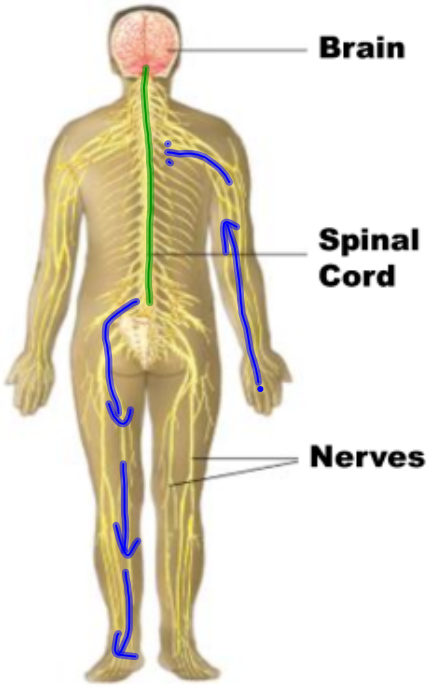
The Nervous System



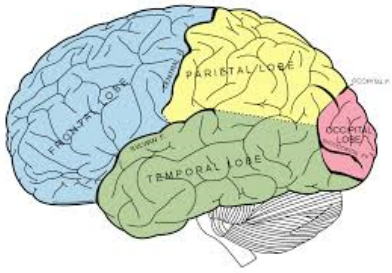
Mar 18-9:18 AM

The Brain

Why can't we tickle ourselves even if we are ticklish?

Why do you yawn when you see someone else yawning?
(or even when you think about it!)

Does everyone dream every night? Why do we sometimes remember our dreams and sometimes we don't?



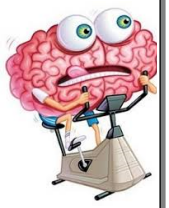
Nov 15-3:11 PM

Brain Facts

- The weight of the human brain is about 3 lbs.
- There are no pain receptors in the brain, so the brain can feel no pain.
- A newborn baby's brain grows about three times its size in the first year.
- Your brain stopped growing at age 18.
- A stimulating environment for a child can make the difference between a 25% greater ability to learn or 25% less in an environment with little stimulation.
- Humans continue to make new neurons throughout life in response to mental activity.
- Reading aloud and talking often to a young child promotes brain development.
- The capacity for such emotions as joy, happiness, fear, and shyness are already developed at birth. The specific type of nurturing a child receives shapes how these emotions are developed.
- A study of one million students in New York showed that students who ate lunches that did not include artificial flavors, preservatives, and dyes did 14% better on IQ tests than students who ate lunches with these additives.
- You can't tickle yourself because your brain distinguished between unexpected external touch and your own touch.

Nov 15-3:16 PM

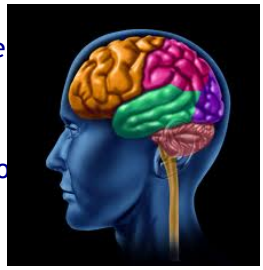
More Brain Facts



- Without any words, you may be able to determine if someone is in a good mood, i feeling sad, or is angry just by reading the face. A small area in the brain called the amygdala is responsible for your ability to read someone else's face for clues to how they are feeling.
- There is a class of people known as supertasters who not only have more taste buds on the tongue, but whose brain is more sensitive to the tastes of foods and drinks. In fact, they can detect some flavors that others cannot.
- Boredom is brought on by a lack of change of stimulation, is largely a function of perception, and is connected to the innate curiosity found in humans.
- Every time you recall a memory or have a new thought, you are creating a new connection in your brain.
- Memories triggered by scent have a stronger emotional connection, therefore appear more intense than other memory triggers.
- A world champion memorizer, Ben Pridmore memorized 96 historical events in 5 minutes and memorized a single, shuffled deck of cards in 26.28 seconds.

Nov 15-3:16 PM

Even More Brain Facts



- Juggling has shown to change the brain in as little as seven days. The study indicates that learning new things helps the brain to change very quickly.
- Each time we blink, our brain kicks in and keeps things illuminated so the whole world doesn't go dark each time we blink (about 20,000 times a day).
- **Laughing**. Laughing at a joke is no simple task as it requires activity in five different areas of the brain.
- Ever notice that you yawned after someone around you did? Scientists believe this may be a response to an ancient social behavior for communication that humans still have.
- Music lessons have shown to considerably boost brain organization and ability in both children and adults.
- **Thoughts**. The average number of thoughts that humans are believed to experience each day is 70,000.
- Einstein's brain was similar in size to other humans except in the region that is responsible for math and spatial perception. In that region, his brain was 35% wider than average.

Nov 15-3:16 PM

Dream Brain Facts

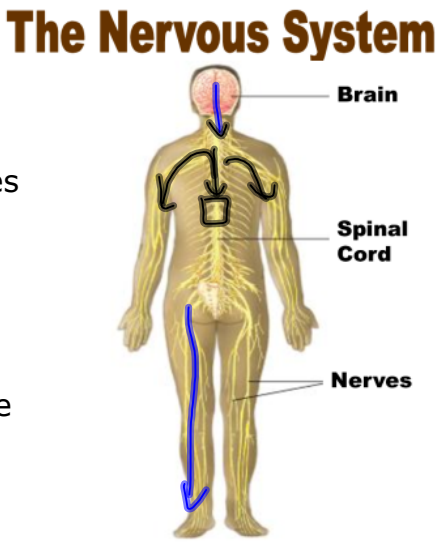
- **Everyone dreams**. Just because you don't remember your dre doesn't mean you don't dream. Everyone dreams!
- **Nightly average**. Most people dream about 1-2 hours a night a have an average of 4-7 dreams each night.
- **Brain waves**. Studies show that brain waves are more active w dreaming than when you are awake.
- Five minutes after a dream, half of the dream is forgotten. Ten minutes after a dream, over 90% is forgotten. Write down your dreams immediately if you want to remember them.

- **Blind people dream**. Dreams are more than just visual images, and blind people do dream. Whether or not they dream in pictu depends on if they were born blind or lost their vision later.
- **Color or B&W**. Some people (about 12%) dream only in black and white while others dream in color.
- If you are snoring, you are not dreaming.

Nov 15-3:16 PM

If you think of the brain as a central computer that controls all the functions of your body, then the **nervous system** is like a network that relays messages back and forth from it to different parts of the body. It does this via the **spinal cord**, which runs from the brain down through the back and contains threadlike nerves that branch out to every organ and body part.

When a message comes into the brain from anywhere in the body, the brain tells the body how to react. For example, if you are walking and see a puddle in your path, your eyes create a nerve impulse and send the message to your brain. The brain then sends a message back telling the muscles in your legs to walk around the puddle (or through it depending on your mood).



Nov 15-11:35 AM

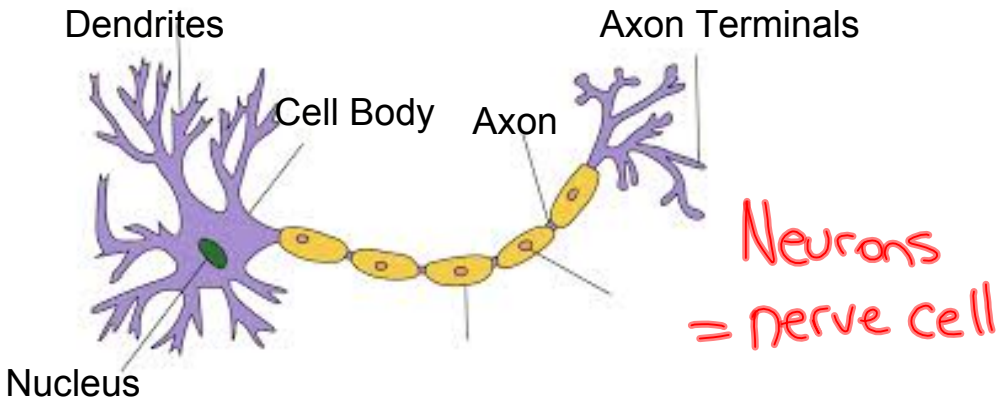
Videos :)

http://www.brainpop.com/health/bodysystems/nervoussystem/

+ Brain
+ Spinal Cord
+ Neurons

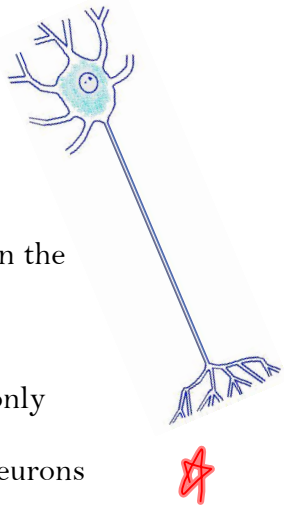
Nov 15-11:45 AM

A human being possesses an average of 100 billion neurons, also called nerve cells. The entire nervous system functions with the help of neurons. They receive and transmit information.



Nov 22-1:28 PM

Neurons



Neurons pick up smuli (anything that can be perceived by a living organism and that can trigger a reacon), transform them into nerve impulses and transmit these impulses.

Neurons are specialized cells, they are different from other cells in the following ways:
- A neuron can be stimulated
- A neuron is conductive
- A neuron consumes a great deal of oxygen and glucose. It can only survive a few minutes without oxygen.
- A neuron can live more than 100 years. People keep the same neurons their entire life.
- A neuron cannot reproduce itself, it cannot be replaced if destroyed.

Nov 22-2:01 PM

A nerve impulse travels from neuron to neuron until it reaches its target (ex: a muscle). So if you put your hand on a hot stove, your sensory receptors feel the heat and neurons send the message from neuron to neuron (up the length of your arm) until it reaches the spinal cord,

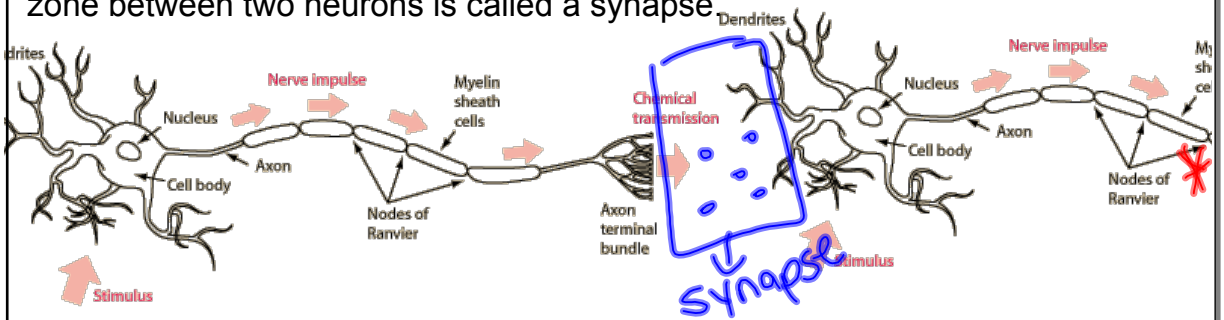
But how do these messages travel between neurons?

Nov 27-8:48 AM

How do these messages travel between neurons?

Nerve impulses travel from dendrites to axon terminals.

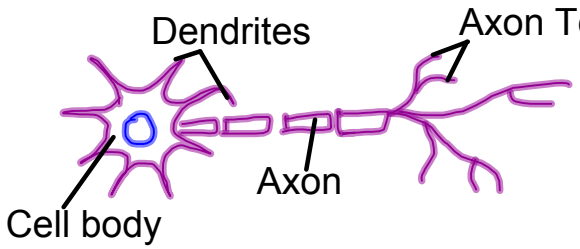
- The dendrites of a neuron receive messages or stimuli and transform them into nerve impulses.
- The nerve impulses are then transmitted along axons to axon terminals.
- Nerve impulses travel from one neuron to another via NEUROTRANSMITTERS (chemical substances) secreted by axon terminals across the narrows space between two neurons. This transition zone between two neurons is called a synapse.



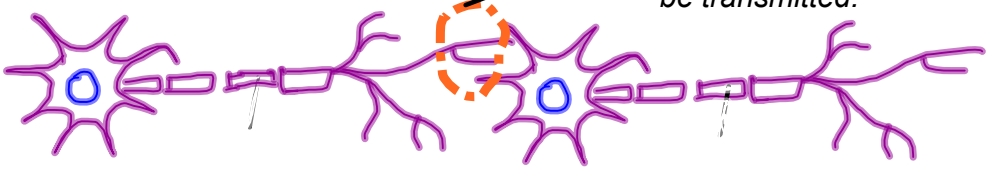
Nov 27-8:52 AM

The main parts of a neuron:

Notes!



Synapse: *The area between two neurons that allows a nerve impulse to be transmitted.*



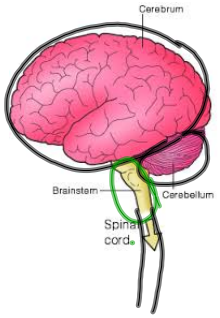
Nov 27-11:06 AM

The Central Nervous System

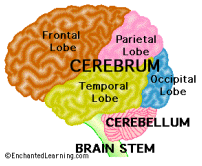
The central nervous system is made up of the brain and the spinal cord.

The brain is made up of:

- **Cerebrum:** Command central of all voluntary movements, senses, intelligence, and emoons.
- **Cerebellum:** Center for balance and movement coordinaon
- **Brain Stem:** Control center of internal smuli and involuntary movement (ex: heart beang, stomach digesng food)



The spinal cord is an organ that carries informaon from all over the body to the brain. It is also the reflex center.



Nov 27-9:10 AM

The Peripheral Nervous System

The peripheral nervous system connects different parts of the body to the central nervous system.

Sensory Receptors: pick up smuli and transform them into nerve impulses.

↳ touch, smell, hear, taste, see

Two types of nerves:

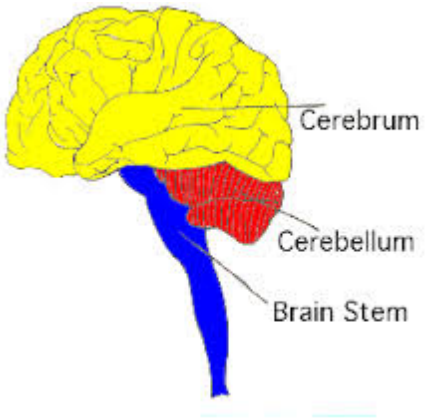
1) Sensory Nerves: transmit informaon (nerve impulses) from sensory receptors to the central nervous system. brain

2) Motor Nerves: transmit impulses from the central nervous system (brain and spinal cord) to the muscles to produce voluntary and involuntary movements.

Nov 27-9:10 AM

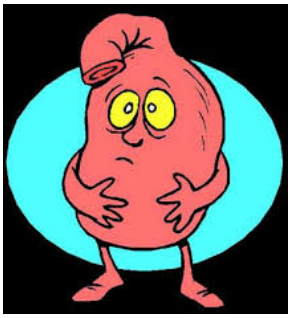
- Voluntary Acts: *Things we think about doing (walking, talking, playing sports, etc)*

Voluntary Acts are controlled by the cerebrum.



- Involuntary Acts: *Things we don't think about doing (breathing, digesting food, our heart beating).*

Involuntary Acts are controlled by the brain stem.



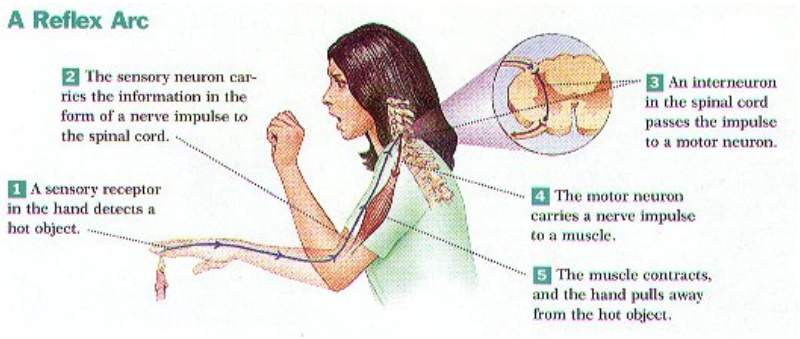
Mar 26-8:59 AM

A reflex is a rapid and involuntary reacon to smulus.

Ex: When an insect bites us on the arm, we pull our arm away without thinking.

The signal received and transmied by the skin's sensory nerve cells is automacally directed to the arm muscles by the spinal cord. The brain only analyzes the even aer the reacon has occured.

A reflex arc is the path taken by a nerve impulse during a reflex.



Nov 27-11:34 AM

The Central Nervous System Notes

- Manages complex behaviors and processes sensory information and the related responses.

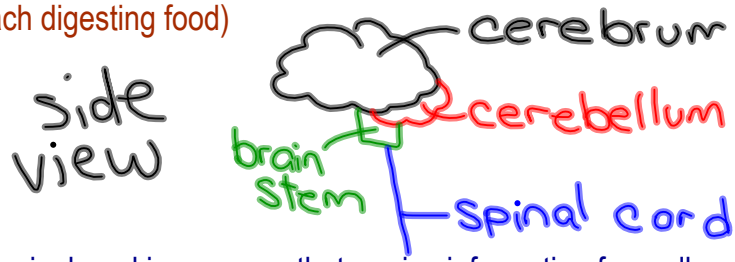
- Contains the brain and the spinal cord

- The brain is divided into three parts:

Cerebrum: Command center of all voluntary movements, senses, intelligence, and emotions.

Cerebellum: Center for balance and movement coordination

Brain Stem: Control center of internal stimuli and involuntary movement (ex: heart beating, stomach digesting food)

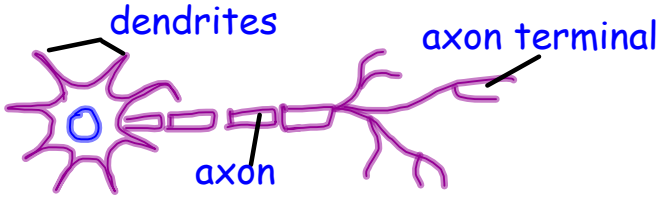


- The spinal cord is an organ that carries information from all over the body to the brain. It is also the reflex center.

Dec 3-8:20 AM

The Peripheral Nervous System Notes

The Neuron:



The Peripheral Nervous System transports nerve impulses from the senses to the brain and from the brain to muscles.

Stimulus around us is turned into nerve impulses and sent through neurons (or nerve cells).

- Voluntary Acts: *Things we think about doing (walking, talking, playing sports, etc)*

- Involuntary Acts: *Things we don't think about doing (breathing, digesting food, our heart beating).*

- Reflexes: *Things we do without thinking about (blinking when a bug is near our eyes)*

Dec 3-8:20 AM

Dec 5-11:19 AM