



Hands-On Neuroscience Activity 3

Topic and Learning Objective:

I want the students to know what a neuron is and the role it plays in our lives. I will focus on the amount of connections that neurons have to demonstrate the importance of neurons in your head.

Alignment with NGSS Grades 3-5

Science and Engineering Practices

Developing and Using Models

Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.

- Develop a model to describe phenomena. (4-PS4-2)
- Use a model to test interactions concerning the functioning of a natural system. (4-LS1-2)

Engaging in Argument from Evidence

Builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s).

- Construct an argument with evidence, data, and/or a model. (4-LS1-1)

Disciplinary Core Ideas

LS1.D: Information Processing

- Different sense receptors are specialized for particular kinds of information, which may be then processed by the animal's brain. Animals are able to use their perceptions and memories to guide their actions. (4-LS1-2)

Materials: 65 beads per student, wire on a reel (bendable wire) to make a neuron, preferably 42 beads one color, 10 beads one color, 12 beads one color, and then one color, poster board, string, markers

Detailed Description:

We will start off with a brain quiz to introduce the neuron and what effect it has on the brain. I will have the kids make their own beaded neuron. Then I will have them each take a string and connect to each other. After they have done these activities we will make a neuron poster and connect the dots. I will have a coloring sheet of a neuron so they can label the parts.

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How will you conclude the lesson to enforce the learning objective?

I will conclude the lesson with neuron telephone, this will allow them to see how easily a message gets messed up. I will demonstrate how quickly your brain can transmit a message and still get it right.

What science process skills will this lesson exercise?

We will draw parallels between our brain and the telephone game to demonstrate the complicated nature of a neuron.

Safety precautions: lots of running around, need to make sure they stay attentive and motivated.

FUN FACTS: neurons can send information as fast as 200mph, you have over 1 quadrillion synapses, longest axon is 15 feet, we have up to 100 billion neurons