MAKING A PIPE CLEANER NEURON

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Description of activity

- Introduce ourselves (who are we and why are we here)
- Ask students what they know, and what they want to know about the brain. Discuss brain myths.
- The students will be shown some images of different neurons. We will point out the different parts and briefly describe what each part does. We will explain how a neural impulse is transmitted to the brain (possibly using the example of stepping on a tack).
- Students will be given time to make their own neurons from different colored Pipe cleaners.

Lesson plan

Opening Questions

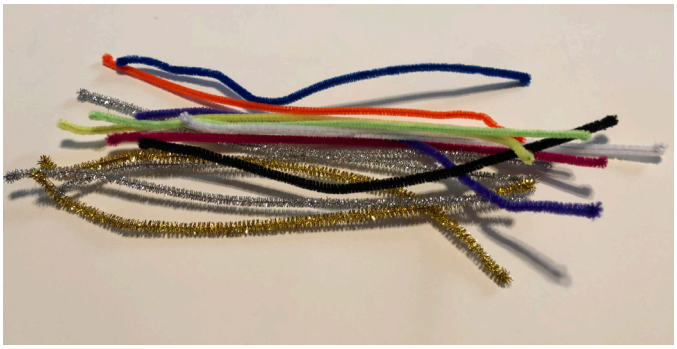
- What do you know about the brain?
- What do you want to know about the brain?
- Have you heard any myths about the brain?
- What is a neuron?
- How do neurons work?

Activity

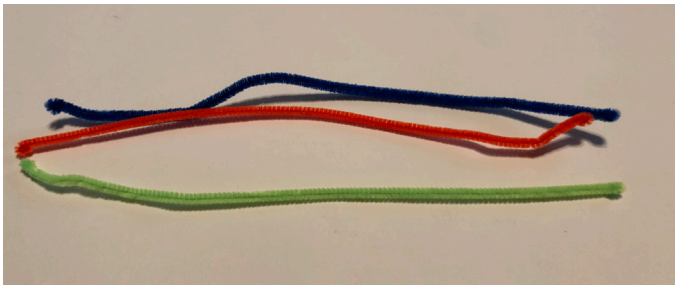
1. Before activity begins, divide pipe cleaners into handfuls of (roughly) twenty for each student.
2. Introduce yourselves, tell students why you're there.
3. Ask students what they know about the brain, discuss (and dispel) brain myths. Discuss the role of a neuron as a "messenger" of the system.
4. Show students the parts of a neuron (cell body, nucleus, dendrites, axon, axon terminals, and myelin sheath) using images and our own pipe cleaner neurons. Explain each part's function. Show how a chemical message travels through a neuron.
5. Hand out pipe cleaners.
6. Do a brief demonstration on how to make a neuron, be sure to show them a variety of different neurons, discuss how these different cells vary in form depending on where they are in the brain (for example Purkinje cells are found in the cerebellum) yet they all have basically the same parts and function in the same way.
7. Have students make their own neuron.
8. Clean up.

Making a pipe cleaner neuron

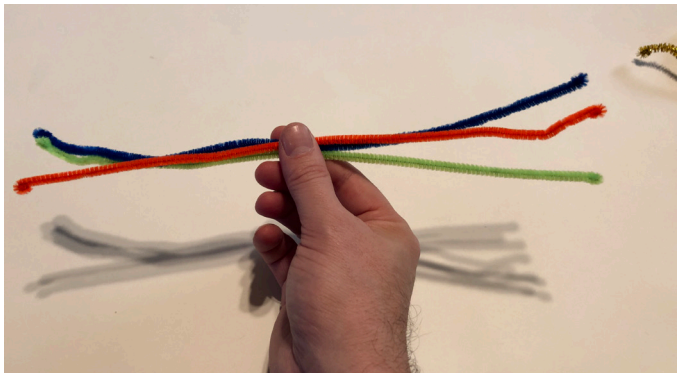
1. Start with a good amount of (colorful) pipe cleaners, I have 15 here.

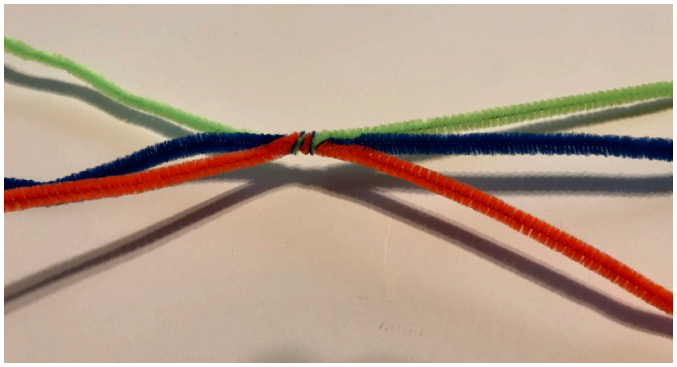


2. To create the soma or cell body take 3 pipe cleaners.

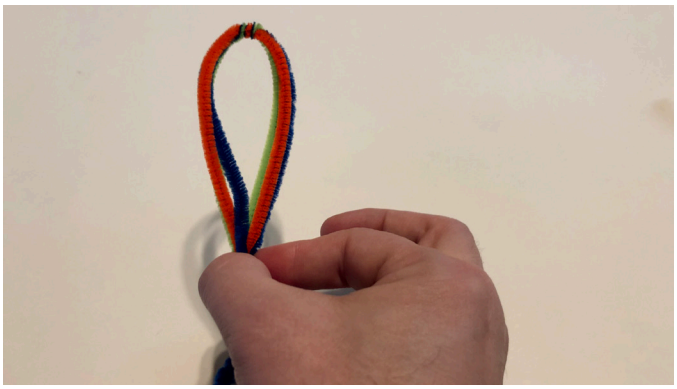


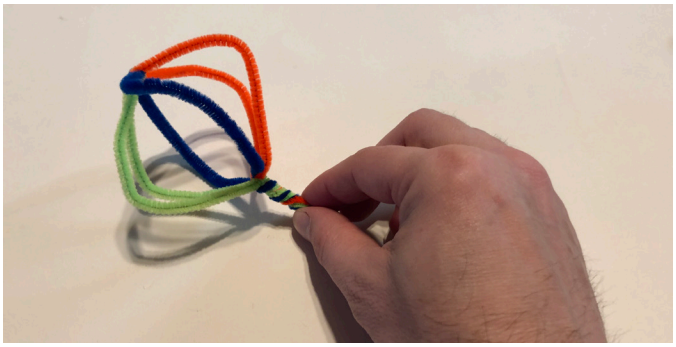
3. Hold them together in the middle and twist them in the middle 3 or 4 times so they are attached in the center.





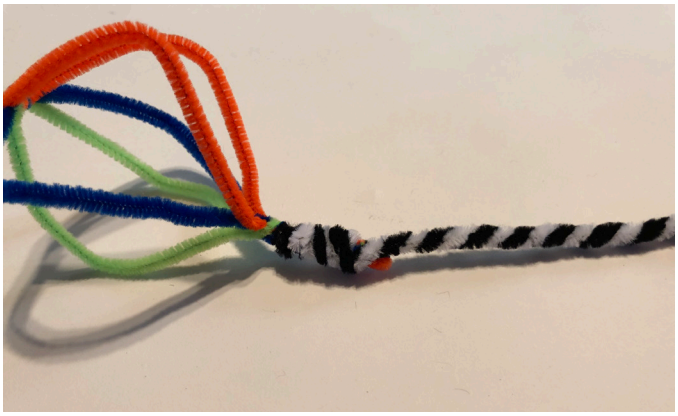
4. Fold this in half and twist all of the ends together to create a loop. Pull out the sides to create a bulb shape.



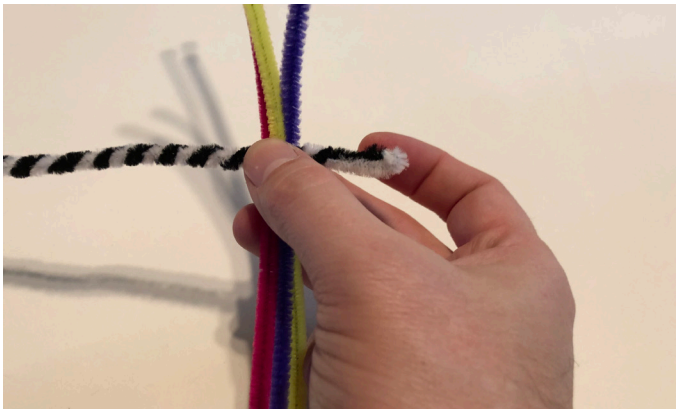


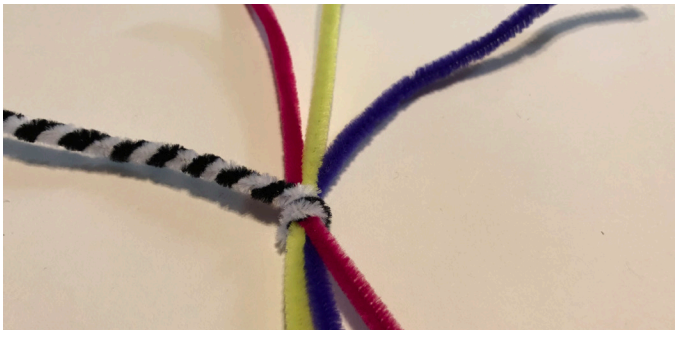
5. Next create your axon by twisting two pipe cleaners all the way together.

6. Attach the axon to your soma by twisting the axon end around the stem on your soma.

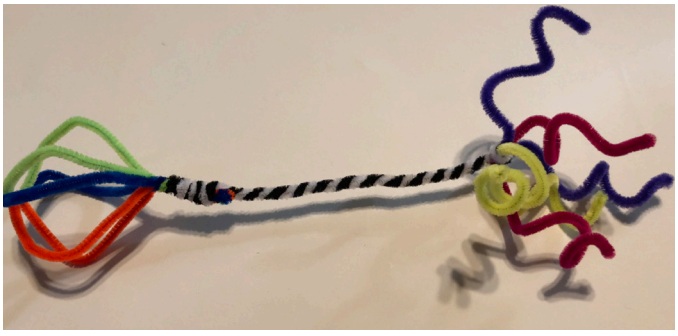


7. Create your axon terminals by taking 3 pipe cleaners and wrapping the end of your axon around their center.

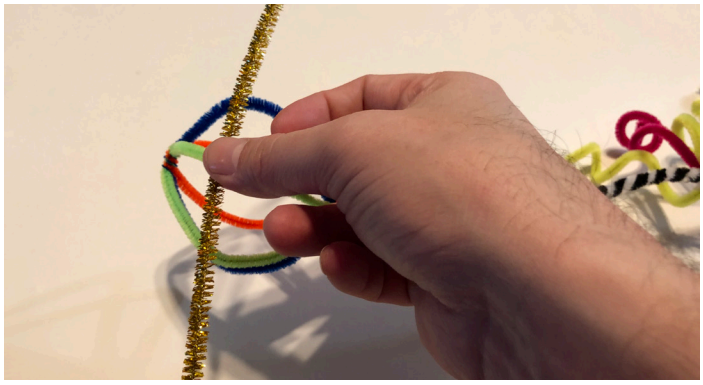


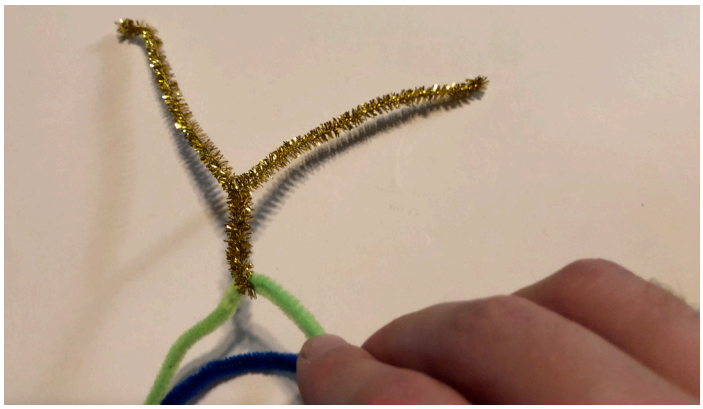


8. Curl those to make them look a bit more neuronal.

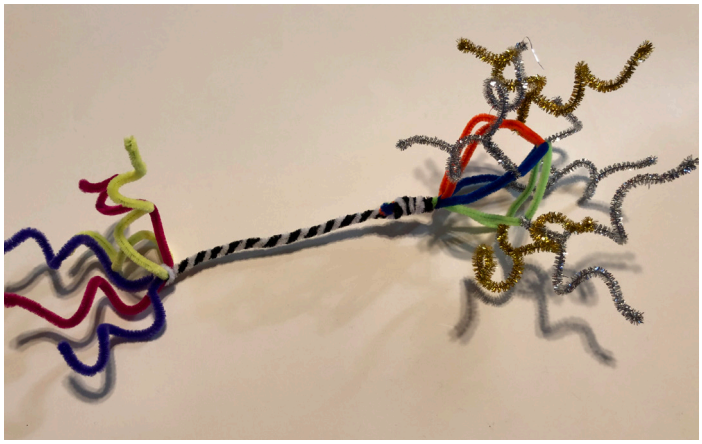


9. Create dendrites by taking a pipe cleaner pulling it halfway through one of the pipe cleaners on your soma. Then twist it about halfway up from the bottom to leave a couple of branches. Curl these around just like the axon terminals.

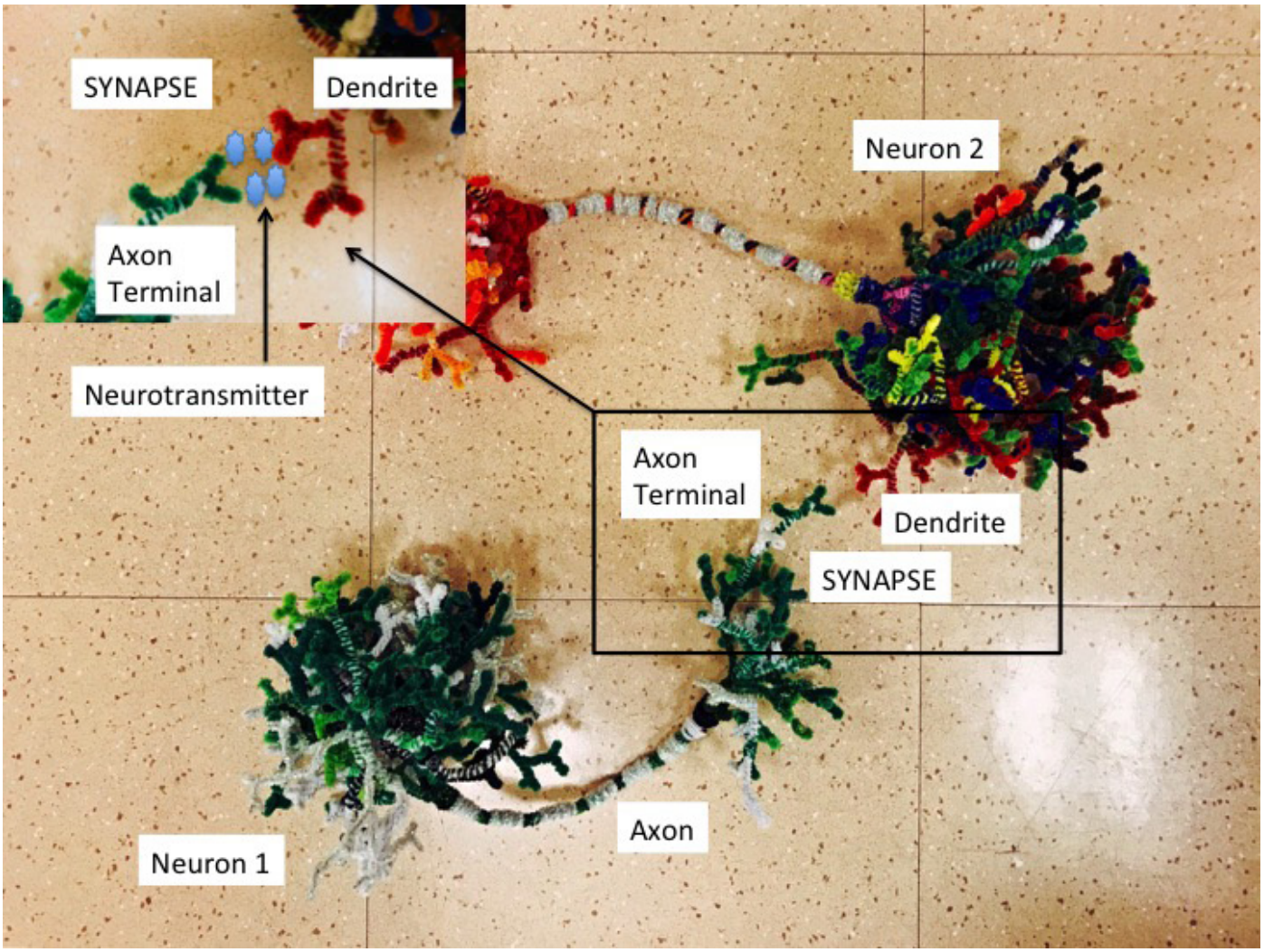




10. Add as many dendrites as you can, and you have a neuron!



This is just a start though, there are many more parts you can add to your neuron, and even many different kinds of neurons you can make, have fun with it!


SYNAPSE
Dendrite
Axon
Terminal
Neurotransmitter
Neuron 2
Axon
Terminal
Dendrite
SYNAPSE
Axon
Neuron 1