When Skin Changes

Trace how damage to skin changes what it can do.

HS-AP2-2 "Evaluate and explain the consequence of injury (e.g., Burns) and/or disease (e.g., skin cancer, vitiligo) to the functionality of the integumentary system."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline damaged skin parts, circle the functions they affect, and label one burn chain and one disease chain 1, 2, 3 to show damage, lost function, and a resulting risk.

More Than a Surface

1. During a busy lunch shift, a cook spills hot oil on her hand. Her skin normally keeps microbes out and helps prevent water from escaping the body. It also contains nerve endings that detect heat and pain, warning her to pull away. The oil damages the outer skin and leaves a blister. If the blister breaks, microbes have an easier path into the tissue, and fluid can escape more readily. A burn is not just a painful mark: its depth and size determine how much of the skin's protective work is lost.

2. A deeper burn can reach the dermis, where blood vessels and sweat glands help control body temperature. When a person gets hot, sweat evaporates from the skin and carries heat away. If a large area of sweat glands is destroyed, the person may have more trouble cooling down during exercise or in hot weather. A deep burn can also injure nerve endings, so the most damaged patch may feel less pain than nearby skin. That loss of sensation does not mean the injury is harmless. It means a warning system has been damaged along with the protective barrier.

3. Not every skin condition breaks the surface. In vitiligo, immune activity damages melanocytes, the cells that make the pigment melanin. A pale patch may still have an intact barrier, but with less melanin it has less natural protection from ultraviolet (UV) radiation. Sunburn can occur more easily in that patch. Skin cancer changes cells in another way: abnormal skin cells grow without normal control. Some cancers can form sores that do not heal, disrupting the barrier and raising the risk of infection. A changing spot needs medical evaluation, because appearance alone cannot show how far cancer has spread.

2 ANSWER WITH EVIDENCE

Use the passage

1. If the cook's blister breaks, how does the burn change the skin's protective function? Name two possible results.

2. Why could a deep burn make hot weather more dangerous even if the burned patch feels little pain?

3. A patch of skin affected by vitiligo has no open wound. Why might it still burn more easily in sunlight?

4. How can a sore caused by skin cancer affect a different skin function than a pale patch caused by vitiligo?

3 YOUR TURN

Your own words

A camp has a shaded rest area and cool drinking water. In 4 to 5 sentences, plan how a camper with vitiligo and a camper with a healed deep burn that damaged sweat glands could use these resources during an outdoor event, and explain the different skin functions behind your plan.

When Skin Changes

PART 1 · READ AND MARK

Underline damaged skin parts, circle the functions they affect, and label one burn chain and one disease chain 1, 2, 3 to show damage, lost function, and a resulting risk. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	If the cook's blister breaks, how does the burn change the skin's protective function? Name two possible results.	**The damaged barrier lets microbes enter tissue more easily and allows more fluid to escape.**
2	Why could a deep burn make hot weather more dangerous even if the burned patch feels little pain?	**Destroyed sweat glands make it harder to cool down. Injured nerve endings can reduce pain without reducing the danger.**
3	A patch of skin affected by vitiligo has no open wound. Why might it still burn more easily in sunlight?	**Damaged melanocytes make less melanin, so the patch has less natural protection from UV radiation.**
4	How can a sore caused by skin cancer affect a different skin function than a pale patch caused by vitiligo?	**The sore can disrupt the barrier and raise infection risk, while the pale patch has less UV protection but may have an intact barrier.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

The camper with vitiligo could spend more time in the shade because patches with less melanin have less protection from UV radiation. The camper with the healed burn could take frequent shade breaks because damaged sweat glands may make cooling down harder. Cool drinking water would help that camper stay hydrated, but it would not replace lost sweating. Both campers can use the shade, though their skin conditions create different risks.

Accept other sensible uses of the available resources when the explanation links vitiligo to reduced UV protection and sweat-gland damage to reduced cooling. Do not accept claims that vitiligo necessarily breaks the skin barrier or that drinking water restores sweating.