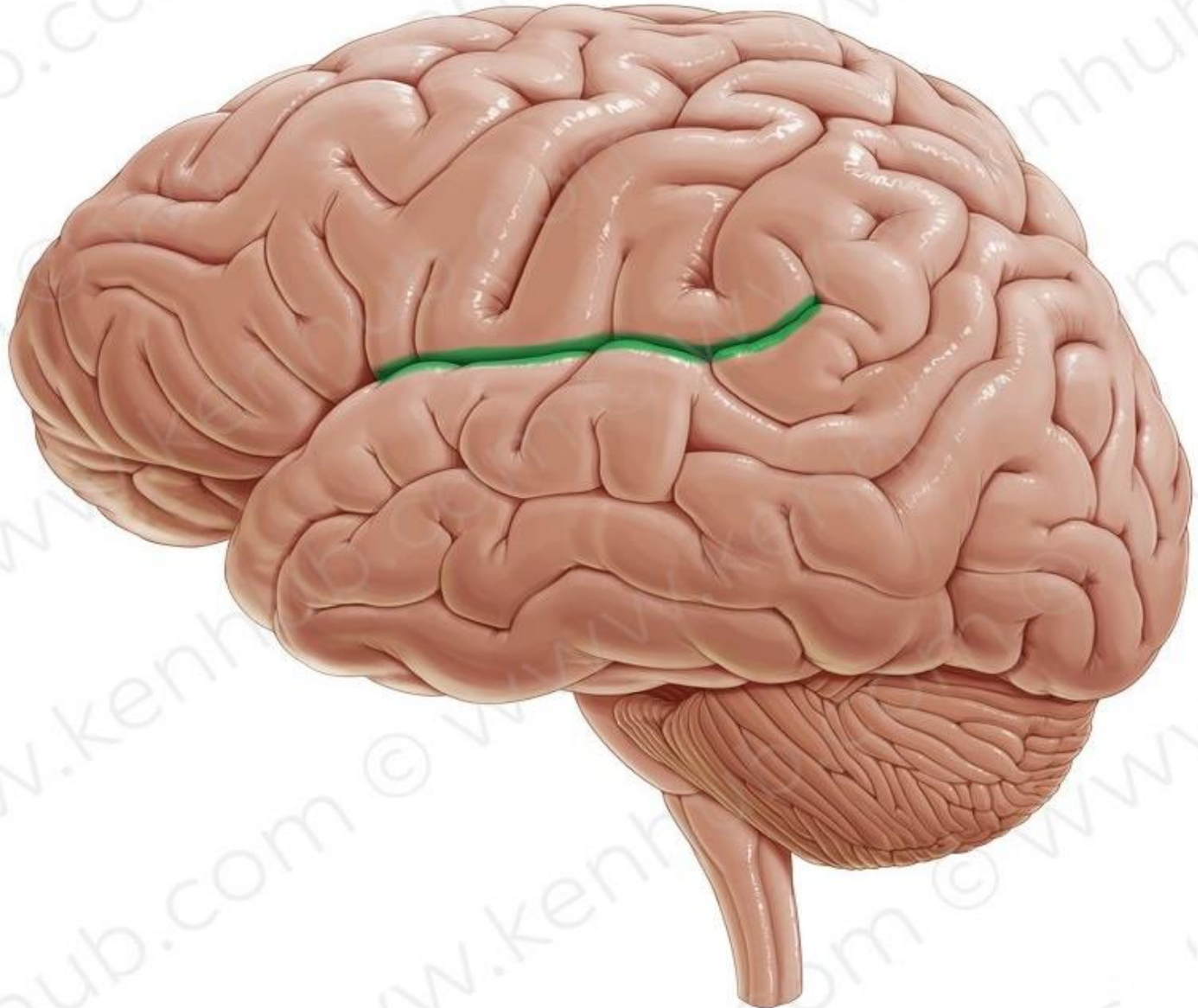


شیار طولی

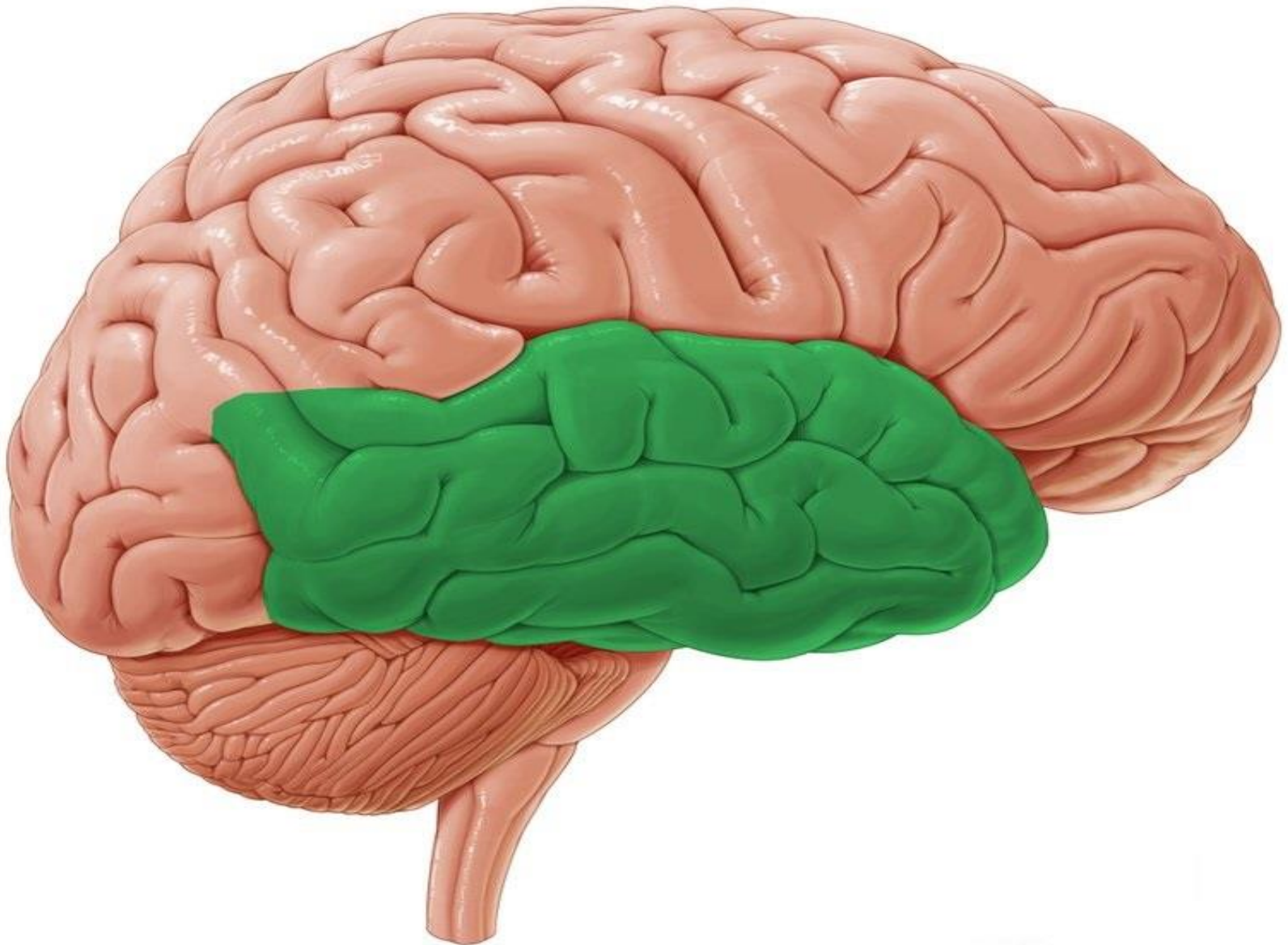




شيار لٽرال (سيلوين)



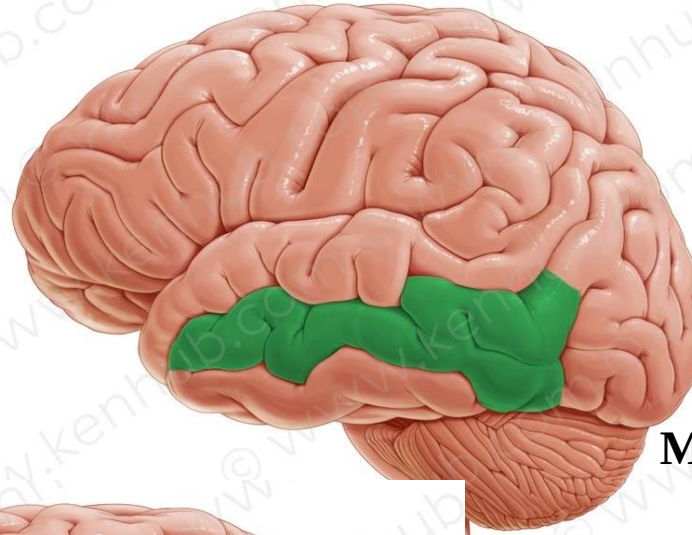
Temporal lobe



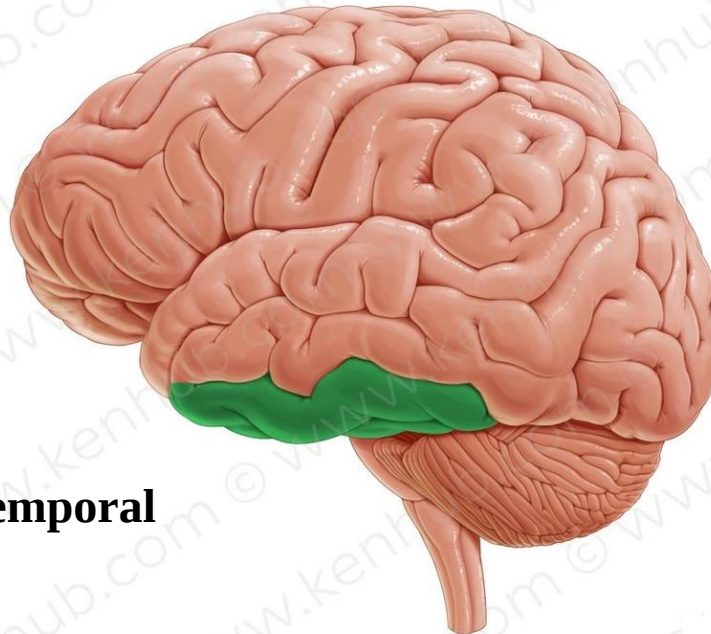
Temporal lobe gyrus



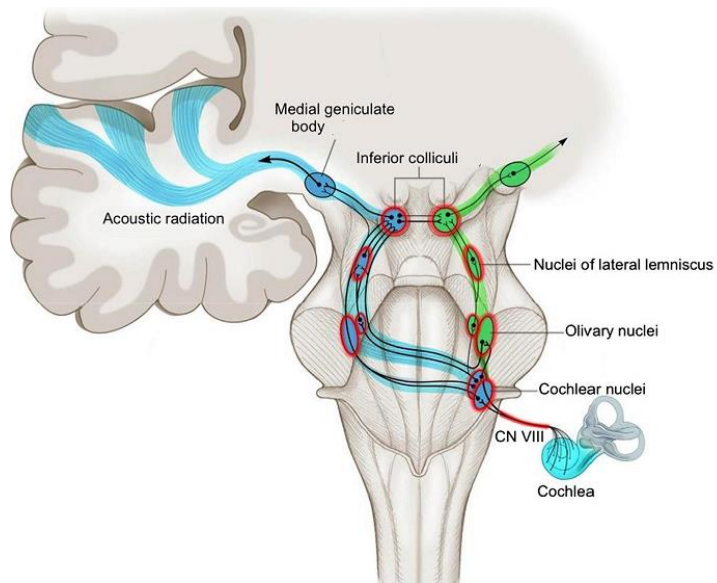
Superior temporal



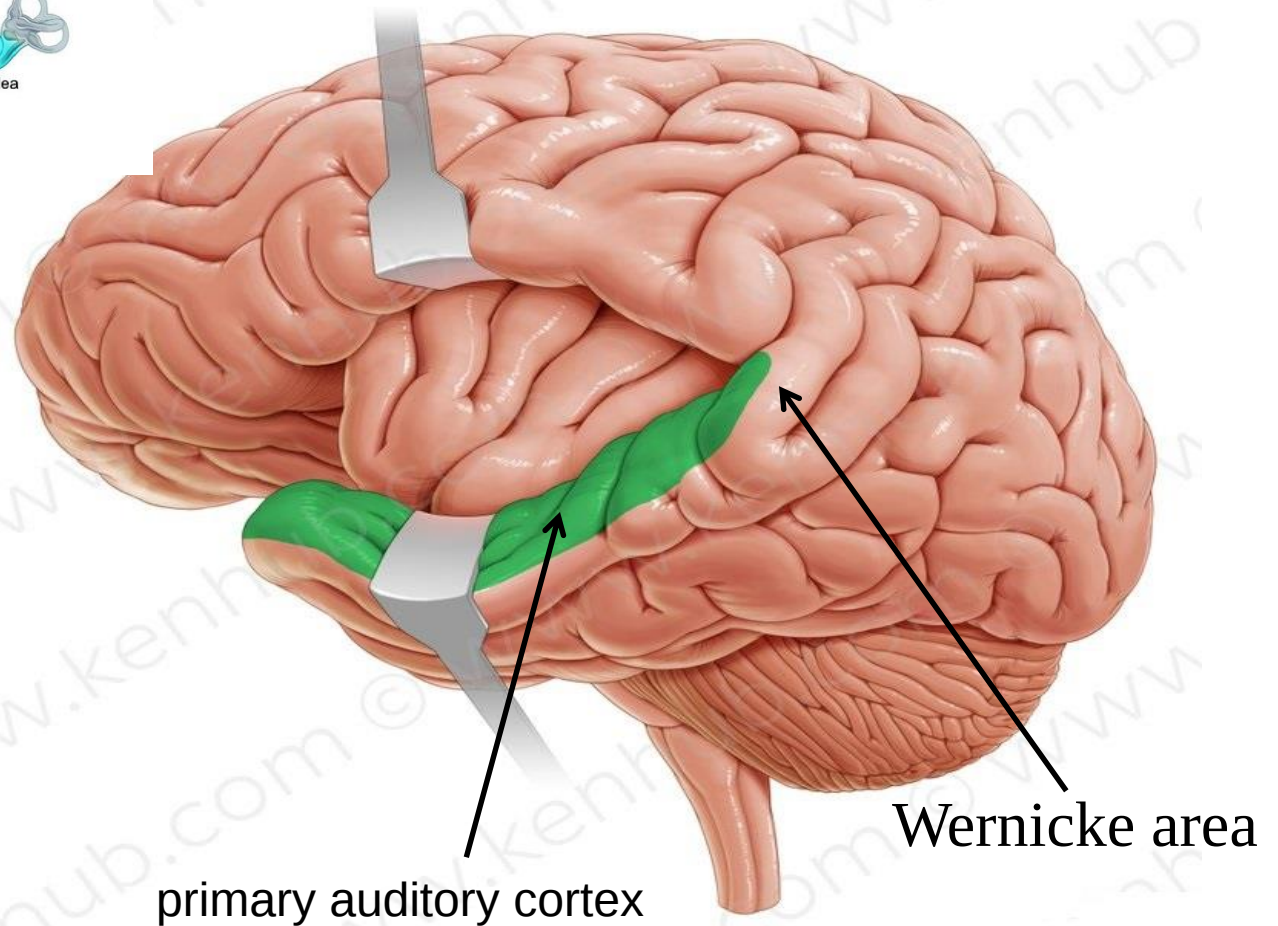
Middle temporal



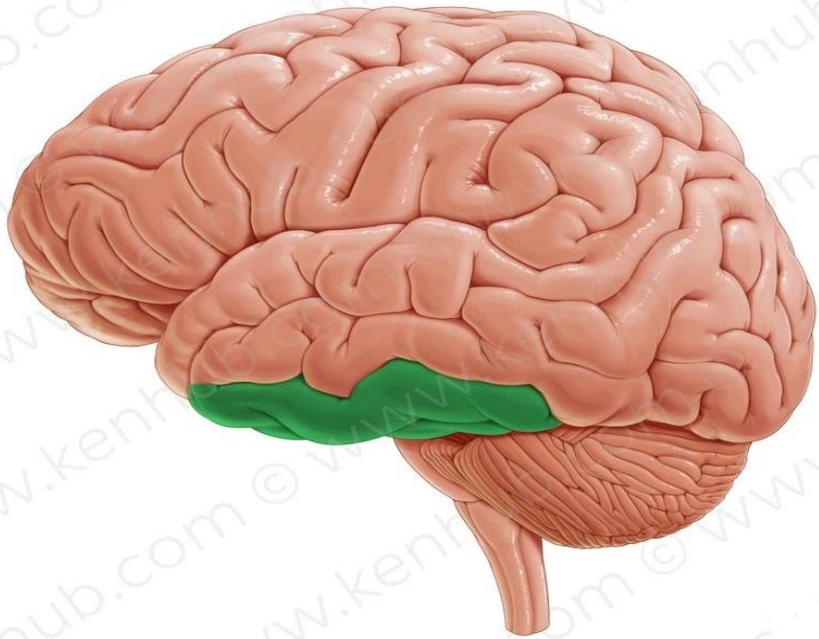
Inferior temporal



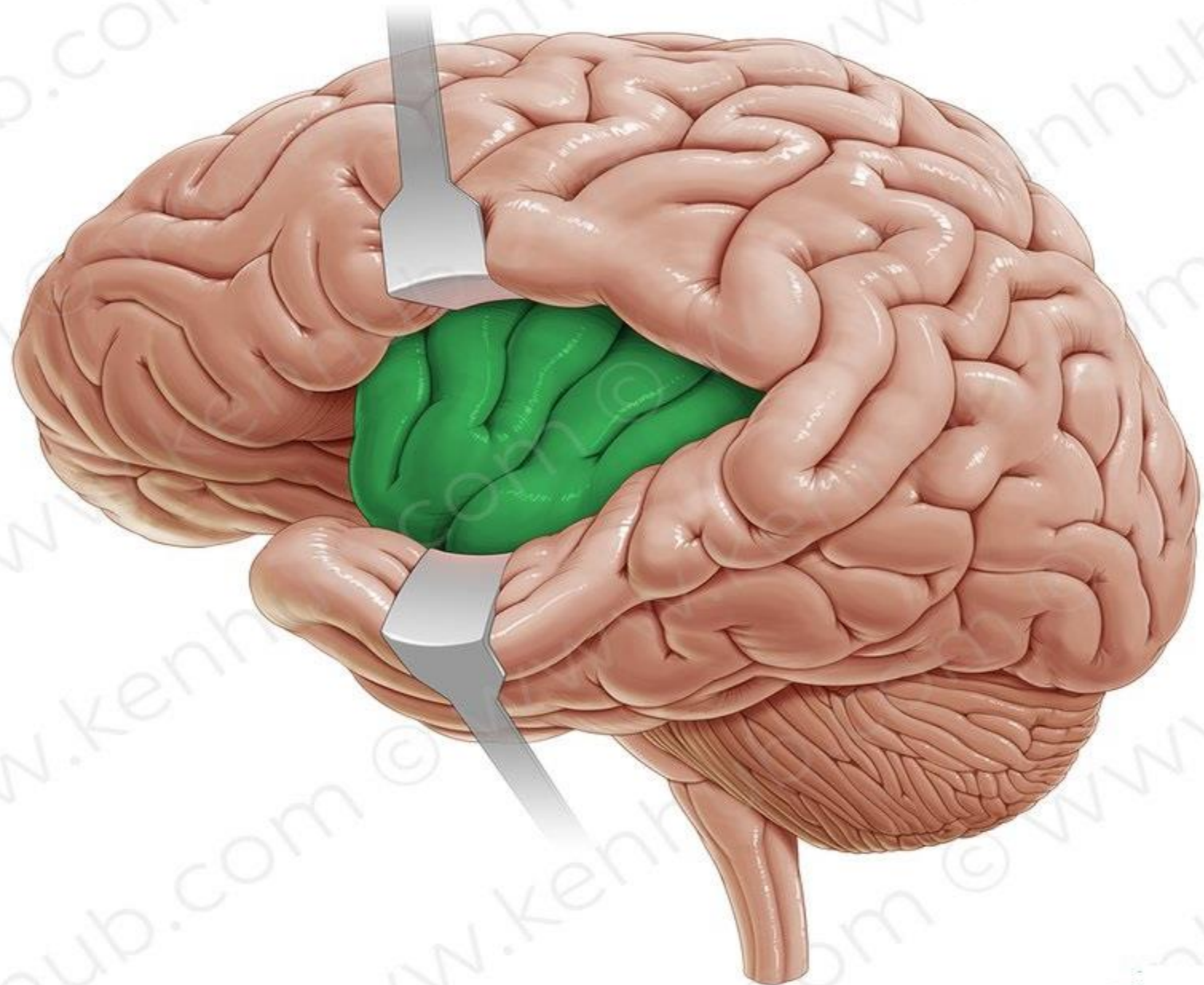
Superior temporal gyrus(Heschl gyrus)



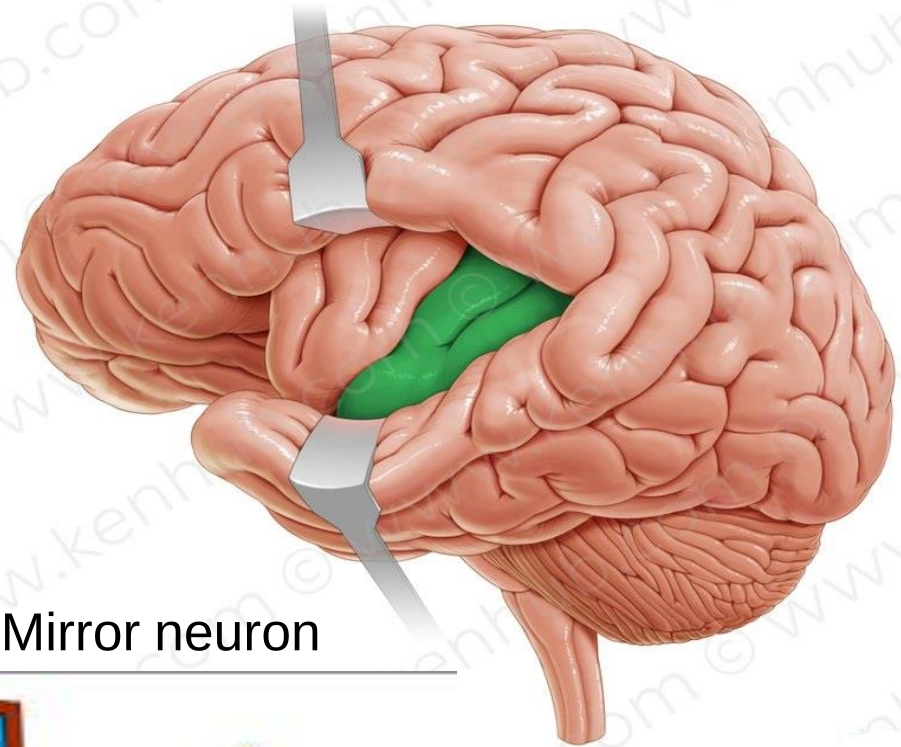
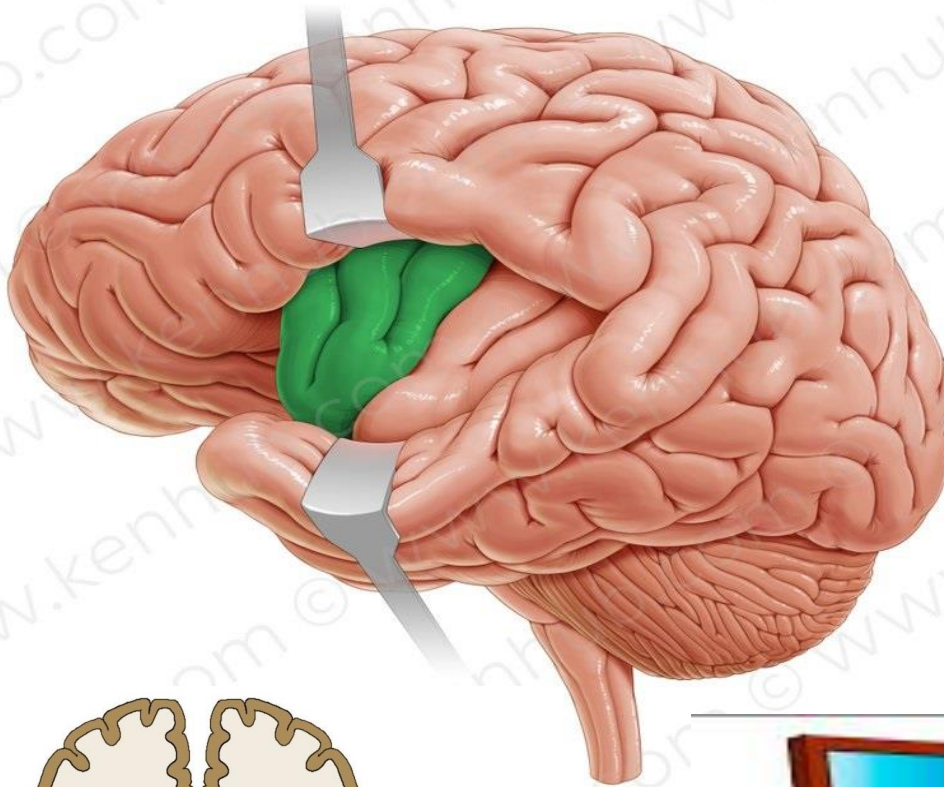
Inferior temporal gyrus, prosopagnosia



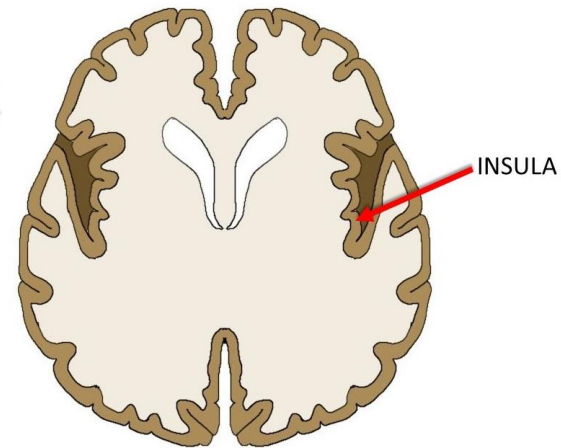
Insular lobe



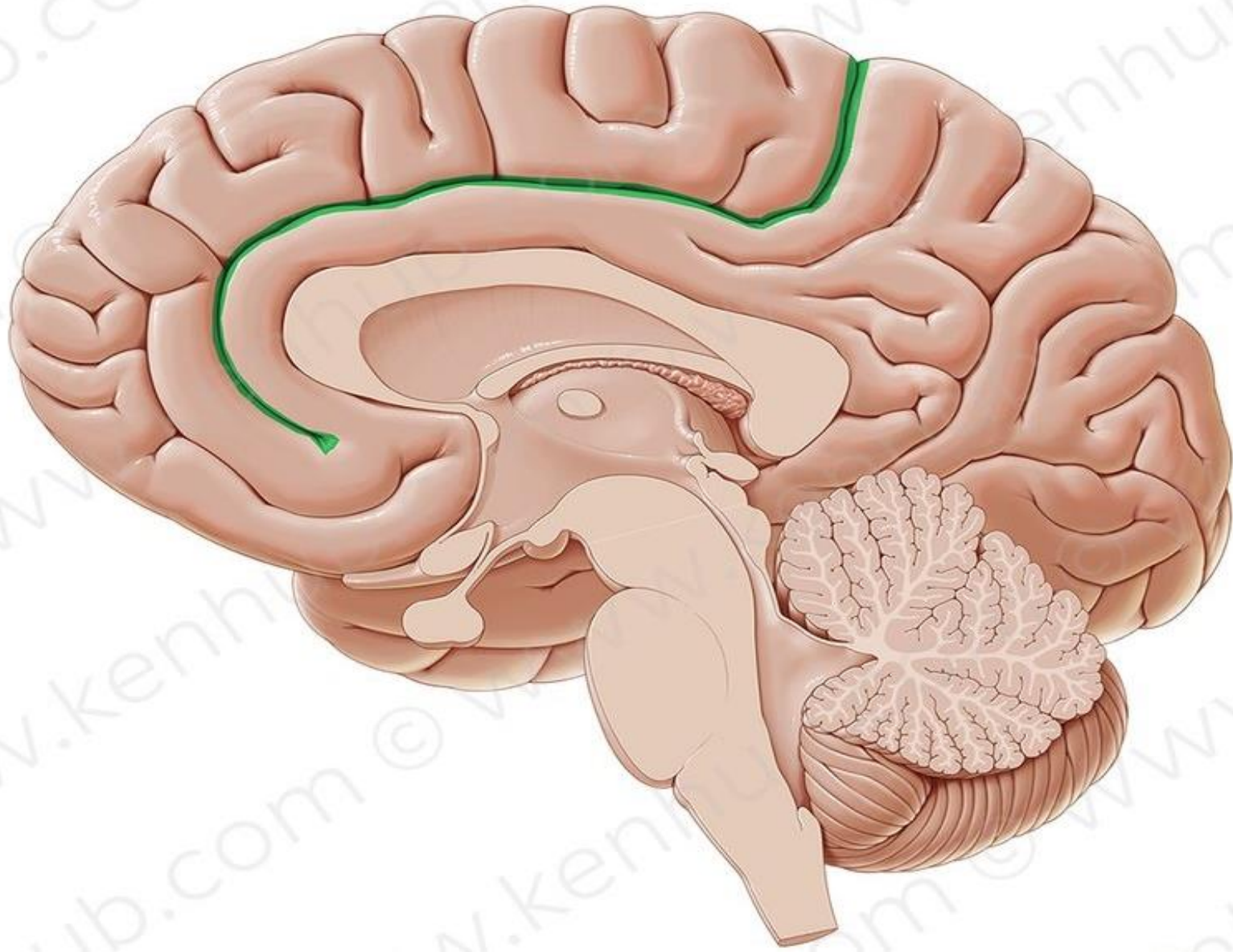
Insular gyrus



Mirror neuron

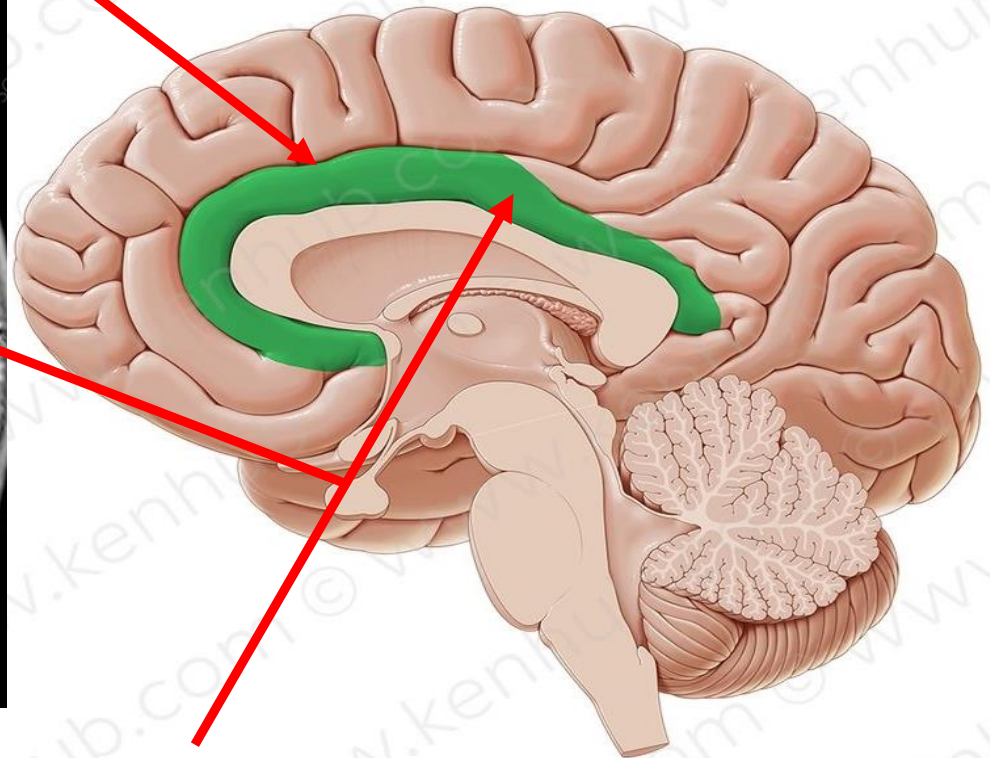
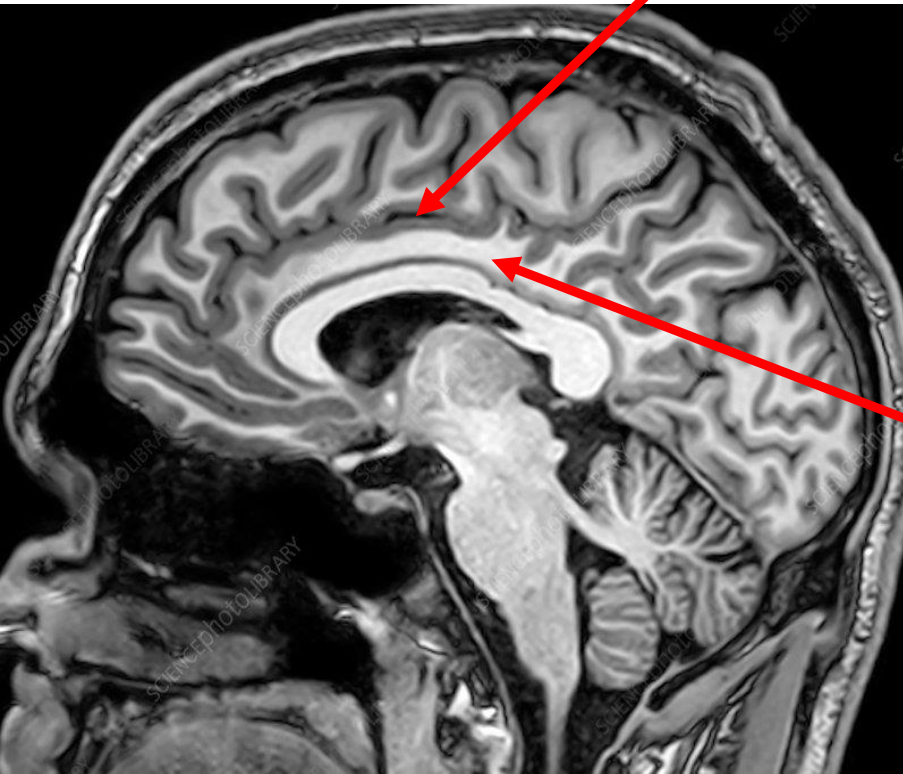


Cingulate sulcus



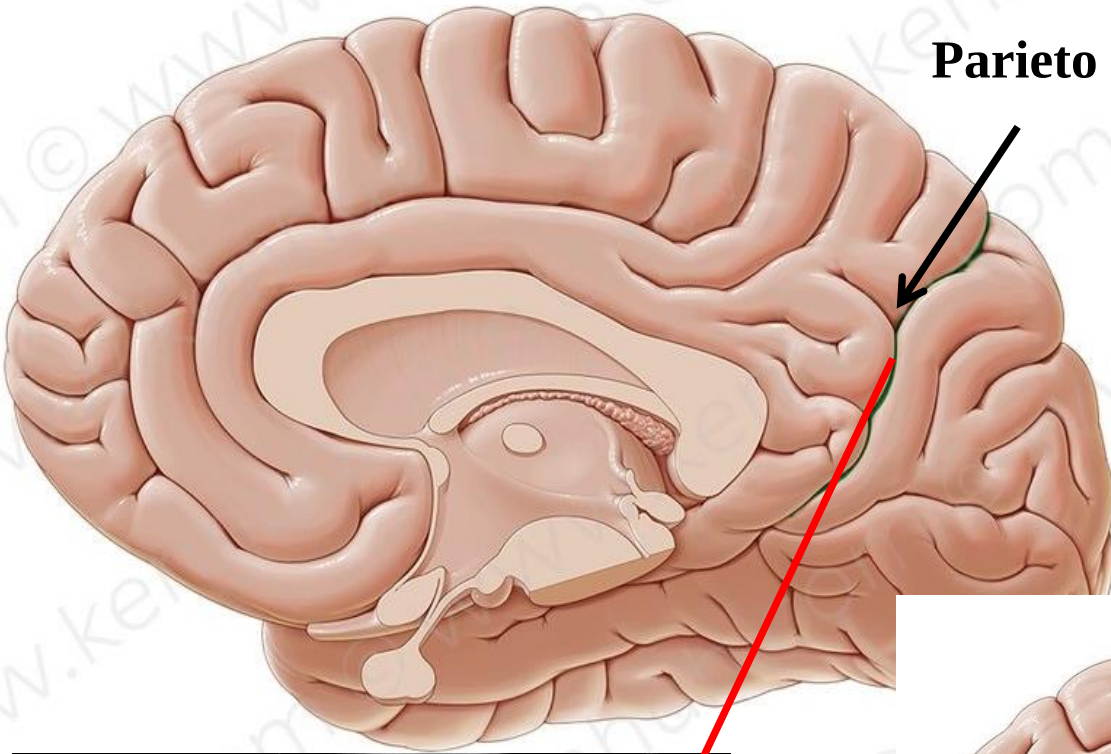
Cingulate gyrus

Cingulate sulcus

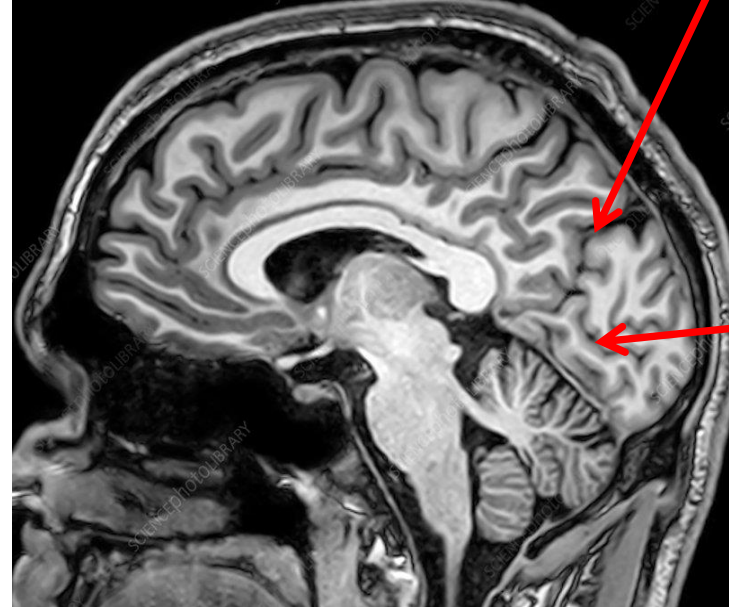
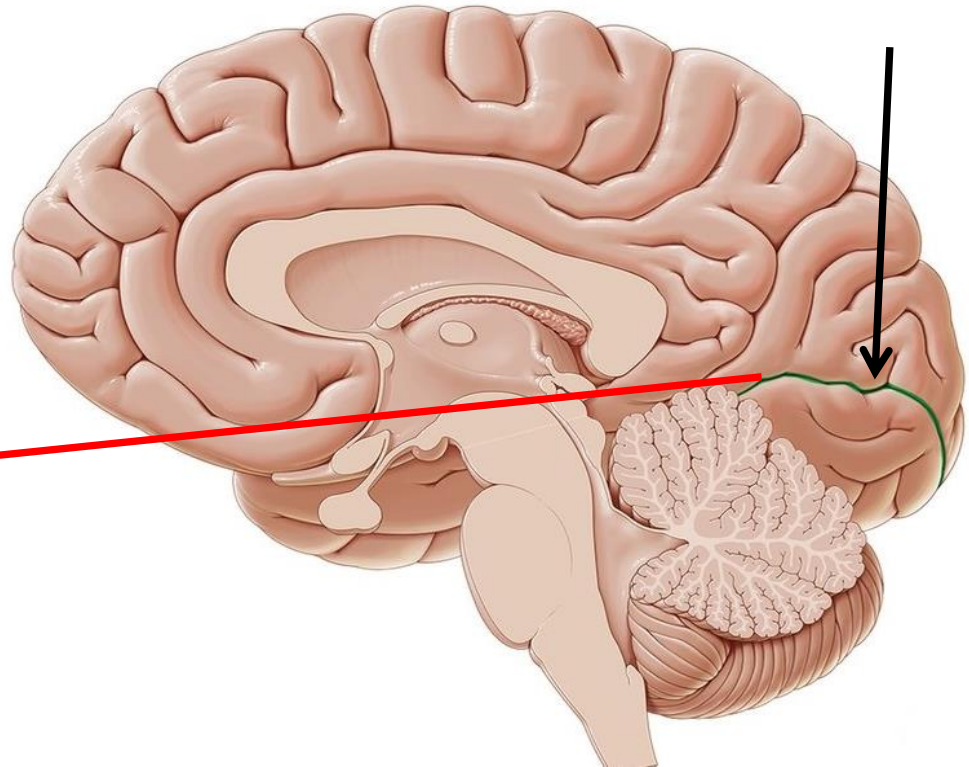


Cingulate gyrus

Parieto occipital sulcus



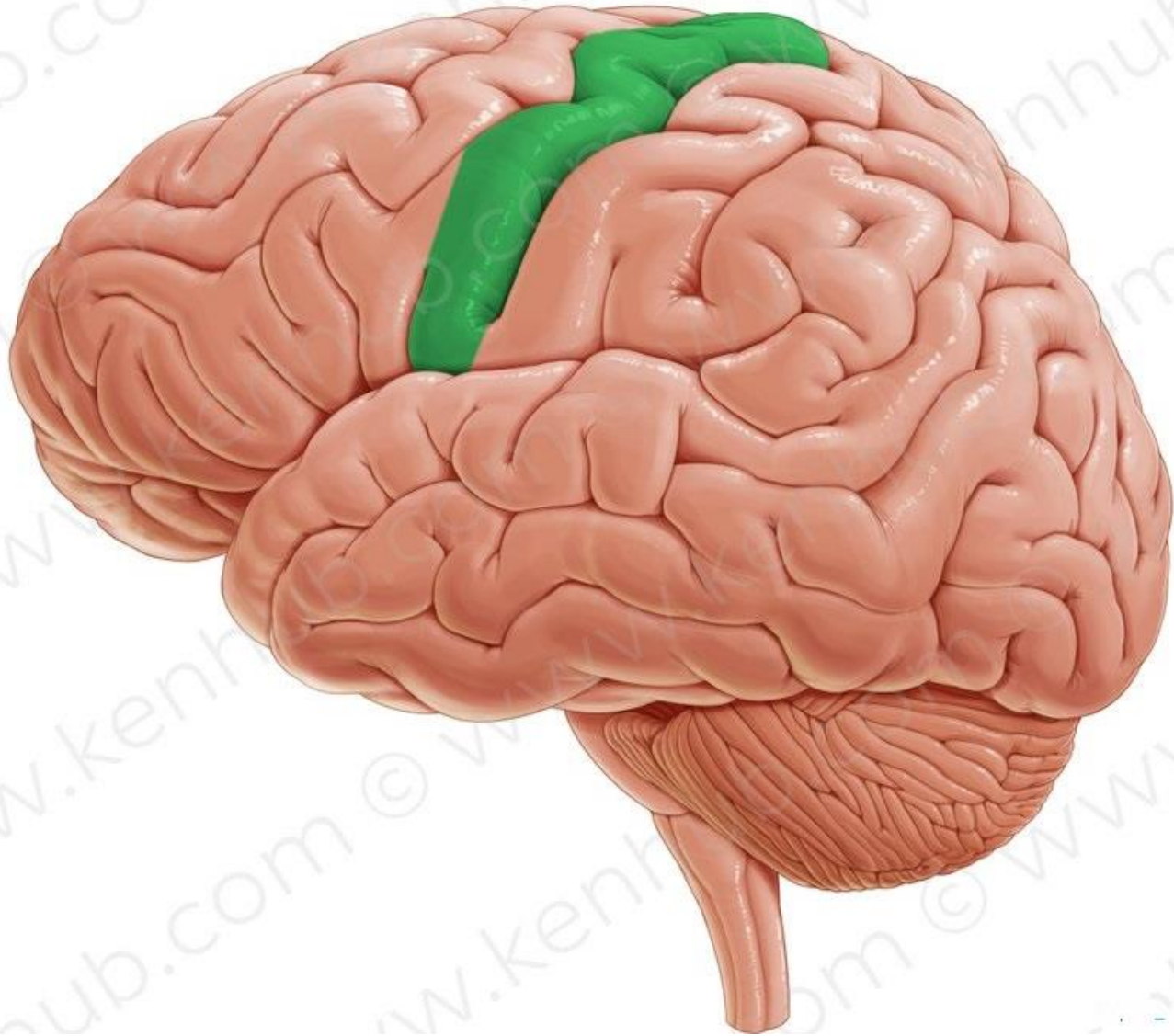
Calcarine sulcus



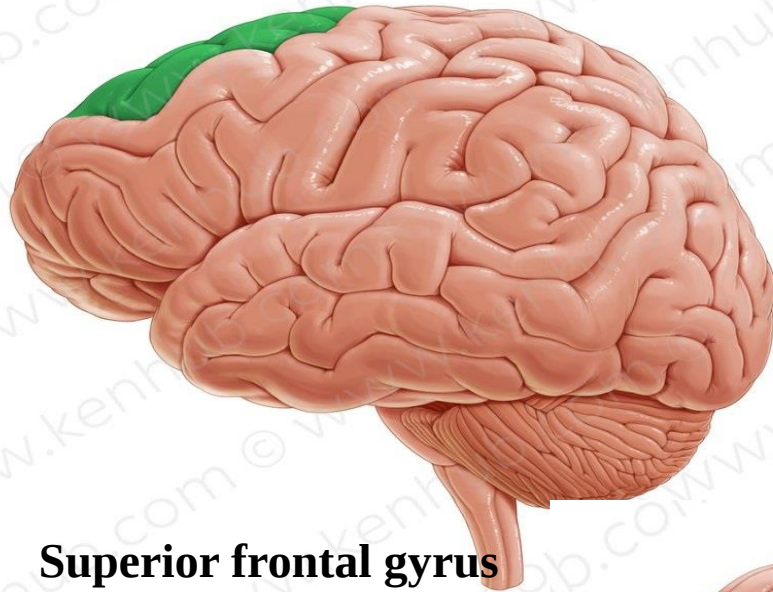
Frontal lobe



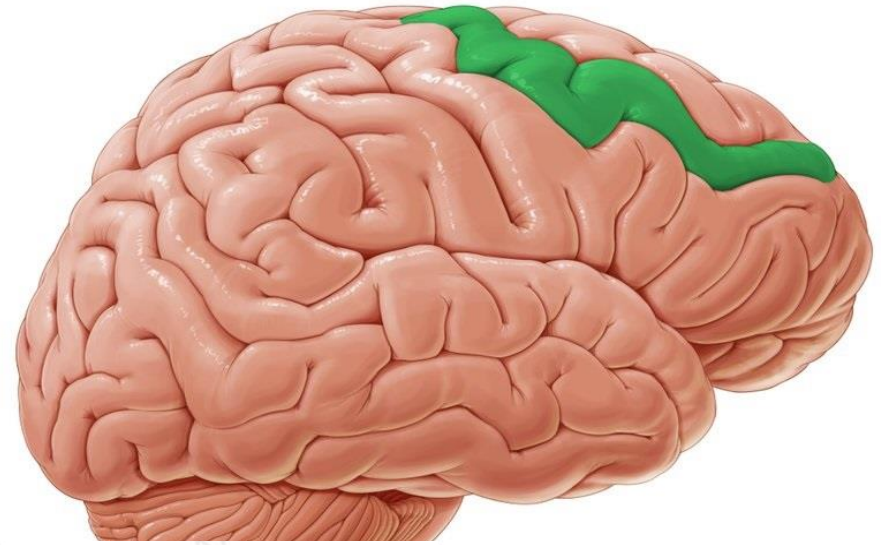
Frontal lobe, pre-central gyrus



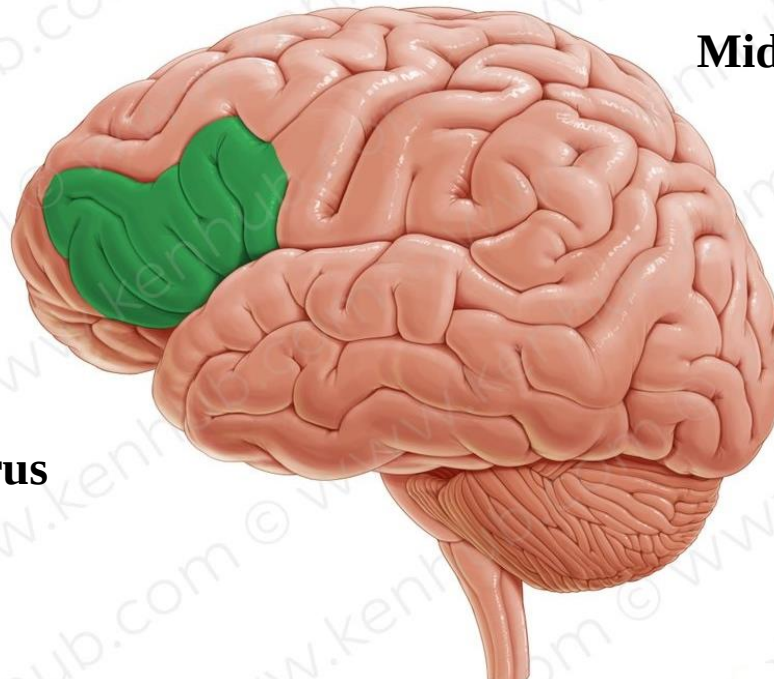
Frontal lobe



Superior frontal gyrus

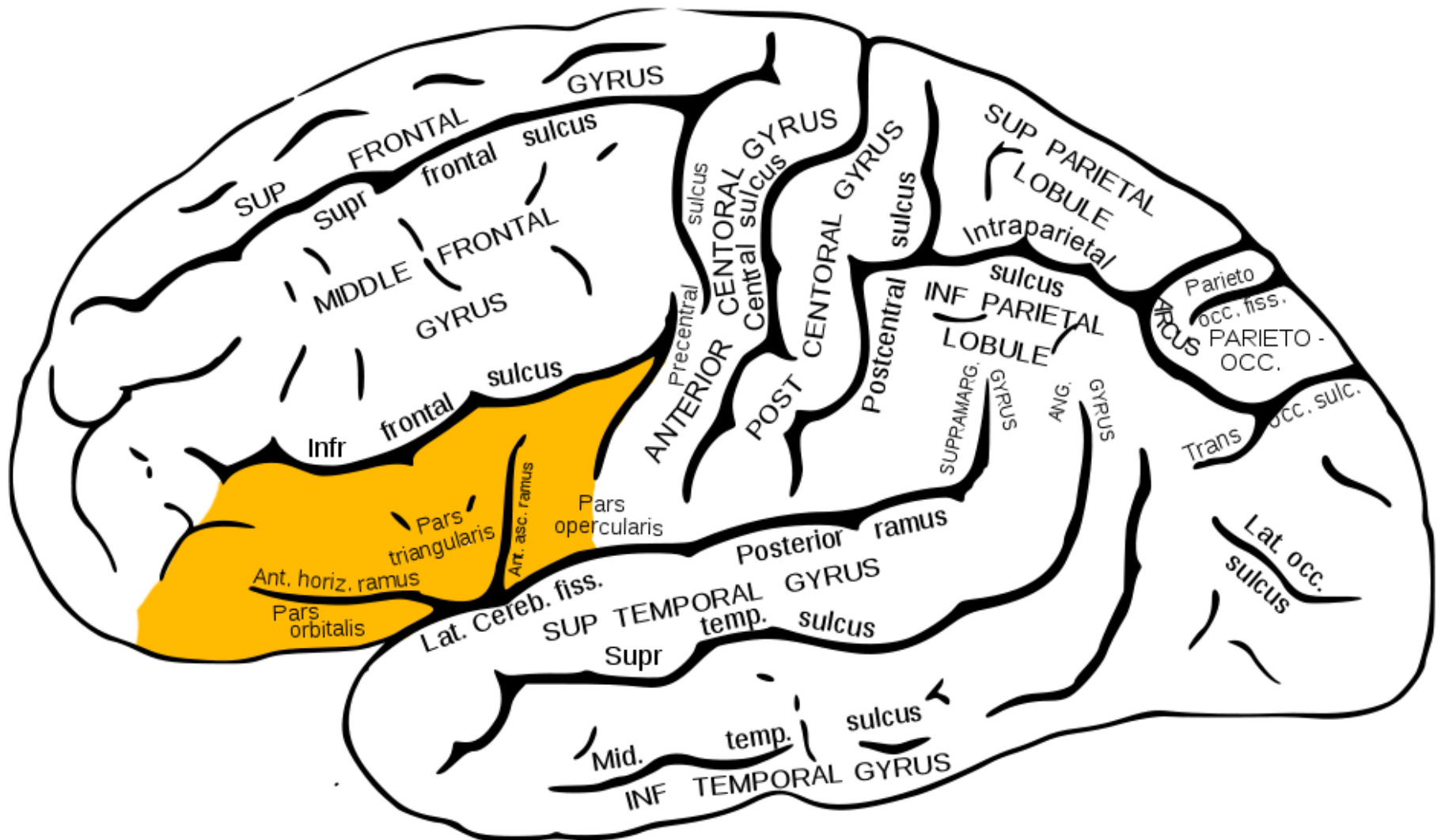


Middle frontal gyrus

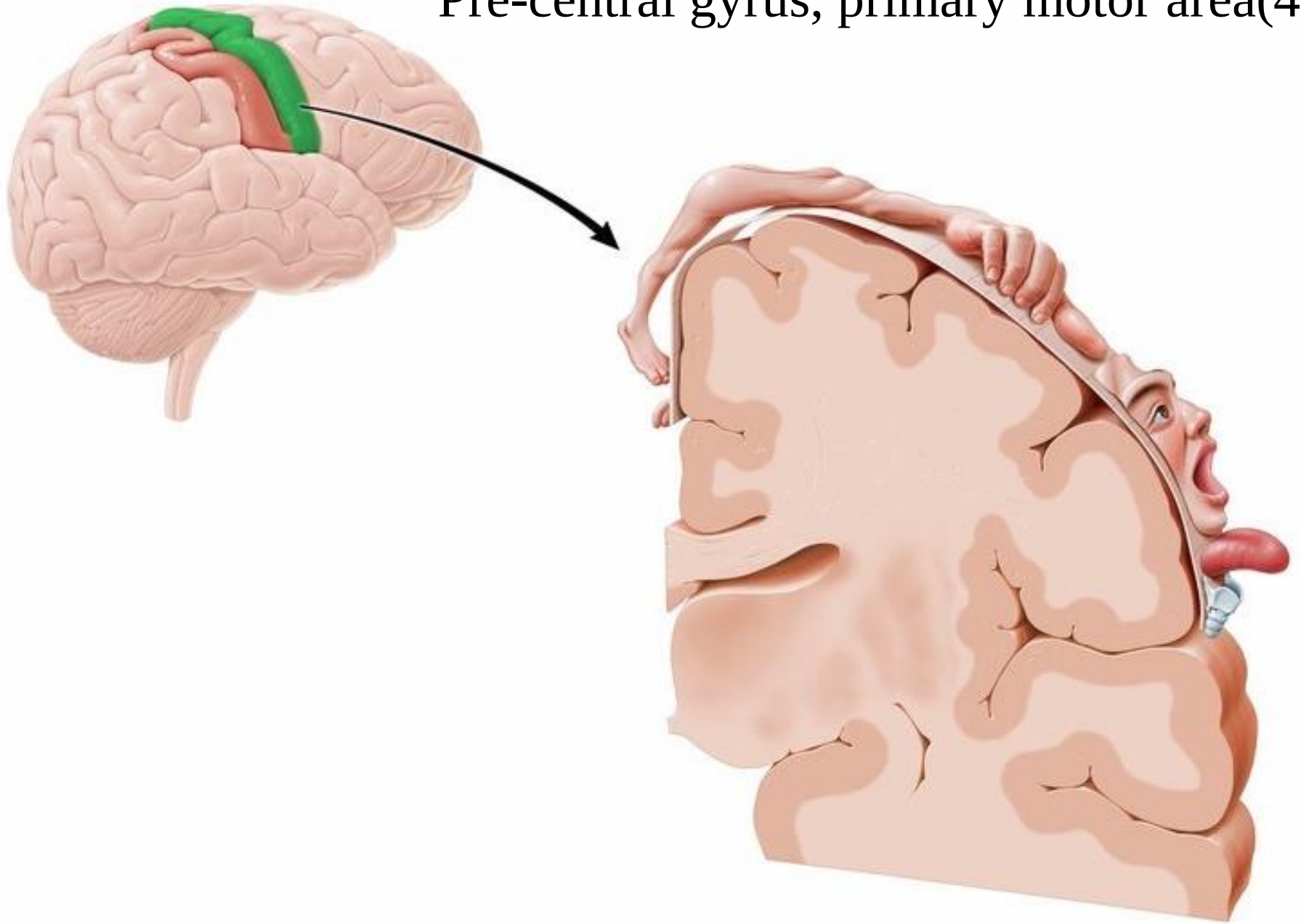


Inferior frontal gyrus

Inferior frontal gyrus



Pre-central gyrus, primary motor area(4)



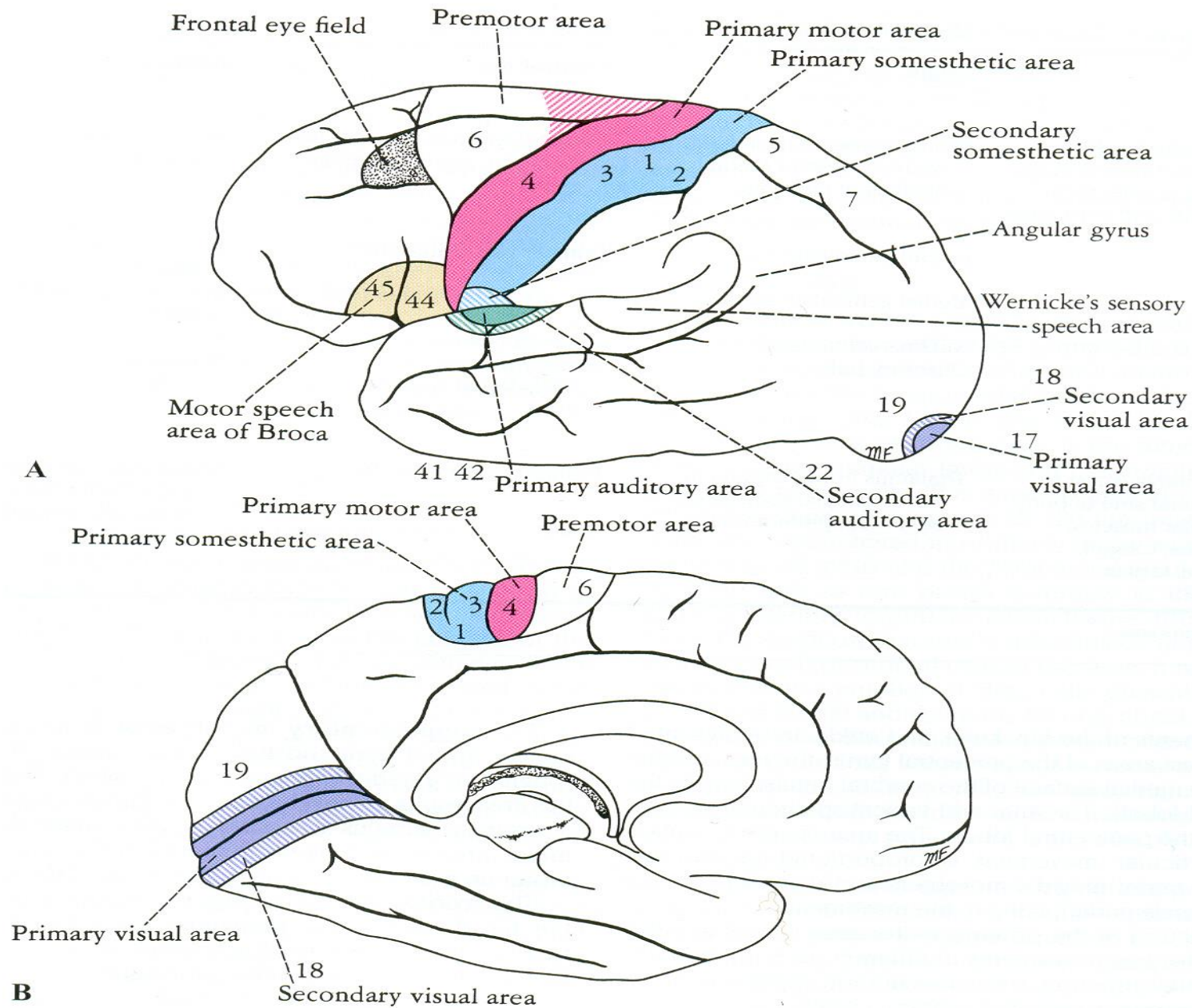
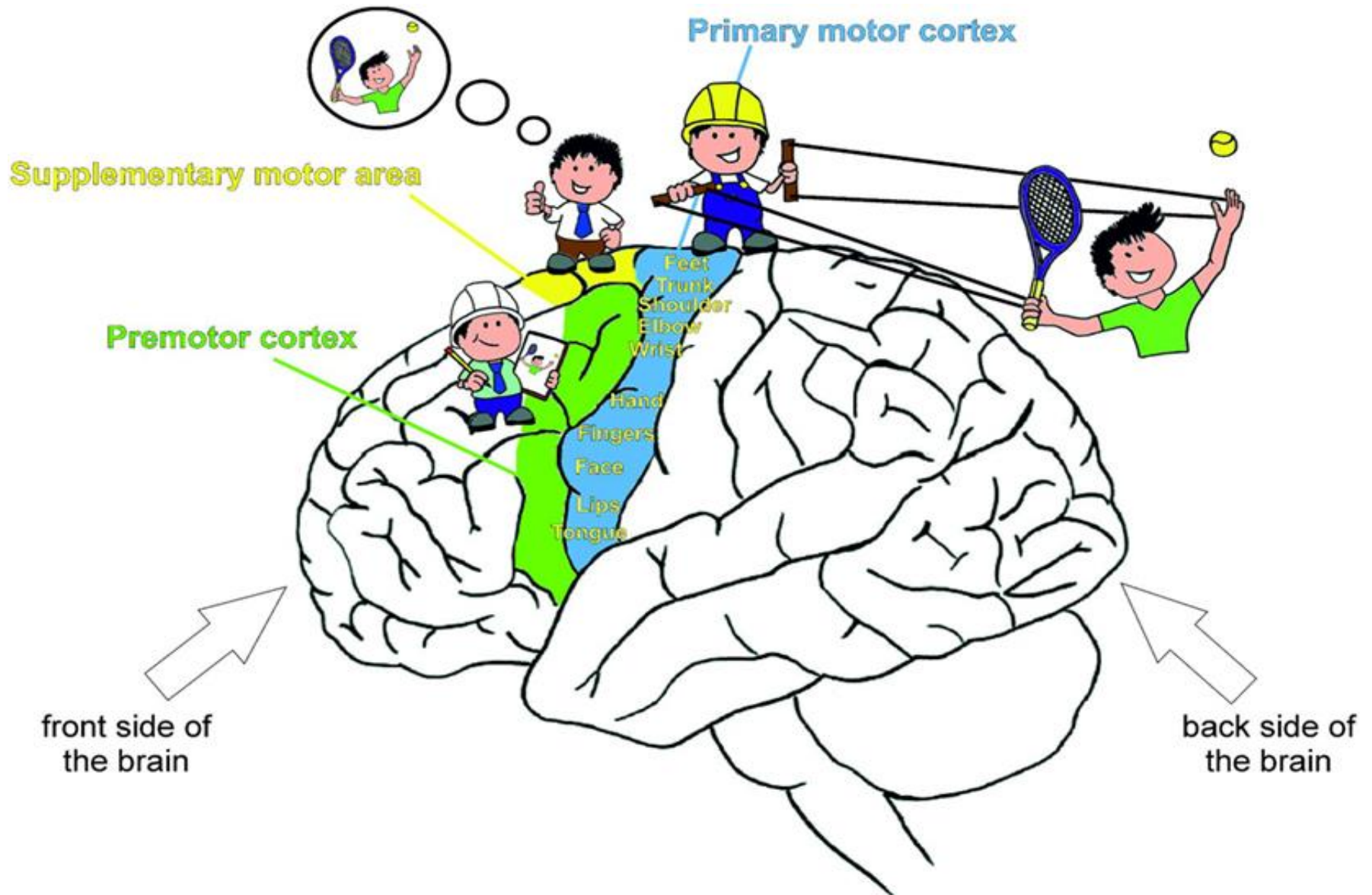
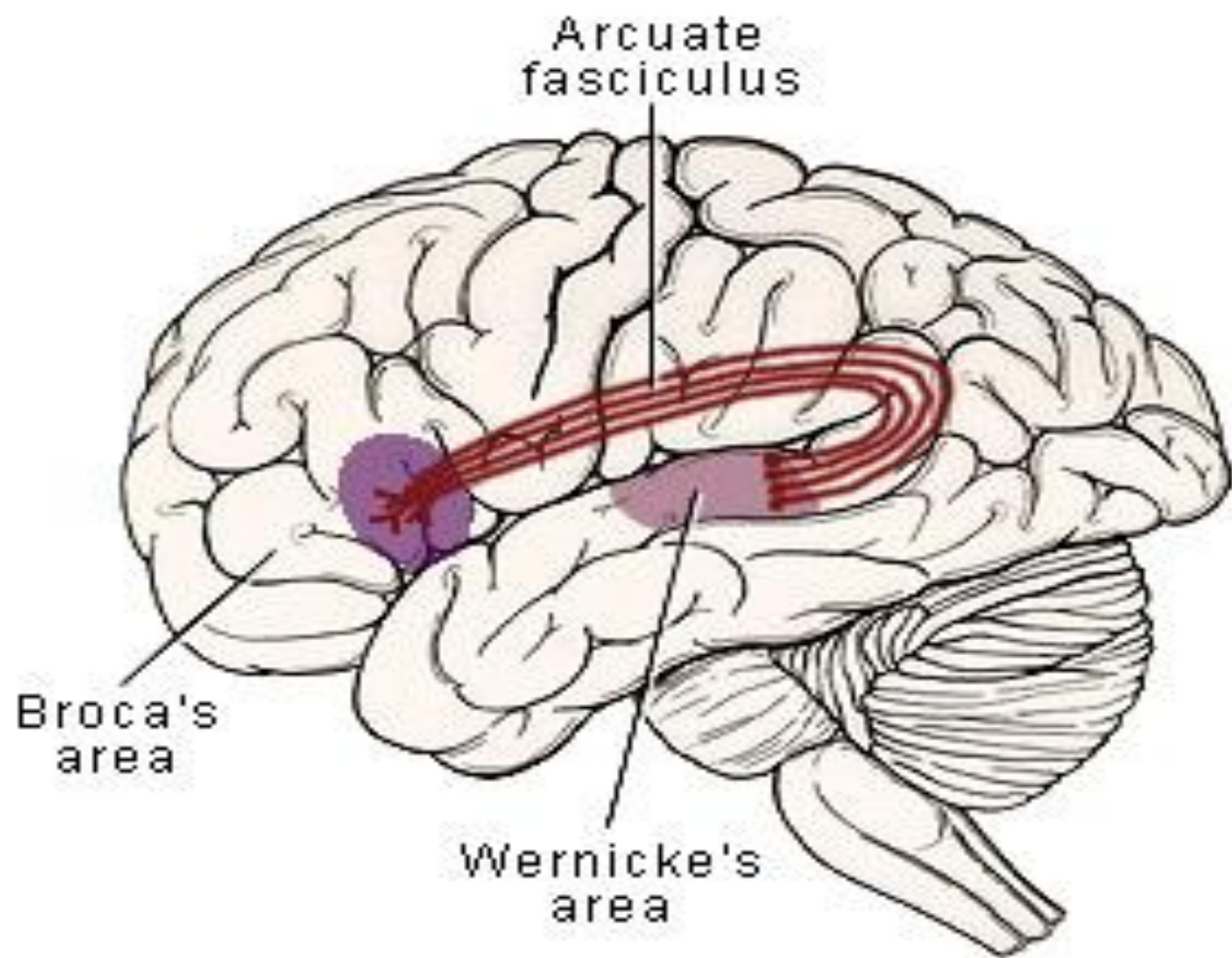


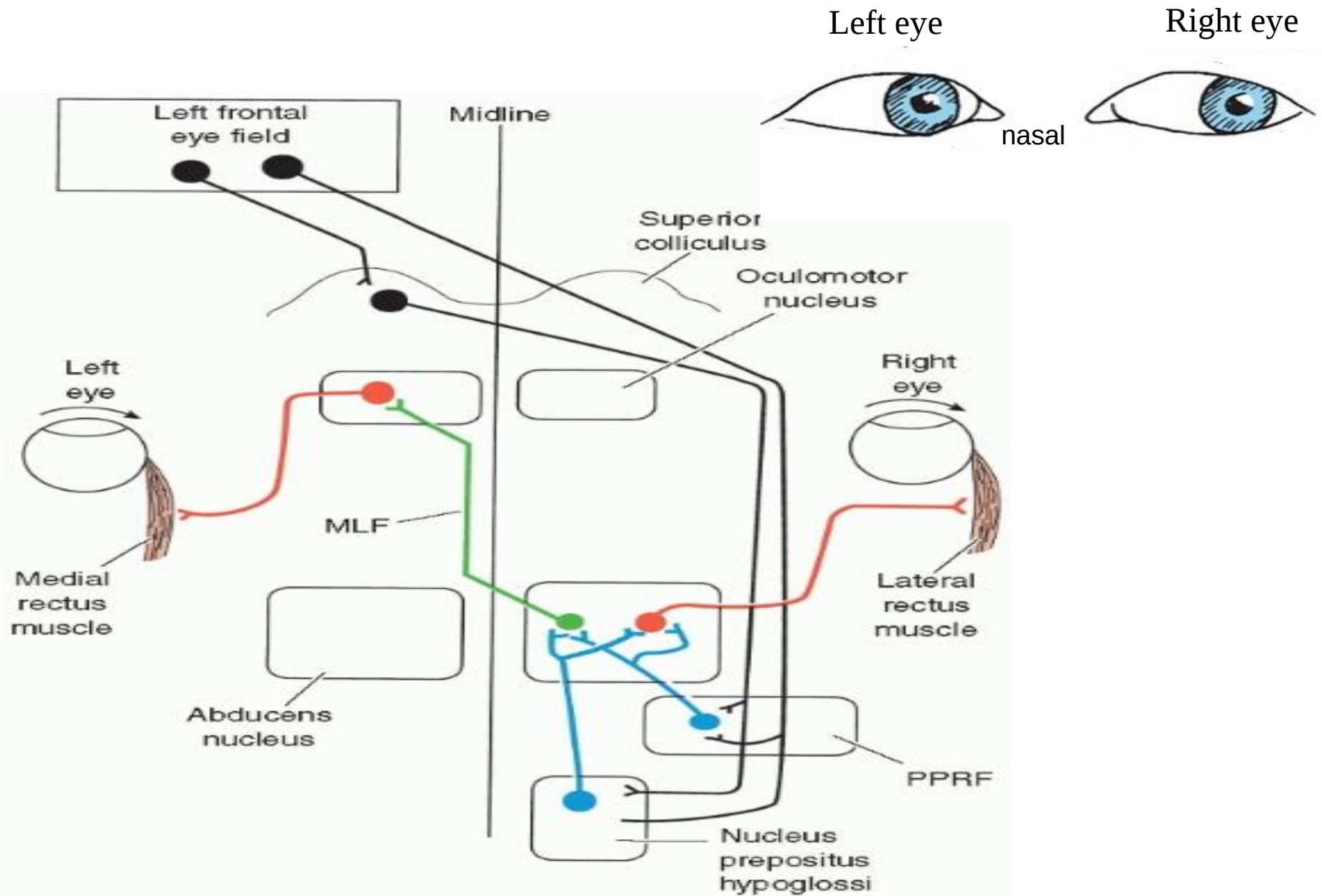
Figure 8-4 Functional localization of the cerebral cortex. **A.** Lateral view of the left cerebral hemisphere. **B.** Medial view of the left cerebral hemisphere.

Motor Cortex

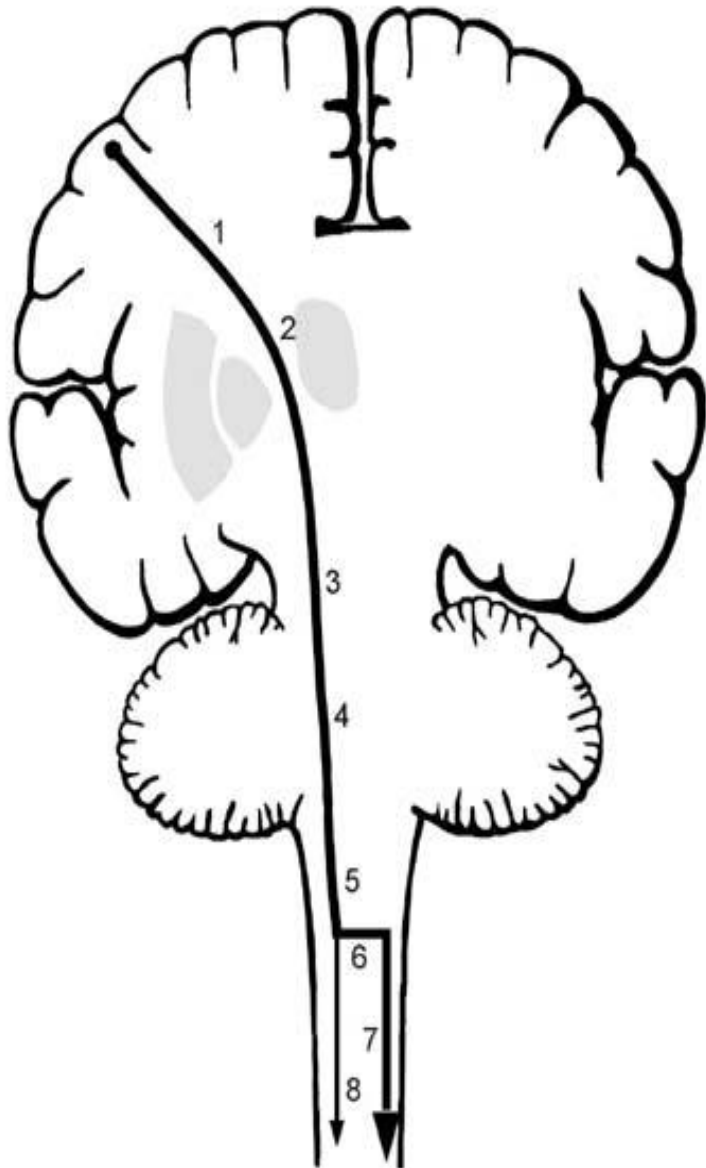




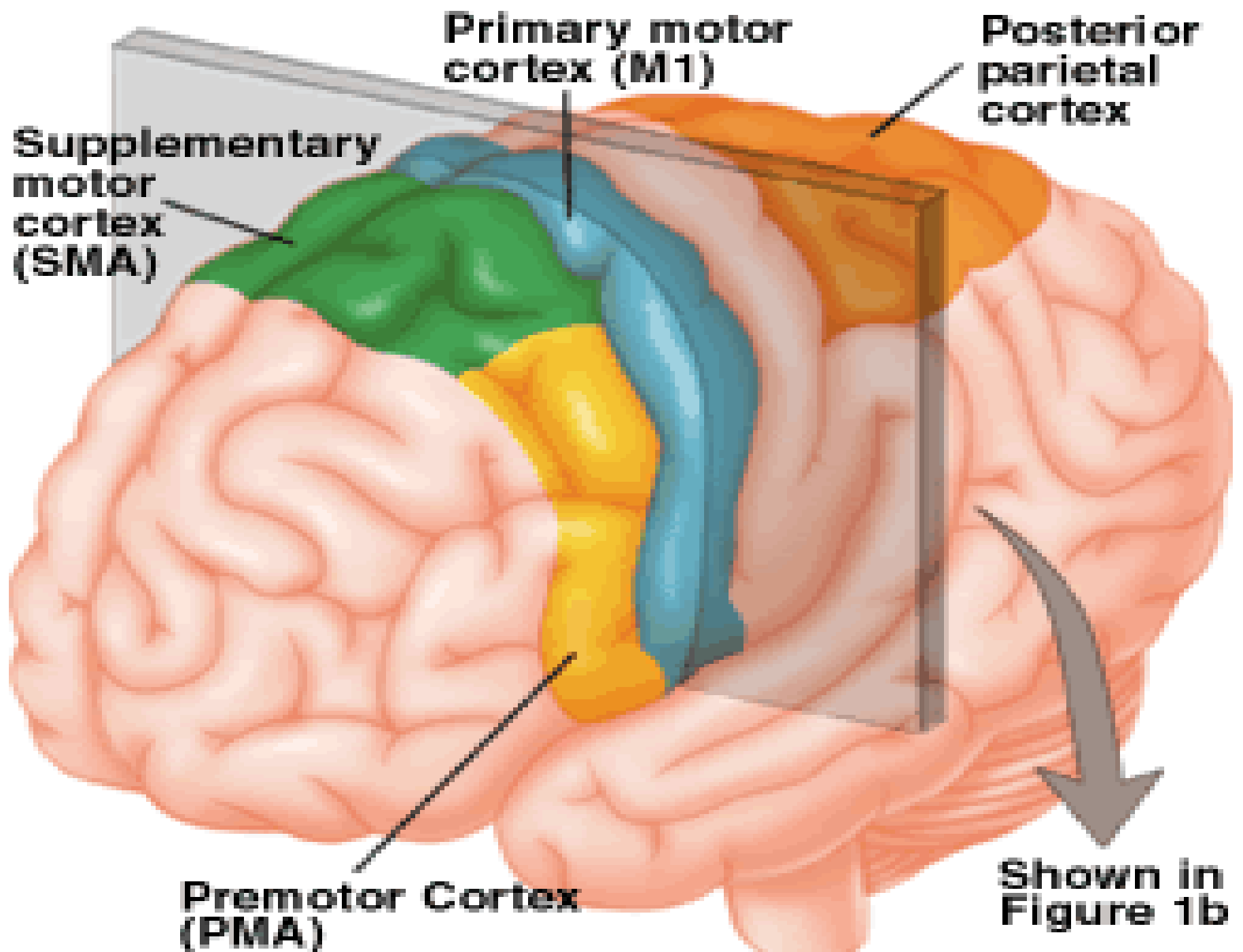
Frontal eye field

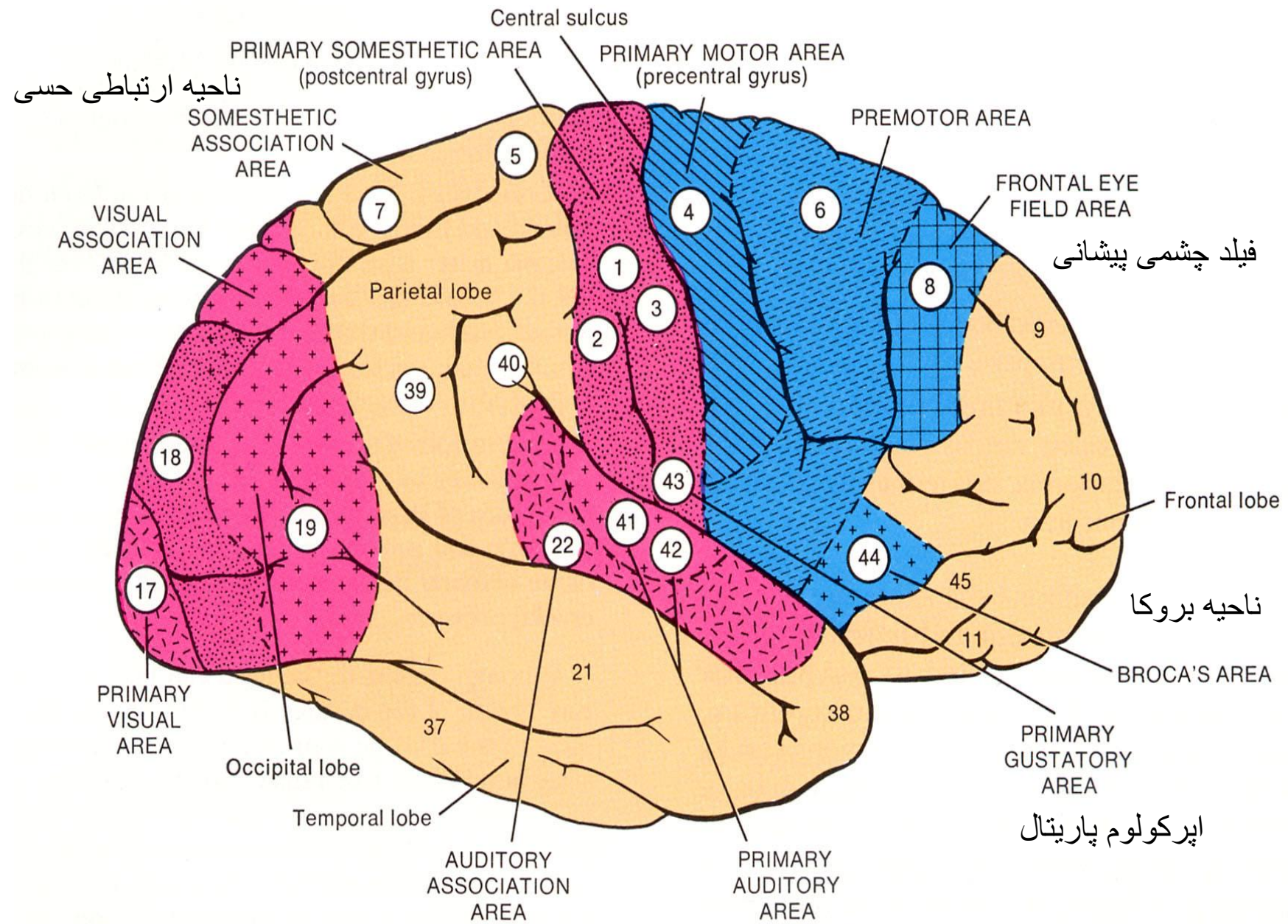


Upper Motor Neuron Pyramidal Tract



1. corona radiata
2. internal capsule
3. crus cerebri
4. pontine longitudinal fiber
5. pyramid
6. pyramid decussation
7. lateral corticospinal tract
8. anterior corticospinal tract

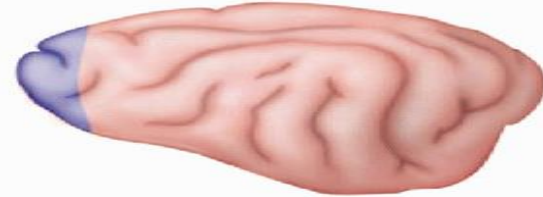




Prefrontal cortex, make us human!



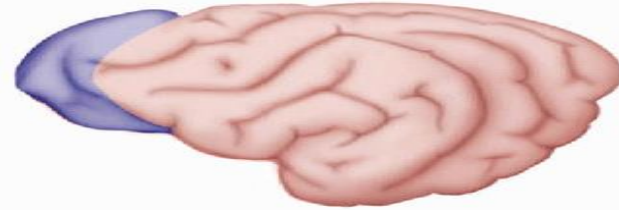
Squirrel monkey



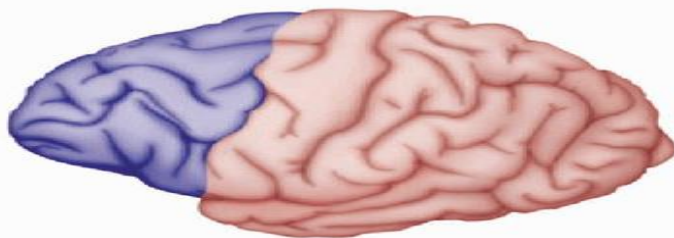
Cat



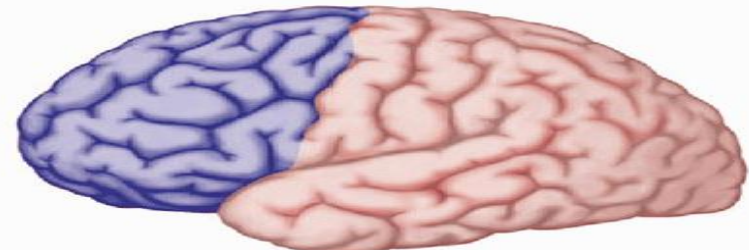
Rhesus monkey



Dog

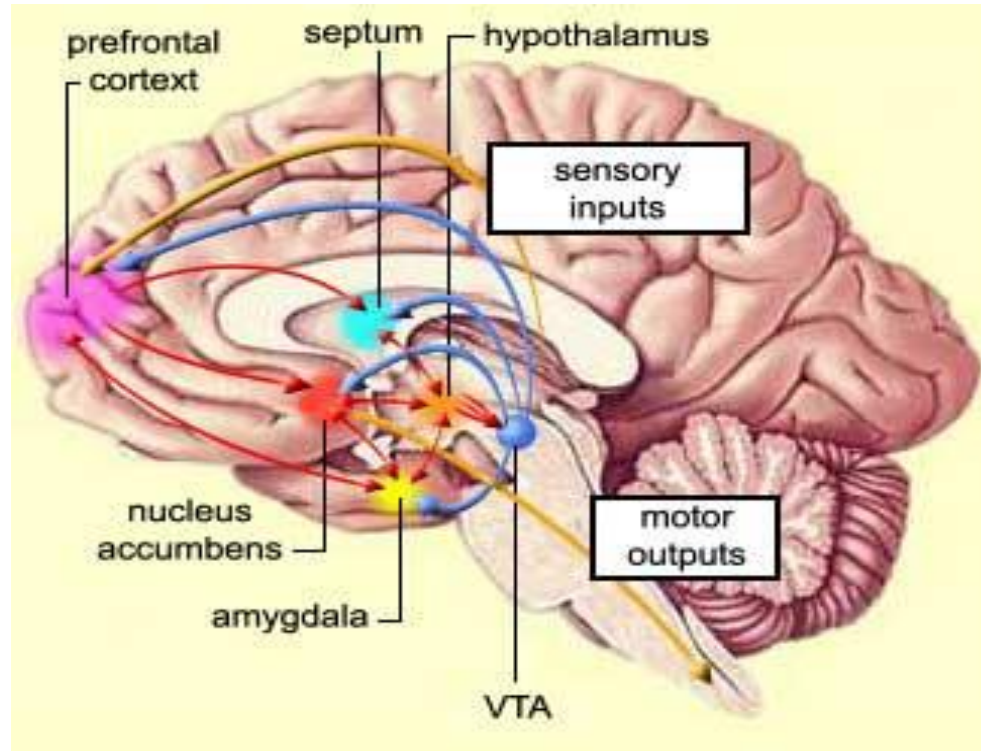
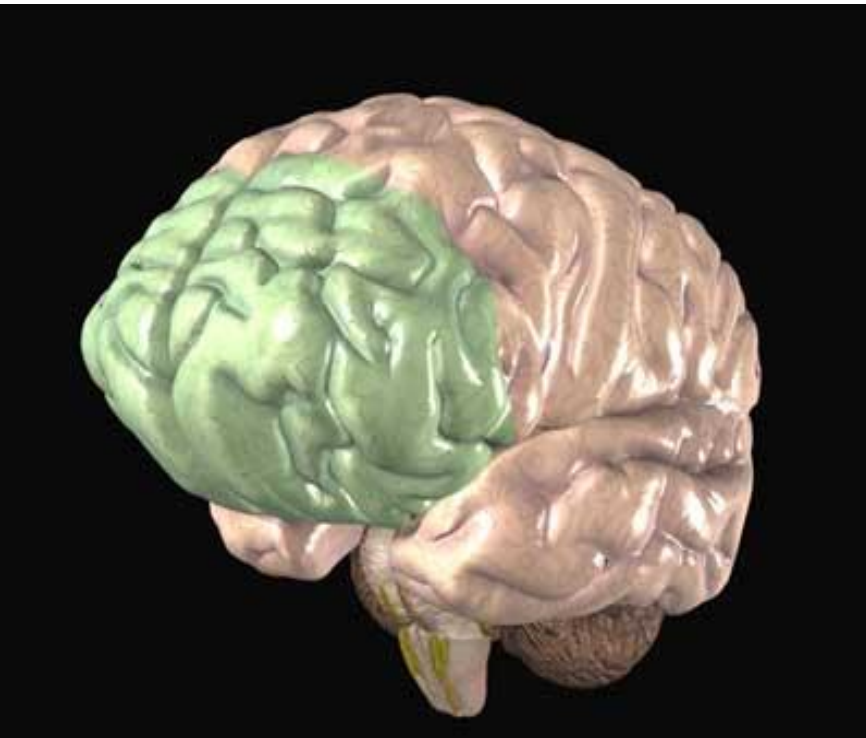


Chimpanzee



Human

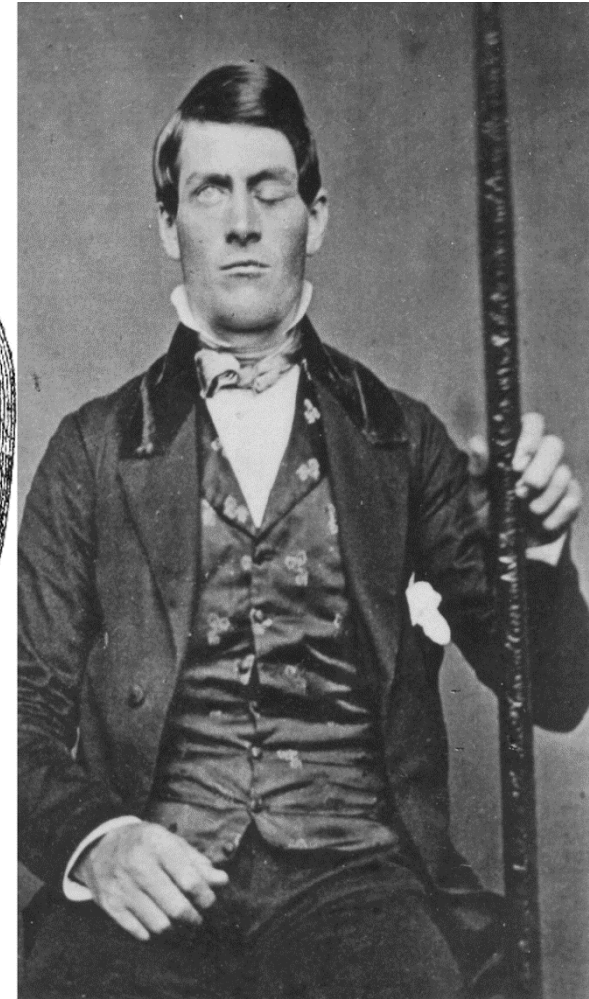
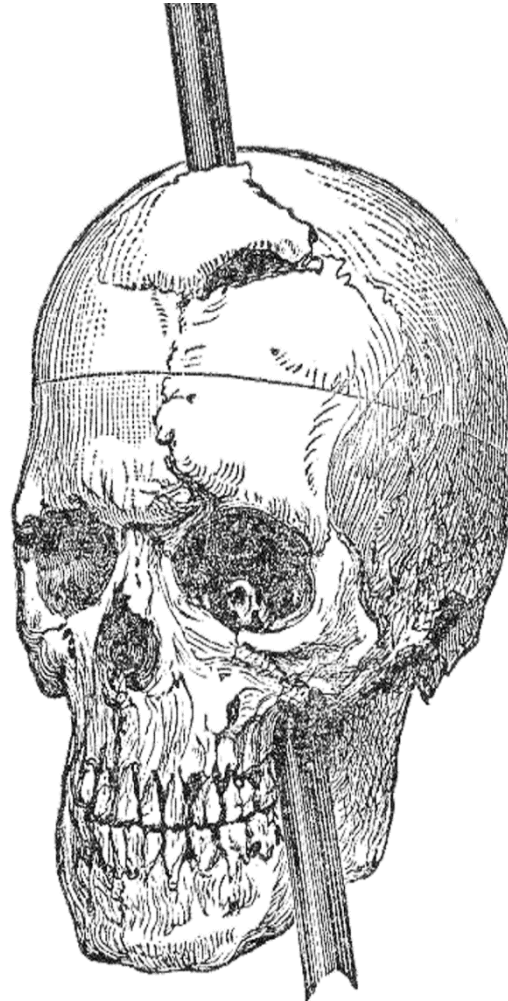
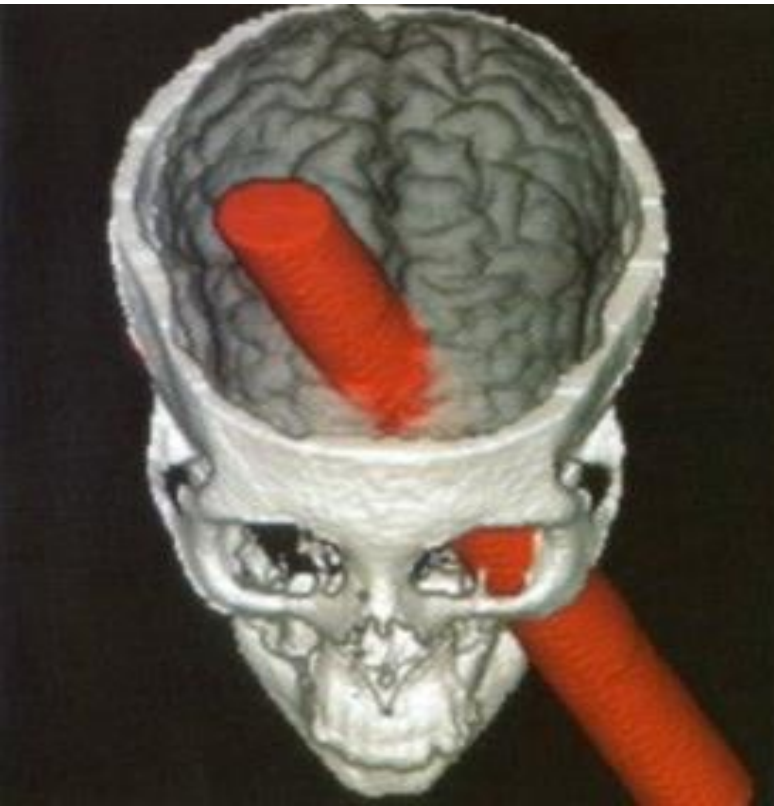
قشر پره فرونتال

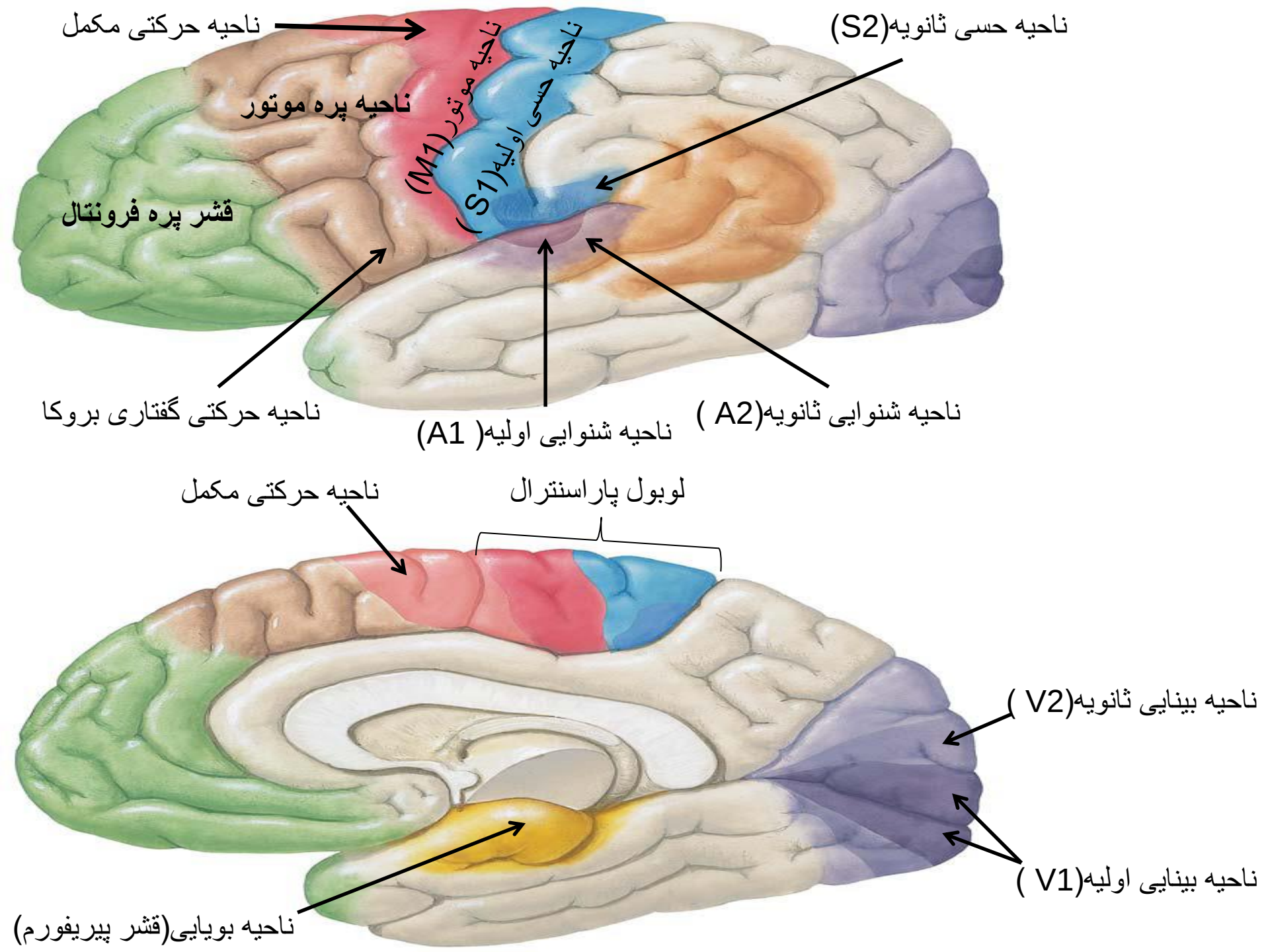


VTA ← هسته آکومبنس ← قشر پره فرونتال (تنظیم تون شخصیتی، تنظیم پاسخهای رفتاری حرکت)

هایپوتالاموس ، ناحیه سیتال ، آمیگدال ، هسته MD تالاموس

How Phineas Gage Survived An Iron Rod Shooting Through His Skull





Fronto-temporal demantia(FTD)

FTD

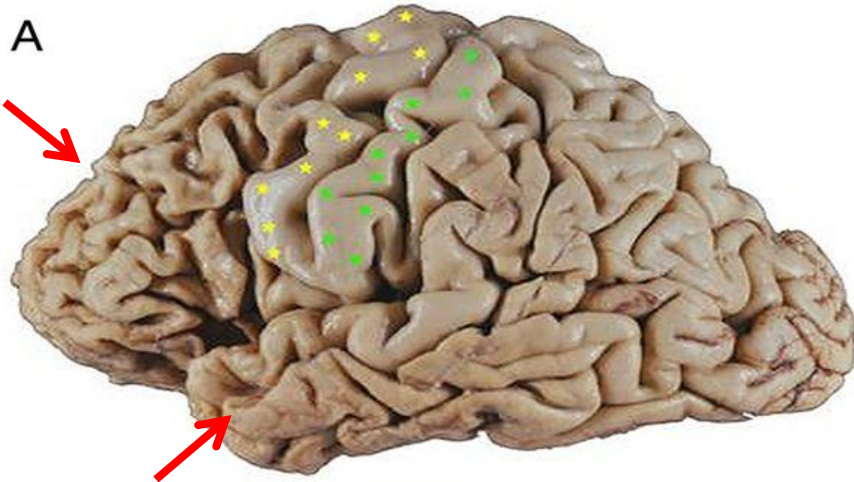
Normal

Anterior

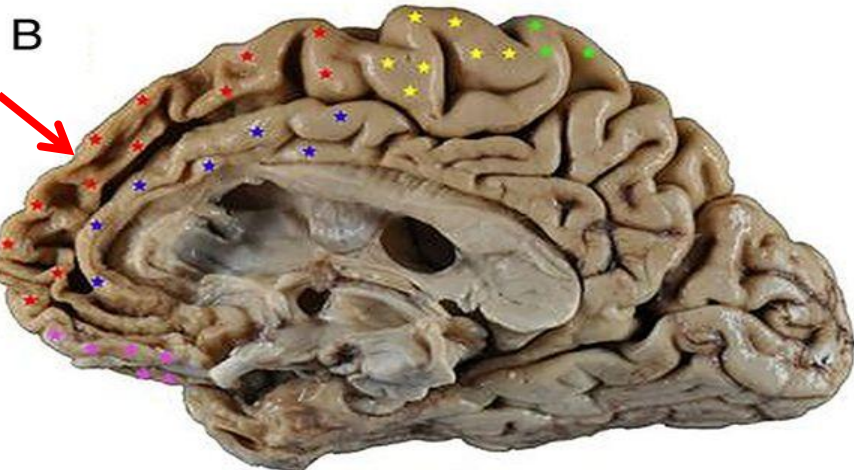
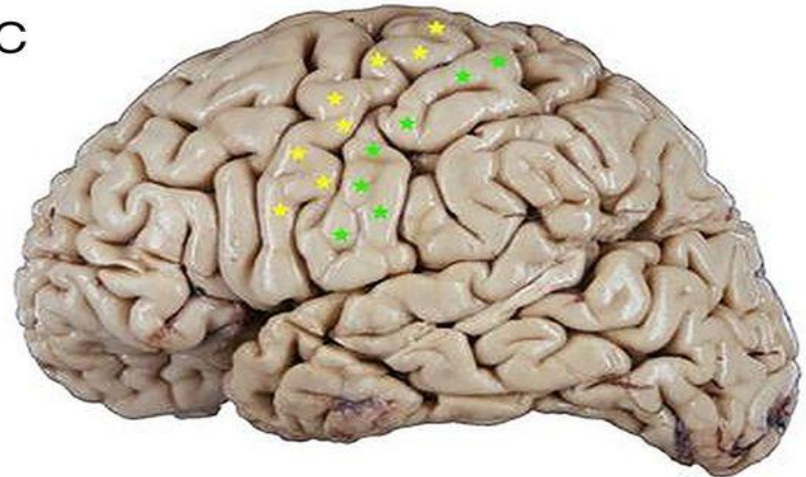
Posterior

Anterior

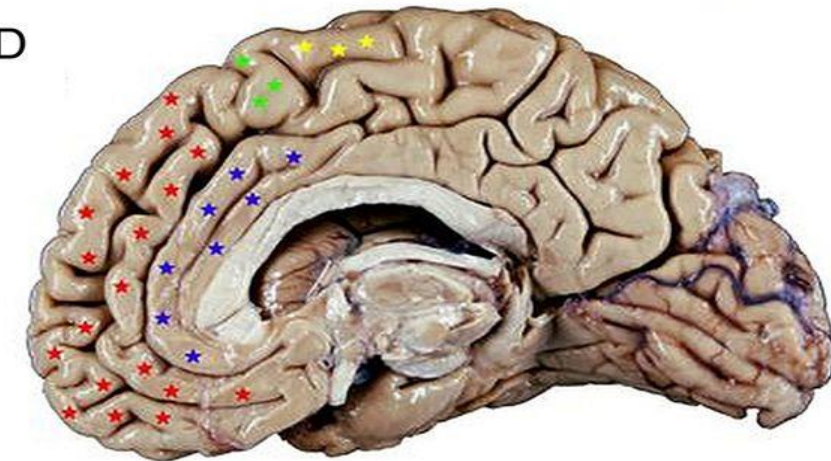
Posterior



C



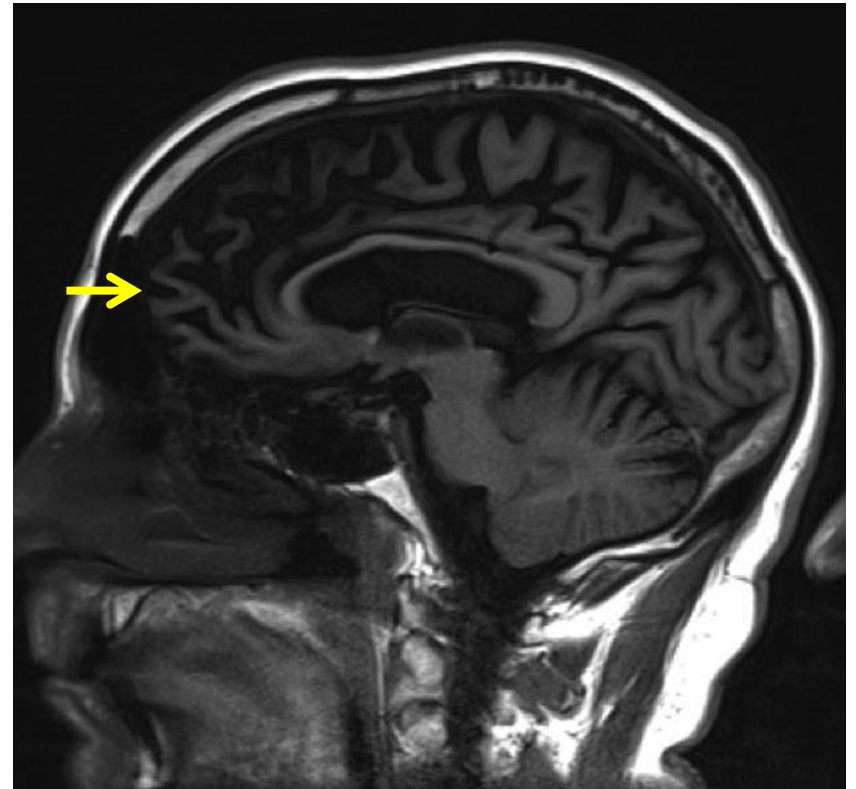
D



Fronto-temporal dementia(FTD)



Normal

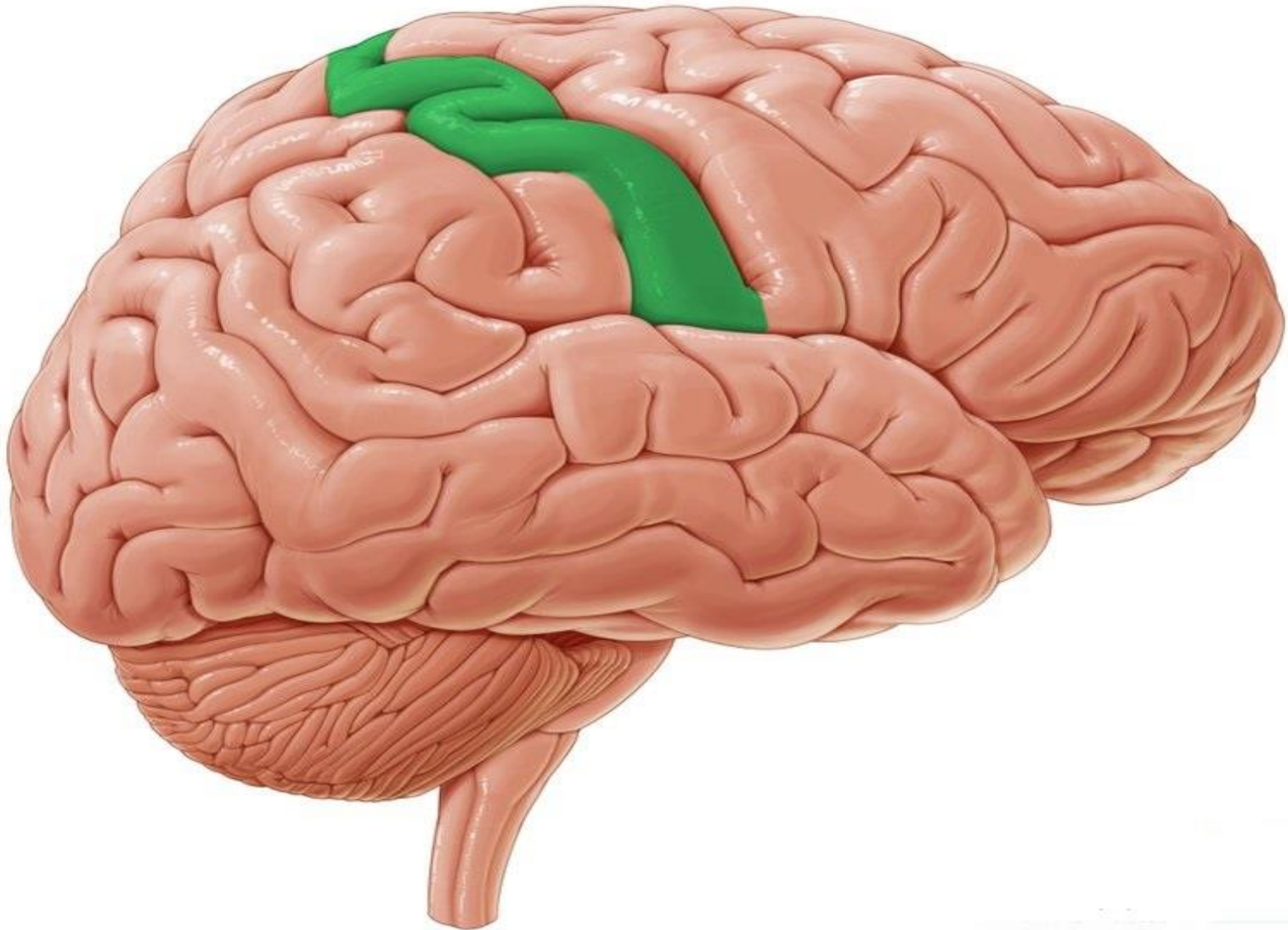


FTD

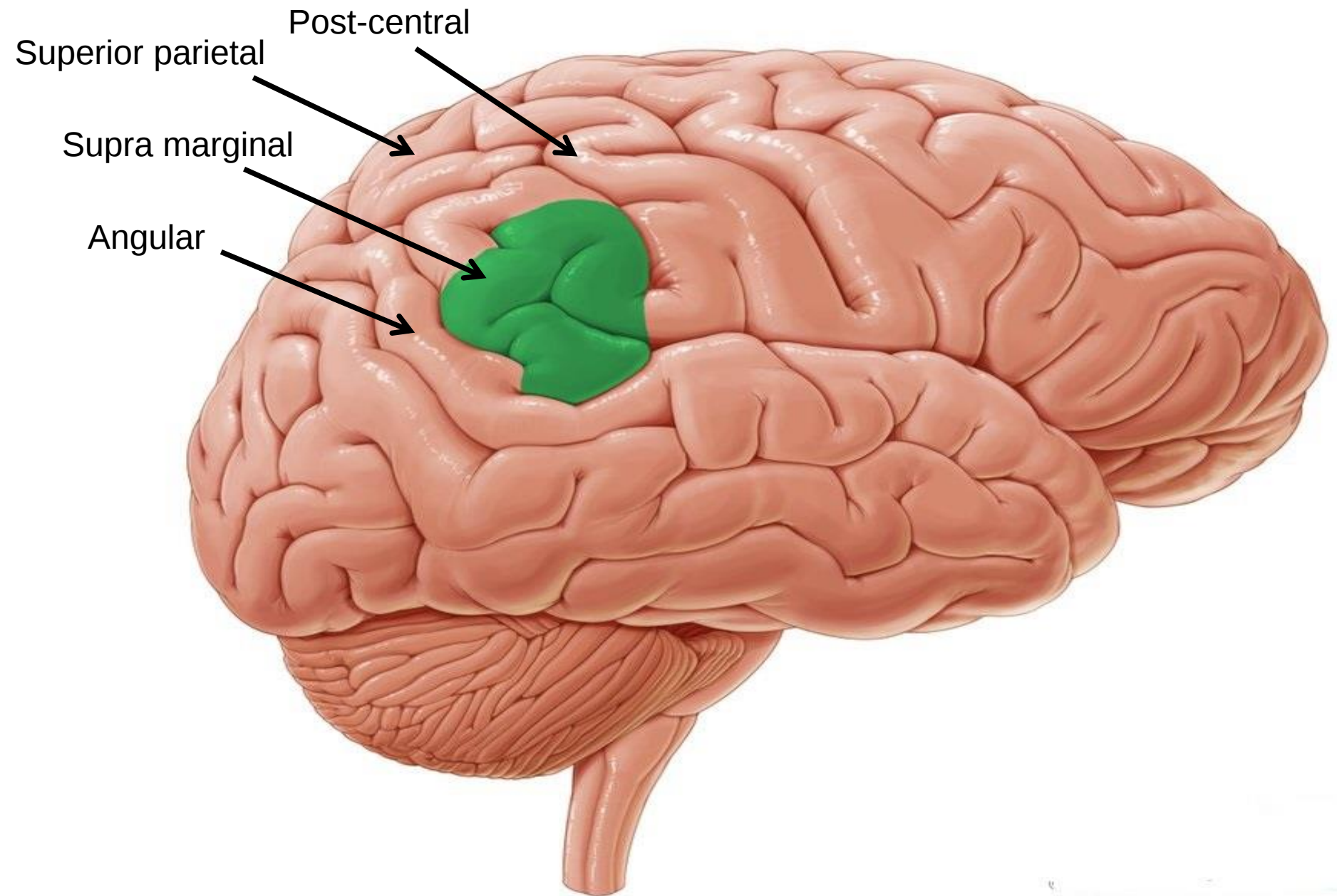
Parietal lobe



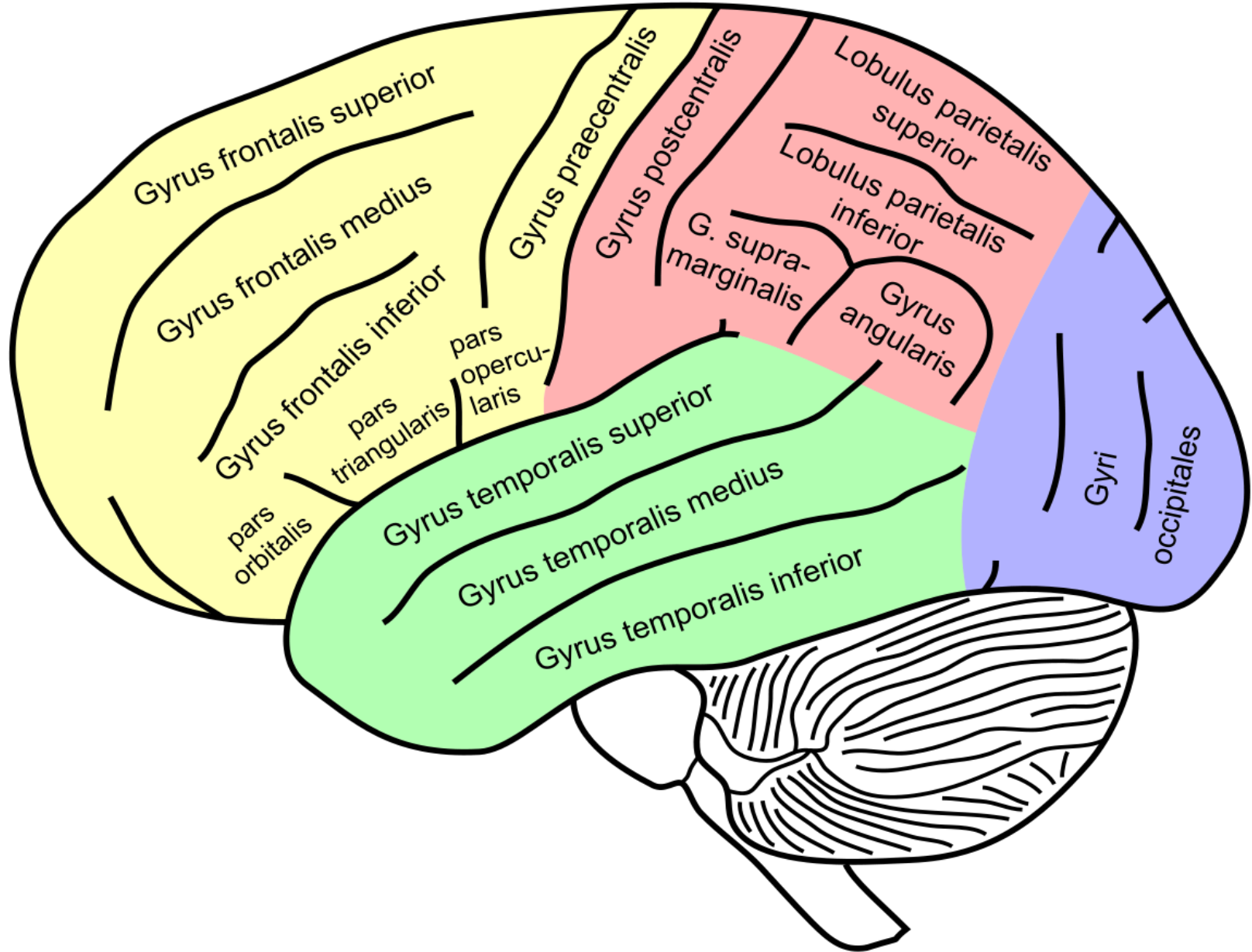
Parietal lobe, post-central gyrus



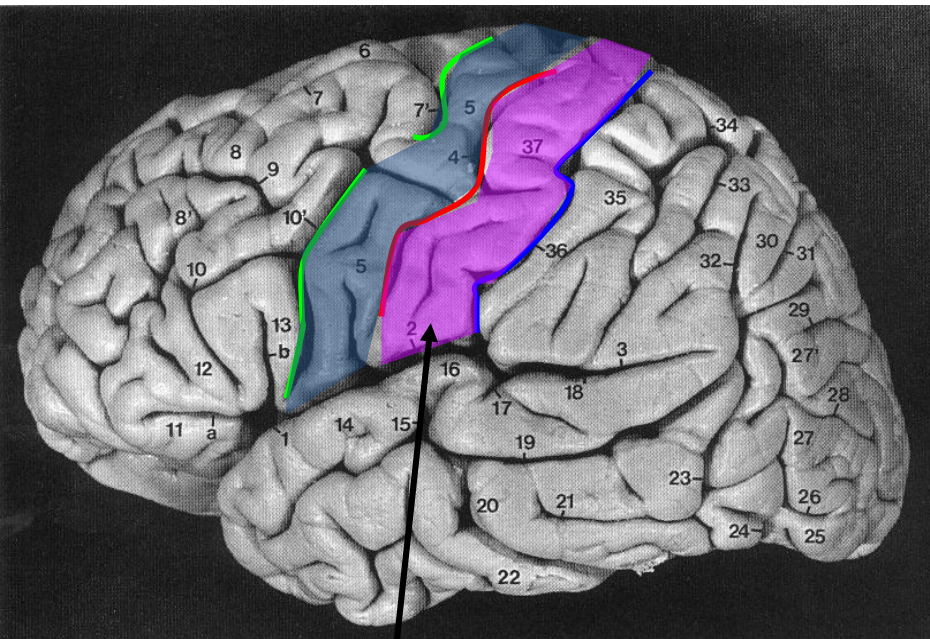
Parietal lobe



Parietal lobe

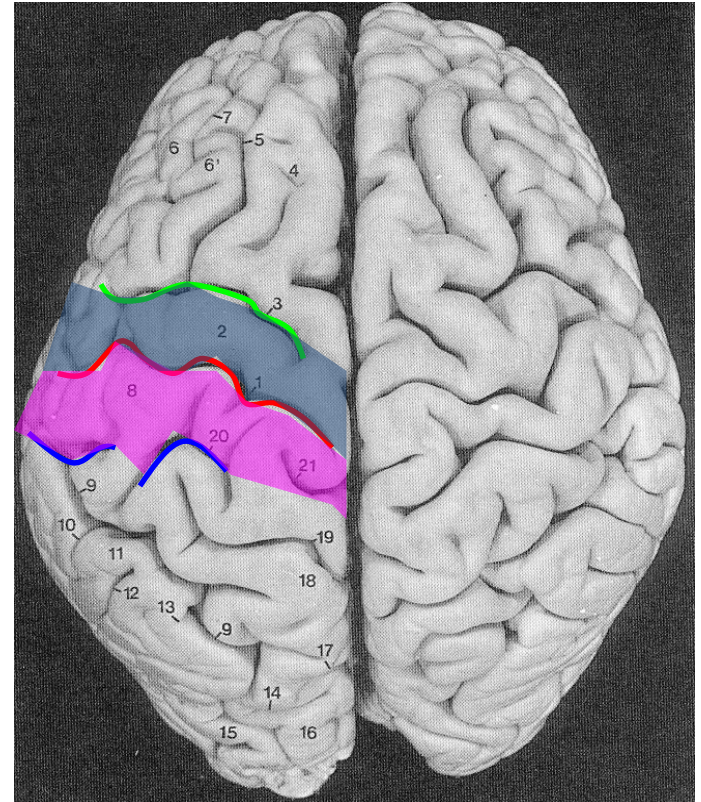


somatosensory area

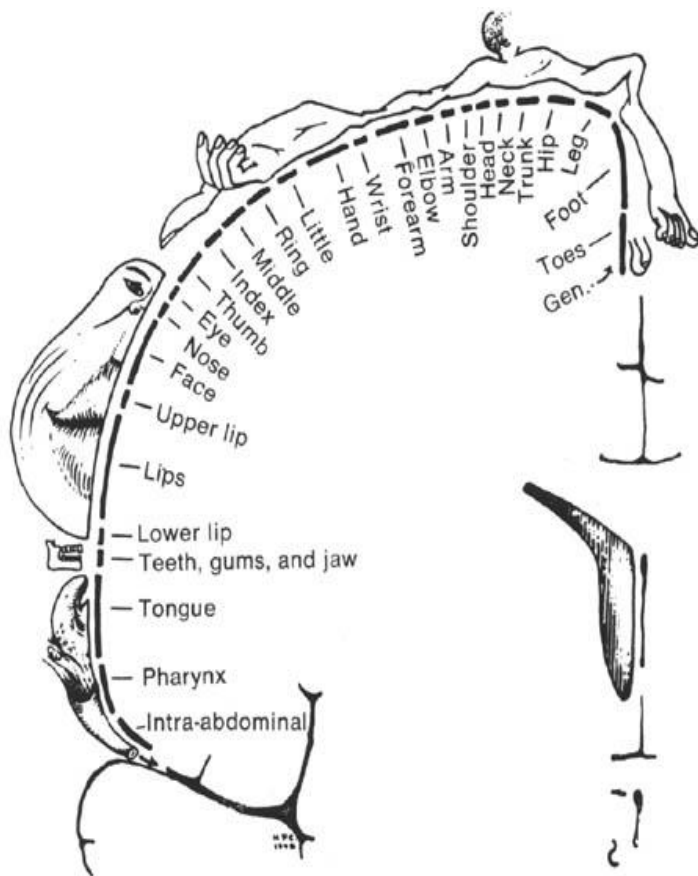


Post-central gyrus

(1,2,3)



هومونكولوس حسي



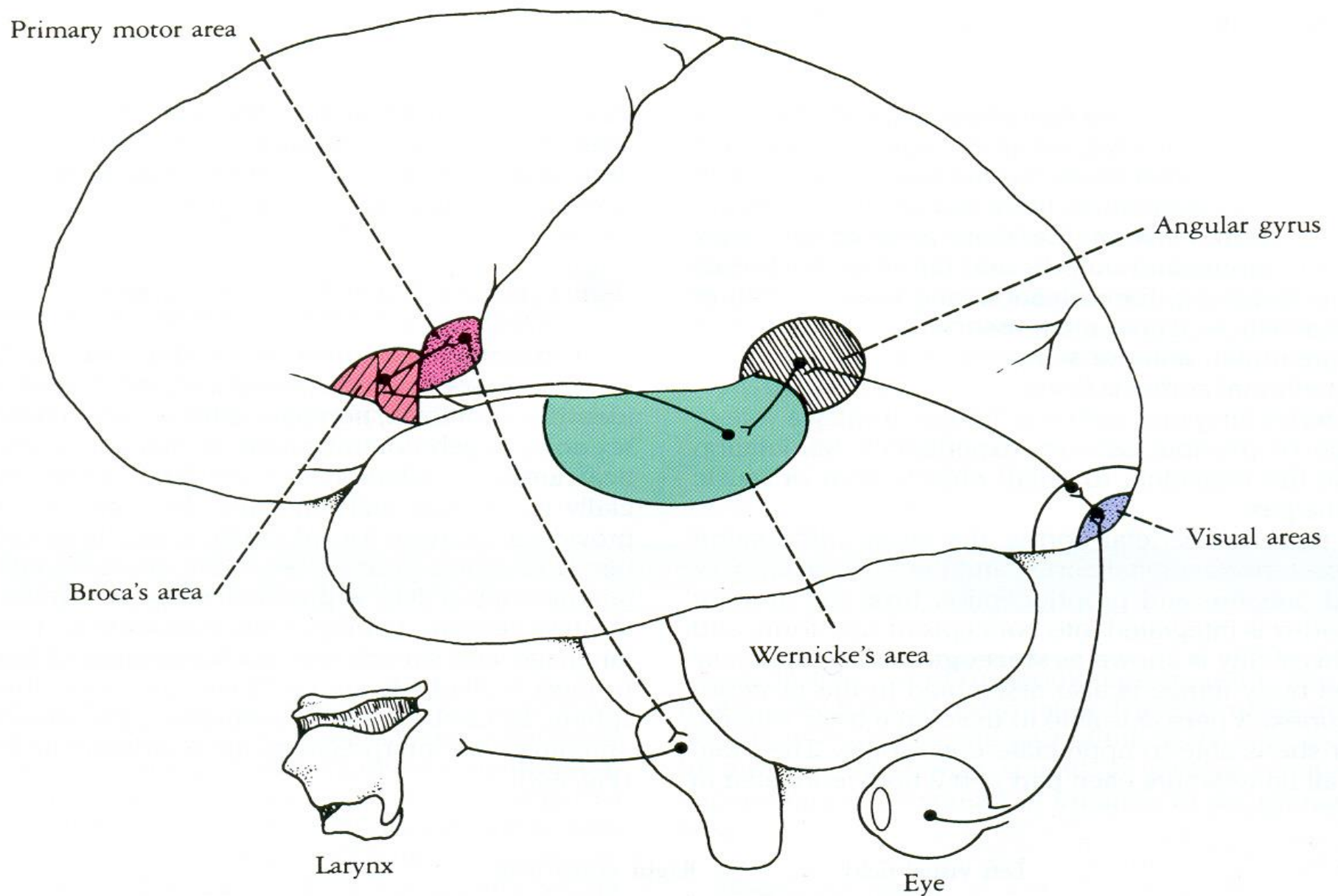


Figure 8-6 Probable nerve pathways involved in reading a sentence and repeating it out loud.

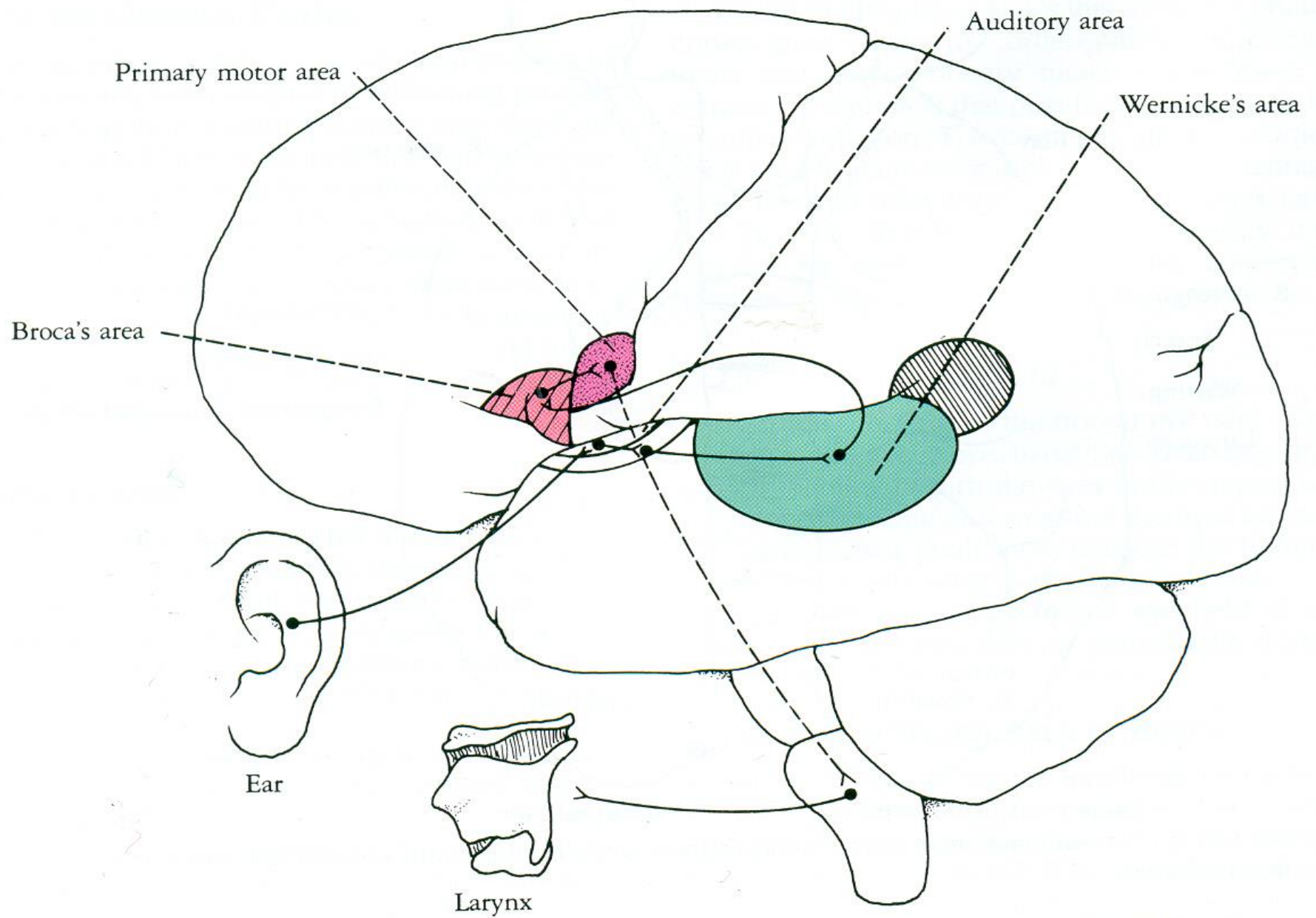
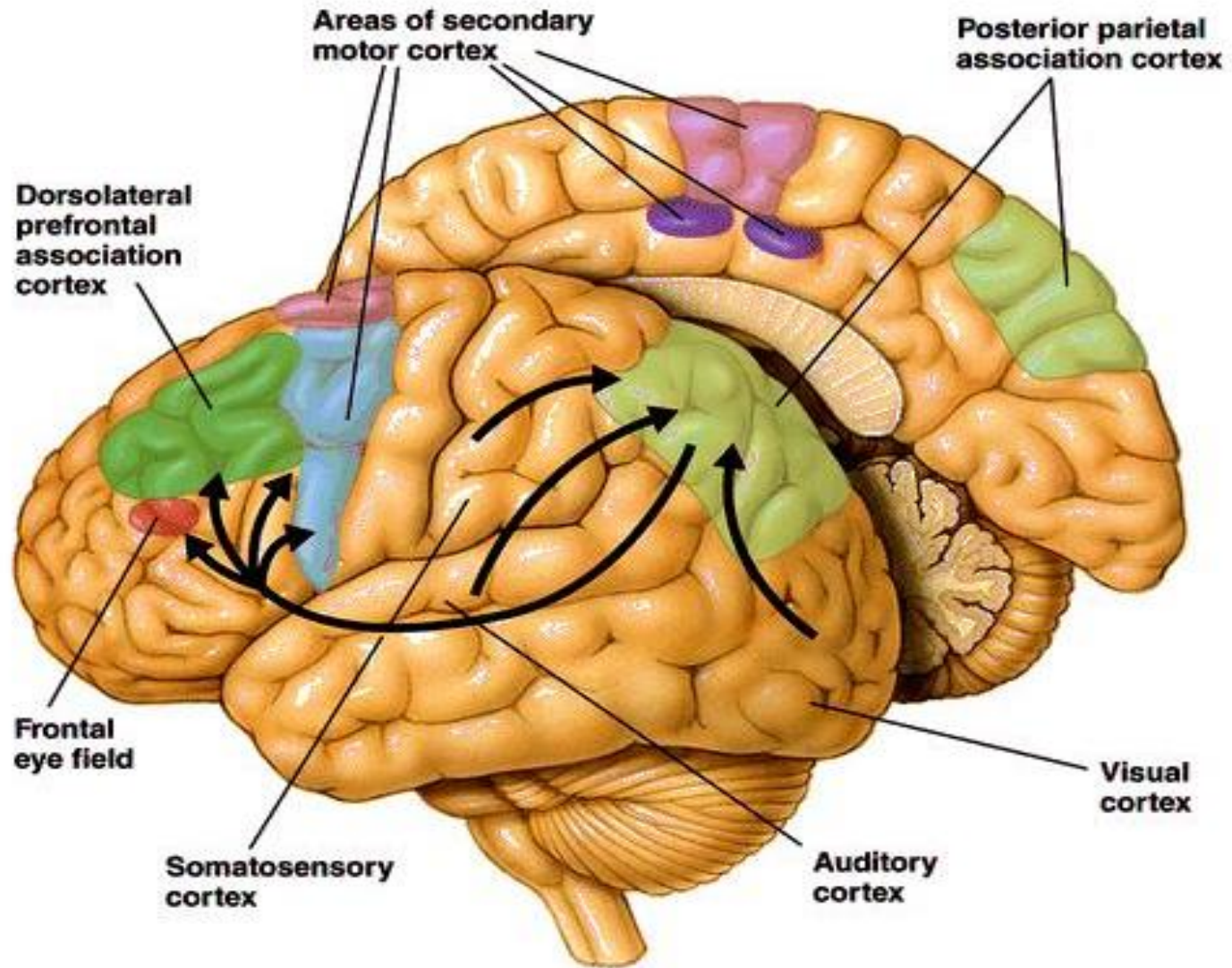


Figure 8-7 Probable nerve pathways involved with hearing a question and answering it.

Posterior parietal cortex





stereognosis

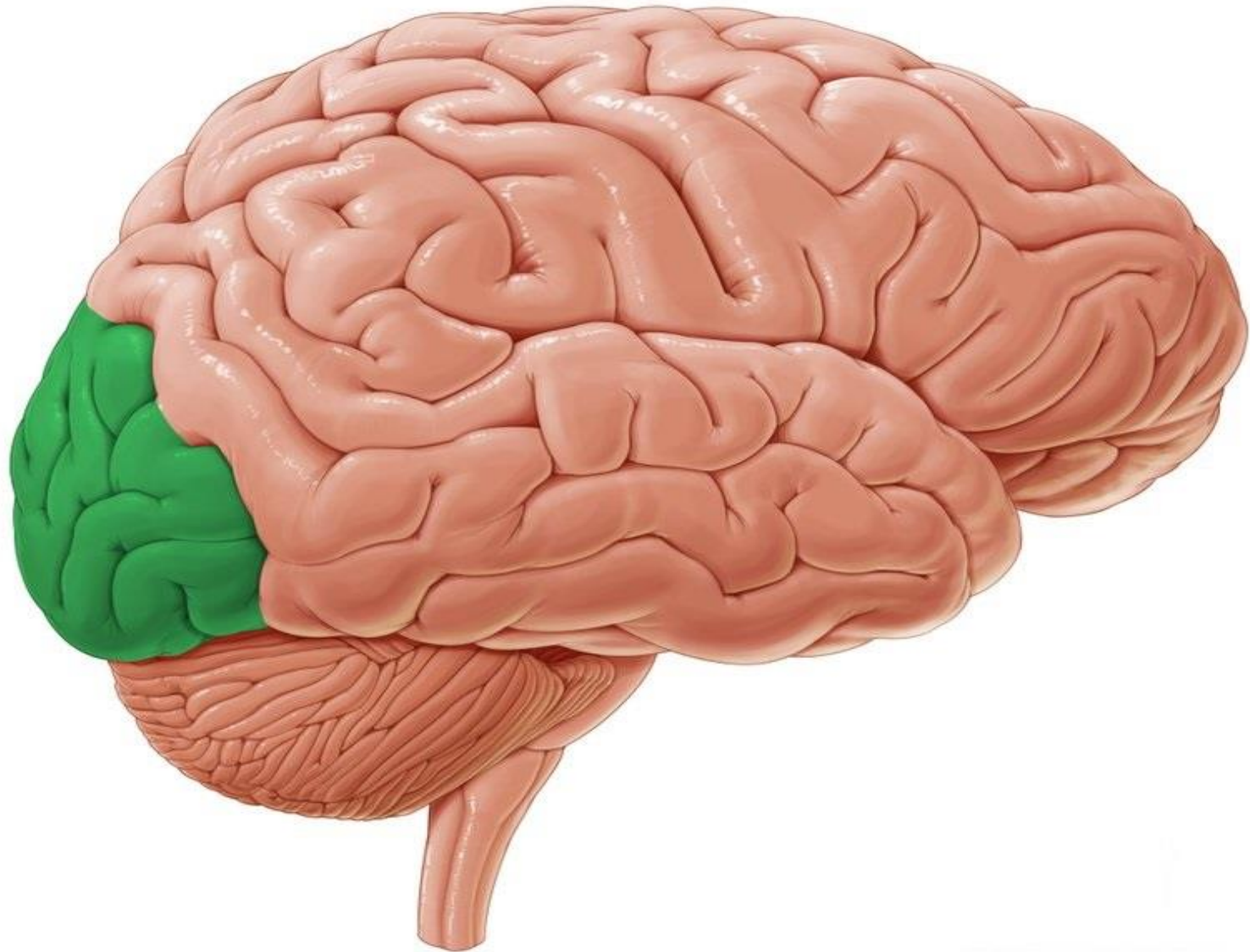


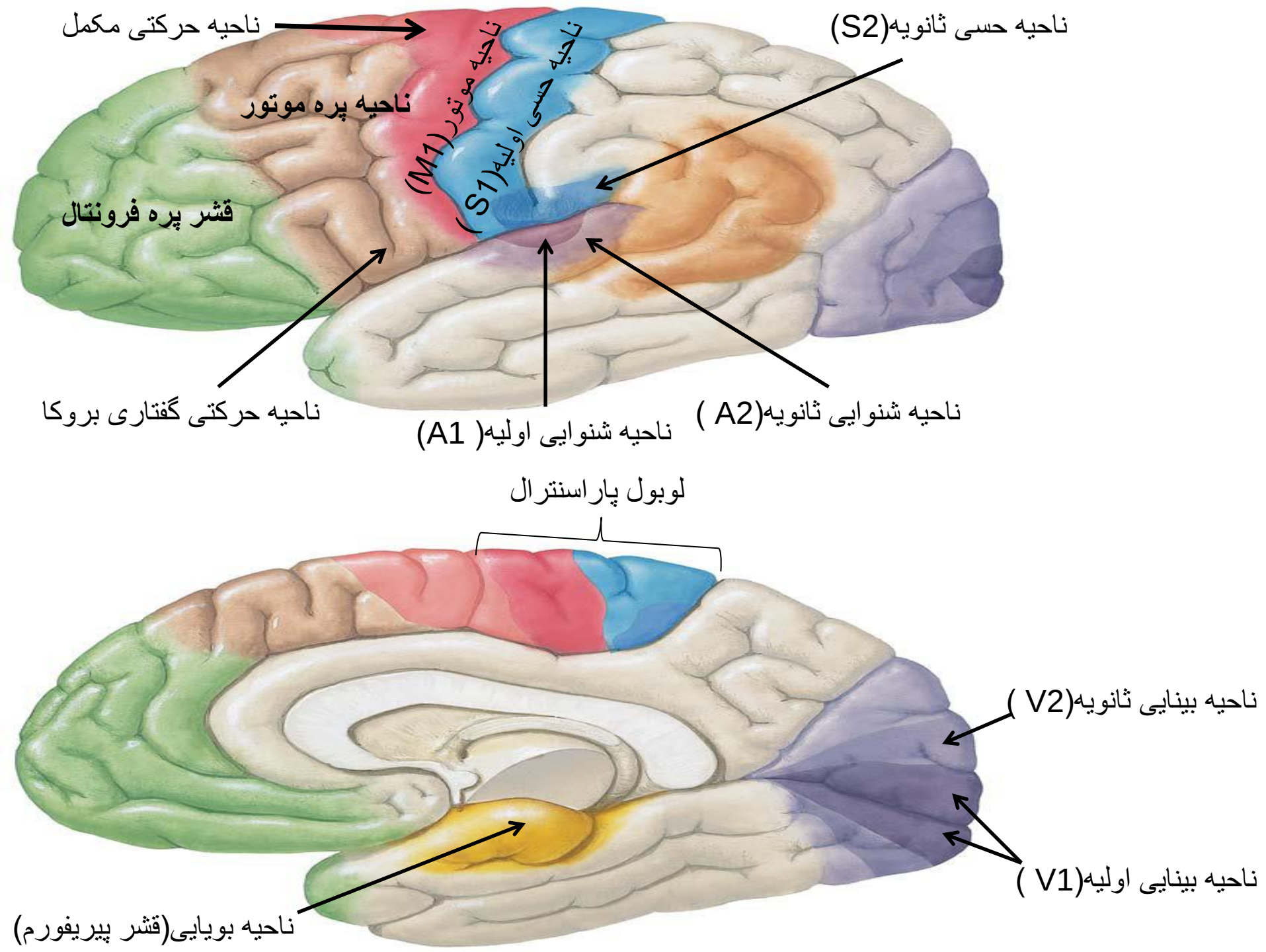
agraphia atesia



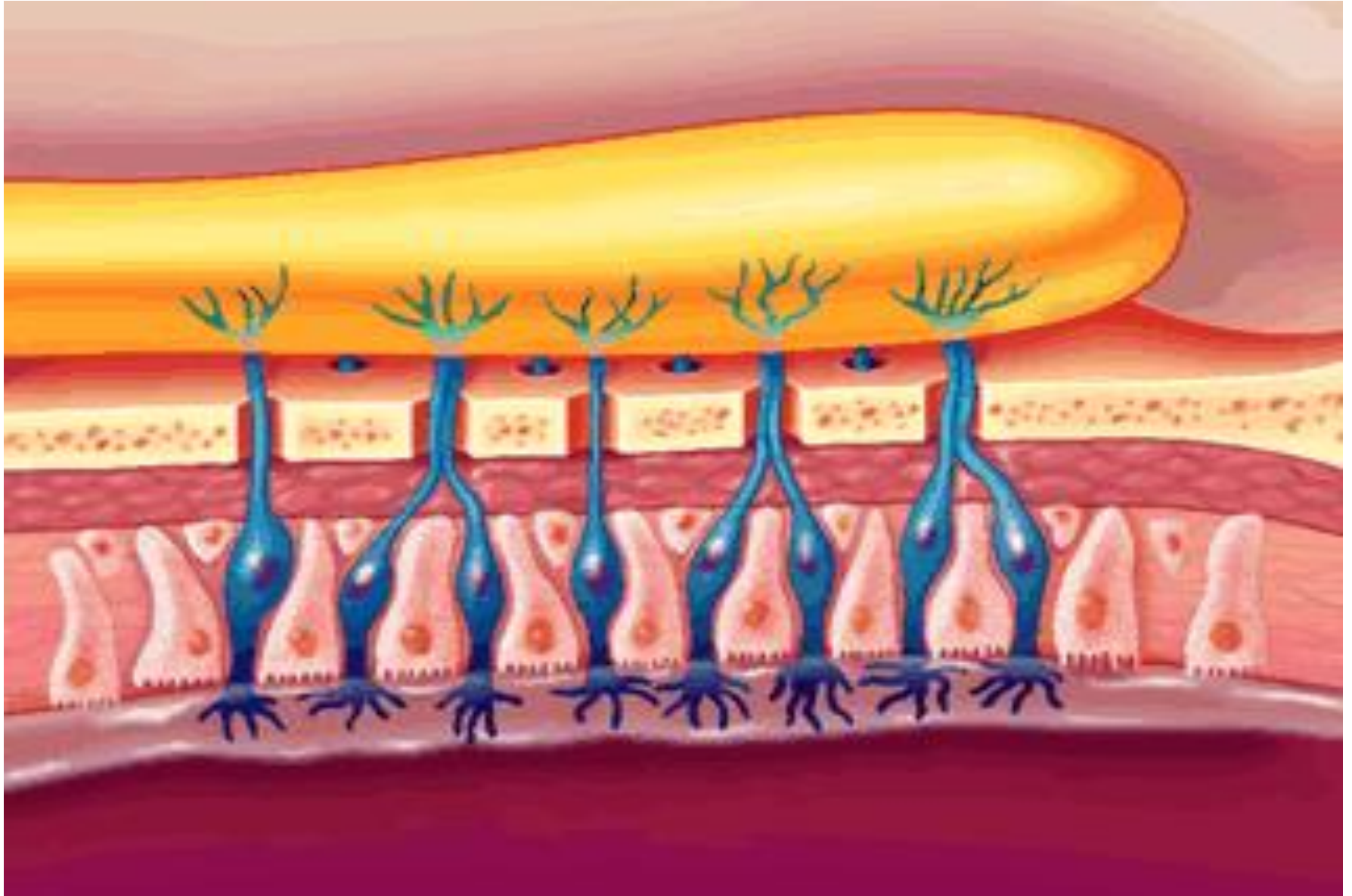
anosognosia

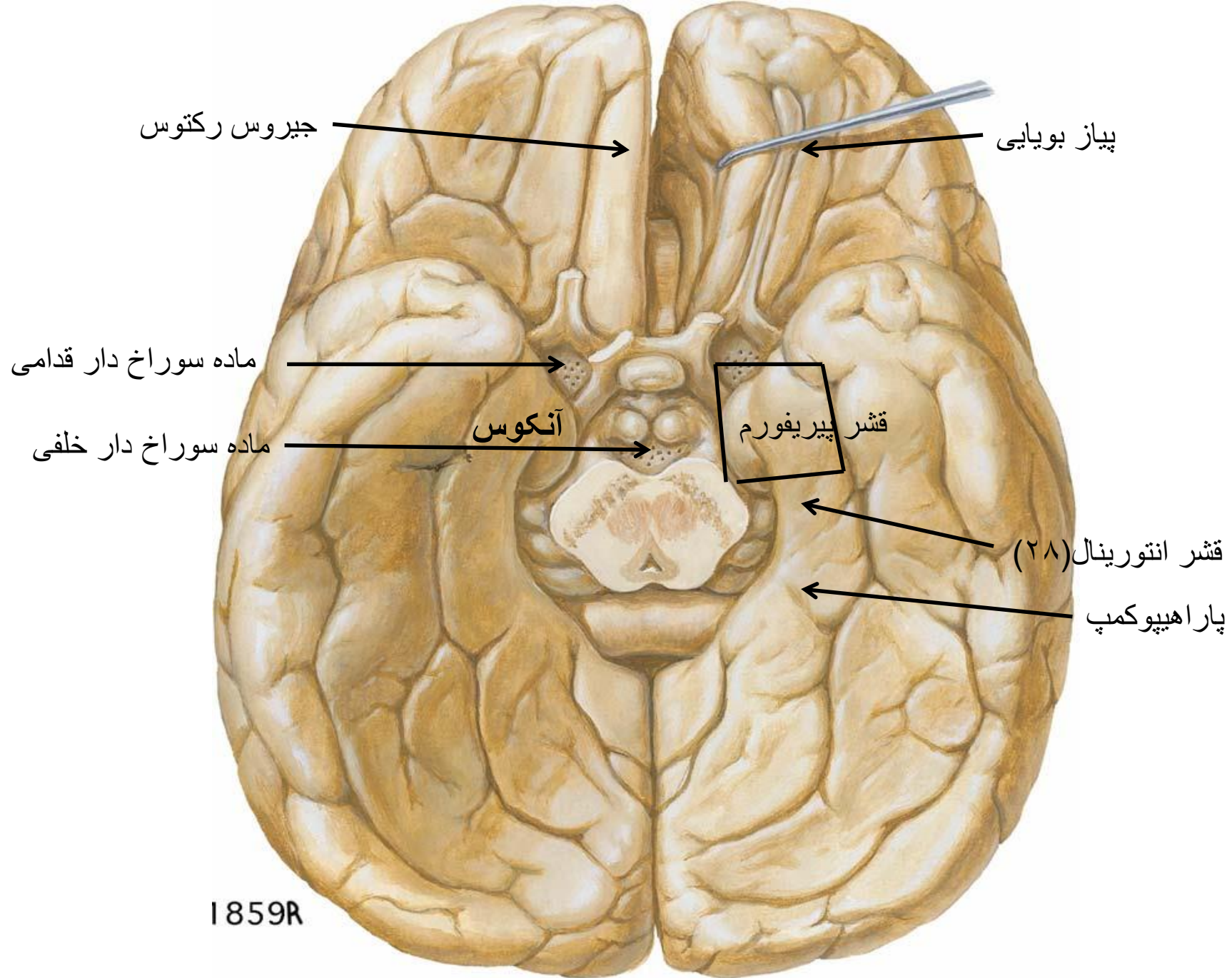
Occipital lobe

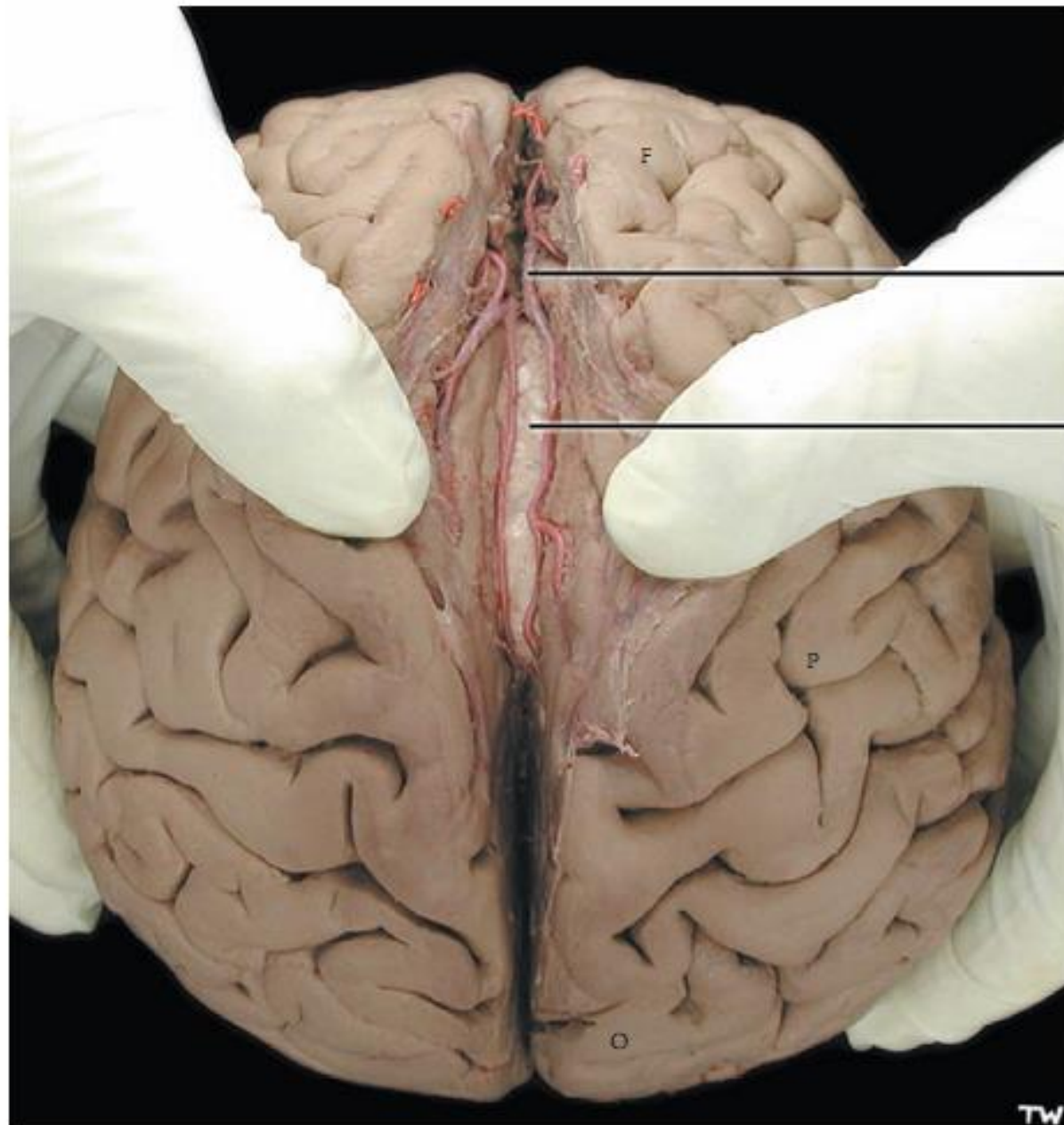




سیستم بویایی

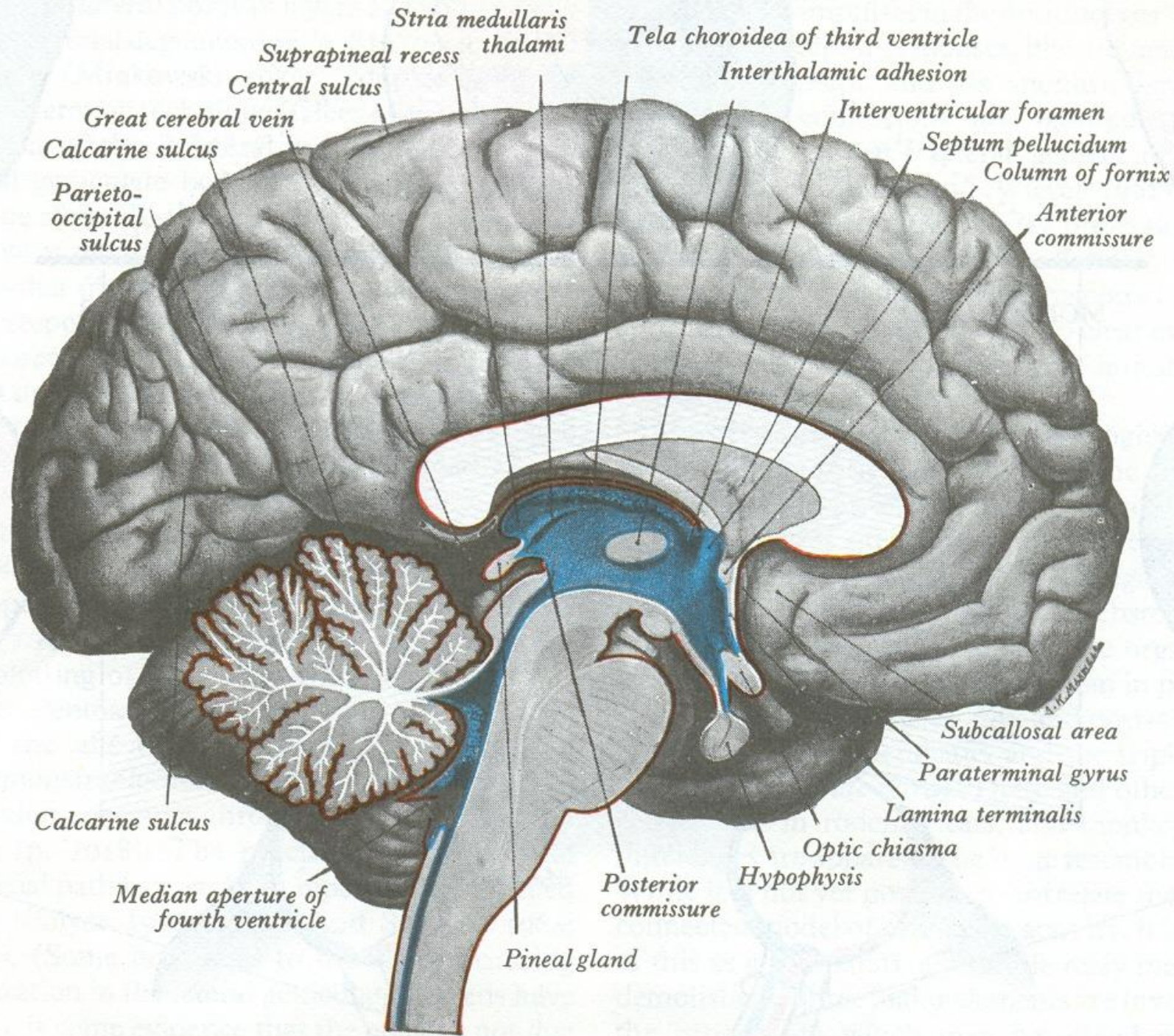


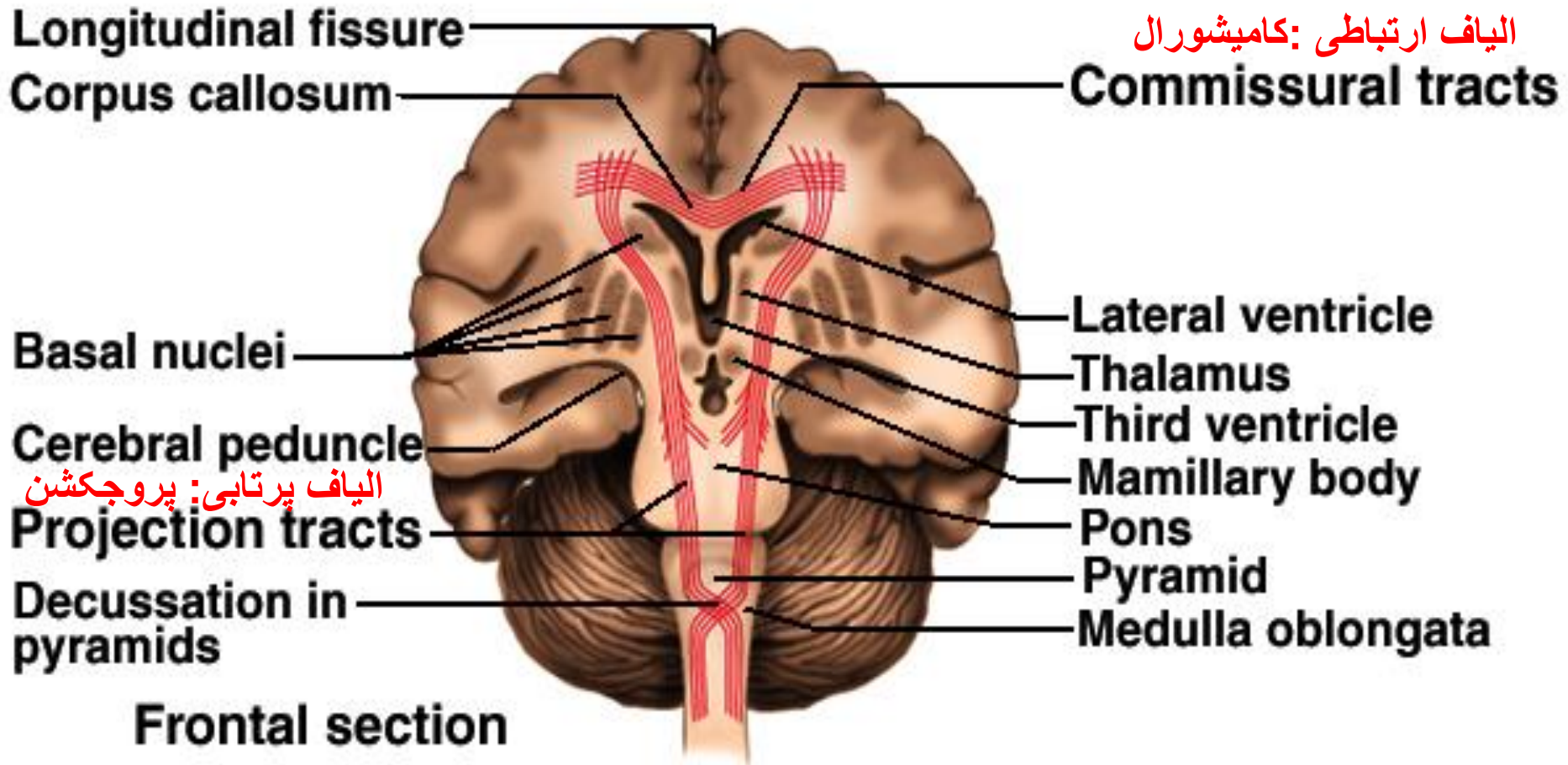
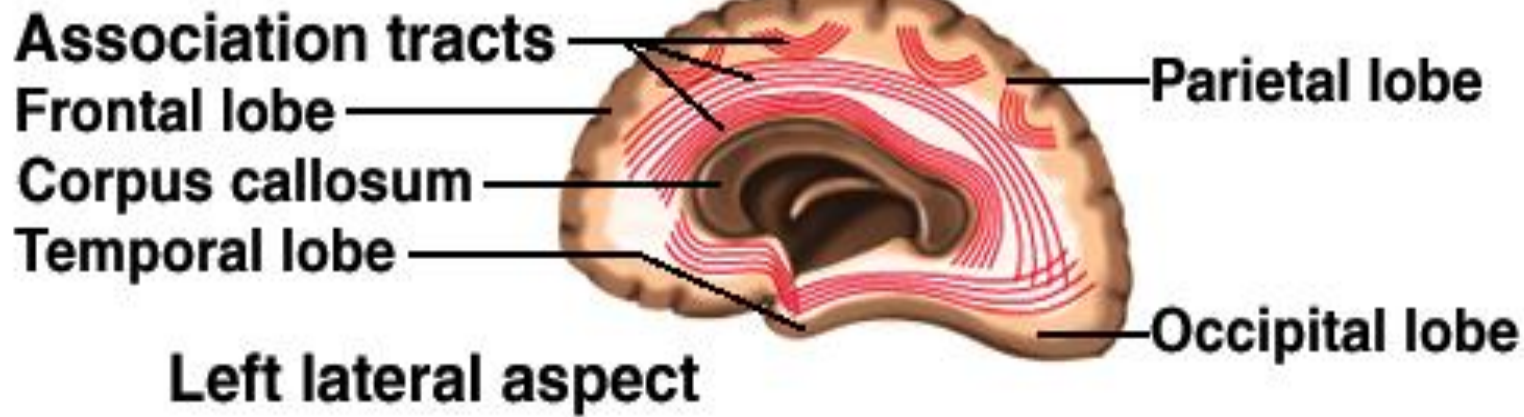




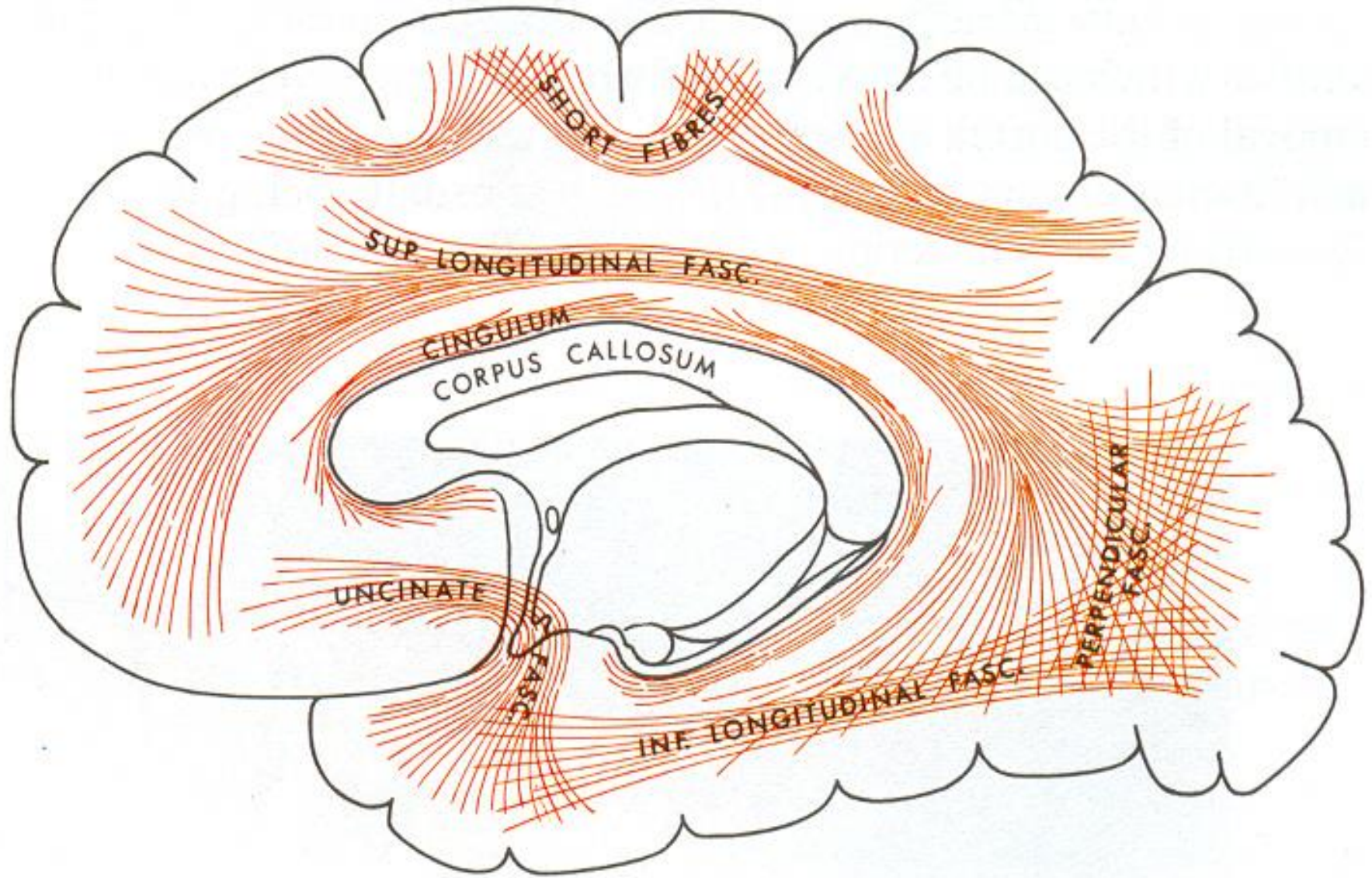
Anterior cerebral artery

Corpus callosum



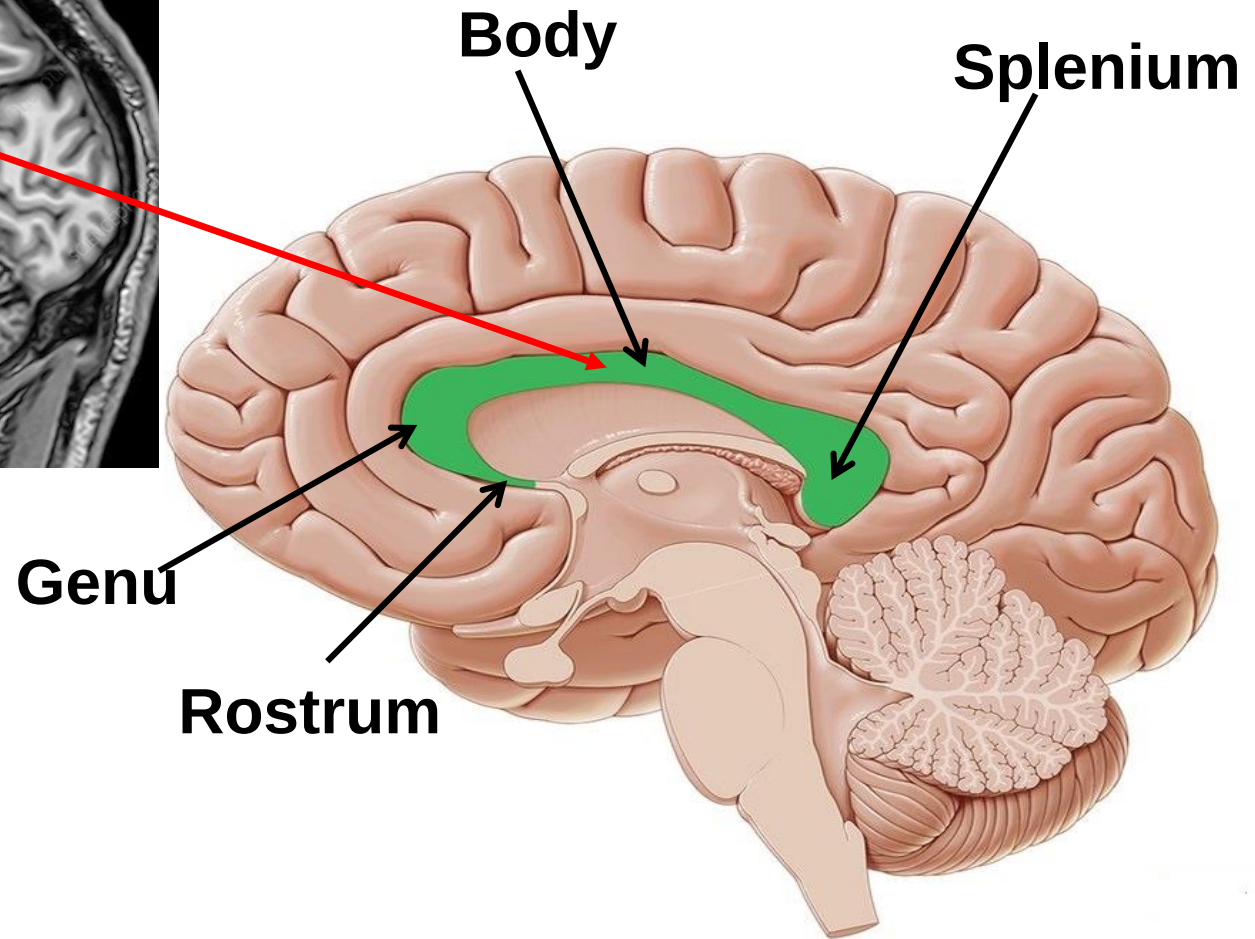
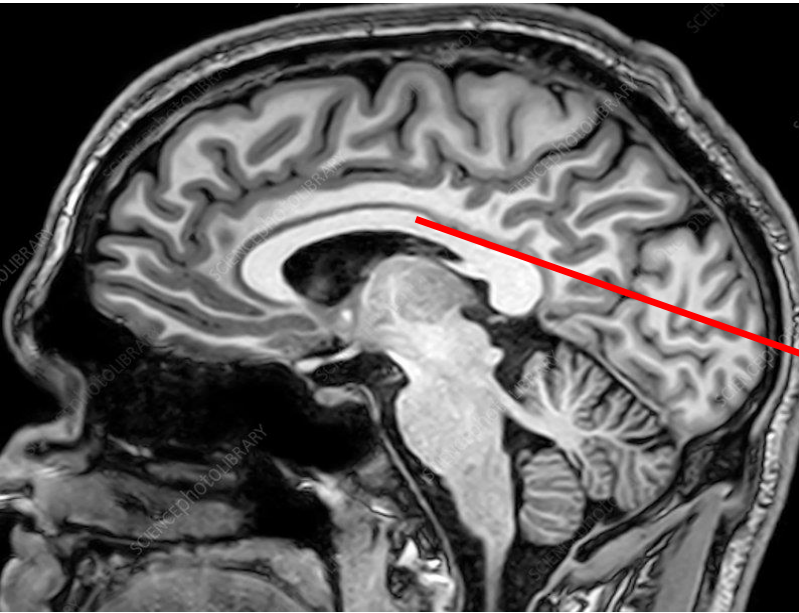


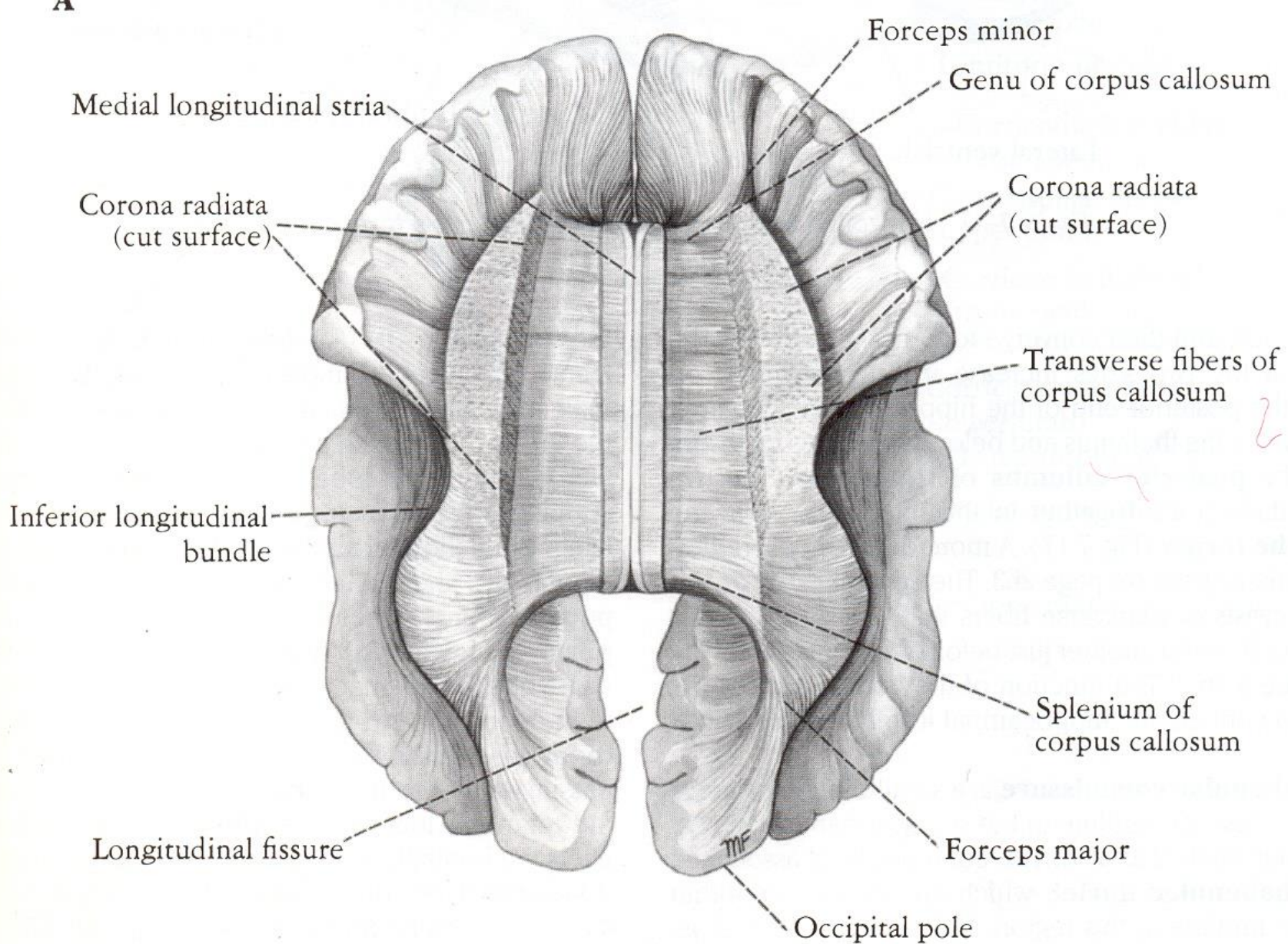
رابط های Association در یک نیمکره (طولی فوقانی، طولی تحتانی، سینگولوم، قلابی و...)



7.186A The principle arcuate (association) fibres in the cerebrum.

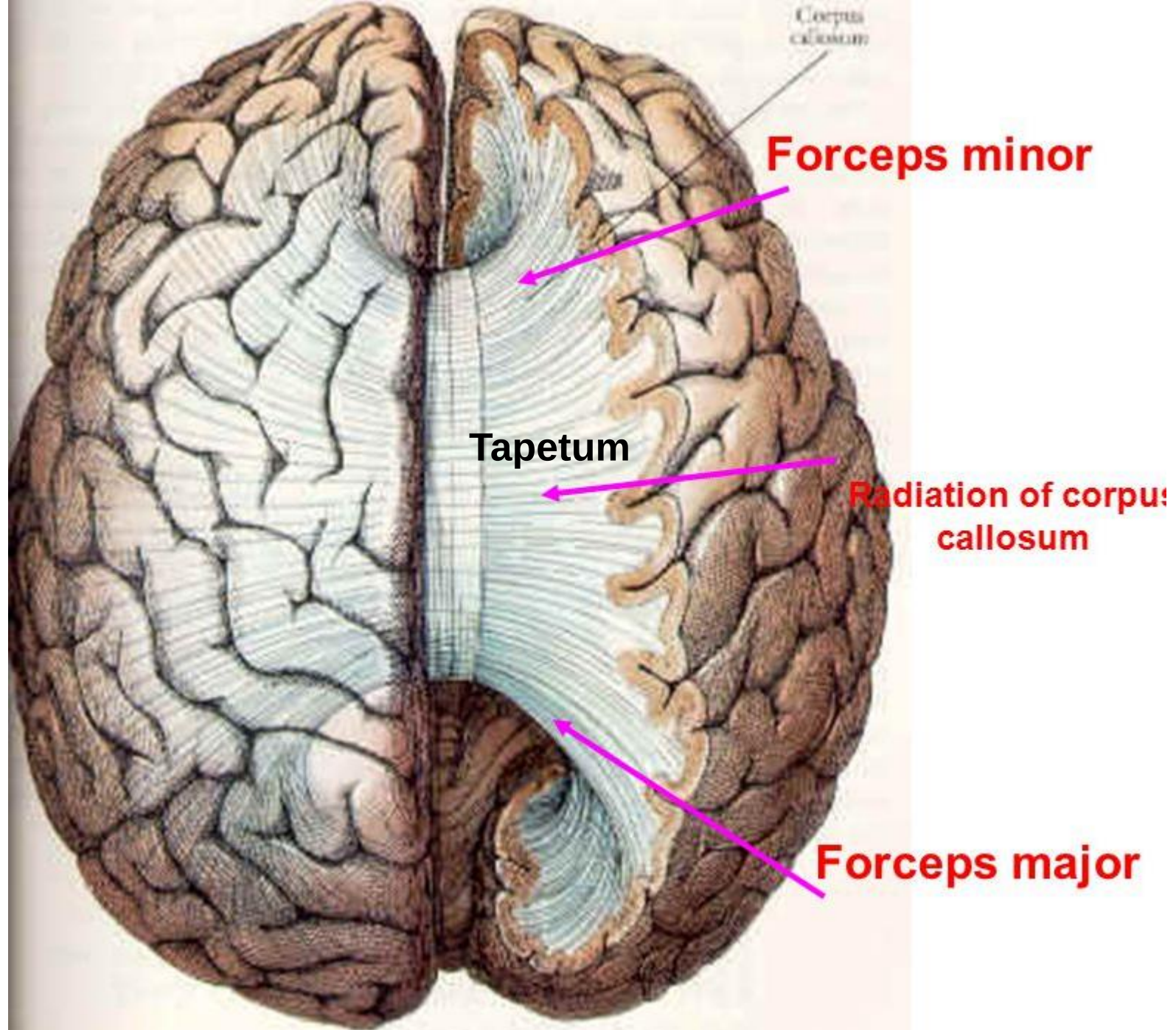
Corpus callosum





B

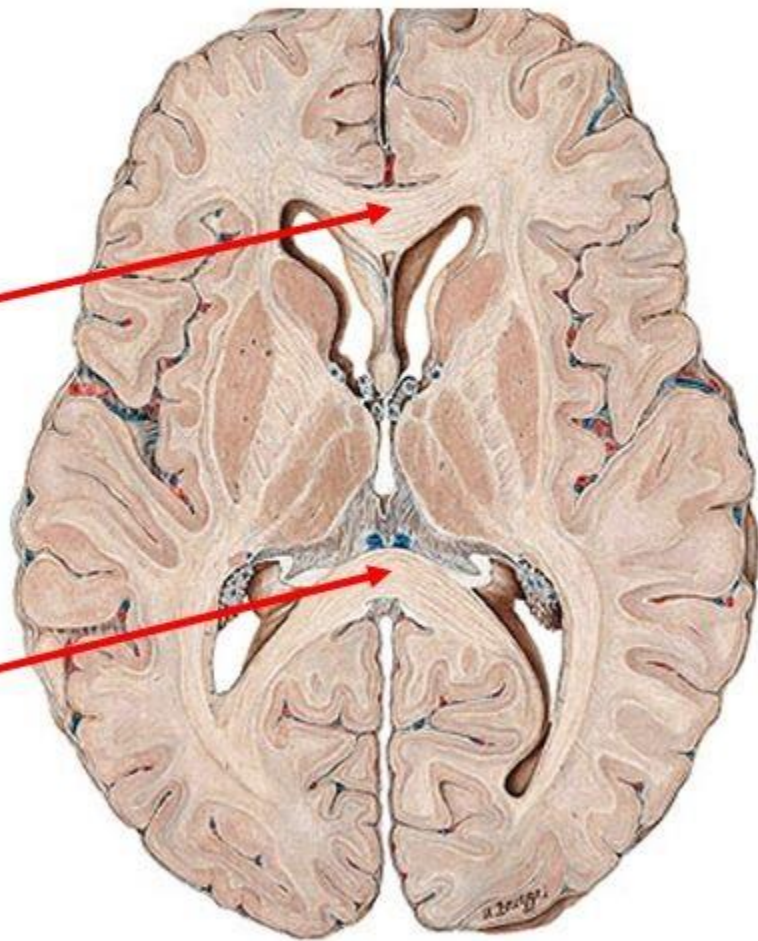
Figure 7-16 **A.** Coronal section of the brain passing through the anterior horn of the lateral ventricle and the optic chiasma. **B.** Superior view of the brain dissected to show the fibers of the corpus callosum and the corona radiata.



CORPUS CALLOSUM

Forceps minor (forceps frontalis)

Forceps major (forceps occipitalis)



Left or right dominance, which one is better?

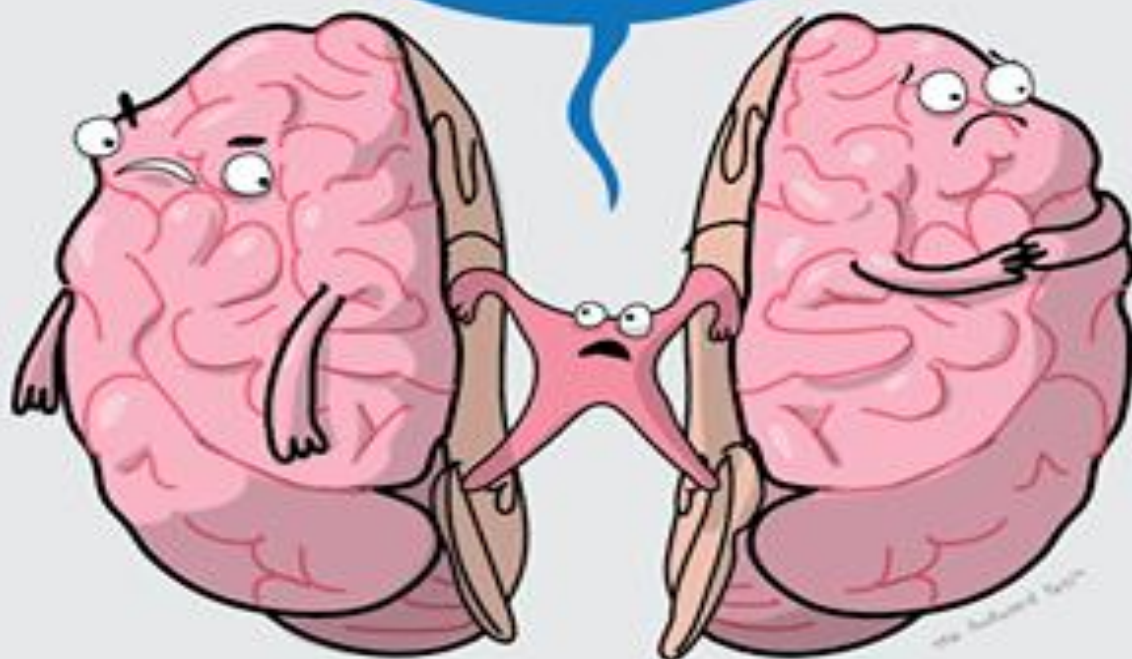
Brain Dominance: Left Brain

- Dominant Left Brain Learning Favors:
 - ▣ Language
 - ▣ Logic
 - ▣ Critical thinking
 - ▣ Numbers
 - ▣ Reasoning
 - ▣ Absolutes: Facts & Truth
- Tutoring Implications:
 - Clarity in vocabulary
 - Step-by-step problem solving
 - Determine logical response by not giving the answer
 - Do example problems as well as provide general equations
 - Understanding the “why” behind it is important
 - Show how to arrive at a solution

Brain Dominance: Right Brain

- Dominant Right Brain Learning Favors:
 - Facial communication
 - Expressed emotions
 - Reading emotions
 - Color
 - Images
 - Creativity
 - Reading between the lines
- Tutoring Implications:
 - ▣ Familiarity/Relational
 - ▣ Body language
 - ▣ Professionalism
 - ▣ Visuals/Organization
 - ▣ Drawings/Diagrams
 - ▣ Mnemonics

WE NEED
TO WORK
TOGETHER!



**CORPUS CALLOSUM
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پروردگارا

ای آن که سختی دشواری‌ها با تو آسان می‌گردد، و ای آن که راه‌گریز به سوی رهایی و آسودگی را از تو باید خواست. سختی‌ها به قدرت تو به نرمی گرایند و به لطف تو، اسباب کارها فراهم آیند. تویی آن که در کارهای مهم بخواندش. هیچ بلایی از ما برنگردد مگر تو آن بلا را بگردانی و هیچ اندوهی بر طرف نشود مگر تو آن را از دل برانی. دری را که تو بسته باشی، کسی نگشاید، و دری را که تو گشوده باشی، کسی نتواند بست.

پروردگارا

به احسانِ خویش درِ آسایش به روی من بگشا و مرا در آنچه از تو خواسته‌ام، شیرینیِ استجابت بچشان، و از پیشِ خود، رحمت و گشایشی دلخواه به من ده، و راه بیرون شدن از گرفتاری‌ها را پیشِ پایم نه. با من چنین کن، اگر چه شایسته‌ی آن نباشم، ای مهربانترین مهربانان

صحیفه سجادیه