

THINKING



PASS IT ON

How messages are passed from one cell to another

The brain has so many jobs ... write a list of as many as you can think of.

We are born with about 100 billion nerve cells (also called neurons) in our brain. Neurons send, store and receive messages through an electrochemical process. They come in many different shapes and sizes. Neurons are similar to other cells in the body but they have specialised parts called dendrites and axons. Dendrites generally bring information to the cell body and axons take information away.

Look for some pictures of a neuron. Find a picture that shows you its main parts: the cell body, dendrites, axon, and synaptic terminals.

Neurons send messages along their axons. When a message reaches the end of an axon, it has to cross a gap called a synapse. The neuron releases neurotransmitters, which are chemicals that help to pass the message to the receptors on the dendrites of the next neuron. The dendrites then receive the message and the information can be passed on. Neurons are constantly communicating with one another.

Other cells in the body die and get replaced but many neurons are never replaced when they die. You actually have fewer neurons when you are old than when you were younger.

The brain needs to be kept healthy and requires energy to do its job. Discuss how we can keep our wonderful brains healthy.

What might make it harder for the brain to do its job?



EXPLORE!

What is 'neurobics'?

You may have heard of aerobics ... a fast-moving physical activity that gets your heart and lungs working hard. Well, 'neurobics' is a term that was used by scientists Lawrence Katz and Manning Rubin.

Neurobics is exercise for the brain. To work, neurobic exercises must be different from the typical activities that you are used to doing so that they stimulate your brain to make new connections.

1. Try these neurobic exercises to give your brain a workout.

- Balancing with your other leg whilst riding your scooter
- Writing your name with your left hand
- Putting spread on your toast with your other hand
- Walking down your hallway with your eyes closed
- One-leg balancing exercises
- Spending time outside smelling the plants and flowers
- Throwing and catching with the other hand
- Drawing a square in the air with one hand and a triangle with the other at the same time
- Brushing your teeth with the other hand



At first an activity like the ones listed above will prove to be very challenging. But, with practice, the brain will become so used to sending and receiving the messages to perform the task that the movement and skill needed will become more automatic. It's true that practice makes ... improvement.

2. Perhaps you can have a class talent show and demonstrate a tricky move or a new skill that you can do fairly easily. Remember that this is due to the fact that previously your neurons had been sending and receiving the same messages multiple times to allow you to learn the movement sequence. But now that particular piece of information is stored in the brain ready to be used at just a moment's notice!

