**Neuron & Synapse Webquest** Name(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**DIRECTIONS**: Go to the following site: <http://childrenshospital.org/cfapps/research/data_admin/Site3022/mainpageS3022P3.html>

Once there click in “Go to Children’s Interactive Feature, The Neuron” located under the picture.

Go through the interactive animation and answer the following questions:

*Roll over the parts of the neuron to answer the following questions.*

1. What does the dendrite do and where is it located on a neuron?
2. What is a soma? What do we call the soma?
3. What does the axon do and where is it located on the neuron?
4. What is the responsibility of the myelin sheath?

*Click Fire! at the top to go to the next screen and answer the following questions*

1. What is the difference in a neuron when it is in a background or excited state?
2. Fire the neuron. What part of the neuron is the electricity “fired through?

*Click on Transmission at the top to go to the next screen and answer the following questions.*

1. What types of particles move when an axon fires? What is their charge?
2. Click Next. What are the two major positively charged ions?
3. Click Next. Where are most of the positive ions and where are most of the negative ions?
4. Click Next. What are embedded in the cell membrane of the axon? Why are they important?
5. Click Next. How is a signal kept moving through the axon?
6. Continue through the remainder of this animation until the final screen. So, how does a neuron create a moving electrical signal?

*Click on Inputs and Outputs at the top to go to the next screen and answer the following questions.*

1. Click Next. When the signal is sent all the way through the axon and reaches the end, what type of structure is here to transmit the signal BETWEEN neurons?
2. Click Next. What are the green blobs at the end of the axon called and what is in them? What does the influx of Ca+ cause these structures to do?
3. Click Next. What do the neurotransmitters do?
4. Click Next. When the dendrite of the next neuron gets flooded with positive ions what is going to start to happen in the new that neuron?

*Click on Neural Circuit at the top to go to the next screen and answer the following questions.*

1. Play with the neural circuit to turn the circuit on. Can stimulating only one neuron cause a signal to be sent? Why or why not?

When you finish with the neuron & synapse animation you may play do any of the following tests and find out how good your reflexes and memory are.

Reflex Games

1. <http://faculty.washington.edu/chudler/java/reacttime.html>

Reflexes – what was your average time? \_\_\_\_\_\_\_\_\_\_\_\_

2. <http://faculty.washington.edu/chudler/java/stopl.html>

Stop Light Test – what was your average time? \_\_\_\_\_\_\_\_\_

3. <http://faculty.washington.edu/chudler/java/dottime.html>

How many dots did you get? \_\_\_\_\_\_\_\_\_\_\_\_

4. <http://faculty.washington.edu/chudler/java/backtime.html>

Color Reaction test – Which 2 colors were the fastest for you?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. <http://faculty.washington.edu/chudler/java/boxes.html>

How many boxes did you check? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. <http://faculty.washington.edu/chudler/puzmatch.html>

Short Term Memory – Picture Test; How many did you remember? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. <http://faculty.washington.edu/chudler/stm0.html>

Short Term Memory – Letter Test

Trial # The letters I remember are:......................

1

2

3

4

5

6