

Brain Power: How We Learn

Teacher Notes

Background

The cells that make up the brain and nervous system are called neurones. They are very specialised cells as they have a specific job to do – sending messages around the body and to different parts of the brain.

When you learn something new a 'pathway' is created in your brain. This means connections are made between neurones so that messages can be sent between them. The shape of the neurones is what allows these pathways to be created.

This activity focuses on building a model of a neurone so that the different parts of the cell can be identified. Once individual neurones have been made, they can be joined to create a pathway in a neural network. There are three different methods to make the neurones, depending on available materials.

Once the models have been made, they can be joined together to make pathways and neural networks to model what happens when learning happens in the brain. If the network is made 'permanent' a memory has been made, or new skill learned.

There are three different modelling activities available, depending on the materials you have access to. Below are the materials needed to make one model of each of the different versions:

Bead neurone – string or flexible wire, 65 beads in 5 colours: *42 beads for the dendrites, 10 beads for the cell body, 12 beads for the axon, 1 bead for the synapse.*

Pipe cleaner neurone – 7 pipe cleaners in 5 colours: *1 for the cell body, 1 for the axon, 3 for the dendrites, 1 for the myelin sheath, 1 (short piece) for the synapse.*

CD neurone – CD with 5/6 holes drilled around the edge of one half, 1m thick string, 5/6 40cm lengths of thin string, paper cup.

Health and Safety:

If using wire for the bead neurone activity, take care with sharp ends.