

## Impulse Transmission Choice Project

You have been learning about the neuron which is the functional unit of the nervous system. The purpose of this project is for you to understand and explain the parts of a neuron how it transmits information. You will have several choices as to how you will communicate this information.

You will need to explain and demonstrate how movement of ions across the membrane transmits a signal through the neuron and how that signal is passed on to another neuron or an effector cell. Your explanation should include specific discussion of ion movement, electrochemical potential, refractory period and neurotransmitter release.

You should frame your explanation in terms of a specific event and response. Be as creative as you would like, but be sure your project explains why your neuron is sending an impulse and what response it will elicit.

Parts of the neuron you should include in your project:

- Axon
- Dendrite
- Cell body
- Nucleus
- Myelin sheath
- Synapse
- Synaptic cleft
- Receptor protein
- Potassium channel
- Sodium channel
- Node of Ranvier



Granule Cell

### Assignment Choices

Option 1: Make a live action video which explains how the nervous impulse is carried using a 2 dimensional poster and manipulatives.

Option 2: Make a stop motion animation video using a 3 dimensional model

Option 3: Write a children's story book with illustrations explaining how the nervous impulse is transmitted.

Option 4: Create a skit that explains how a nervous impulse is transmitted using set pieces that represent each part of the neuron. Record your skit and share it with the class.

### Extension Options

Your project may also include a discussion of how one of the following neurological conditions affects the transmission of the nervous impulse: Huntington's disease, Multiple Sclerosis, Parkinson's Disease, Amyotrophic Lateral Sclerosis (ALS).