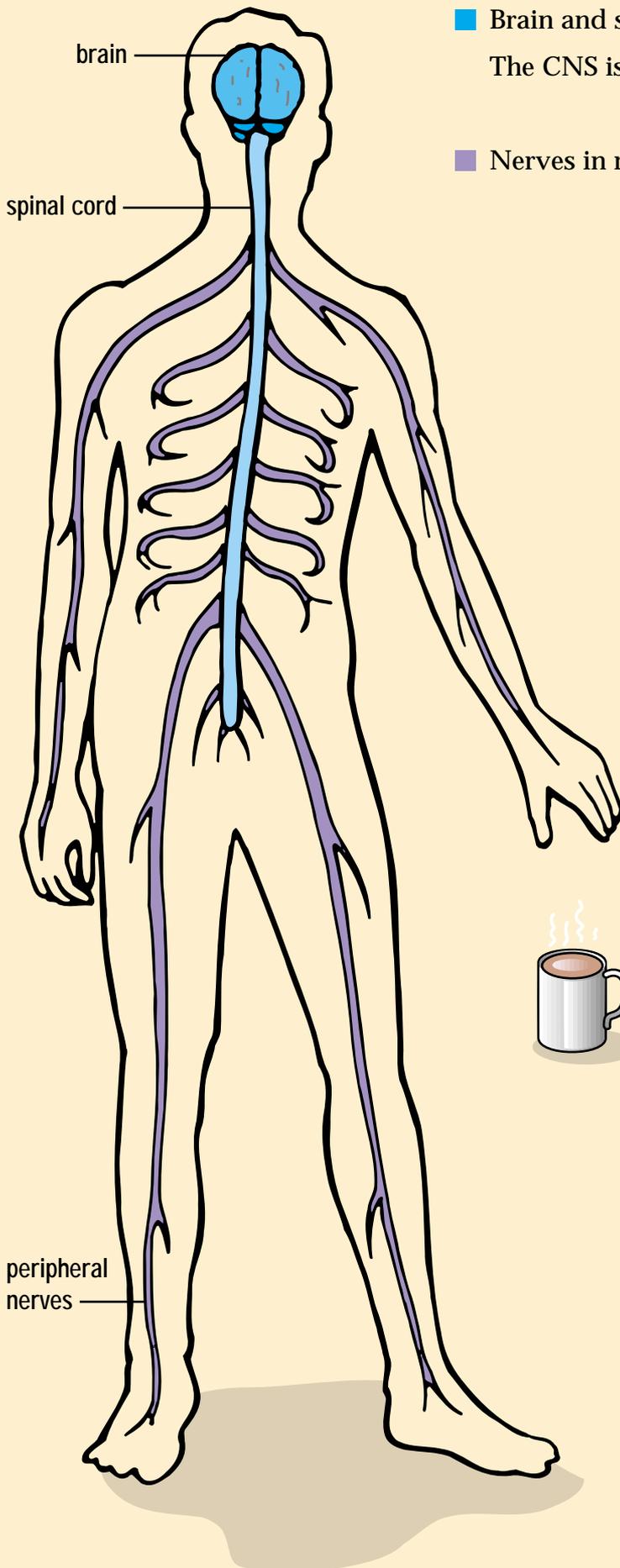


## The nervous system



■ Brain and spinal cord = central nervous system (CNS)

The CNS is like a central command centre

■ Nerves in rest of body = peripheral nervous system (PNS)

Nerves allow different parts of the body to communicate.

1 On picking up cup peripheral nerves sense heat and tell CNS

2 CNS decides best thing to do is leave coffee to cool down

3 Peripheral nerves tell muscles in arm to put cup back down



Messages that travel along nerves = impulses

The human nervous system is a complex communications network, consisting of two integrated systems:

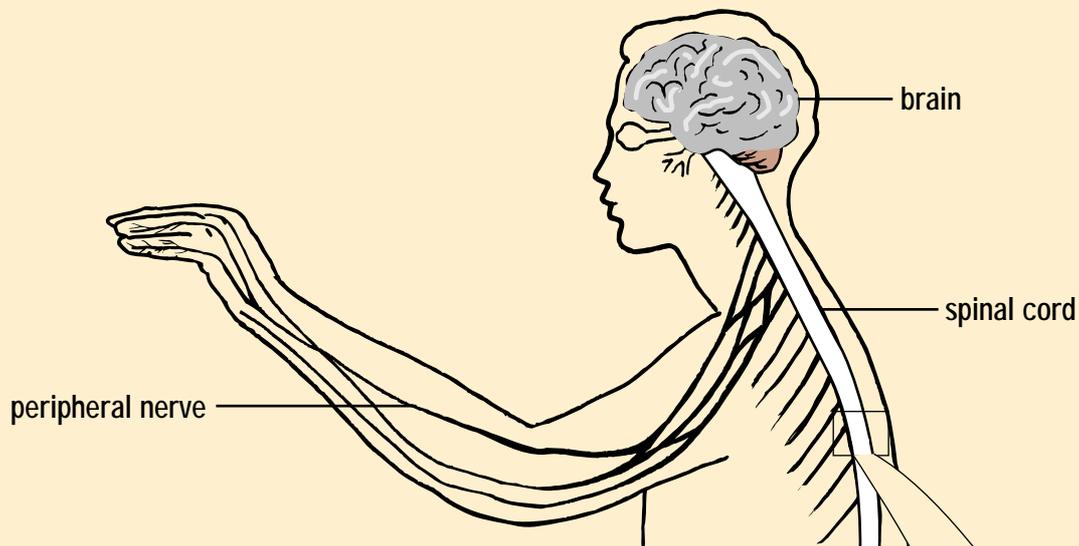
### Central nervous system (CNS)

The CNS is made up of the brain and spinal cord. It acts as a command centre, interpreting incoming sensory information from your eyes and ears, for example, and controlling outgoing commands to muscles. Communication occurs via nerve impulses – electrical signals that travel along nerves. The brain also performs complex functions like learning, memory, emotion and abstract thought.

### Peripheral nervous system (PNS)

The PNS consists of sensory and motor nerves:

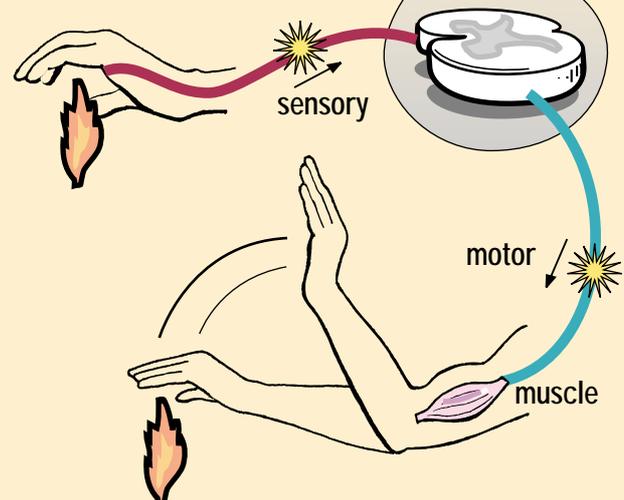
- Sensory nerves carry information to the CNS on what you can see, hear, smell, feel and taste. They are found throughout the body.
- Motor nerves carry command signals from the CNS to muscles for control of movement and bodily functions, such as heartbeat, digestion and sweating.



### Reflex arcs

A simple way to examine the function of the nervous system, when investigating whether a person has a neurological disease, is by testing for spinal reflex arcs. These are automatic responses needing no input from the brain and no thought. One familiar reflex is the rapid response to touching something very hot:

- 1 Sensory nerves in the skin detect potential danger.
- 2 A nerve impulse travels from the skin to the spinal cord, where it transfers from sensory to motor nerves.
- 3 Motor nerves carry impulses to muscles that withdraw the hand from the heat.



Reflex function can be tested by tapping the elbow or knee, for example, with a small reflex hammer.