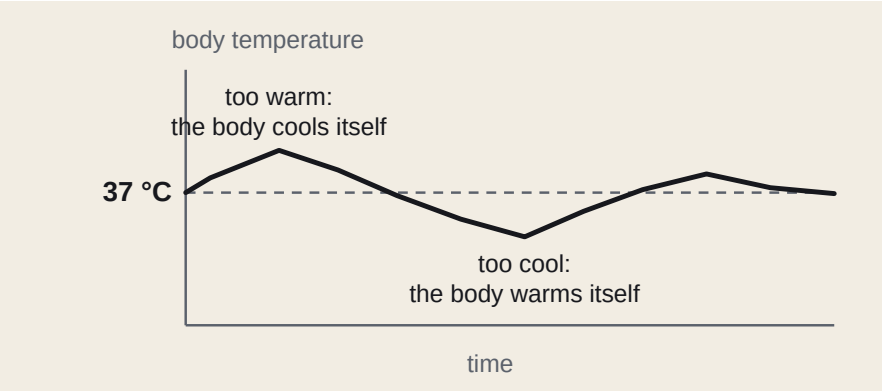
A1 · Homeostasis, neurons and the reflex arc · Notes

Goals: Say what homeostasis is, and name the two systems that carry the body's messages. Name the parts of a neuron and the direction a nerve impulse travels. Explain what the myelin sheath is and how it makes a nerve impulse travel faster. Tell sensory neurons, interneurons and motor neurons apart, and say what a nerve is. Trace a reflex arc through its five parts.

Name: _____ Date: _____

Slide 1 of 6 · Keeping the body steady

This is the first lesson of Biology 30. Your body works only when conditions inside it stay steady. Unit A is about the two systems that keep them steady.



Key ideas

Keeping conditions inside the body steady is called _____.

Two systems keep homeostasis: the _____ and the _____.

The endocrine system sends chemical messengers called _____.

Example

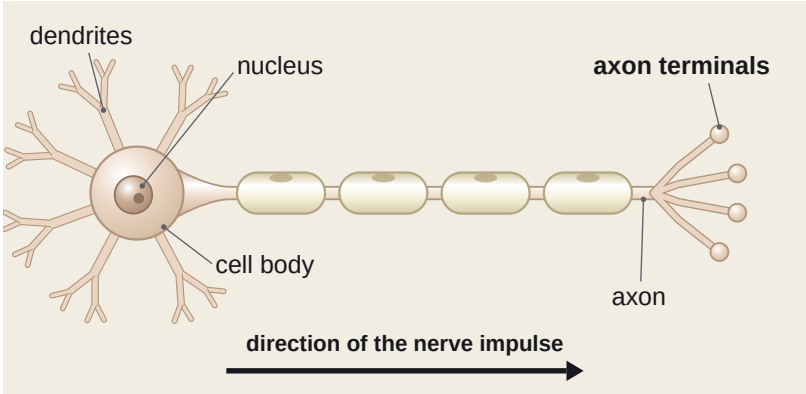
Your body temperature stays near 37 °C on a cold day. Name the idea this shows.

Try it

Name the two systems that keep homeostasis.

Slide 2 of 6 · The parts of a neuron

On the last slide, the nervous system sent its messages along nerve cells. Now we look at one nerve cell and name its parts.



Key ideas

A _____ is a nerve cell. It carries a _____.

The _____ carry nerve impulses toward the cell body.

The _____ carries nerve impulses away from the cell body.

The axon ends in _____.

Example

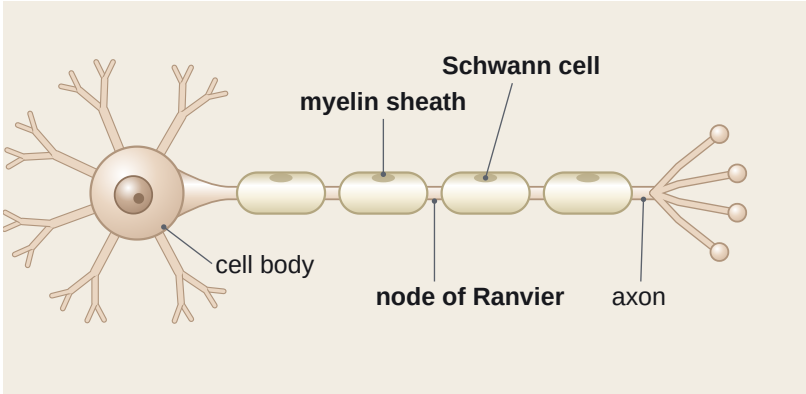
A nerve impulse is in a dendrite. Name the next two parts it passes, in order.

Try it

State the job of the axon.

Slide 3 of 6 · The myelin sheath

On the last slide, the axon carried nerve impulses away from the cell body. Many axons have a covering that makes the nerve impulse travel faster.



Key ideas

Many axons are wrapped in a _____.

The sheath is made by _____.

A gap between two segments of the sheath is a _____.

A nerve impulse _____ from node to node, so it travels faster.

Example

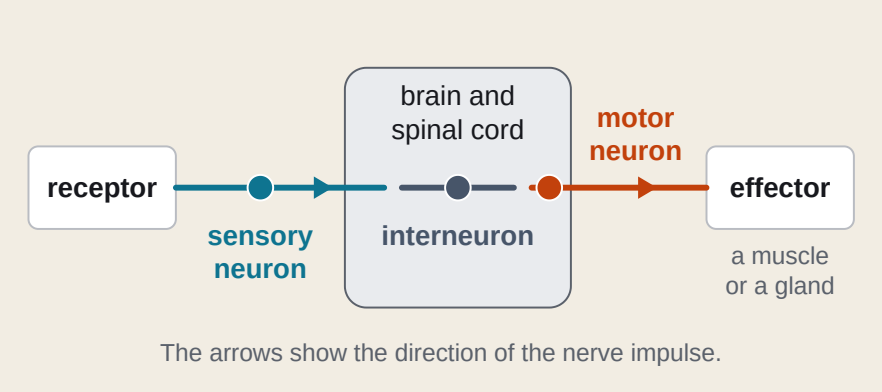
Explain why a nerve impulse travels faster on an axon with a myelin sheath.

Try it

Name the cells that make the myelin sheath, and name the gaps in it.

Slide 4 of 6 · Three kinds of neuron, and nerves

You now know the parts of one neuron. Neurons do different jobs. They are sorted into three kinds by where they carry nerve impulses.



The arrows show the direction of the nerve impulse.

Key ideas

A _____ carries nerve impulses from a receptor to the central nervous system.

An _____ links neurons inside the brain and spinal cord.

A _____ carries nerve impulses to an _____, such as a muscle.

A _____ is a bundle of many axons.

Example

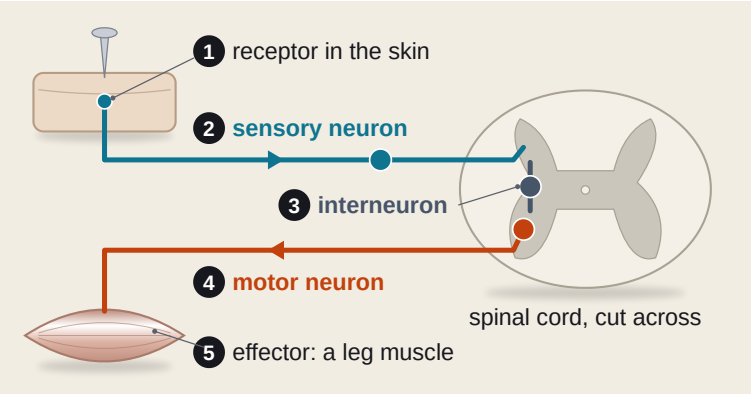
Name the kind of neuron that carries a nerve impulse from the skin to the spinal cord.

Try it

Name the kind of neuron that makes a muscle contract.

Slide 5 of 6 · The reflex arc

On the last slide you met the three kinds of neuron. Now you see all three work together in the fastest response your body has.



Key ideas

A _____ is a change that starts a response.

A _____ is a fast response that you do not choose.

The path a reflex takes is a _____.

A reflex is fast because the message does not wait for the _____.

Example

You touch a pin and your hand pulls away before you feel pain. Explain why the response is so fast.

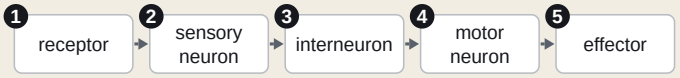
Try it

List the five parts of a reflex arc, in order.

Slide 6 of 6 · Method: how to trace a reflex arc

You just followed one reflex through five parts. Every reflex arc has the same five parts. Here they are as steps you can use on any reflex.

1. **Name** the receptor that detects the stimulus.
2. **Follow** the sensory neuron to the spinal cord.
3. **Cross** the interneuron inside the spinal cord.
4. **Follow** the motor neuron out of the spinal cord.
5. **Say** what the effector does.



Check: receptor, sensory, interneuron, motor, effector.

Used again in: lessons A5 and A6

Key ideas

Step 1: find the _____ and the _____.

Steps 2 to 4: follow the sensory neuron, the interneuron and the _____.

Step 5: name the _____ and what it does.

Example

Use the five steps to trace the reflex when a hand touches a hot stove.

Try it

Use the five steps to trace the reflex when a doctor taps below your knee.