**The Chemical Mind - Crash Course Psychology #3**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hour:\_\_\_\_\_\_\_\_\_\_\_

1. Our brains and our \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ systems and the substances they produce and are always bathed in are amazingly complex nuanced systems.
2. Neurons or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells are the building blocks that comprise our nervous systems. Neurons share the same basic makeup as our other cells, but they have electrochemical mojo that lets them transmit messages to each other.
3. No matter how big a nerve is, they all have the same three basic parts: the soma, dendrites, and axon. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or cell body, is basically the neuron's life support; it contains all that necessary cell action like the nucleus, DNA, mitochondria, ribosomes, and such.

http://nerdfighteria.info/images/arrow_d.png Neurotransmitters

1. Neurons transmit signals either when stimulated by sensory input or triggered by neighboring \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. So, when an action potential runs down to the end of an axon, it activates the chemical messengers that jump that tiny synaptic gap, flying like that little air kiss and landing on the receptor sites of the receiving neuron. Those messengers are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. Glutamate is another, involved in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, but an over-supply of it can wig out the brain and cause seizures and migraines which is why some people are sensitive to all that MSG or monosodium glutamate in their Ramen.
4. Some neurotransmitters like acetylcholine and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ play both sides and can both excite or inhibit neurons depending on what type of receptors they encounter.

http://nerdfighteria.info/images/arrow_d.png Endocrine system

1. So neurotransmitters are basically your \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ system's couriers. But they aren't the only chemical messengers delivering the news; they've got some competition brewing in the endocrine system.
2. You could say that most of them boil down to the basics. Attraction, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and aggression.
3. So while the nervous and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_systems are similar, in that they both produce chemicals destined to hit up certain receptors, they operate at very different speeds.

http://nerdfighteria.info/images/arrow_d.png Glands

1. And our endocrine systems have a few important hormone brewing glands. We've got a pair of adrenal glands snuggled up against our kidneys that secrete \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, that famous fight or flight hormone that jacks up your heart rate, blood pressure and blood sugar, giving you that tidal wave of energy.

http://nerdfighteria.info/images/arrow_d.png How It All Works Together

1. The whole deal is a feedback loop: your nervous system directs your endocrine system which directs your \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ system, brain, gland, hormone, brain.

# **Meet Your Master: Getting to Know Your Brain - Crash Course Psychology #4**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hour: \_\_\_\_\_\_\_\_\_\_\_\_

1. Eventually phrenology was dismissed and was called pseudoscience because it turns out your cranial contours tell us exactly nothing about what's happening inside the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Like we talked about last time, there is a strong link between \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ activity and psychological events.

http://nerdfighteria.info/images/arrow_d.png Basics of the CNS

1. Your central nervous system, or just \_\_\_\_\_\_\_\_\_\_\_\_\_\_, is what makes your bodies big decisions. This system is the command center and if you mess with it, things are gonna get weird.
2. What happened to Phineas Gage?
3. What did people begin to call Phineas Gage?  
     
     
   http://nerdfighteria.info/images/arrow_d.png Basics of the Brain
4. You might have heard that we only used about \_\_\_\_\_\_\_\_percent of our brains, and oh if that were true, Phineas would lose a quarter of his and he'd be just fine.   
     
   But in actual reality, brain scans show that nearly every region of the brain lights up during even simple tasks like walking and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Not only that, but the brain itself requires 20 percent of all the body's energy, and it would make little evolutionary sense to throw so much energy away at something that is only minimally active.

http://nerdfighteria.info/images/arrow_d.png Ancestral Structures of the Brain

1. This inner core of the brain, sometimes called the "old brain" still performs for us much as it did for our early evolutionary ancestors. It's anchored by the brain stem, the most ancient and central core of the brain where the spinal brain enters the skull. Above it, at the base of the skull, is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. So the old brain systems keep our body's basic functions running smoothly; the sort of stuff any animal might need. This is pretty much where the brain stops for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

http://nerdfighteria.info/images/arrow_d.png Limbic System

1. The amygdala consists of two lima bean-sized clusters of neurons and is responsible for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ consolidation as well as both our greatest fear and hottest aggression.
2. The final part of the\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ system is the hippocampus, central to learning and memory and if it's damaged, a person may lose their ability to retain new facts and memories.

http://nerdfighteria.info/images/arrow_d.png New Structures of the Brain

1. Now above all of this is the most advanced stuff - the stuff that you think of when you think of the brain - the grey matter. The two hemispheres of your cerebrum make up at \_\_\_\_\_\_\_ percent of your brain weight, and oversee your ability to think, speak, and perceive.
2. Finally, covering the left and right hemispheres we have the cerebral \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, a thin layer of over twenty billion interconnected neurons.
3. The frontal lobes, just behind your forehead, are involved in speaking, planning, judging, abstract thinking, and as the tale of Phineas Gage reminds us, aspects of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. The rest of your grey matter is made up of association areas that are related to higher mental functions like remembering, thinking, learning, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. A legion on a specific part of the temporal lobe may destroy a person's ability to recognize faces, traumatic memories or overactive hormones can profoundly affect our behaaviour and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - all of which remind us how fundamentally biology and psychology are intertwined.