

# Getting to Know Your Brain - Answers

## Crash Course Psychology #4 – Notes with In-built Quiz

case studies • central • debunked (invalidated) •  
localised • myth • newest • oldest • peripheral • phrenology

### The Story of a Pseudoscience

**Phrenology** was “the detailed study of the shape and size of the cranium as a supposed indication of character and mental abilities”. The bumps and ridges of the skull were assumed to reveal aspects of a person’s character.

Although the phrenologists’ ideas have been comprehensively **debunked**, their idea that **localised** parts of the brain have differing functions did continue to influence research into the brain.



**Mapping the skull:** Chart based on the ideas of the phrenologists - **not** to be confused with science

### A Revealing Though Limited Case Study



After Phineas Gage’s horrific encounter with an iron rod, which entered his head through his cheek and shot out through the top of his head, his memories and mental abilities were seemingly almost unaffected, and yet, based on the accounts of those who had known him before, his personality underwent a dramatic change. He died at 36 after a series of seizures. This story illustrates the limitations of **case studies** that are not carefully and thoroughly carried out, but it also shows that damage to the frontal lobe can affect personality, a conclusion by no means commonly accepted at the time.

### An Essential Distinction

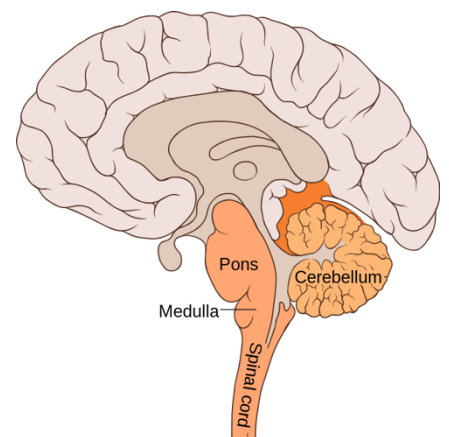
The **central** nervous system is the command centre of the body, while the **peripheral** nervous system is the messenger system for the body.

### About the Brain

The oft-heard assertion that we use only 10% of our brain is false. It is a **myth**. The brain uses at least 20% of our energy and is active even when we are sleeping.

The **newest** part of our brain, from an evolutionary perspective, is the most detailed and most complex.

Meanwhile the **oldest** part of the brain from the evolutionary perspective, sometimes also called the hindbrain, is described by Hank Green as a “fossil in one’s head”. It includes the brain stem, pons, medulla and the cerebellum.



**Structures in the Hindbrain**

Picture Acknowledgement:  
<https://qbi.uq.edu.au/brain/brain-anatomy/hindbrain>

# Brain Structures and Their Functions

Match the structures (listed on the left in the order they are mentioned by Hank Green) with the description provided on the right. Place letters a-q in the boxes next to each function.

Brain Structure (in order of video)		Function
a brain stem	<div>c</div>	Automatically controls the beating of the heart, the breathing of the lungs – all without our conscious awareness
b reticular formation	<div>a</div>	The oldest part of the brain in evolutionary terms, the core of the brain, where the spinal cord enters the skull
c medulla	<div>b</div>	Network inside the brain stem that is essential for arousal (i.e. sleeping, alertness)
d pons	<div>g</div>	Made up of the amygdala, hypothalamus and hippocampus
e cerebellum	<div>f</div>	Receives and relays information relating to every sensory system except smell
f thalamus	<div>e</div>	Means “little brain” in Latin; important structure for non-verbal learning and memory, controls voluntary movement
g limbic system	<div>d</div>	Sits on the medulla, helps to coordinate movement
h amygdala	<div>k</div>	Makes up 85% of brain weight and allows us to think, speak and perceive
i hypothalamus	<div>h</div>	Important for the consolidation of memory, the experience of fear and the aggression response
j hippocampus	<div>m</div>	A thin layer of connected neurons divided into four lobes
k cerebrum	<div>i</div>	Tiny structure that regulates the body and its circadian rhythms; think of the four Fs - feeding, fighting, fleeing and mating; controls the pleasure and reward systems of the body
l corpus callosum	<div>j</div>	Central to learning and the consolidation of new memories
m cerebral cortex	<div>q</div>	Responsible for sound processing, speech comprehension
n frontal lobe	<div>p</div>	Processes the information relating to sight
o parietal lobe	<div>l</div>	Connects the two cerebral hemispheres, allowing them to communicate
p occipital lobe	<div>o</div>	Responsible for processing information relating to our sense of touch and body position
q temporal lobe	<div>n</div>	Responsible for speaking, planning, judging, abstract thinking, aspects of personality