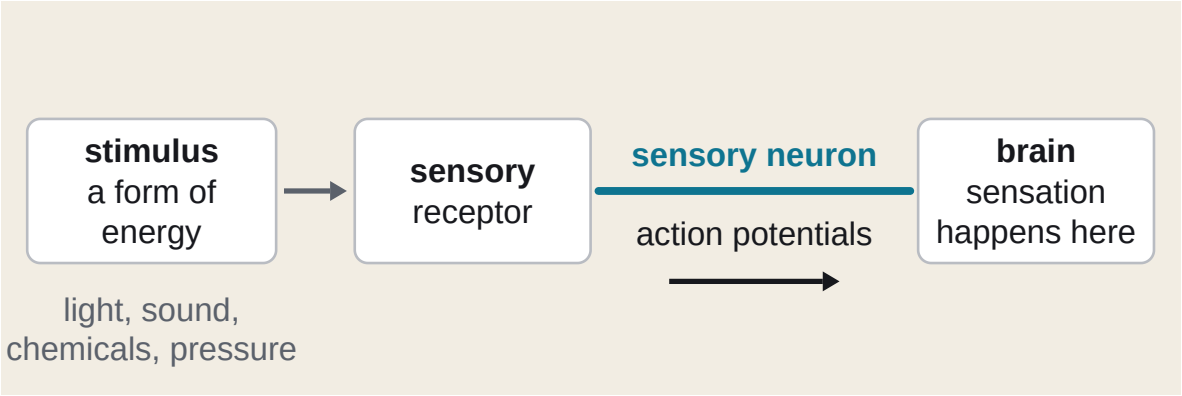
A7 · Sensing the world: receptors, taste, smell, skin and body position · Completed notes

Goals: Say what a sensory receptor does and where a sensation happens. Name the four kinds of sensory receptor and their stimuli. Explain sensory adaptation. Describe how taste receptors and olfactory cells work. Name the receptors in the skin, and say what proprioceptors do.

These are the completed notes. The blanks are filled in and each question is worked.

Slide 1 of 5 · From stimulus to sensation

In lesson A6, the lobes of the cerebrum received information from the senses. Today you see where that information starts.



Key ideas

A **sensory receptor** detects one kind of stimulus.

It changes the energy of the stimulus into **action potentials**.

A sensory neuron carries them to the **brain**.

The feeling is a **sensation**. It happens in the brain.

Example

State where the sensation of warmth happens: in the skin or in the brain.

1. The receptor in the skin only starts action potentials.
2. The sensation happens in the brain.

Try it

State what a sensory receptor changes a stimulus into.

1. A stimulus is a form of energy.
2. The receptor changes it into action potentials.

Slide 2 of 5 · Four kinds of sensory receptor

On the last slide, each sensory receptor detected one kind of stimulus. Receptors are named for the stimulus they detect.

Receptor	Stimulus	Where
photoreceptor	light	rods and cones in the eye
chemoreceptor	chemicals	taste and smell
mechanoreceptor	pressure or movement	touch, hearing, balance
thermoreceptor	heat or cold	skin

Key ideas

A **photoreceptor** detects light.

A **chemoreceptor** detects chemicals.

A **mechanoreceptor** detects pressure or movement.

A **thermoreceptor** detects heat or cold.

Example

Name the kind of receptor that detects the smell of smoke.

1. Smoke is chemicals in the air.
2. A chemoreceptor detects chemicals.

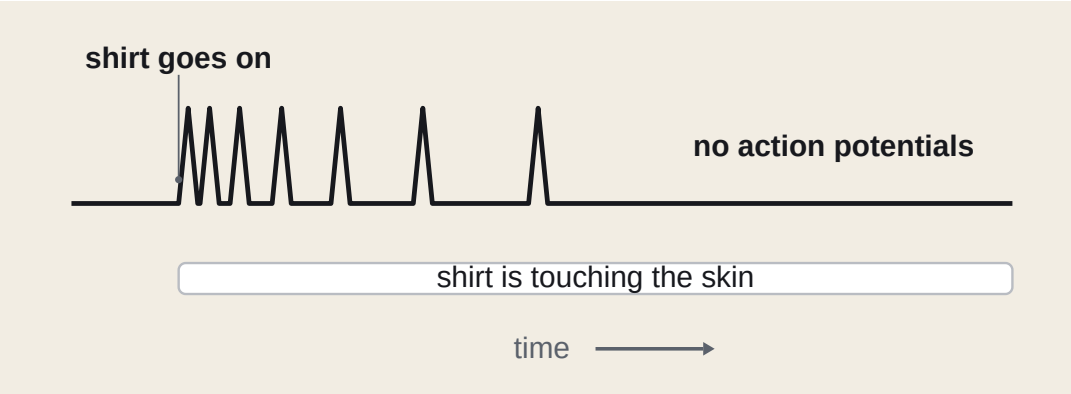
Try it

Name the kind of receptor that detects pressure on the skin.

1. Pressure is a mechanical stimulus.
2. A mechanoreceptor detects it.

Slide 3 of 5 · Sensory adaptation

On the last slide, receptors detected light, chemicals, movement and temperature. A receptor does not keep reporting a stimulus that stays the same.



Key ideas

A receptor becomes used to a stimulus that does not **change**.

The sensory neuron stops **firing**.

This is **sensory adaptation**.

Example

You stop noticing a smell after a few minutes in a room. Name the effect and explain it.

1. The smell is still there.
2. The receptors are used to it, and the sensory neurons stop firing.
3. This is sensory adaptation.

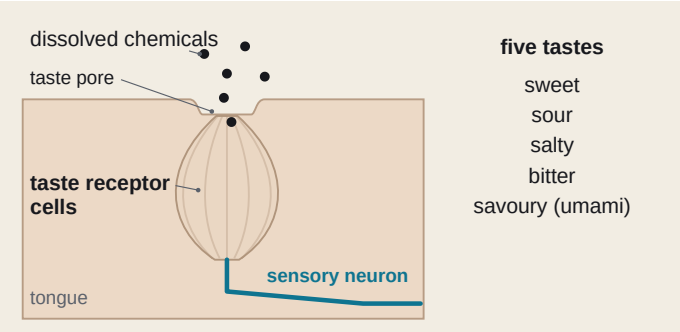
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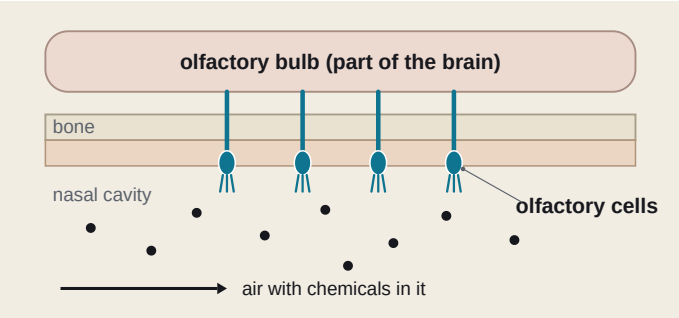
Explain why you stop feeling your shirt a minute after you put it on.

1. The shirt is still touching the skin.
2. The touch receptors are used to it.
3. This is sensory adaptation.

Slide 4 of 5 · Taste and smell

On the last slide, receptors adapted to a stimulus that stayed the same. Now you look at two senses that use chemoreceptors.





Key ideas

Taste receptors are grouped in **taste buds** on the tongue.

They detect chemicals **dissolved** in saliva.

Smell receptors are called **olfactory cells**.

They detect chemicals carried in the **air**.

Example

Compare what taste detects with what smell detects.

1. Taste detects chemicals dissolved in liquid.
2. Smell detects chemicals carried in the air.

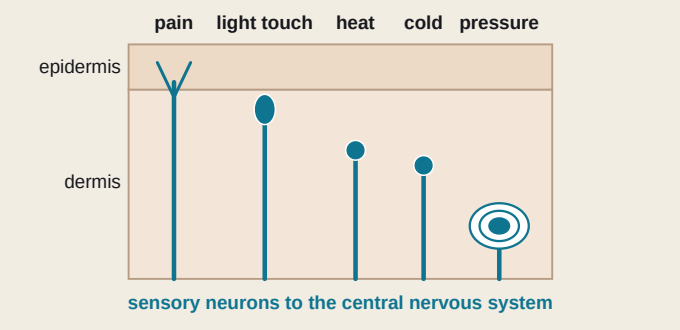
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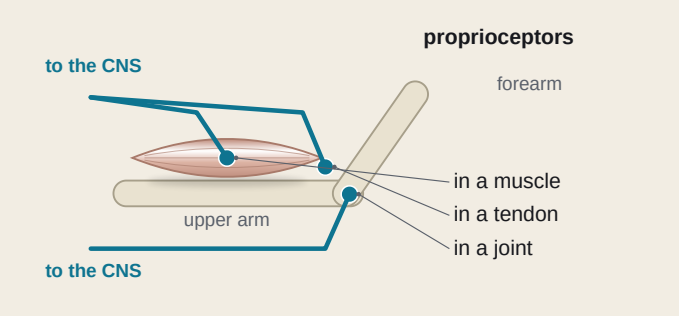
List the five main tastes.

1. Sweet, sour and salty.
2. Bitter and savoury.

Slide 5 of 5 · Skin receptors and body position

On the last slide, chemoreceptors gave you taste and smell. Your skin and your muscles hold other receptors.





Key ideas

The skin has receptors for light touch, pressure, heat, cold and **pain**.

Proprioceptors are in muscles, tendons and **joints**.

They tell the brain the **position** of each part of the body.

Example

State where proprioceptors are found.

1. In muscles and tendons.
2. In joints.

Try it

Explain why pain receptors are useful.

1. Pain makes you move away from what is harming you.
2. So it protects the body.