

Skin Lab: The Organ You Wear

mrsajdak.com/skin · Low-write

Name _____

Date _____

Period _____

The **integumentary system** is the skin plus the hair, nails, glands and sensory receptors that grow in it. Take it apart, test it, and match its five jobs to real life.

Part 1. Inside the skin (Tab 1)

SEP 2 Models · CCC Systems

Click every part of the slice. The box on the right says what it is and where it belongs.

1. Tick one box in each row.

Part	A layer of the skin	Beneath the skin	Accessory structure
Epidermis	☐	☐	☐
Dermis	☐	☐	☐
Subcutaneous layer	☐	☐	☐
Hair and follicle	☐	☐	☐
Sebaceous (oil) gland	☐	☐	☐
Sweat gland	☐	☐	☐
Sensory receptors	☐	☐	☐
Nail	☐	☐	☐

Example: 16% of 100 lb is $100 \times 0.16 = 16$ lb.

2. Set 150 lb and 5 ft 6 in. Skin weighs _____ lb. That is _____ times a 3 lb brain. The skin covers _____ ft².

3. Change the weight to 300 lb. Skin weight: _____ lb. Skin area: _____ ft².

Did the area double? ☐ yes ☐ no The area grew about ☐ 1.4 times ☐ 2 times ☐ 4 times

Part 2. Touch map (Tab 2)

SEP 3 Investigating · CCC Structure and Function

Keep **Show the receptor patches** OFF until question 6. Start with a wide gap and work down.

4. Set the person to **Just says "two"**. Touch with **one point**. They say: ☐ one ☐ two

Scientists mix in one-point touches to:

- ☐ catch a person who is guessing
- ☐ make the test go faster
- ☐ make the touches hurt less

5. Set **Answers honestly**. Find the smallest gap that still feels like two points.

Site	Fingertip	Lip	Palm	Forearm	Back	Calf
Smallest gap (mm)						

6. Forearm _____ ÷ fingertip _____ = _____ times wider.

Turn ON the patches. At 20 mm on the forearm, both points press on the _____ receptor patch. On the fingertip they press on _____ patches. **WORD BANK** the same · two different · no · a bigger

7. Braille dots are 2.5 mm apart. Which site could read Braille? ☐ fingertip ☐ lip ☐ palm ☐ forearm

Because its smallest gap, _____ mm, is less than 2.5 mm.

Part 3. Sweat test (Tab 3)

SEP 4 Analyzing Data · CCC Stability and Change

Set each row, then press **Skip to the end**. Your runs keeps the numbers. The air is 27 °C (81 °F) every time.

8. Write the numbers. “Off” means sweat that dripped or was wiped away.

Settings	Core °C at 30 min	Sweat made (mL)	Evaporated (mL)	Off (mL)
Dry · still air				
Humid · still air				
Humid · a breeze				
Dry · still · sweat glands OFF				
Dry · still · towel ON				

9. In humid air, the sweat that evaporated was ☐ more ☐ less than in dry air.

Sweat only cools you when it _____. **WORD BANK** evaporates · drips · is cold · is salty

10. Run dry air with **Run 30 minutes**. Sweat rate at minute 0: _____ mL per minute. At minute 30: _____ mL per minute.

The glands turned up because the core temperature went _____. The sweat pushes the temperature back toward 37 °C. This is _____ feedback. **WORD BANK** up · down · negative · positive

11. A friend says, “Sweat cools you because it is cold.” Tick the **two** facts that prove them wrong.

- ☐ Sweat comes out at 34 °C. That is warmer than the 27 °C air.
- ☐ Wiping the sweat off made the runner hotter.
- ☐ Sweat is ice cold when it comes out.
- ☐ Humid air made the runner cooler.

Part 4. Five jobs (Tab 4)

SEP 6 · CCC Structure and Function

12. Write the part. Tick the job.

WORD BANK epidermis · sweat gland · sensory receptor · hair · sebaceous gland · subcutaneous layer · nail

Moment	Part	Protect	Temp.	Sense	Vit. D	Excrete
1. Paper cut, no blood		☐	☐	☐	☐	☐
2. Feel a mosquito land		☐	☐	☐	☐	☐
3. Forehead sweat dries in gym		☐	☐	☐	☐	☐
4. Salty lip after a run		☐	☐	☐	☐	☐
5. Swim an hour, no water soaks in		☐	☐	☐	☐	☐
6. July sun, calcium for bones		☐	☐	☐	☐	☐
7. Goosebumps on a cold morning		☐	☐	☐	☐	☐
8. Hair and skin stay soft		☐	☐	☐	☐	☐
9. Body heat kept in on a cold day		☐	☐	☐	☐	☐

13. The paper cut did not bleed because:

- ☐ the epidermis has no blood vessels
- ☐ the epidermis is very thick
- ☐ the cut hit fat

Wrap it up

SEP 7 Argument from Evidence · CCC Structure and Function

14. **Claim:** The skin is built for its jobs.

Evidence 1: The fingertip felt two points only _____ mm apart, because its receptors are packed _____.

Evidence 2: Sweat glands put water on the skin. When it _____, it carries heat away.

Reasoning: The way each part is _____ lets it do its job.

WORD BANK built · colored · evaporates · tightly · loosely