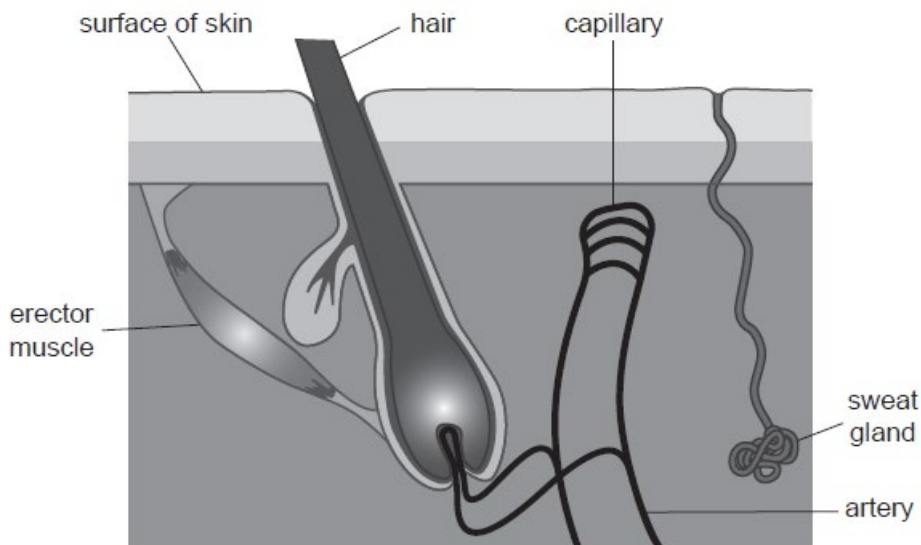


**GCSE Biology B (Twenty First Century Science)**  
**J257/02** Depth in Biology (Foundation)

**Question Set 6**

1 The skin helps the human body to control its temperature.

Look at the diagram of structures in the skin.



(a) Complete the table to describe how structures **in the skin** help to cool you down when you are too hot.

Structure	What the structure does	Appearance of skin
Sweat gland	releases water & dissolved ions to cool the skin down	Sweaty
erector muscle	Relaxes	Hairs lying flat
Capillary	Gets wider (vasodilates)	Flushed red

[4]

(b) (i) James is feeling cold.

The hairs on his skin are standing on end. the hairs trap a layer of air at the surface of the skin. Air is an insulator, so it traps warmth.

[2]

(ii) James starts to shiver.

Shivering happens because muscles are contracting rapidly.

Explain how this helps to warm him up.

[2]

**Total Marks for Question Set 6: 8**

in order for the muscles to contract. respiration must occur. So of the energy released in respiration, some is thermal energy, so the process of shivering is able to release heat. Contracting rapidly increases the rate of respiration thus increasing the amount of heat released.

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