

INSTRUCTOR GUIDE

ACTIVITY TITLE: BUILD-A-NEURON

Theme:	Introduction to neurons
Objectives: <i>(What key learning do you want students to come away with?)</i>	<ul style="list-style-type: none"> • Learn the parts of a neuron and direction of signal flow • Learn that neurons communicate with one another to help us think, feel, and move • Build a model of a neuron using pipe cleaners and beads

LESSON OUTLINE:

<p>1. Introduction:</p> <p><i>Plan a script of what you will say to start.</i></p> <p>- What will this be about? Why's it interesting? (Hook)</p>	<p>Think about your brain: What does it do? What is it made out of? Your brain consists of ~85 billion neurons, or a special type of brain cell that's important for helping us think, feel, move, and so much more! Today, we will learn about what makes neurons so special, what they can look like, and how they work. We will be using pipe cleaners and beads to create our own models of a neuron.</p>
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<p>2. Building Background:</p> <p><i>List questions you can use to immediately engage your audience and prepare their thinking for your activity.</i></p> <p>-What prior knowledge might they have about/related to your topic?</p> <p>-What prior knowledge (background) do they need for your activity?</p>	<p>Before we build our models, let's go through each part of a neuron. Whether a neuron works in sensing your environment (a sensory neuron), relaying a message from one neuron to another (an interneuron), or telling your body to move (a motor neuron), they have the same general features. <i>Highlight the key components: 1) dendrite 2) cell body/soma and 3) axon. Also highlight that neurons come in many shapes and sizes!</i></p> <div style="text-align: center;"> <h3>Three Types of Neurons</h3> </div> <p>The soma, or the cell body, is the neuron's control center and contains all of the DNA to keep it alive. The dendrites are like little arms that receive messages from other neurons. The axons then send messages through their long arms. The signal travels from dendrites, soma, to axons! Some neurons also have special structures called myelin sheaths. Myelin sheaths are a special barrier that help neurons send messages faster, like a coating around an electrical wire. The more myelin there is, the faster the</p>
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signal!

3. Lesson &

Activity:

Outline the key components of your lesson.

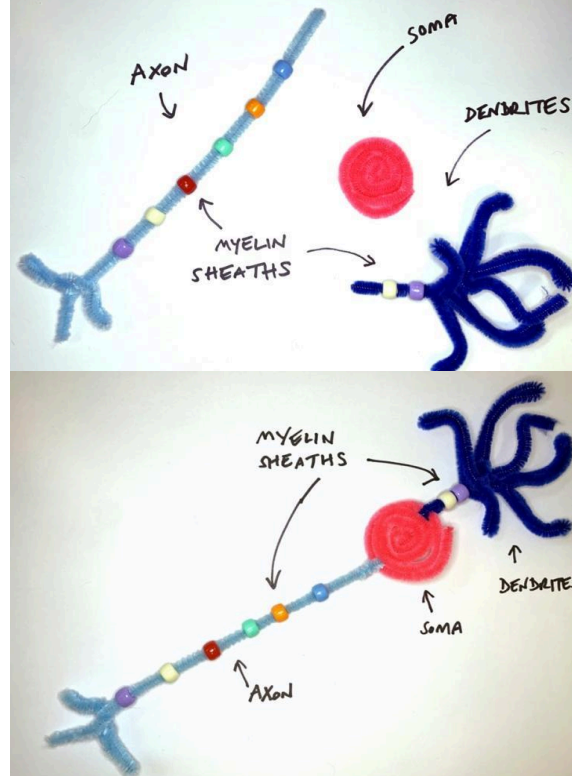
Plan/Note:

- key ideas/vocabulary
- scaffolds
- images/media
- extension questions

*Consider how to best deliver your content!

*Plan interactive components that encourage active thinking in your students.

Let's now build our own neurons! *Students can make a neuron of desired size/shape. Refer to the diagrams below as an example.*



Students can take their neuron(s) home!

4. Wrap Up:

- Review key ideas
- Share takeaways and final thoughts
- Discuss connections to other questions and ideas. Extensions.
- Ask: Who could you teach what you learned here today?
- Ask/Suggest: What can I do to learn more?

Let's wrap up! Can you recall each of the 3 parts of a neuron? Why do you think the shapes of neurons are different? [Show examples of different neuron shapes that can be found in different sensory systems.]

MATERIALS NEEDED:

- Pipe cleaners
- Plastic beads
- Images with example neurons