Responding to change

Homeostasis:

Definition: homeostasis is the regulation of internal conditions of a cell or organism to maintain optimum conditions for function in response to internal and external changes

Examples of things we need to control:

* Blood glucose concentration
* Body temperature
* Water level

5 senses:

* Sight
* Taste
* Touch
* Smell
* Hearing

Sense organs

Sense organs contain specialised cells known as receptors which detect changes in the environment(stimuli)

|  |  |
| --- | --- |
| Receptor in the… | Are sensitive too… |
| Eyes | Light |
| Ears | Sound |
| Ears | Change in position (keeping our balance) |
| Tongue and nose | Chemicals (enabling us to taste and smell) |
| Skin | Touch, pressure, pain and temperature changes |

Nervous system

Flow chart:

Receptor cells e.g. eye 🡪 sensory neuron 🡪 CNS (central nervous system) 🡪 motor neuron 🡪 effector e.g. muscle gland

Key notes:

The nervous system carries information via fast electrical impulses. Changes in the environment (stimuli) are detected by receptor cells in the sense organs. Impulses travel from the receptor along sensory neurons to the CNS. The CNS is made up of the brain and the spinal chord. The CNS coordinates the information and sends information along motor neurons to effector organs such as muscles or glands.

Practical: how sensitive is your skin

|  |  |  |
| --- | --- | --- |
| Receptor | Tally correct | Tally incorrect |
| Back of hand | III | II |
| Index finger | IIIII |  |
| Forearm |  | IIIII |

The reason the forearm is less accurate than the index finger is because the index finger has a higher concentration of receptor cells

Plenary

1. CNS- central nervous system
2. Brain and spinal chord
3. Stimuli are changes in the environment
4. Sensory neurons
5. Effector