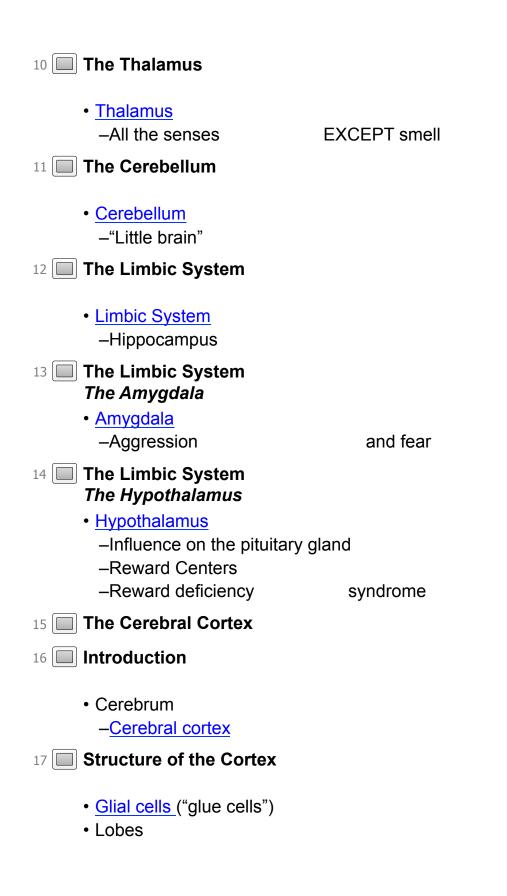
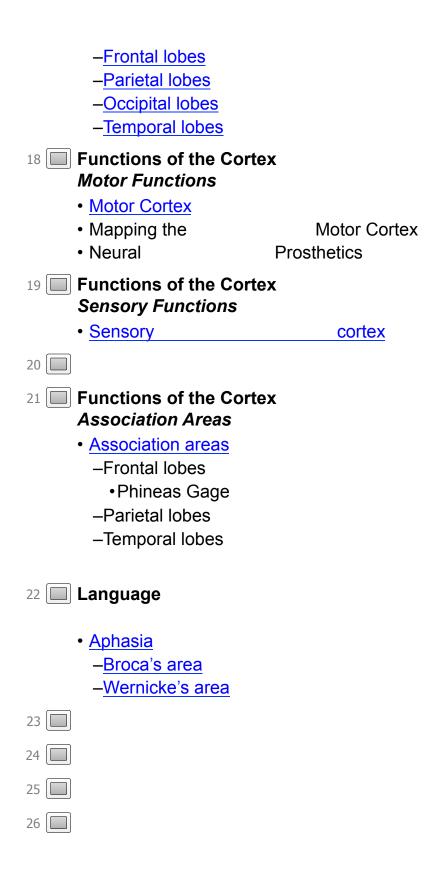
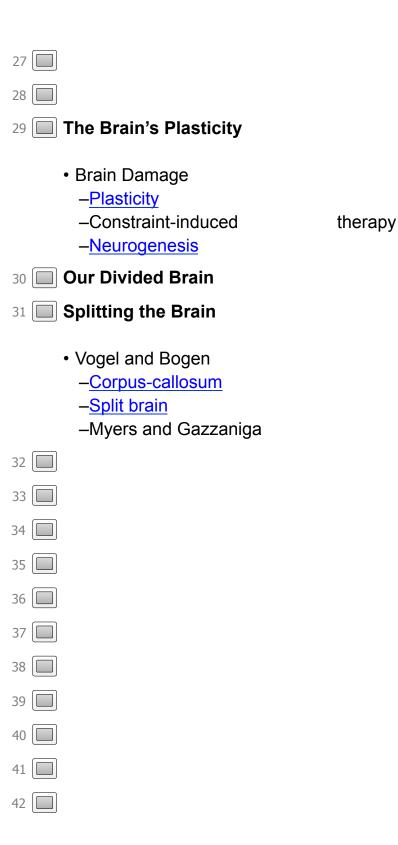
- $_1$  Myers' Psychology for AP\*
- <sup>2</sup> Unit 3B: Biological Bases of Behavior: The Brain

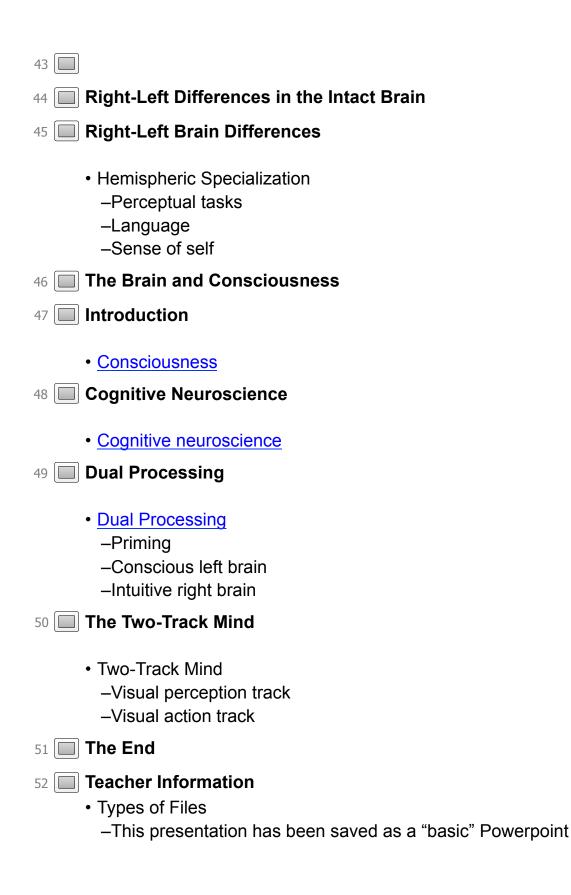
3 🔲 Unit Overview

- <u>The Tools of Discovery: Having Our Head Examined</u>
- Older Brain Structures
- <u>The Cerebral Cortex</u>
- Our Divided Brain
- Right-Left Differences in the Intact Brain
- <u>The Brain and Consciousness</u>
- 4 D The Tools of Discovery: Having Our Head Examined
- 5 🔲 Introduction
  - Lesion
- 6 Recording the Brain's Electrical Activity
  - Electroencephalogram (EEG)
- 7 D Neuroimaging Techniques
  - <u>CT (Computed Tomography) scan</u>
  - PET (Positron Emission Tomography) scan
  - MRI (Magnetic Resonance Imaging)
  - fMRI (Functional MRI)
- 8 Older Brain Structures
- 9 🔲 The Brainstem
  - Brainstem
    - -Medulla
    - –Pons
    - -Reticular formation









file. While this file format placed a few limitations on the presentation, it insured the file would be compatible with the many versions of Powerpoint teachers use. To add functionality to the presentation, teachers may want to save the file for their specific version of Powerpoint.

Animation

–Once again, to insure compatibility with all versions of Powerpoint, none of the slides are animated. To increase student interest, it is suggested teachers animate the slides wherever possible.

- Adding slides to this presentation
  - -Teachers are encouraged to adapt this presentation to their personal teaching style. To help keep a sense of continuity, blank slides which can be copied and pasted to a specific location in the presentation follow this "Teacher Information" section.

#### 53 D Teacher Information

- Hyperlink Slides This presentation contain two types of hyperlinks. Hyperlinks can be identified by the text being underlined and a different color (usually purple).
  - -Unit subsections hyperlinks: Immediately after the unit title slide, a page (slide #3) can be found listing all of the unit's subsections. While in slide show mode, clicking on any of these hyperlinks will take the user directly to the beginning of that subsection. This allows teachers quick access to each subsection.

-Bold print term hyperlinks: Every bold print term from the unit is included in this presentation as a hyperlink. While in slide show mode, clicking on any of the hyperlinks will take the user to a slide containing the formal definition of the term. Clicking on the "arrow" in the bottom left corner of the definition slide will take the user back to the original point in the presentation.

These hyperlinks were included for teachers who want students to see or copy down the exact definition as stated in the text. Most teachers prefer the definitions not be included to prevent students from only "copying down what is on the screen" and not actively listening to the presentation.

For teachers who continually use the Bold Print Term Hyperlinks option, please contact the author using the email address on the next slide to learn a technique to expedite the returning to the original point in the presentation.

# 54 🔲 Teacher Information

- Continuity slides
  - -Throughout this presentation there are slides, usually of graphics or tables, that build on one another. These are included for three purposes.
    - •By presenting information in small chunks, students will find it easier to process and remember the concepts.
    - •By continually changing slides, students will stay interested in the presentation.
    - To facilitate class discussion and critical thinking. Students should be encouraged to think about "what might come next" in the series of slides.



56 Division title (green print)

S	subdivision title ( <i>blue print</i> )
	Definition Slide add definition here
58 🔲 🕻	Definition Slides
59 🔲 L	esion
=	<ul> <li>tissue destruction; a brain lesion is a naturally or experimentally caused destruction of brain tissue.</li> </ul>
60 🔲 E	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.
61 🔲 🕻	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.
62 🔲 <b>F</b>	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.
63 🔲 N	IRI (magnetic resonance imaging)
=	<ul> <li>a technique that uses magnetic fields and radio waves to produce computer-generated images of soft tissue. MRI scans show brain anatomy.</li> </ul>
64 🔲 f	MRI (functional MRI)
=	a technique for revealing bloodflow and, therefore, brain activity by comparing successive MRI scans. fMRI scans show brain function.
65 🔲 <b>E</b>	Brainstem

= the oldest part of the central core of the brain, beginning where the spinal cord swells as it enters the skull; the brainstem is responsible for automatic survival functions.

- 66 🔲 Medulla
  - = the base of the brainstem; controls heartbeat and breathing.
- 67 Reticular Formation
  - = a nerve network in the brainstem that plays an important role in controlling arousal.

### 68 🔲 Thalamus

= the brain's sensory switchboard, located on top of the brainstem; it directs messages to the sensory receiving areas in the cortex and transmits replies to the cerebellum and medulla.

#### 69 🔲 Cerebellum

= the "little brain" at the rear of the brainstem; functions include processing sensory input and coordinating movement output and balance.

### 70 🔲 Limbic System

= doughnut-shaped neural system (including the hippocampus, amygdala, and hypothalamus) located below the cerebral hemispheres; associated with emotions and drives.

## 71 🔲 Amygdala

= two lima bean-sized neural clusters in the limbic system; linked to emotion.

### 72 Hypothalamus

= a neural structure lying below (hypo) the thalamus; it directs several maintenance activities (eating, drinking, body temperature), helps govern the endocrine system via the pituitary gland, and is linked to emotion and reward.

### 73 Cerebral Cortex

= the intricate fabric of interconnected neural cells covering the cerebral hemispheres; the body's ultimate control and information-processing center.

74 🔲 Glial Cells		
= cells in the nervous system that support, nourish, and protect neurons.		
75 🔲 Frontal Lobes		
<ul> <li>portion of the cerebral cortex lying just behind the forehead; involved in speaking and muscle movements and in making plans and judgments.</li> </ul>		
76 D Parietal Lobes		
= portion of the cerebral cortex lying at the top of the head and toward the rear; receives sensory input for touch and body position.		
77 🔲 Occipital Lobes		
= portion of the cerebral cortex lying at the back of the head; includes areas that receive information from the visual fields.		
78 🔲 Temporal Lobes		
<ul> <li>portion of the cerebral cortex lying roughly above the ears; includes the auditory areas, each receiving information primarily from the opposite ear.</li> </ul>		
79 Motor Cortex		
= an area at the rear of the frontal lobes that controls voluntary movements.		
80 Sensory Cortex		
= area at the front of the parietal lobes that registers and processes body touch and movement sensations.		
81 Association Areas		
= areas of the cerebral cortex that are not involved in primary motor or sensory functions; rather, they are involved in higher mental functions such as learning, remembering, thinking, and speaking.		
82 🔲 Aphasia		

= impairment of language, usually caused by left hemisphere

damage either to Broca's area (impairing speaking) or to Wernicke's area (impairing understanding).		
83 Broca's Area		
= controls language expression that directs the muscle movements involved in speech.		
84 🔲 Wernicke's Area		
= controls language reception – a brain area involved in language comprehension and expression; usually in the left temporal lobe.		
85 Plasticity		
<ul> <li>the brain's ability to change, especially during childhood, by reorganizing after damage or by building new pathways based on experience.</li> </ul>		
86 🔲 Neurogenesis		
= the formation of new neurons.		
87 🔲 Corpus Callosum		
<ul> <li>the large band of neural fibers connecting the two brain hemispheres and carrying messages between them.</li> </ul>		
88 🔲 Split Brain		
= a condition resulting from surgery that isolates the brain's two hemispheres by cutting the fibers (mainly those of the corpus callosum) connecting them.		
89 Donsciousness		
= our awareness of ourselves and our environment.		
90 D Cognitive Neuroscience		
<ul> <li>the interdisciplinary study of the brain activity linked with cognition (including perception, thinking, memory and language).</li> </ul>		
91 Dual Processing		
=the principle that information is often simultaneously processed on separate conscious and unconscious tracks.		