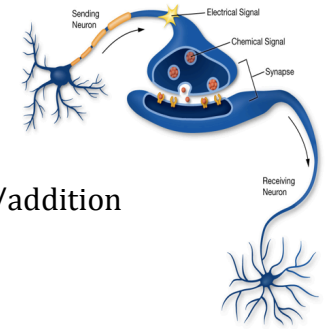


Nervous System



Big Ideas

1. Neuron Anatomy
2. Central Nervous System vs Peripheral (Reflexes)
3. Neurotransmitters
4. Drugs & Addiction

Resources

Textbook, Brain Facts Book, Online sites
 Website <http://learn.genetics.utah.edu/content/addition>

Required Activities

NIH Neurobiology website; Mouse Party
 Brain dissection; Cow eye dissection

Big Ideas

1. Neuron Anatomy

Parts of a neuron – cell body, dendrites, hillock, axon, myelin sheath, nodes of Ranvier, axon terminals; synapse; Action Potential;
 Activity at synapse

2. Central Nervous System & Peripheral Nervous System

CNS: Brain – major regions of the brain: frontal cortex, primary motor cortex, primary sensory cortex, parietal lobe, occipital lobe, temporal lobe, cerebellum, brainstem; Reward pathway in the brain

PNS: Reflexes; Sight – Structure of eye, photoreceptors, myopia, hyperopia

3. Neurotransmitters

Major neurotransmitters: Acetylcholine, Dopamine, GABA (gamma-aminobutyric acid), Glutamate, Glycine, Norepinephrine, Serotonin

4. Drugs & Addiction

The reward pathway; heroin, LSD, marijuana, methamphetamine, alcohol, cocaine, ecstasy

Required Activities

1. NIH Neurobiology online interactive activities

https://science.education.nih.gov/supplements/nih2/Addiction/activities/activities_toc.html

Lessons 1, 2 and 4

2. Brain dissection – Sheep brain; Identify major regions of the brain

3. Mouse Party online interactive activity –

<http://learn.genetics.utah.edu/content/addiction/mouse/>

4. Cow eye dissection

Extra Credit – Movie Critic: Here is your chance to watch a movie and learn about something about the brain at the same time. Your assignment is to watch a movie about the brain such as *Awakenings*, *Charly*, *Rain Man*, *Regarding Henry*, *The Wild Child*, or *A Beautiful Mind* or *Lorenzo's Oil*. Write a short report about the movie and the neuroscience involved.

Topic	Sources of Information	Date	Ideas learned
Neuron Anatomy			
CNS & PNS			
Neurotransmitters			
Drugs, the Brain & Addiction			