

MINISTRY OF EDUCATION
SECONDARY ENGAGEMENT PROGRAMME
GRADE 8
INTEGRATED SCIENCE

Week 12

Lesson 2

Topic: Sense Organs

sub-topic: The Skin

Objectives: Given pictures of the skin and a handout , students will:

- discuss how the skin functions in temperature regulation correctly.
- List ways of how to care for our skin correctly.

Content

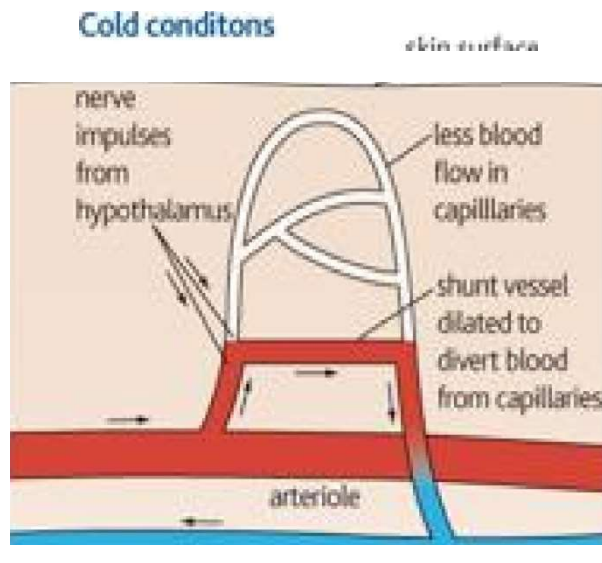
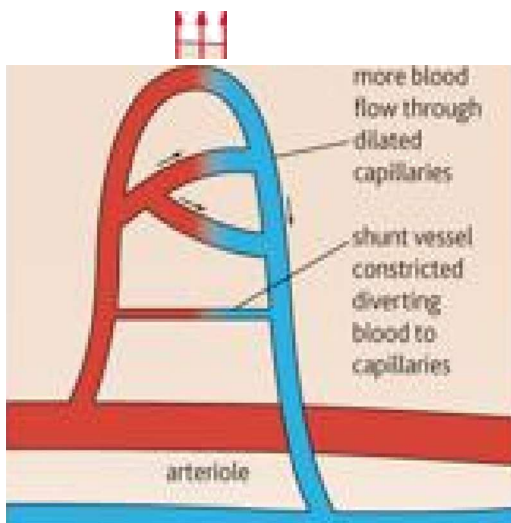
How the skin works in temperature Regulation- Hot weather vs Cold weather?

Skin Functions

- **Thermoregulation:** regulation of body temperature.
 - Most important function
 - Excess heat is carried to the skin by the blood vessels.
 - Skin absorbs heat and transfers it to the surrounding air.

Hot	Cold
<p>Vasodilation Arterioles dilate (enlarge) so more blood enters skin capillaries since heat is lost.</p> <p>Sweating Eccrine glands secrete sweat which removes heat when water changes state</p> <p> piloerection This means the hairs flatter</p> <p>Stretching Out By opening up, the body was a larger surface area.</p>	<p>Vasoconstriction Arterioles get smaller to reduce blood going to skin: keeping core warm.</p> <p>Hibernation Rapid contraction and relaxing of skeletal muscle. heat produced by respiration</p> <p>Piloerection Hairs on skin stand up.</p> <p>Curving Up Making yourself smaller ICF so smaller surface area.</p>

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How is heat loss and gain by the body accomplished?

The body must balance its heat budget

Heat is gained:

- ✗ by **conduction** from warm air surrounding the body
- ✗ by the body's **metabolic activity** which generates heat e.g. when muscle move

Heat is lost:

- ✗ by **conduction** and **radiation** to cold air (or water)
- ✗ by **evaporation** of sweat from the body surface (c.f. properties of water)
- ✗ Humans can also affect their body temperature by changing their behaviour e.g. wearing different clothes, seeking shade

Care of our skin

- Wash daily with soap and water.
- Use a wash-cloth to rub away dirt from exposed surfaces like the hands, arms, and face.
- Medicated soaps should be prescribed by a doctor.
- Skin preparations for cosmetic use should be used with caution.
- Wounds, bruises, and other damage to the skin should be treated by a doctor.
- The skin as the body's largest defense against disease and external injury to bodytissues is very important to us. We should take great care to keep it healthy.

Homework

1. Discuss the main reasons why we must care for our skin.
2. Describe how our skin responds when the weather is cold.
3. Identify the layers of the skin and describe anyone.

References

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