

GUIDED NOTES: THE NERVOUS SYSTEM (Textbook Section B4.1, pages B101-B107)

NERVOUS SYSTEM - The nervous system consists of the **brain**, spinal cord, sensory organs, and all of the **nerves** that connect these organs with the rest of the body. Together, these organs are responsible for the control of the body and communication among its parts. (*From innerbody.com*)

In order to maintain **homeostasis** and to survive, your body must constantly monitor the environment in which you live. This is accomplished through your **sense organs**, which can detect a specific type of change in the environment. Your brain interprets the changes and instructs the body to react.

YOUR FIVE SENSES:

SIGHT, HEARING, SMELL, TASTE, TOUCH

SENSE	SENSE ORGAN
Sight	Eyes
Hearing	Ears
Smell	Nose
Taste	Tongue
Touch	Skin (sensory receptors)

Stimulus – Something that causes a **response** in an organism or a part of the body.

Central Nervous System – “The **brain** and **spinal cord**. The CNS communicates with the rest of the nervous system through electrical signals that are sent to and from **neurons**.” The CNS receives and processes information from the Peripheral Nervous System.

Neuron – “A nerve cell.”

Brain – Controls voluntary behaviors (*walking, thinking*) as well as involuntary responses (*heartbeat*).

Spinal Cord – The main **pathway** for connecting the brain and the nerves throughout the body. It is protected and supported by the spinal column (vertebral column) which is made up of small bones called “vertebrae.”

The spinal cord has **31** pairs of nerves which transmit impulses (electrical messages) to and from the brain.

Peripheral Nervous System – “The part of the nervous system that lies **outside** the brain and spinal cord.”

The PNS contains both **sensory** and **motor nerves**. It carries signals to and from all muscles, glands, and other internal organs. Carries both voluntary and involuntary responses.

- **Sensory Nerves** – Nerves that receive information from the **environment** through the five senses.
- **Motor Nerves** – Send signals to your **muscles** that allow your body to move.

Autonomic Nervous System – “The part of the nervous system that controls involuntary (**automatic**) action and responses.” (*Heart, the smooth muscles in the stomach, intestines, glands, etc.*)

- Main functions of the Autonomic Nervous System:

- (1) Conserve and store energy
- (2) Respond quickly to changes.

Includes the “**Fight or Flight**” response to danger.

Somatic (Voluntary) Nervous System – “The nerves that govern consciously-controlled function and movement.” Monitors movement and functions that can be controlled by you on purpose. (*Skeletal muscles, speech, etc.*)

MEMORY

The main types of memory: **Sensory, Short-Term, Long-Term**

- Sensory – Lasts less than one second
can become ↓
- Short-Term – Lasts less than one minute
can become ↓
- Long-Term – Lasts a long time, maybe forever”

Check out these links:

http://demo.chiromatrix.com/3d_spine/nerve_chart/index.htm?_ga=1.41906722.1454327544.1399985457

<http://www.livescience.com/22665-nervous-system.html>

<http://www.newscientist.com/special/tactile-illusions>

<http://www.illusions.org/>

<http://www.doctoroz.com/videos/reflexology-foot-chart>

<http://relievpain.files.wordpress.com/2009/05/back.jpg?w=525&h=1024>

<http://www.nbcnews.com/feature/nerdwatch/researchers-map-brain-through-video-games-n64166> and <http://blog.eyewire.org/about/>



