Thermoregulation

The body maintains a temperature of **37°C** because **enzymes** needed for chemical reactions in your body **work best** at this temperature. The control of body temperature is called **thermoregulation**.

The **hypothalamus**, a small part of the brain constantly monitors body temperature – it acts like a **thermostat**. It contains **receptors** that are sensitive to **blood temperature** in the brain. If the body temperature drops below 37°C then the hypothalamus causes muscles to **shiver**, to **release heat**.

The hypothalamus also receives information (impulses) from **receptors** in the deep layer of the skin called the **dermis**, about **skin temperature**.

When skin temperature changes are **detected** by the hypothalamus it causes a **response** in the **dermis of the skin**:

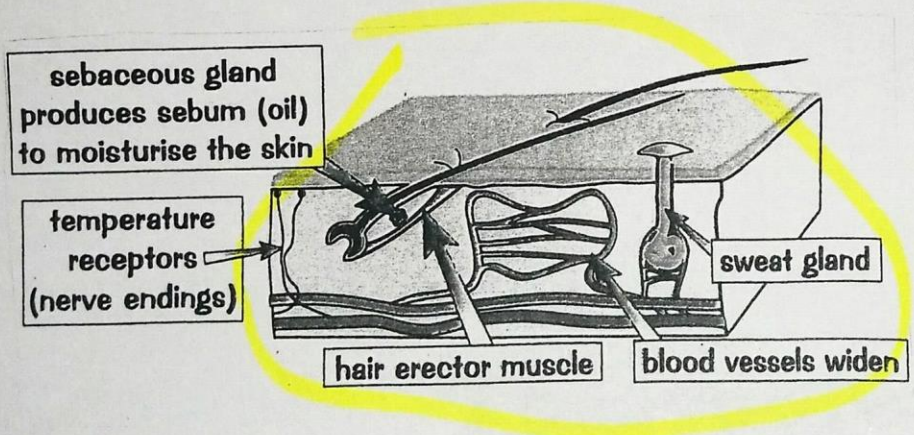
When your too hot

Erector muscles relax so **hairs** lie flat.

Lots of sweat, containing **water** and **salts** is produced. When the sweat **evaporates** it **transfers heat** from your skin to the air, cooling you down.

Blood vessels close to the skin surface **dilate** and widen. This is called **vasodilation** and it allows **more blood** to flow near the **surface** of the skin so it can **transfer more heat** into the surrounding air.

The sebaceous glands produce oil that helps the sweat spread out over the skin, causing the sweat to evaporate quicker



When your too cold

Erector muscles **contract**, so **hairs** stand on end. This traps an insulating layer of air next to your skin, which slows down the heat lost from the skin. This helps to keep you warm.

Very little sweat is produced so very little heat is transferred due to evaporation.

Blood vessels near the surface of the skin **constrict** and become narrower. This is called **vasoconstriction**. This means **less blood** flows near the surface of the skin, so **less heat** is transferred to the surrounding air.