|  |  |  |
| --- | --- | --- |
| At the end of this section you should be able to … |  |  |
| Understand the **sense organs** contain receptors. |  |  |
| Explain how the brain acts as the interpreting centre for received information. |  |  |
| Describe the 5 senses and related organs. |  |  |
| Recognise the main parts of the eye |  |  |
| Recognise the main parts of the  **ear.** |  |  |
| Give a single statement of function related to each part. |  |  |
| Describe the corrective measures for long sightedness and short sightedness **or** for a hearing defect. |  |  |
|  |

**The Senses - Summary**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Organ** | Skin | Tongue | Nose | Eye | Ear |
| **Sense (Stimulus)** | TouchTemperature  | Taste | Smell | Sight | Hearing |

Each sense organ contains sensory receptors which detect stimuli. A stimulus is a change in the internal or external environment. These receptors send messages to the brain via sensory nerves which acts as an interpreting centre.

**Examples**

The **skin** contains receptors which react to stimuli e.g. heat, pressure, pain.

Message is sent to brain along sensory nerves

Brain interprets the message as pain etc

The **tongue** contains receptors which react to chemical stimuli.

Message is sent to brain along sensory nerves

Brain interprets the message as taste

The **nose** contains receptors which react to chemical stimuli

Message is sent to brain along sensory nerves

Brain interprets the message as smell

The **eye** contains receptors which react to the stimulus of light

Message is sent to brain along sensory nerves

Brain interprets the message as sight

The **ear** contains receptors which react to the stimulus of sound

Message is sent to brain along sensory nerves

Brain interprets the message as hearing

**The Eye**

|  |  |
| --- | --- |
| **Part** | **Function** |
| Sclera | Tough outer coat for protection (White) |
| Cornea | Transparent layer at front of eye. Allows light through |
| Choroid | Black layer. Absorbs light. Prevents internal reflection |
| Ciliary body | Contains ciliary muscle to focus the lens |
| Iris | Controls the amount of light entering the eye (Coloured) |
| Aqueous humour | Helps maintain the shape of the eyeBends light |
| Vitreous humour | Helps maintain the shape of the eyeBends light |
| Retina | Light sensitive area. Contains the light receptors – rods and cones |
| Rods | Light sensitive receptors which responds to black and white |
| Cones | Light sensitive receptors which responds to colour |

**Short sight (Myopia)**

Short sight leads to blurred distance vision,but close vision is normal (- values on a prescription)

**Long sight (Hypermetropia)**

Long sight leads to blurred close vision,but distant vision is normal (+ values on a prescription)



**Normal vision**: Rays from the object are focused on the retina

If you have 20/20 vision, it means that when you stand 20 feet away from the chart you can read the chart clearly.

**Binocular vision:** The brain interprets information from two eyes simultaneously giving 3D image. This helps improve the perception of depth

**The Ear**



Hammer, anvil, stirrup

|  |  |
| --- | --- |
| **Part** | **Function** |
| Pinna | Funnels sound waves into ear canal |
| Ear canal | Carries sound waves to ear drum |
| Ear drum | Receives sound waves. Vibrates |
| Eustachian tube | Connects middle ear with the outside. Equalises pressure  |
| Hammer | Picks up vibrations from the ear drum. Passes vibrations to anvil |
| Anvil | Picks up vibrations from the hammer. Passes vibrations to stirrup |
| Stirrup | Picks up vibrations from anvil. Passes the vibrations through the oval window into the cochlea.  |
| Oval window | Amplifies sound waves and passes them to the cochlea |
| Cochlea | Coiled fluid filled structure. Contains tiny hair receptors which convert the vibrations into a nerve message. |
| Auditory nerve | Carries the nerve message to the brain where it is interpreted as sound. |
| Round window | Vibrations pass back through round window  |
| Semi circular canals | Fluid filled structures containing receptors. Responsible for balance.  |