

Journal – Day 17

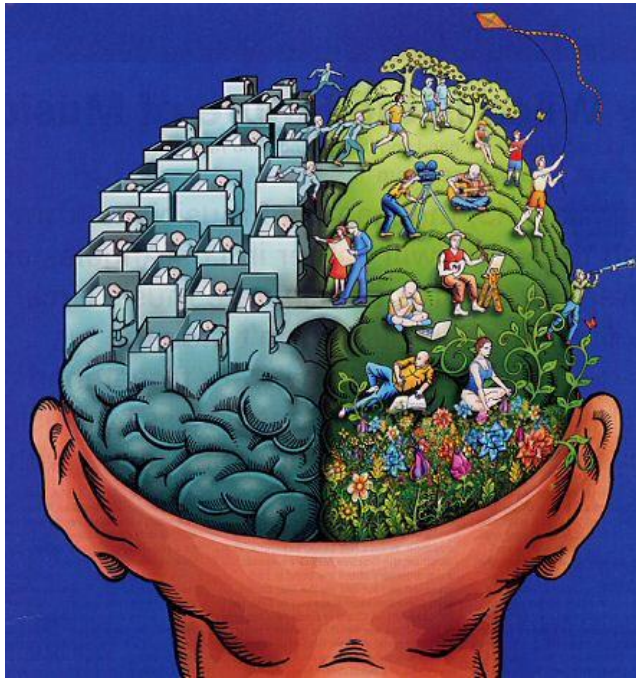
- You will have about 5-10 minutes to prepare to present your brain songs.
- Homework
 - Unit 2 Vocabulary Quiz – Friday – 9/22
 - Unit 2.2 Test – Monday – 9/25

Brain Plasticity

- The ability for our brains to form new connections after the neurons are damaged.
- The younger you are, the more plastic your brain is.
- Capacity of one brain area to take over the functions of another damaged brain area

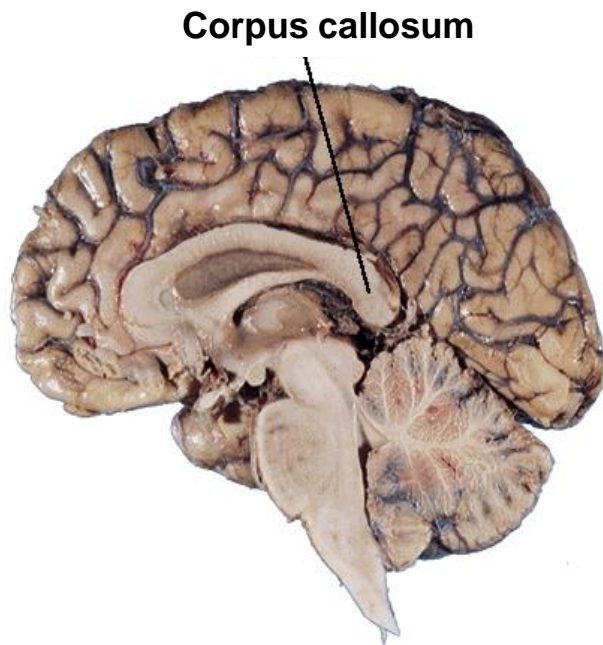


Hemispheres



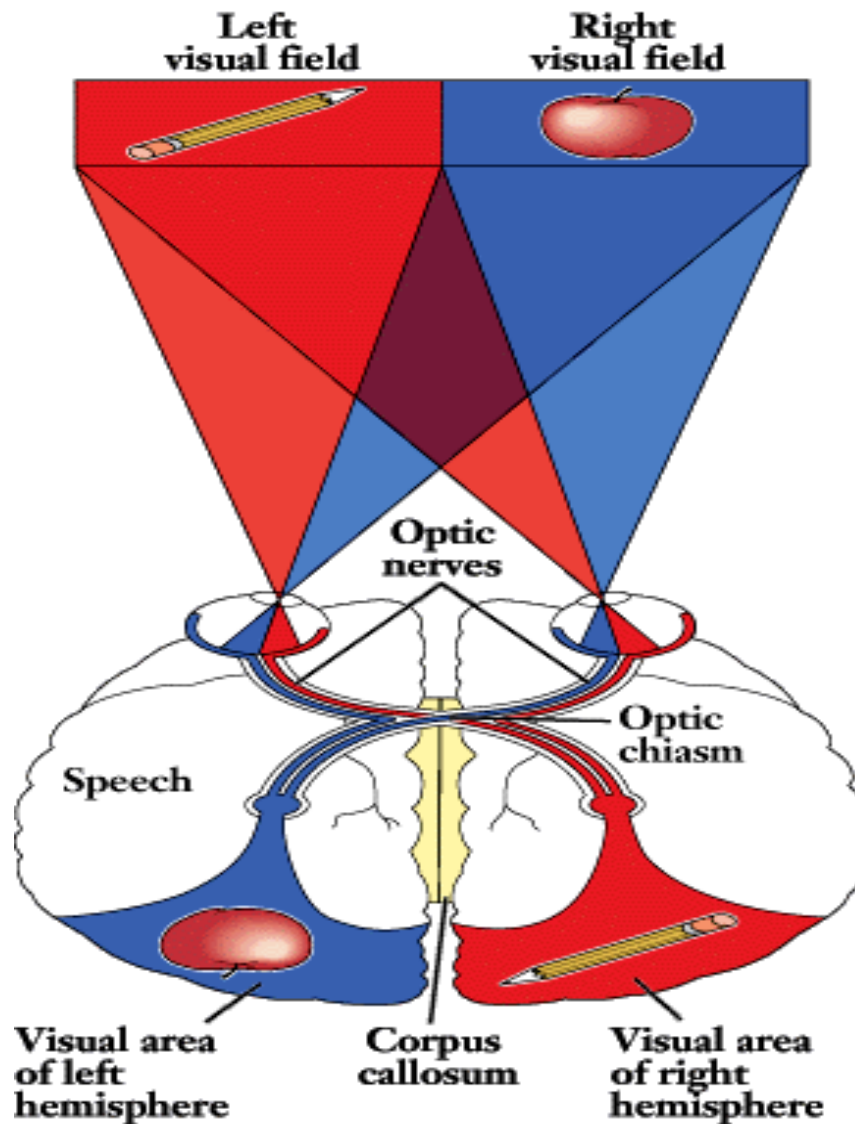
- Divided into a left and right hemisphere.
- Contralateral controlled- left controls right side of body and vice versa.
- Brain Lateralization.
- Left - Language / Logic (Like math, computers, science, organization)
- Right - Creative, musical, unorganized, spontaneous

Our Divided Brain



- **Corpus Callosum**
 - largest bundle of neural fibers
 - connects the two brain hemispheres
 - carries messages between the hemispheres

Our Divided Brain



- The information highway from the eyes to the brain

Split Brain

- a condition in which the two hemispheres of the brain are isolated by cutting the connecting fibers (mainly those of the corpus callosum) between them

Split Brain



“Look at the dot.”



Two words separated by a dot
are momentarily projected.

“What word
did you see?”



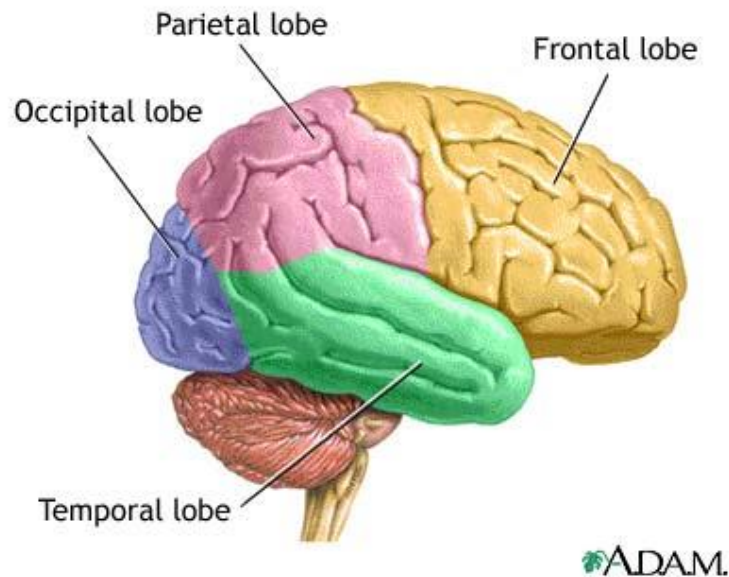
or



“Point with
your left hand
to the word
you saw.”

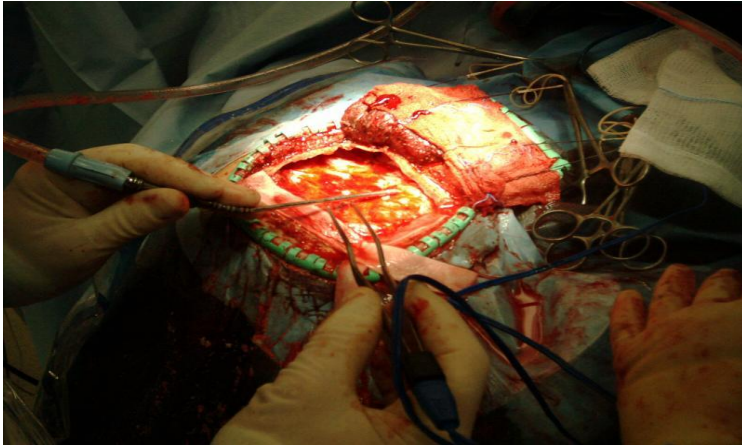


Areas of the Cerebral Cortex



- Divided into eight lobes, four in each hemisphere (frontal, parietal, occipital and temporal).
- Any area not dealing with our senses or muscle movements are called **association areas**. The most extensive regions of the brain, which enable learning and memory.

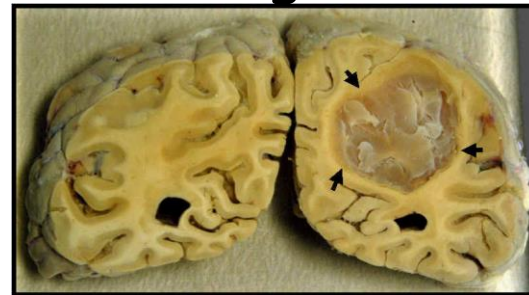
Lesions: tissue destruction



Brain tumors also lesion brain tissue.



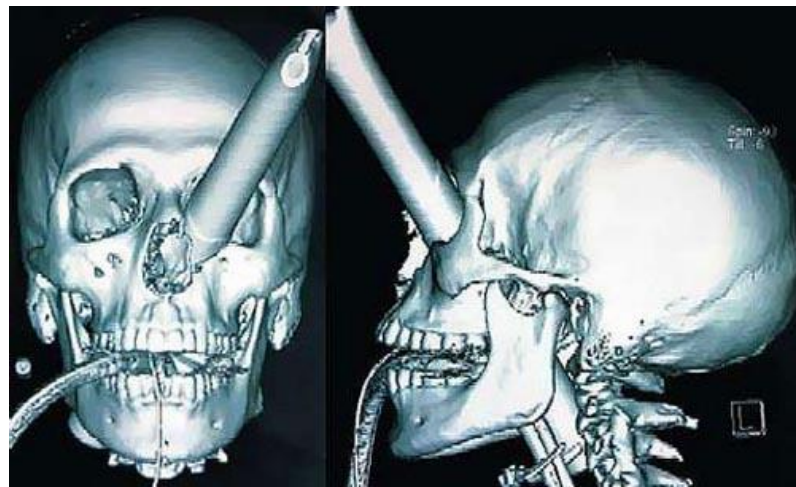
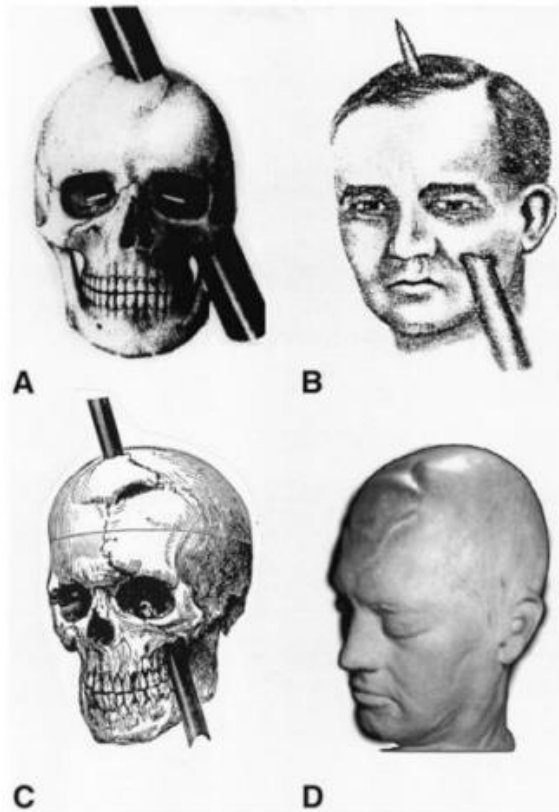
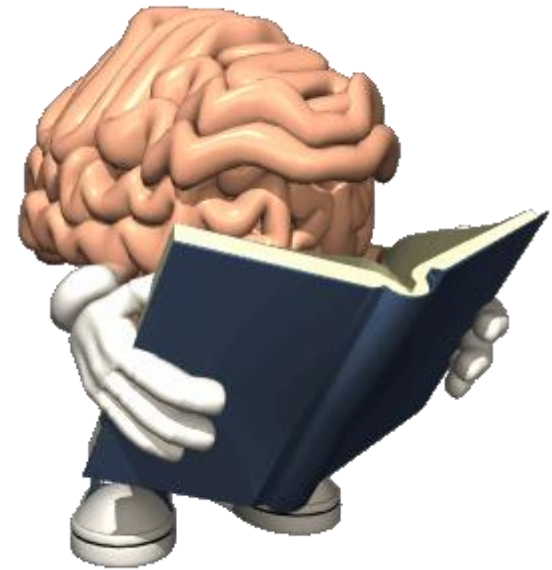
Cutting into the brain and looking for change.



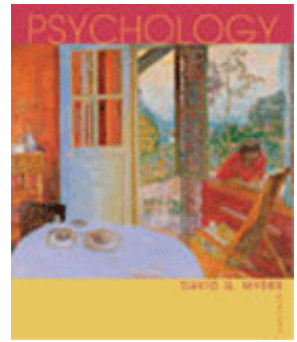
Did you know? Nazis used to lesion the brains of Jews during experiments to see how their behavior would change. We know much of what we do today about the brain because of these experiments...

Ways to study the Brain!!!

- Accidents: Phineas Gage.
- HM – in book.

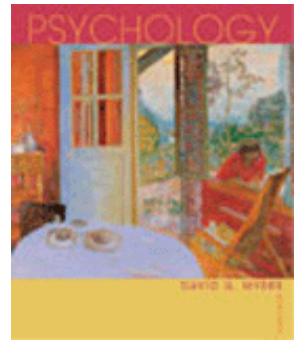


Electroencephalogram (EEG)



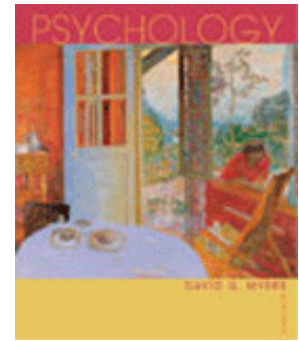
- an amplified recording of the waves of electrical activity that sweep across the brain's surface
- these waves are measured by electrodes placed on the scalp

The Brain



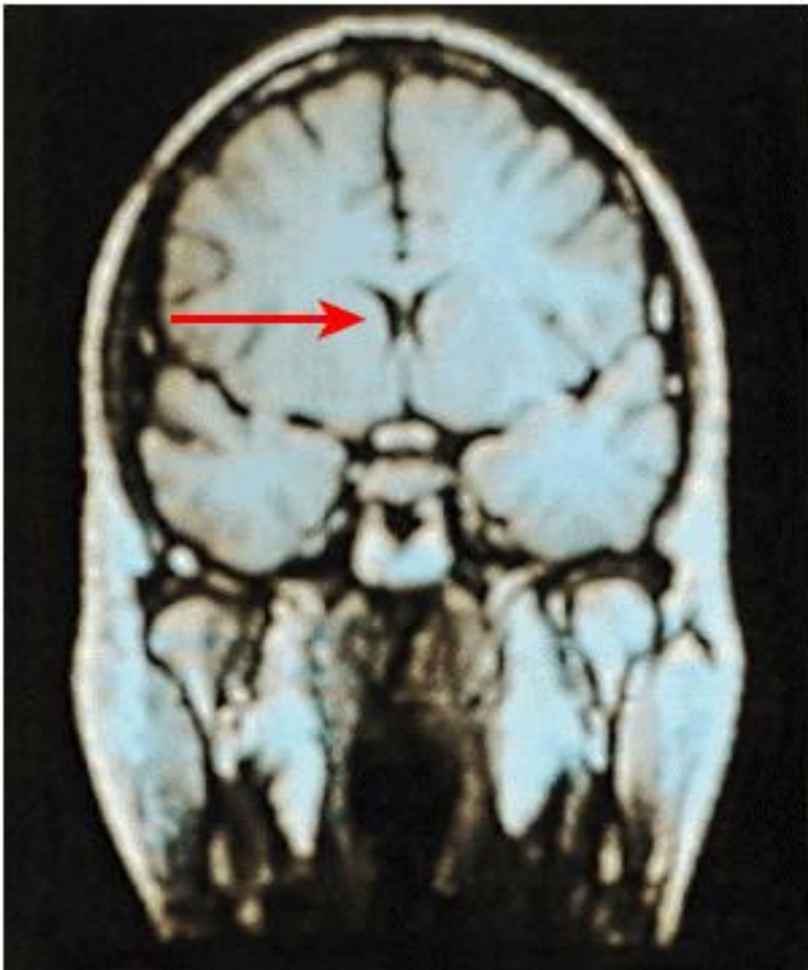
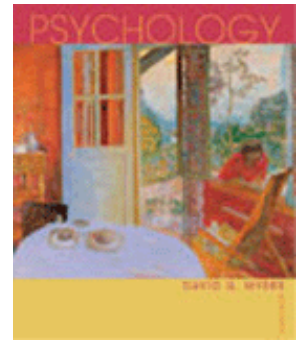
- **CT (computed tomography) Scan**
 - a series of x-ray photographs taken from different angles and combined by computer into a composite representation of a slice through the body; also called CAT scan
- **PET (positron emission tomography) Scan**
 - a visual display of brain activity that detects where a radioactive form of glucose goes while the brain performs a given task
- **MRI (magnetic resonance imaging)**
 - a technique that uses magnetic fields and radio waves to produce computer-generated images that distinguish among different types of soft tissue; allows us to see structures within the brain

PET Scan

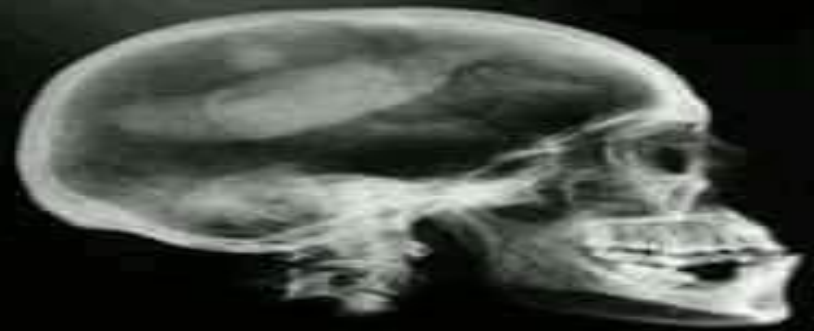


MRI Scan

The **ventricles** of the **brain** are a communicating network of cavities. Increase size can lead to schizophrenia.



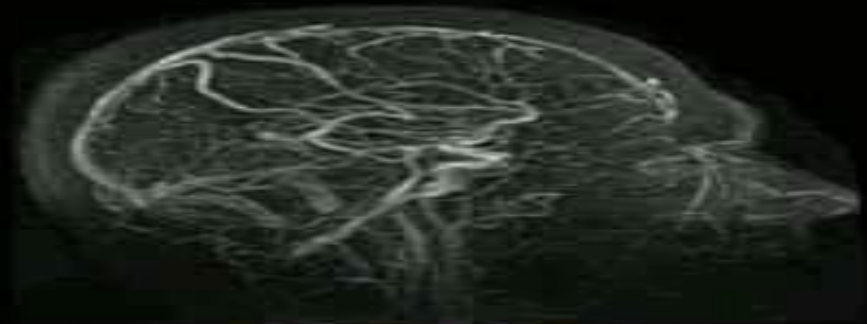
X-Ray of
the brain



MRI of the
brain



MRA of
the brain



PET Scan of
the brain

