Name: _____ Group: _____ Date: _____

LAB 66 EXPERIMENT

SENSORY RECEPTORS OF THE SKIN

STUDENT BOOK | Chapter 7, page 217

Goal

Determine if different areas of the skin have the same sensitivity.

1. What is the independent variable in this lab?

_____

_____

2. What is the dependent variable in this lab?

_____

_____

Hypothesis

I think that _____

because _____.

Materials

- 200 mL of water
- 2 250-mL beakers
- hot plate
- thermometer
- ring stand
- thermometer clamp *or* universal clamp and perforated cork stopper
- 2 copper wires (20 cm in length and bent in half) *or* 4-in nails
- ice cubes
- bandana
- cotton thread (6 cm in length)
- fine-point pen
- paper towel *or* cloth

Procedure

1. Pour 100 mL of water into each beaker.

2. Heat the water of one beaker to 70°C. Drop one copper wire into the water.

3. Chill the water of the second beaker to 10°C. Drop the second copper wire into the water.

4. Assign a task to each team member.

– Test subject: person who feels sensations.

– Experimenter: person who produces sensations.

5. Blindfold the test subject. Ask him/her to extend an arm forward palm-down.

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6. Lightly touch five different places of the hand with the end of the cotton thread. Each time the thread is felt, the test subject should say so. Record the results for the sensation of touch.

7. Repeat step 6 with the fine-point pen. Record the results for the sensation of pressure.

8. Remove each copper wire from its beaker and dry it.

9. Repeat step 6 using alternately the cold wire and the hot wire. The test subject should indicate when a sensation is felt and if it is hot or cold. Record the results for the sensation of heat and cold.

10. Repeat steps 6 to 9 touching the underside of the test subject's wrist in five different places.

11. Clean up and put away materials.

Results

Record your results in the table below. Give the table a title.

Title:

Sensation	Back of hand	Underside of wrist
Touch		
Pressure		
Heat		
Cold		
Total		

Analysis of the results

1. Which area of the skin is more sensitive to touch?

_____

_____

2. Which area of the skin is more sensitive to pressure?

_____

_____

3. Which area of the skin is more sensitive to heat and cold?

_____

_____

4. Based on your results, which area of the skin probably contains more sensory receptors?

_____

_____

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5. What are the possible sources of error in this lab?

_____

_____

6. How could you improve the protocol for this lab?

_____

_____

Conclusion

1. Complete the following sentence:

The area of the skin located _____ is more sensitive to sensations of touch because _____.

2. Was your hypothesis confirmed or not? Explain your answer.

_____

_____

Application

Why do different areas of the skin have different degrees of sensitivity?

_____

_____

_____