

## Activity

# Pipe Cleaner Neurons

**Duration:** 20 minutes

**Learning Target:** Learn parts of the neuron and understand how neurotransmission works.

**Materials:** At least 4 and a half pipe cleaners of different colors; Scissors

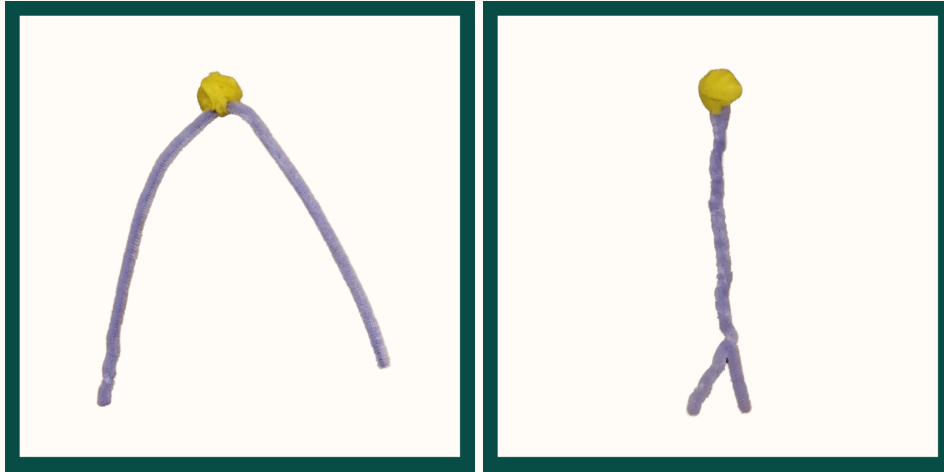
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## Instructions

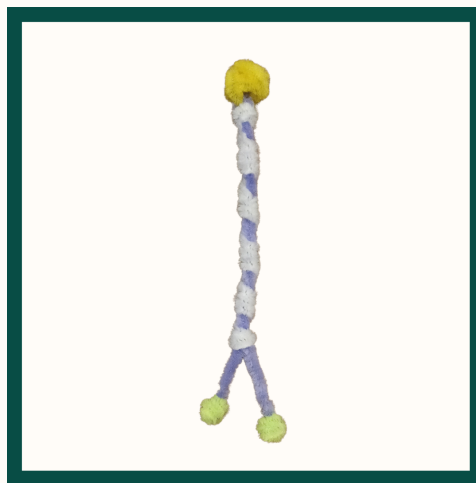
1. Roll one pipe cleaner into a ball to form the cell body (**soma**) of the neuron.



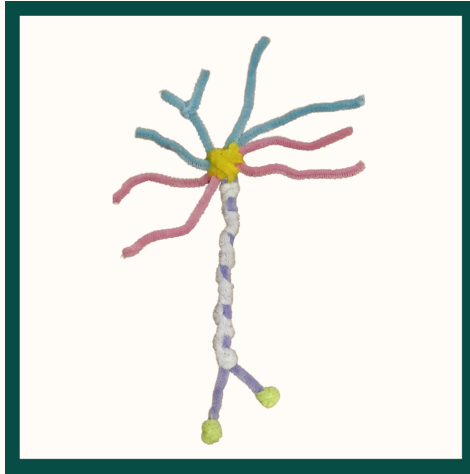
2. Take a different colored pipe cleaner and push it through the middle of the soma until half of it is on either side of the ball. Then twist the two strands together, leaving a small amount at the ends unwound, to form the **axon**.



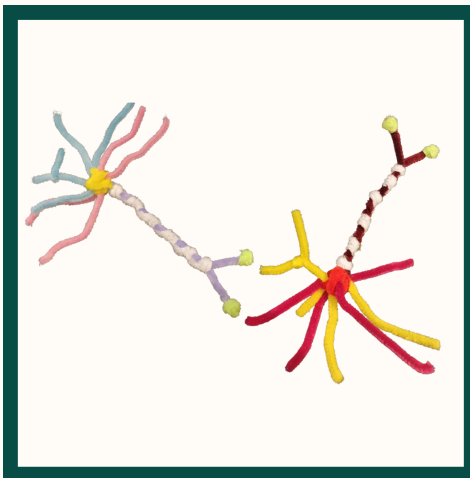
3. Wrap a pipe cleaner of another color around the length of the wound axon, leaving small gaps. This pipe cleaner represents the **myelin sheath** and the gaps represent the **nodes of Ranvier**.
4. Take the pipe cleaner that has been cut in half, and cut it into two equal pieces. Wrap each half around one of the unwound ends of the axon to represent the **axon terminals**.



5. Your remaining pipe cleaner(s) will represent the **dendrites**, so push them through the soma and direct them away from the axon. Dendrites are usually shorter than axons, so you can cut your pipe cleaners in half before pushing them through the soma.



6. Create a network of neurons in your class by having students place the synaptic terminal of their neuron close to the dendrites of another neuron. Remember that neurons do not touch so leave a small gap to represent the **synapse**.



Get creative with your neurons! Add dendrites of differing lengths, combine pipe cleaners to create a longer axon, and have branching dendrites and/or more than two branches on your axon.

This activity is adapted from the original “Pipe Cleaner Neuron” activity by Eric Chudler (<https://faculty.washington.edu/chudler/chmodel.html>).