

Nerve Notes

1. Define:
 - a. Stimulus

 - b. Homeostasis

2. Draw and label two neurons. (Use the 5 terms below to label the neuron)

DENDRITE – transmits the nerve impulse to the cell body.

CELL BODY – Major cell structure of the neuron.

AXON – Transmits the nerve impulse from the cell body.

SYNAPSE – A gap between neurons that is bridged by chemicals called neurotransmitters.

NEUROTRANSMITTERS – Chemicals that transmit a nerve signal from one neuron to another neuron.

3. Parts of the brain:
 - a. Cerebrum
 - i. Location
 - ii. Function

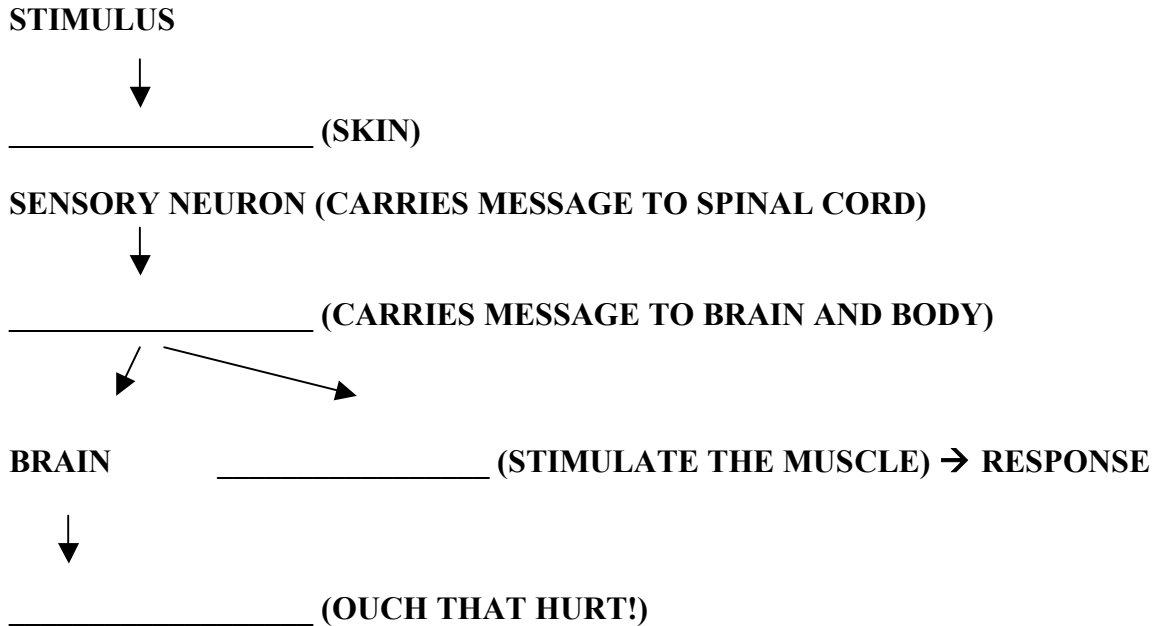
 - b. Cerebellum
 - i. Location
 - ii. Function

 - c. Medulla Oblongata
 - i. Location
 - ii. Function

 - d. Diencephalon
 - i. Location
 - ii. Function

Nerve Notes

4. Label the following pathway for someone being poked by a pin. (PAIN, PAIN RECEPTOR, SPINAL CORD, MOTOR NEURON)



5. **Negative Feedback Mechanism:** The negative feedback mechanism is a very important process in the human body that enables the body to regulate within a narrow range. For instance your body temperature typically will remain very close to 98.6 degrees. This is how we maintain homeostasis.
- Describe the negative feedback mechanism of sweating
 - Describe how eating is controlled by a negative feedback mechanism.

Nerve Notes

- **CENTRAL NERVOUS SYSTEM (CNS) = SPINAL CORD AND BRAIN**

BRAIN – 3 PARTS

1. **BRAIN STEM (MEDULLA OBLONGATA) – CONNECTS THE SPINAL CORD TO THE BRAIN. CONTROLS VITAL SURVIVAL REFLEXES LIKE: HEART RATE, RESPIRATION, VOMITING, COUGHING, SNEEZING, ETC.**
 2. **CEREBELLUM – LOCATED AT THE BASE OF THE CEREBRUM HELPING TO COORDINATE MUSCLE ACTIVITIES LIKE WALKING, RUNNING, SKIPPING, ETC.**
 3. **CEREBRUM – MAIN PART OF THE BRAIN. CONTROLS THE FIVE SENSES, THINKING AND MEMORY.**
 4. **DIENCEPHALON – THALAMUS (EMOTIONS, MEMORY & MOTIVATION) HYPOTHALAMUS (HUNGER, THIRST & HOMEOSTASIS)**
- **PERIPHERAL NERVOUS SYSTEM (PNS) = ALL THE NERVES OUTSIDE THE CENTRAL NERVOUS SYSTEM (2 PARTS)**
 1. **SOMATIC = VOLUNTARY**
 - A. **SENSORY NERVES COME IN FROM THE OUTSIDE TO THE CNS (AFFERENT)**
 - B. **MOTOR NERVES LEAVE THE CNS TO THE MUSCLES (EFFERENT)**
 2. **AUTONOMIC = INVOLUNTARY (SYMPATHETIC & PARASYMPATHETIC)**
 - A. **CONTROLS THINGS LIKE PUPIL DILATION, CONSTRICTION OF BLOOD VESSELS, ETC.**

NERVE IMPULSES – THE IMPULSE ITSELF IS ELECTRICAL CAUSED BY SEVERAL CHEMICAL IONS. TWO MOST SIGNIFICANT IONS ARE SODIUM – Na & POTASSIUM – K. THE NERVE IMPULSE PASSES FROM ONE NERVE TO THE NEXT BY BRIDGING THE SYNAPSE (GAP) WITH NEUROTRANSMITTERS (CHEMICALS)

Nerve Notes

FIVE SENSES: TOUCH, TASTE, SMELL, HEARING AND VISION

TOUCH – MECHANORECEPTORS – RECEPTORS THAT ARE CAPABLE OF DETECTING PRESSURE, PAIN, HEAT AND COLD.

TASTE – CHEMORECEPTORS – DETECT CHEMICALS, FOUR TASTE BUDS FOR SWEET, SOUR, SALTY AND BITTER.

SMELL – CHEMORECEPTORS – OLFACTORY BULBS WILL DETECT CHEMICALS IN THE AIR. SMELL IS CONSIDERABLE MORE SENSITIVE THAN TASTE AND STRONGLY INFLUENCES TASTE.

HEARING – MECHANORECEPTORS – DETECT THE VIBRATION OF SOUNDWAVES. SOUNDWAVES PASS THROUGH – TYMPANIC MEMBRANE → MALLEOUS (HAMMER) → INCUS (ANVIL) → STAPES (STIRRUPS) → OVAL WINDOW → COCHLEA (AUDITORY NERVE)

- **EUSTACHIAN TUBE – EAR PRESSURE**
- **EQUILIBRIUM – SEMICIRCULAR CANALS**

VISION – PHOTORECEPTORS – DETECT THE LIGHT THAT PENETRATES THE EYE TO THE RETINA (RODS AND CONES)

- **CORNEA – CLEAR PORTION OF OUTER EYE**
- **SCLERA – WHITE PORTION OF THE EYE**
- **IRIS – SPHINCTER MUSCLE CONTROLLING THE LIGHT ENTERING THE EYE (COLORED PORTION OF THE EYE)**
- **PUPIL – HOLE IN THE IRIS FOR LIGHT TO PENETRATE**
- **LENS – BICONVEX LENS THAT REFRACT THE LIGHT TO FOCUS IT ON THE RETINA**
- **RETINA – NERVE ENDINGS TO DETECT VISION**
 1. **RODS – DIM LIGHT VISION – NO COLOR, 125 MILLION/EYE (RHODOPSIN)**
 2. **CONES – BRIGHT LIGHT – COLOR 7 MILLION/EYE (RHODOPSIN BREAKSDOWN)**
 3. **FOVEA CENTRALIS – AREA CONCENTRATED WITH CONES**
 4. **OPTIC NERVE – MAJOR NERVE CARRYING VISUAL IMAGES (BLIND SPOT)**