What is the nervous system?

The nervous system is the highway along which your brain sends and receives information about what is happening in the body and around it. This highway is made up of billions of nerve cells, or neurons (say new-rons) which join together to make nerves.

- A nerve is a fibre that sends impulses through the body.
- These fibres are covered by fatty substance called myelin (say my-e-lin). Myelin helps the messages go fast through the neurons.
- Nerve cells work by a mixture of chemical and electrical action.

The two main parts of the nervous system are the central nervous system and the peripheral (say per-if-er-al) nervous system.

How nerve cells work

At the end of each nerve cell there is a synaptic terminal (say sin-ap-tik term-in-ul). This is full of extremely tiny sacs which hold neurotransmitter chemicals (say new-ro-trans-mitta- kem-ik-als).

- These chemicals transmit nerve impulses from one nerve to another or from nerves to muscle cells.
- An electrical nerve impulse travels along the neuron to these sacs which then release the neurotransmitter chemicals.
- The chemicals move along to the next neuron sparking an electrical charge which moves the nerve impulse forward.
- This happens several times until the message gets where it's going.

The central nervous system

The brain and the spinal cord make up the central nervous system. The brain lies protected inside the skull and from there controls all the body functions by sending and receiving messages through nerves.

Have a look at our topic The brain for more information.

The peripheral nervous system

The peripheral nervous system carries messages to and from the central nervous system. It sends information to the brain and carries out orders from the brain.

Messages travel through the cranial nerves, those which branch out from the brain and go to many places in the head such as the ears, eyes and face.

Messages can also travel through the spinal nerves which branch out from the spinal cord.

There are two major parts to the peripheral nervous system.
The somatic (say so-mat-ik) system:

- sends sensory information to the central nervous system through peripheral nerve fibres. **Sensory** means that it sends the information coming from all your senses, touch, vision, hearing, taste, smell and position.
- sends messages to motor nerve fibres to get the muscles to move the body.

The autonomic (say or-tow-nom-ik) system

- is responsible for making sure that all the automatic things that your body needs to do to keep you going, like breathing, digesting etc continue working smoothly without your having to think about them. (How hard would it be to have to keep thinking, "Breathe in, breathe out," or "Start digesting the food stomach!")

Dr Kate says

You can help your nervous system work well and be healthy by being active, having a healthy diet and keeping yourself busy and happy.

- Exercise releases a chemical, called serotonin, in the brain which makes you feel good, relaxes muscles and gets rid of stress.
- Good food gives your body the vitamins and minerals needed to build healthy nerves and tissue.
- Keeping busy and happy helps you to deal with life when things go wrong.

Feeling nervous about something? Well we're all full of nerves aren't we?