

# Neuron Signal Racing!



Action Potential “Axon Tube” demonstration: with and without myelin

Action potentials (electric currents, carried by moving sodium ions) race down axons, the long, wire-like projections of neurons - carrying information. How fast can that current travel? Are there ways to make it travel faster..?

Neurons without wrapping (called myelin) carry messages at about 2 meters/second. But with wrapping, that speeds up - to 120 meters/second!

TAKE: A large PVC or other tube with lots of holes in it...

-At one end, place a brain, and make the other end look like a leg, or a hand...

-Take a piece of paper, and write a message on it (a signal for the brain)

-Place paper inside the pipe at the leg/hand end.

-Use an air pump to blow the paper through the pipe to the brain (kids can take turns doing this)

-Then, take some saran wrap (our myelin!), and have kids wrap up the pipe so all the holes are now covered...

-Repeat the experiment (paper should travel faster - just as current does when you remove channels for sodium and other ions by covering axons with myelin)

Explain the use of myelin for neurons that carry information. Why do you want some signals to travel faster..?