

Action Potential Lab Components

DAY 1 & 2:

Exploration: A Simulation of an Action Potential

- Focus Questions #1 – 12 (#2 & #6 are commands; no response!)
- Focus Questions – *continued* # 13 – 15 (*see additional handout*)

DAYS 3 & 4: (see Focus Questions below)

Application I: Abnormal Processing of Information by Neurons

- Focus Question #1 and #2 (research to learn about epilepsy)
- Must include **one reference**; html, text w/ page number, etc..

Application II: “Designing” a Drug to Treat Seizures

- Focus Question #1, and
- Focus Question #2 (research to learn about drugs and their mechanisms for preventing epileptic seizures)

Focus Questions for Application I and II:

Application I: Abnormal Processing of Information by Neurons

1. Can you think of situations in which it would be important for the postsynaptic cell (neuron) to be stimulated (*EPSP*)? Inhibited (*IPSP*)? What kinds of problems might occur if it were not possible to control whether postsynaptic neurons were inhibited or stimulated? For example, what if postsynaptic neurons were always stimulated?

2. Do research to learn about the neurological basis of seizures and epilepsy. Give a cause for epilepsy. (research to learn about epilepsy- *give a cause*)

You must include at least **one reference**; html, or text w/ page number, etc..

Application II: “Designing” a Drug to Treat Seizures

1. Based on what you know about how neurons transmit information, how might a drug be “designed” to treat epileptic seizures? How would your drug act on the neurons? Make a diagram to illustrate your idea, if this is helpful.

2. Do research to learn about the names and mechanism of action of the most-up-to date types of drugs used to treat epilepsy.

3. Were there any differences between the drug you designed and the drug(s) currently used to treat epilepsy? Do you now know how these drugs act to control seizures? Explain.

***Action Potential Lab
Coversheet***

NAME _____

PARTNER _____

PER. _____

Exploration: A Simulation of an Action Potential

- Focus Questions #1 through #15 - *(must show two handwriting samples)*

_____ (15)

Application I: Abnormal Processing of Information by Neurons

- Focus Question #1 and
- Focus Question #2 (research to learn about epilepsy- *give a cause*)
- Must include **one reference**; html, or text w/ page number, etc..
(must show two handwriting samples)

_____ (10)

Application II: “Designing” a Drug to Treat Seizures

- Focus Question #1 and
- Focus Question #2(research on current drugs used to treat epilepsy)
- Focus Question #3(compare your drug to a current drugs used)
(must show two handwriting samples)

_____ (10)

TOTAL POINTS EARNED

_____ (35)