

The Integumentary System Laboratory Activity – Student Edition

Sensory Lab

Background Information:

The fact that you can feel an ant crawling on your skin, allowing you to flick it off before it bites, is because the skin, and especially the hairs projecting from hair follicles in the skin, can sense changes in the environment.

The skin is the largest organ of the human body. The skin acts as a sense organ because the epidermis, dermis, and the hypodermis contain specialized sensory nerve structures that detect touch, surface temperature, and pain.



In this laboratory activity, you will test your skin sensitivity to find out which part of the body is the most sensitive!

Learning Objectives:

At the end of this laboratory activity, students are expected to:

- create a caliper that can be used to test skin sensitivity.
- determine the most sensitive part of the body through a sensitivity test.
- explain why the sensitivity of skin in different parts of the body varies.

Pre-lab Questions:

Answer the following questions.

1. Enumerate and describe each layer of the skin.

2. Why is skin the major organ of the integumentary system?

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Laboratory Proper:

Materials:

For each pair of students:

- two index cards
- 8 toothpicks
- colored markers (at least three different colors)
- adhesive tape
- ruler

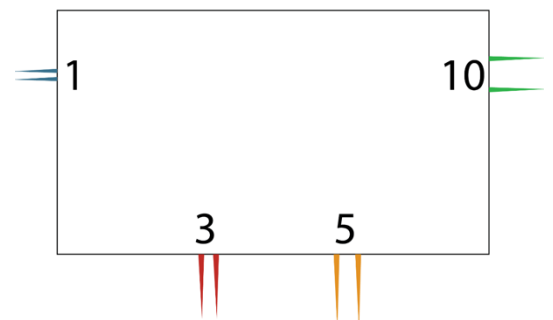
Safety Alert!

Though toothpicks are small, they are pointy and can hurt others when poked. Do not play with it and try to poke others even as a joke.

Procedure:

1. Make the sensitivity caliper.

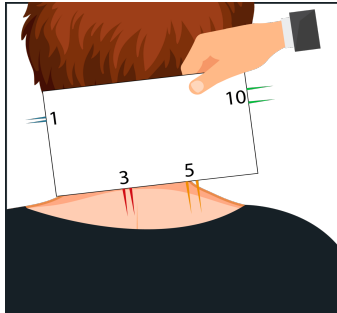
- Color a pair of toothpicks using a colored marker. Color the next two pair with different colors. Leave one pair uncolored.
- Put the first pair of toothpicks on one edge of the index card with a distance of 1 mm between each toothpick. Secure it with an adhesive tape.
- Put the second pair of toothpicks on the next edge of the index card with a distance of 3 mm between each toothpick.
- Put the third and fourth pairs of toothpicks on the next two edges of the index card with a distance of 5mm and 10 mm respectively. Refer to the diagram on the right for the actual look of the sensitivity caliper
- Glue another index card down over the top of the index card with toothpicks and label the distances on the caliper on both sides. Now you are ready to conduct the sensitivity test!



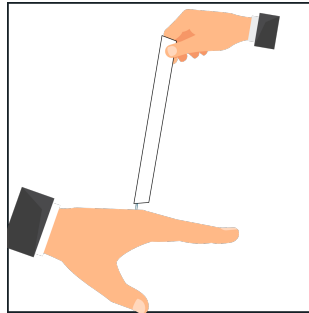
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2. Sensitivity Test

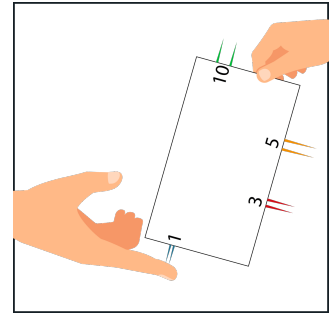
- a. Together with your partner, predict which of the following parts of the body do you think is the most sensitive – back of the neck, back of the hand, or fingertip.
- b. Choose who’s going to be the poker and the “pin cushion” in your pair. The poker will **lightly poke** the caliper on the body part of the “pin cushion”. The “pin cushion” must close their eyes and be honest in telling how they feel. Use each side of the caliper to test your partner’s sensitivity. Take note that the sensitivity testing is limited to the back of the neck, back of the hand, and fingertip only.



Back of the neck



Back of the hand



Fingertip

- c. Once done with the three body parts, switch role and do the sensitivity testing again!

Post-lab Questions:

1. Describe how each body part is sensitive to the caliper (toothpick ends).

- a. Back of the neck

- b. Back of the hand

- c. Fingertip

Name: _____ Period: _____ Date: _____

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2. Which among the three body parts is the most sensitive? Why do you think so?

3. How does the distance between the toothpicks affect the sensation it brings to the skin?

4. How does understanding the skin's sensitivity to various things be beneficial?
