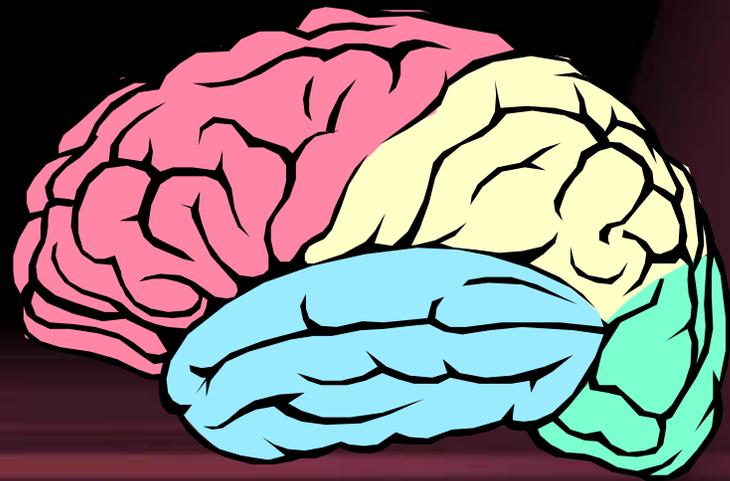


This presentation will give
information about

Brain Growth

We know that people
with learning
difficulties have
cortical differences

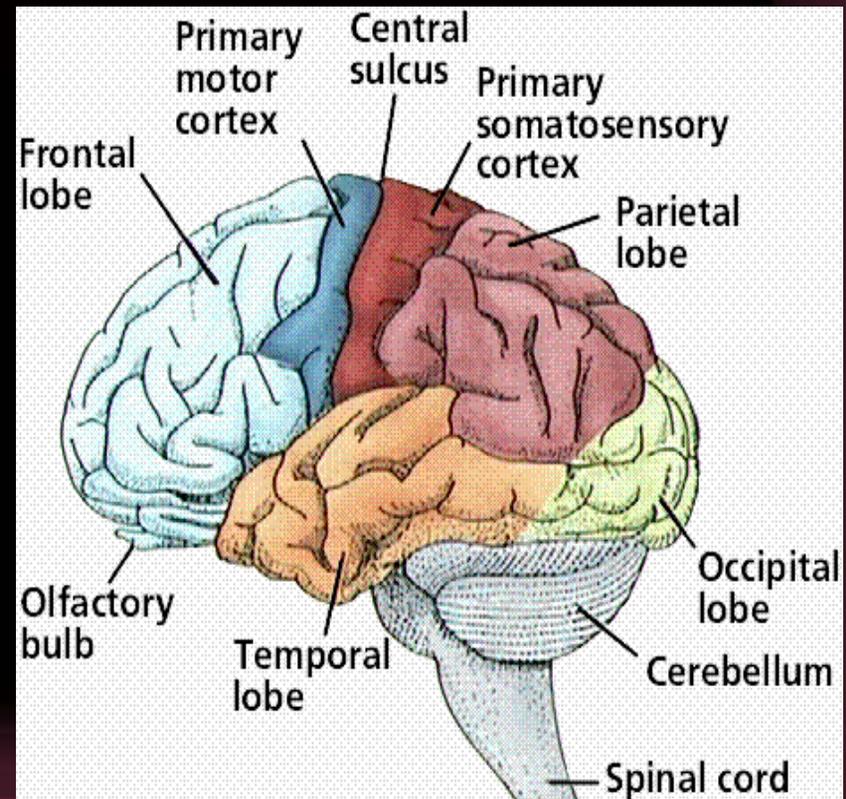
Let's look at how brain structure and learning disabilities are related.



Brain research has helped us understand learning disabilities.

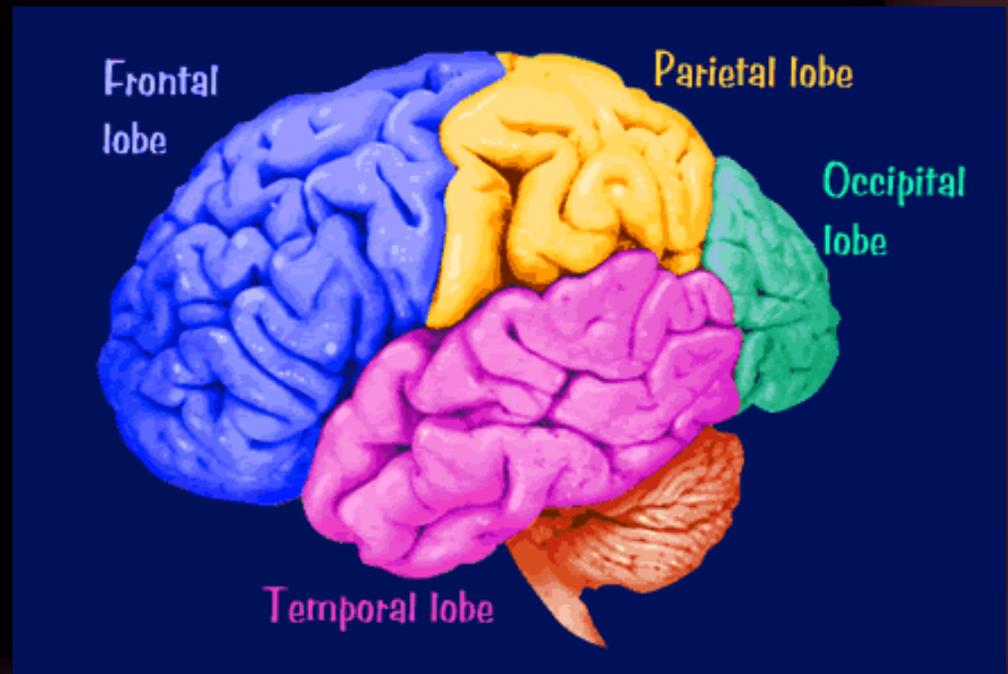
Scientists recognized that cortically injured individuals exhibit many of the same symptoms that individuals with learning disabilities, particularly ADHD, exhibit.

This led them to speculate that ADHD, formerly called Minimal Brain Damage, occurred because of cortical dysfunction.



Scientists have been able to study brain growth.

They have found a great deal of variety in the brains of children compared to adults, and the brains of young boys compared to the brains of young girls of the same age.

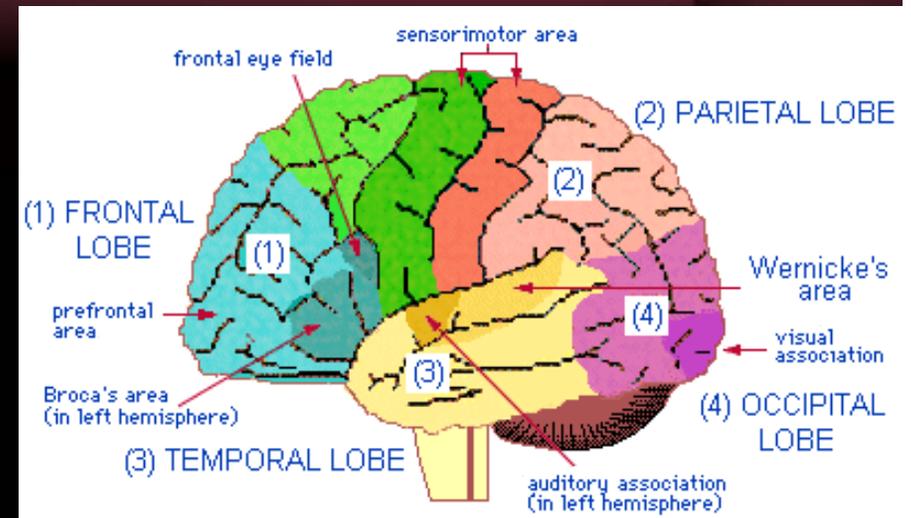


These differences led researches to speculate....

that differences in the thinking process between adults and children, and between boys and girls, were due to more than just maturity.



They speculated that the brain...



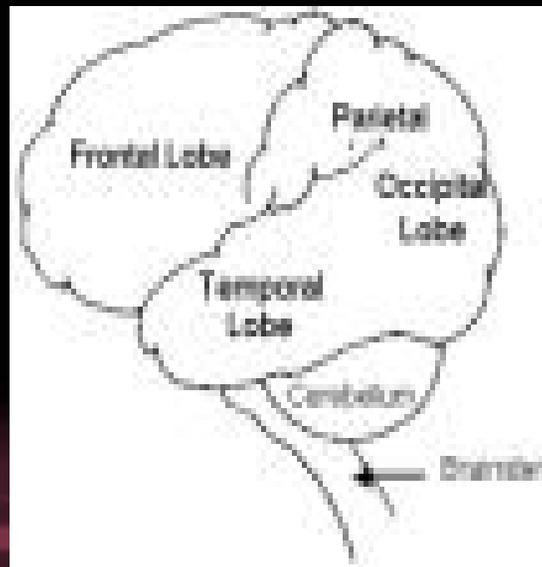
did not function as a whole, but rather, different sections of the brain were responsible for specific functions.

They further speculated that the brains of boys and girls differed, as did the brains of men and women.

Scientists began to investigate brain function by studying brain injury.

- They believed that brain injuries created certain behaviors, such as attention and concentration problems.
- It was natural to hypothesize that, individuals who had attention and concentration difficulties from birth, must also have some type of brain injury.

The next step was to isolate the area injured and to ascertain if a specific function could be correlated to it.



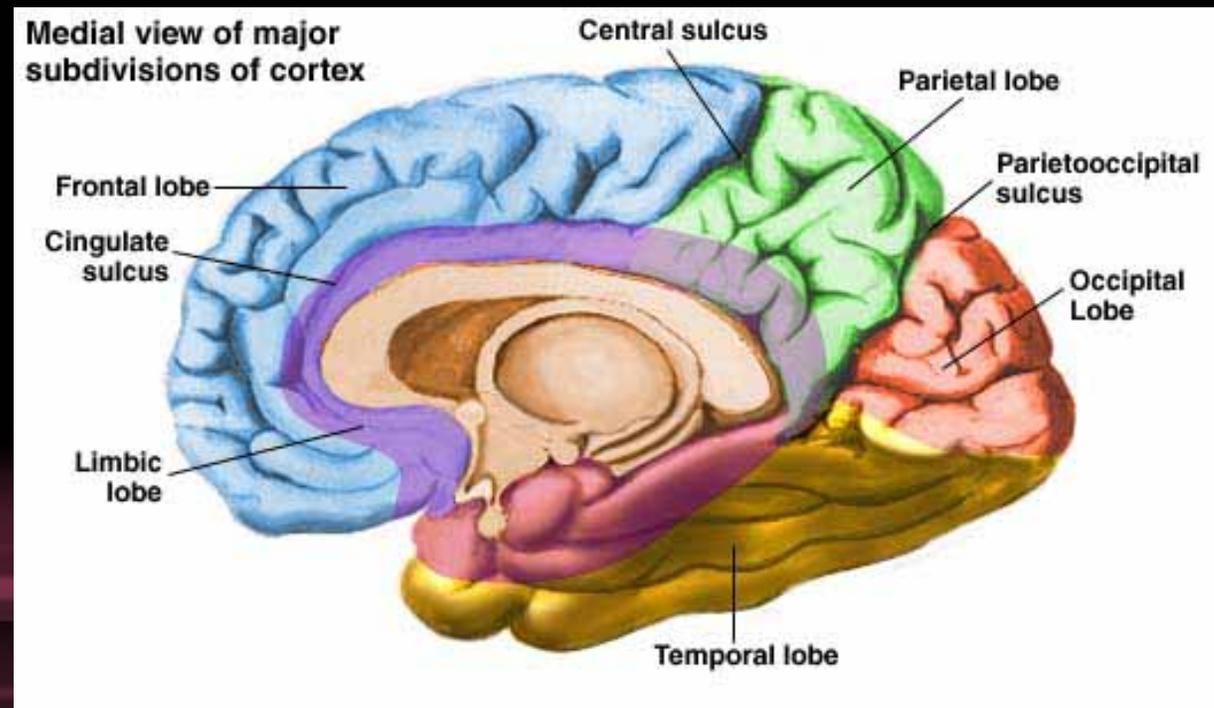
One of the first researchers to correlate brain function to cortical region was Alexander Luria.



- Luria was able to examine soldiers before they went to war. He noted their cognitive strengths and weaknesses.
- He documented their thinking process.

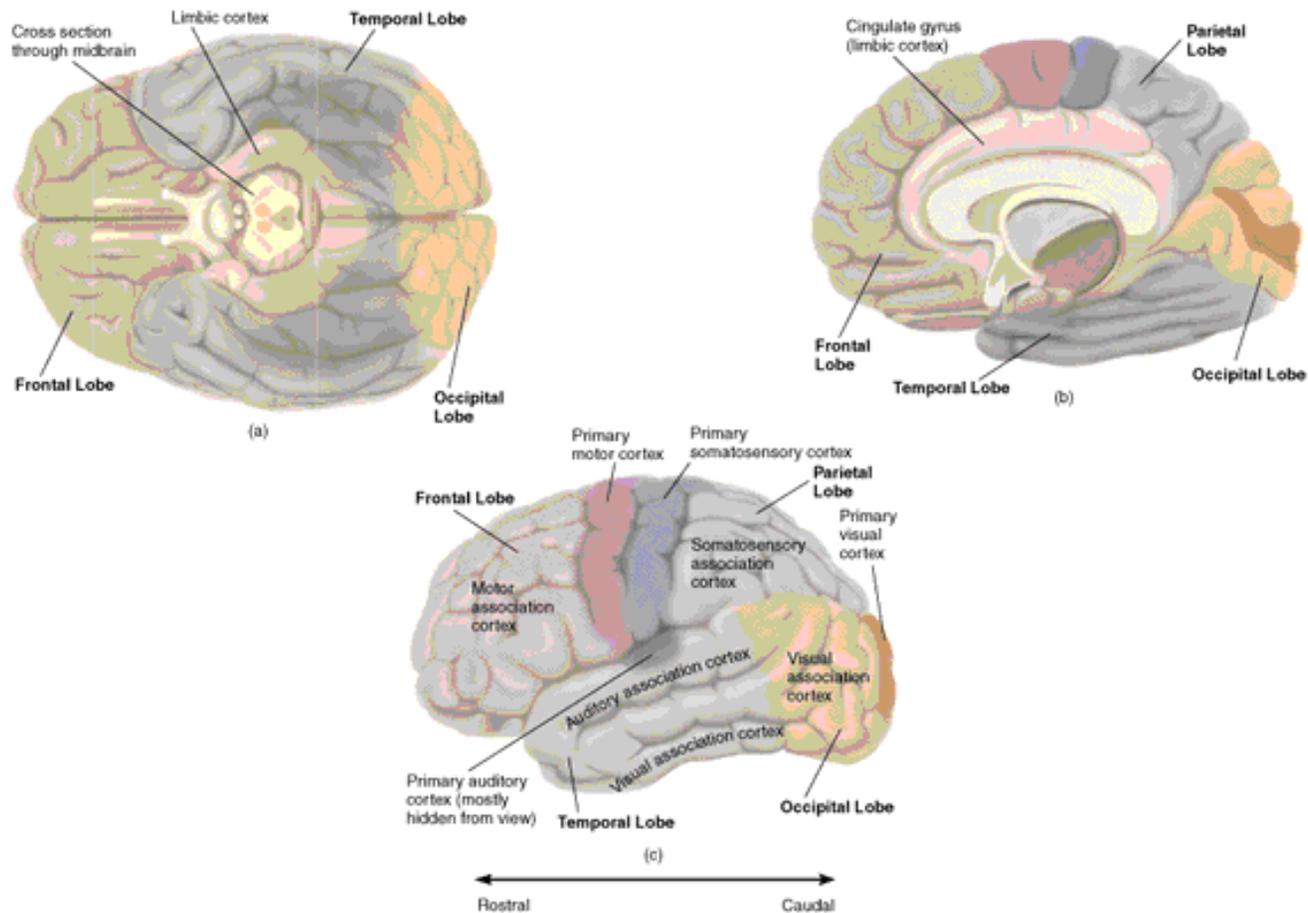
Luria was able to autopsy the brains of soldiers who were killed during the war.

In examining their brain, he noted lesions in specific regions.



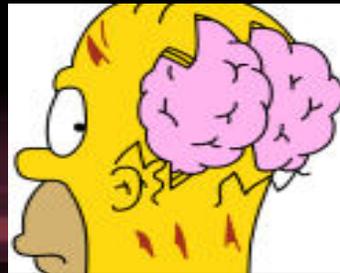
Soldiers who had similar difficulties or who had similar thinking processes had lesions in the same cortical region.

- **Four Lobes of the Cerebral Cortex, the Primary Sensory and Motor Cortex, and the Associative Cortex. (a) View from Base of Brain. (b) Midsagittal View, with Cerebellum and Brain Stem Removed. (c) Lateral View**



This led Luria to correlate specific cortical regions with specific functions.

- Using this process he was able to identify areas which can be used to compensate for the injured area.



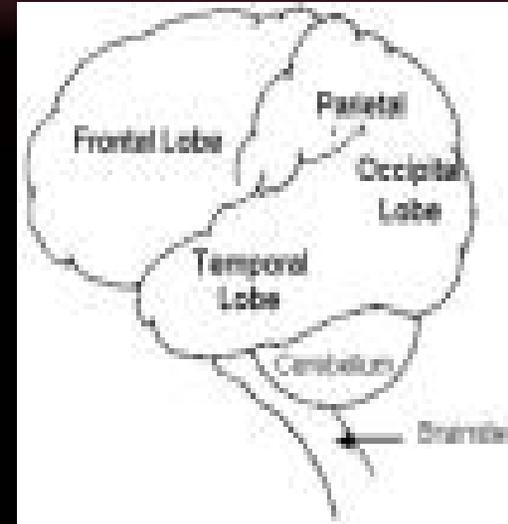
Further...

- He speculated about the type of difficulties individuals would have as they got older based on his understanding of the function of a specific cortical region.



Luria noted how the brains of children matured.

- Together with recent research this has led to further speculation about relationships between cortical region and function.



With children, there is the added complexity of changing cortical function due to maturity.

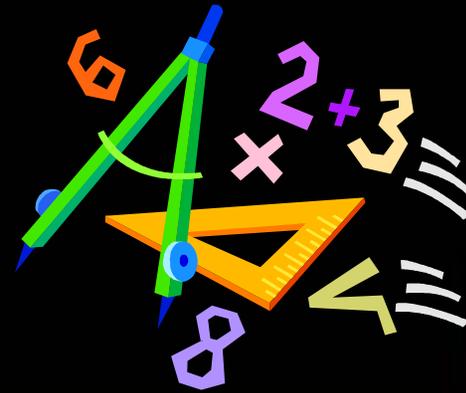


The brains of boys and girls develop differently.



Researchers speculate that the left hemisphere, which is responsible for verbal skills, develops more quickly in girls...

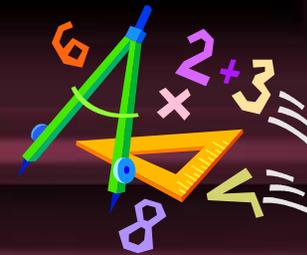
Whereas the right hemisphere, which is responsible for spatial skills, develops first in boys.



By adolescence...



- The brains of both sexes are equally developed,
- however, society encourages boys and girls to engage in different types of activities.



There are many reasons for cortical differences

- Gender
- Age
- Congenital factors
- Genetics

Are only a few reasons.

More information about
cortical function

Can be found on other
Power Point Presentations

The David Center