

Skin Lab: The Organ You Wear

mrsajdak.com/skin

Name _____

Date _____

Period _____

The **integumentary system** is the skin plus the hair, nails, glands and sensory receptors that grow in it. In this lab you will take a slice of skin apart, test how it feels touch, find out how sweat really cools you, and match the skin's five jobs to real life.

Part 1. Inside the skin (Tab 1)

SEP 2, 5 · CCC Systems and System Models

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	☐	☐	☐

2. Use **Weigh it, spread it out**. Set 150 lb and 5 ft 6 in. Skin and the fat layer under it weigh _____. lb. That is _____ times the weight of a 3 lb brain. The skin covers _____ ft².

3. Keep the height. Change the weight to 300 lb. Skin weight: _____ lb. Skin area: _____ ft². The weight doubled. Did the area double too? What does that tell you?

Part 2. Touch map (Tab 2)

SEP 3, 4 · 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**. What do they say? _____. Why do scientists mix in one-point touches?

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

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

6. Forearm gap _____ ÷ fingertip gap _____ = _____ times wider. Now turn ON the receptor patches. Why does a 20 mm gap feel like one point on the forearm but two on the fingertip? Use the word **receptor**.

7. The dots in Braille are about 2.5 mm apart. Which of your sites could read Braille? How do you know?

Part 3. Sweat test (Tab 3)

SEP 3, 4 · 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. Fill in the table. “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 runner made **more** sweat than in dry air, but got **hotter**. Explain. Use the evaporated numbers.

10. Run dry air with **Run 30 minutes** and watch the sweat rate. Minute 0: _____ mL per minute. Minute 30: _____ mL per minute. What made the sweat glands turn up? How does that keep the body steady?

11. A friend says, “Sweat cools you because it is cold.” Use **two** facts from this tab to show them they are wrong.

Part 4. Five jobs (Tab 4)

SEP 6 · CCC Structure and Function

12. For each moment, write the part that does it. Tick the job.

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. Moment 1: why did the paper cut not bleed? What does that tell you about how the epidermis is built?

Wrap it up

SEP 6, 7 · CCC Structure and Function

14. **Claim:** The skin is built for its jobs. Give **evidence** from two different tabs. Then give your **reasoning** : how does the way each part is built let it do its job?