Name:

Muscle SpikerBox Pre-Assessment

1. What are muscles, and what do they do?

2. Describe how we activate muscles in our body.

3. How are wrist muscles different from finger muscles?

4. Can you sketch the diagram/flowchart (e.g., neuronal circuit) that starts with the input (decision to move in the brain) to the output (motion of your finger)? The circuit should have components for decision making, implementation of decision making, transmission of the decision, and then having the transmitted signal control the muscle to implement motion (end effector).





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5. For the circuit you sketched, can you think and sketch or put rough numbers for the firing rates (spikes/second) of neurons (indicates strength of signal), transmission velocity, and firing rate of muscle (how strong is the contraction)?

6. What do you think happens to our muscles when we age?

7. Do you think engineers need to know about muscles? Why?

8. How do robots use ideas of muscles?





Name:

9. What are some applications of such robot experiments?

10. How do you think gender plays a role in muscle? Are male muscles different than female muscles, for example?

11. Elaborate on a topic you are curious about. Topics can include experimental (microcontroller), engineering (robotics), computer science (programming), neuroscience (biology), etc.



