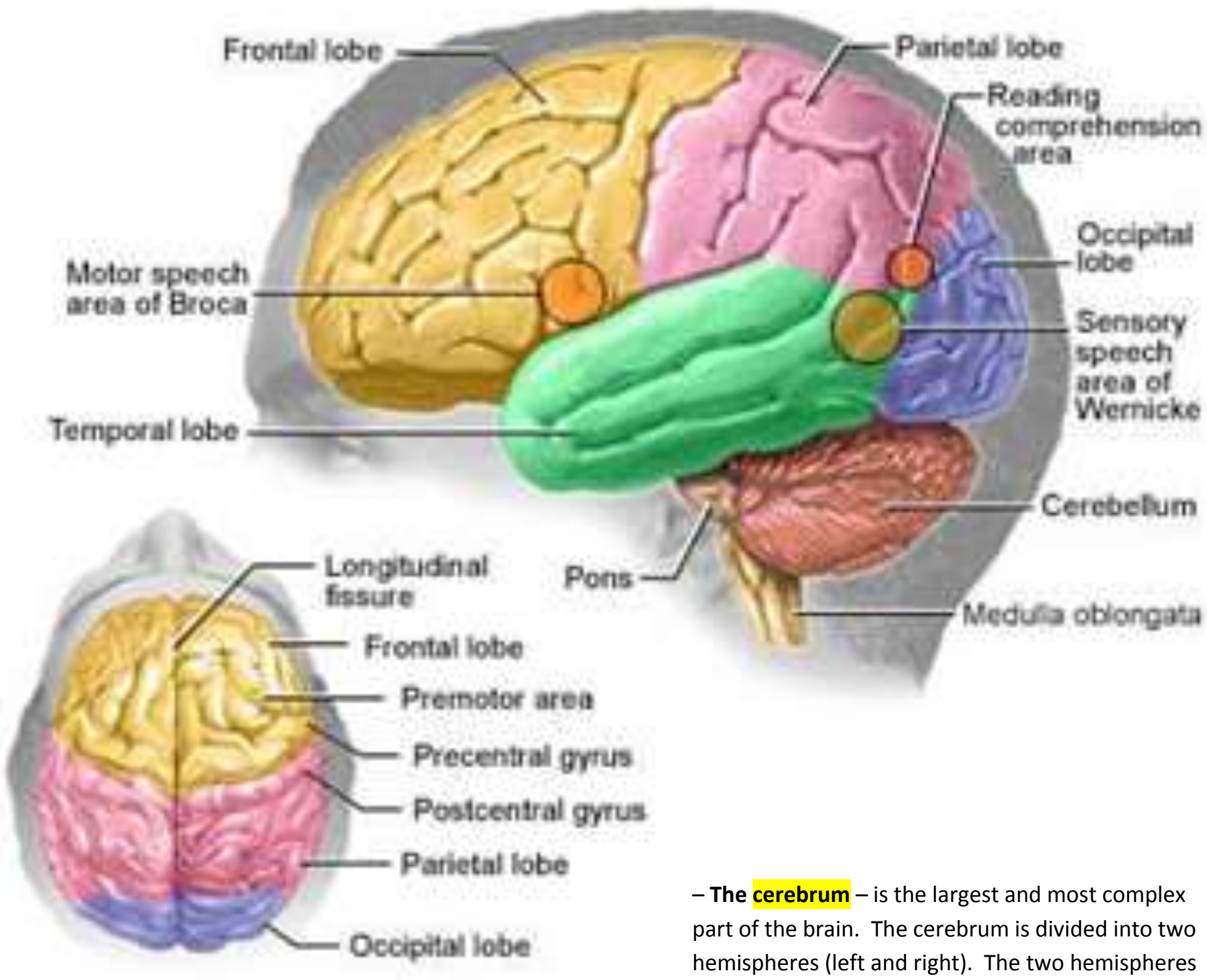
Three Major Parts

Of the Brain

Integrate and control the activities of the nervous system.

These are the cerebrum, cerebellum, and the brain stem.

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– **The cerebellum** – is the second largest part of the brain. It's principal function is to coordinate the movement of skeletal muscles.

– **The brain stem** –is a 3 inch stalk of nerve cells and fibers that connects the spinal cord to the rest of the brain. Incoming sensory impulses and outgoing motor impulses pass thorough the brain stem.

– **The cerebrum** – is the largest and most complex part of the brain. The cerebrum is divided into two hemispheres (left and right). The two hemispheres communicate with each other. The right hemisphere controls the left side of the body and the left hemisphere controls the right side of the body. The left is the center for language, reasoning, analytical ability to do math and science. The right is the center for processing music and art and comprehending special relationships. Each hemisphere has four lobes:

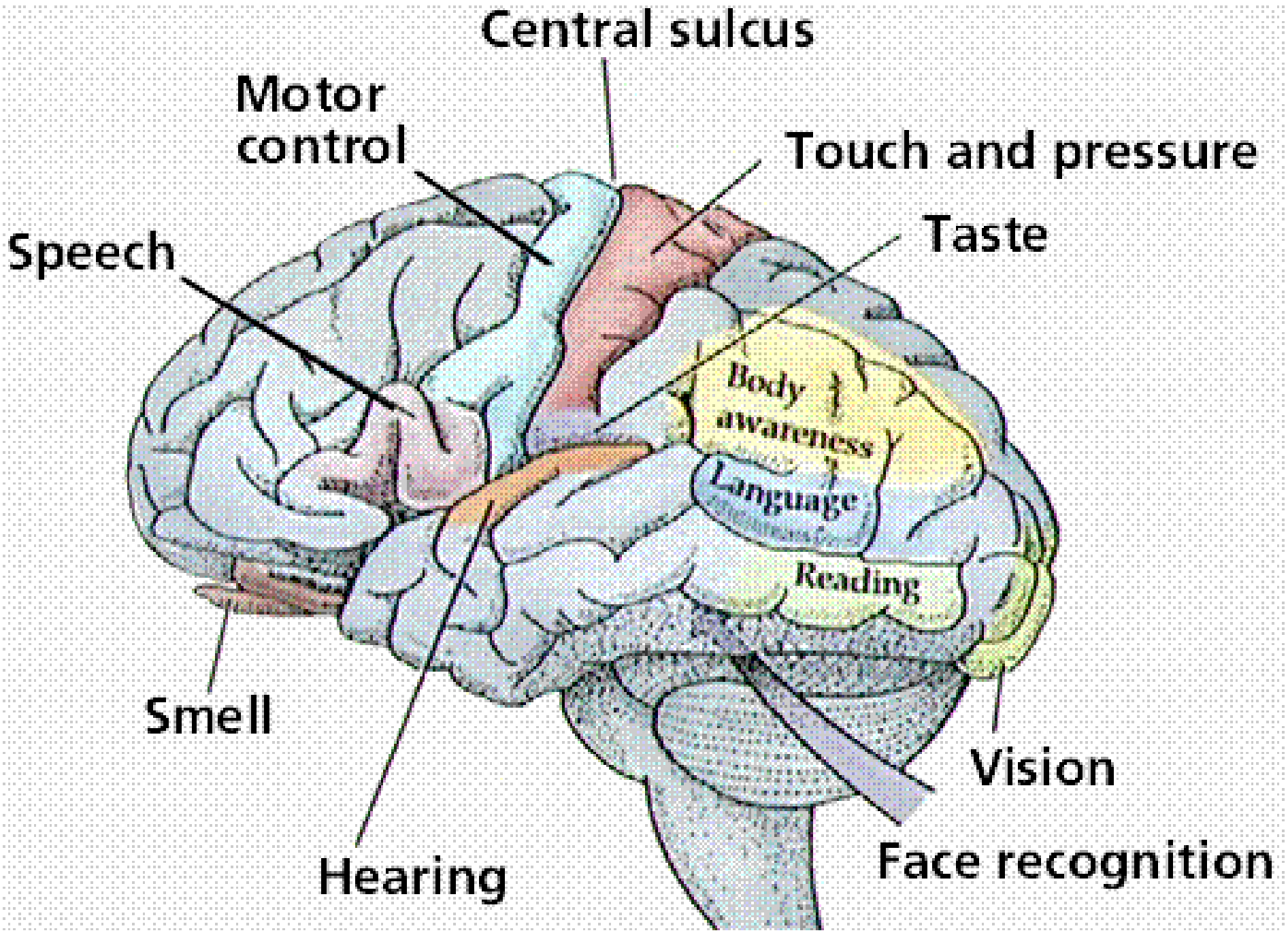
Control Functions

In Different Areas

allows communication between the brain and all other parts of the body.

Nerves transmit messages back and forth to every organ, tissue and cell. It consists of the Central Nervous System (CNS) and the Peripheral Nervous System (PNS).

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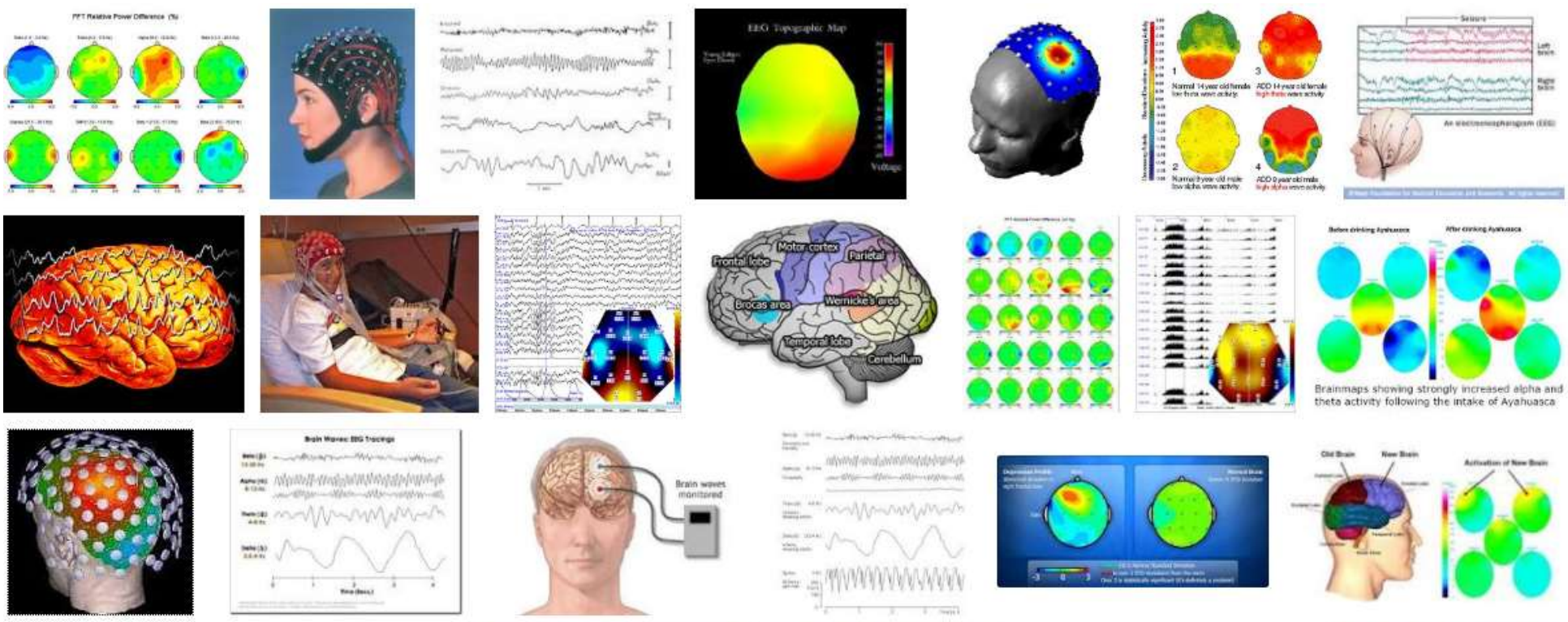
Emotions and speech are typically controlled in areas totally different from high levels of understanding and personality.

In the cerebrum, each hemisphere has 4 lobes:

- **Frontal**- controls voluntary movements and has a role in language. The prefrontal areas are thought to be involved with intellect and personality.
- **Parietal** – is involved with sensory information
- **Occipital**- controls the sense of vision;
- **Temporal** controls the sense of hearing and smell. It is also involved with memory, thought and judgment

The Electromagnetic Properties Of the Brain Make is Possible to Study and Treat Dysfunctions

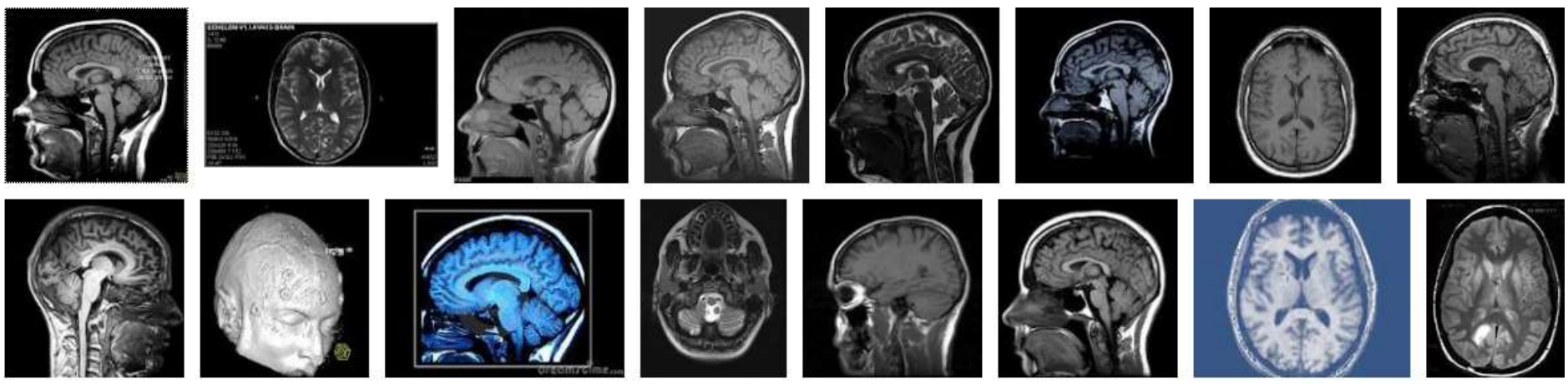
Electroencephalography "EEG" - is a technique for studying the electrical current on surface areas of the brain. Electrodes are attached to the scalp. Wires attach these electrodes to a machine which records the electrical impulses. The results are either printed out or displayed on a computer screen. Electroencephalogram is abbreviated EEG.

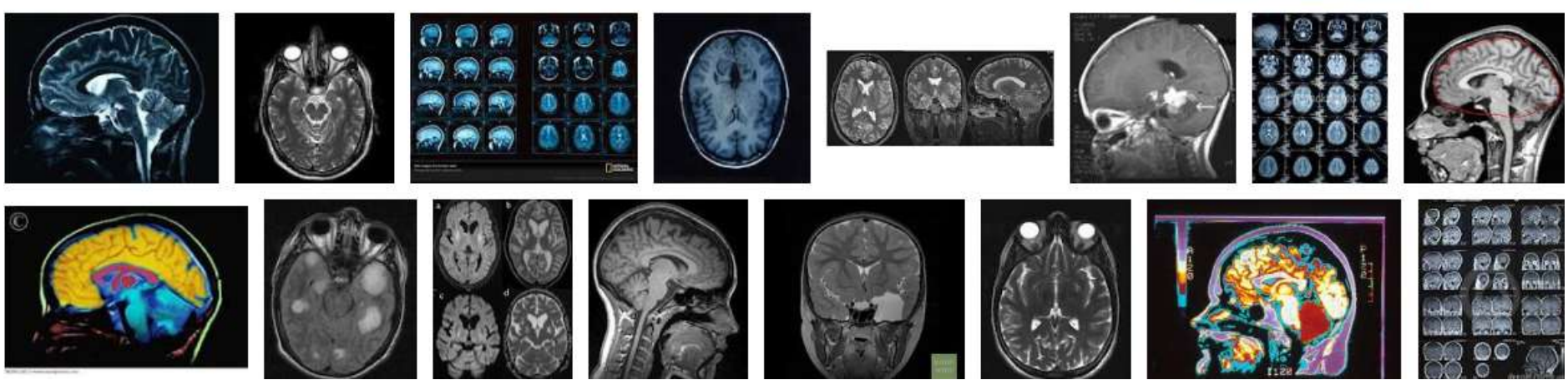






Magnetic Resonance Imagery “MRI” and Magneto encephalography “MEG” – are noninvasive neurophysiological techniques that are similar to the EEG but more accurate and measure deeply into the brain where speech and language centers are located. The “MEG” measures the magnetic fields generated by neuronal activity of the brain. John is pictured here preparing for the MEG. It is especially helpful when superimposed on the MRI to locate the source of epileptic activity and pathological areas for surgery.





Positron emission tomography: “PET”. A highly specialized imaging technique that uses short-lived radioactive substances to produce three-dimensional colored images of those substances functioning within the body. These images are called PET scans and the technique is termed PET scanning.

PET scanning provides information about the body's chemistry not available through other procedures. Unlike CT (computerized tomography) or MRI (magnetic resonance imaging), techniques that look at anatomy or body form, PET studies metabolic activity or body function. PET has been used primarily in cardiology, neurology, and oncology

