

Sec.: _____ Name: _____

Experiment: Tissues & Homeostasis Of The Body
(B. Science 10-35-1b)

Purpose: To observe samples of the four types of tissues in the body, and to see how water, evaporation helps the body in maintaining homeostasis of body temperature.

Materials: **Part A:** microscopes
microscope slides of muscle, epithelial,
connective, nervous tissue

Part B: fan two thermometers paper towel

Methods:

Part A: Four Tissues Of The Body

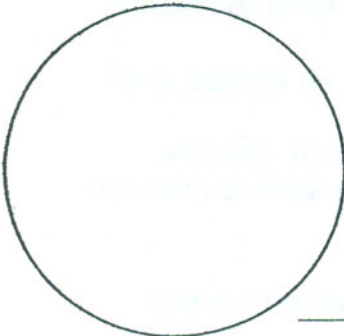
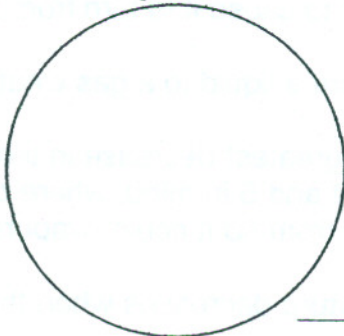
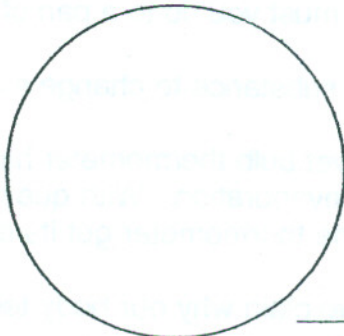
1. Place the microscope slide of one of the tissues listed in materials part A under the microscope. Focus the image and draw a sketch of the tissue in the proper circle found in results part A. Record magnification.
2. Repeat this procedure for all four tissues.
3. For each tissue drawn describe the appearance and function of it.

Part B: The Role of Water Evaporation in Temperature Homeostasis

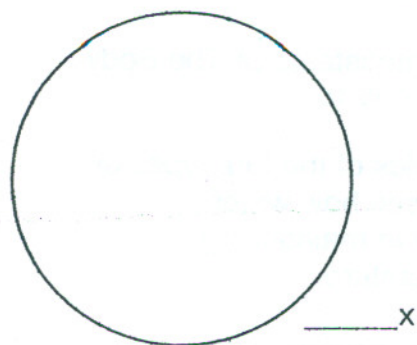
1. We will use thermometers to determine the effect of water and wind on cooling body temperature. This is how the body can cool itself during temperature homeostasis. Put a piece of paper towel over the bulb end of two thermometers. Add water to one of the thermometers. Record beginning temperature of each thermometer.
2. Fan BOTH thermometers for two minutes, then record the temperature of each thermometer.

Results:

Part A: Four Tissues Of The Body

			
	_____x	_____x	_____x
	muscle	epithelial	connective
appearance	_____	_____	_____
function	_____	_____	_____
	_____	_____	_____

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nervous tissue
appearance _____

function _____

Part B: The Role of Water Evaporation in Temperature Homeostasis

	temperature of the	
	wet thermometer	dry thermometer
beginning	_____	_____
ending	_____	_____

Conclusions: (On the lines provided, complete the following sentences).

1. _____ are the basic units of structure and function in living things.
2. _____ consist of groups of similar cells that perform a single function.
3. _____ consists of groups of tissues that work together to perform a single function.
4. _____ consists of groups of organs that perform closely related functions.
5. The four types of tissues found in humans and animals are:
a. _____ b. _____ c. _____ d. _____

Discussion:

1. Would the fan, causing air flow, cause the rate of evaporation to increase or decrease?
2. Of the two thermometers being tested in part B of the lab, which one had the greatest decrease in temperature when evaporation was allowed to occur?
3. What must you do to a pan of water to cause it to turn from liquid water to steam?
4. For a substance to change state from a liquid to a gas what must be applied to it?
5. The wet bulb thermometer had the greatest decrease in temperature, thus the greatest evaporation. With questions 4 and 5 in mind, where did the water on the wet bulb of the thermometer get its energy from so it could evaporate?
6. Now explain why our body temperature decreases when the sweat on the skin evaporates.
 - 6a. Read Luke 22:39 - 46. What was unusual of the sweat in this passage?
 - 6b. Why was the sweat this way?
 - 6c. When we feel stressed & in anguish we can think of this text & realize that Jesus had even greater stress and anguish, so He can sympathize with our situation. What was sent to comfort Jesus (vs. 43) & we could reason to us, when we are in anguish?