Name _____

Date _____

Section _____

The A corresponds to the indicated Learning Outcome(s) found at the beginning of the laboratory exercise.

Laboratory Report 5

# Cell Structure and Function

## Part A Assessments

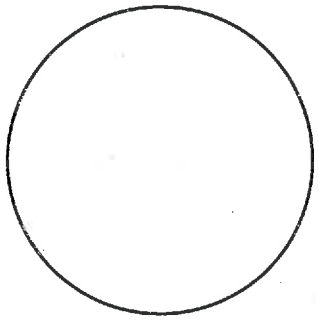
Match the cellular components in column A with the descriptions in column B. Place the letter of your choice in the space provided. A2

| Column A | Column B |
|---|---|
| a. Chromatin | _____ 1. Loosely coiled fibers containing protein and DNA within nucleus |
| b. Cytoplasm | _____ 2. Location of ATP production from digested food molecules |
| c. Endoplasmic reticulum | _____ 3. Small RNA-containing particles for the synthesis of proteins |
| d. Golgi apparatus | _____ 4. Membranous sac formed by the pinching off of pieces of cell membrane |
| e. Lysosome | _____ 5. Dense body of RNA within the nucleus |
| f. Microtubule | _____ 6. Slender tubes that provide movement in cilia and flagella |
| g. Mitochondrion | _____ 7. Organelles composed of membrane-bound sacs, canals, and vesicles for tubular transport |
| h. Nuclear envelope | _____ 8. Occupies space between cell membrane and nucleus |
| i. Nucleolus | _____ 9. Flattened membranous sacs that package a secretion |
| j. Nucleus | _____ 10. Membranous sac that contains digestive enzymes |
| k. Ribosome | _____ 11. Separates nuclear contents from cytoplasm |
| l. Vesicle (vacuole) | _____ 12. Spherical organelle that contains chromatin and nucleolus |

## Part B Assessments

Complete the following:

1. Sketch a single cheek cell that has been stained. Label the cellular components you recognize. (The circle represents the field of view through the microscope.) A3



Magnification _____ ×

2. After comparing the wet mount and the stained cheek cells, describe the advantage gained by staining cells.

_____

_____

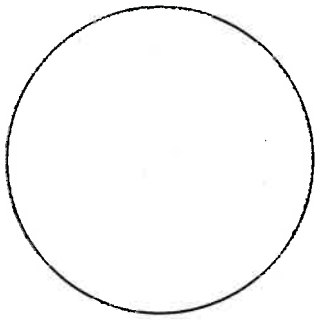
3. Are the stained cheek cells nearly the same size and shape? _____ Propose an explanation for your answer. _____

_____

## Part C Assessments

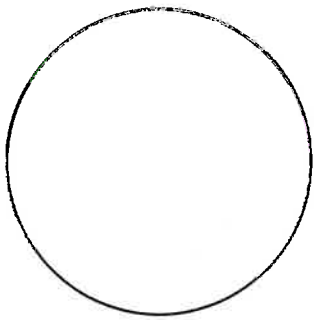
Complete the following:

1. Sketch a single cell of each type you observed in the prepared slides of human tissues. Name the tissue, indicate the magnification used, and label the cellular components you recognize. A



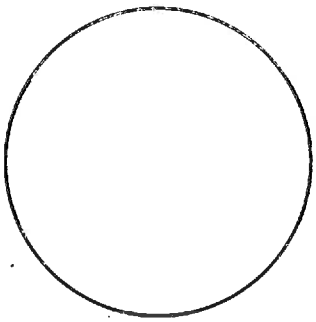
_____ ×

Tissue _____



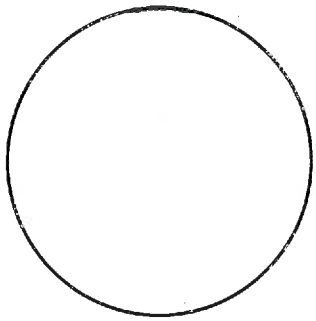
_____ ×

Tissue _____



_____ ×

Tissue _____



_____ ×

Tissue _____

2. What do the various types of cells in these tissues have in common? _____

_____

3. What are the main differences you observed among these cells? _____

_____

## Part D Assessments

Electron micrographs represent extremely thin slices of cells. Each micrograph in figure 5.4 contains a section of a nucleus and some cytoplasm. Compare the organelles shown in these micrographs with organelles of the animal cell model and figure 5.1.

Identify the structures indicated by the arrows in figure 5.4. A

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

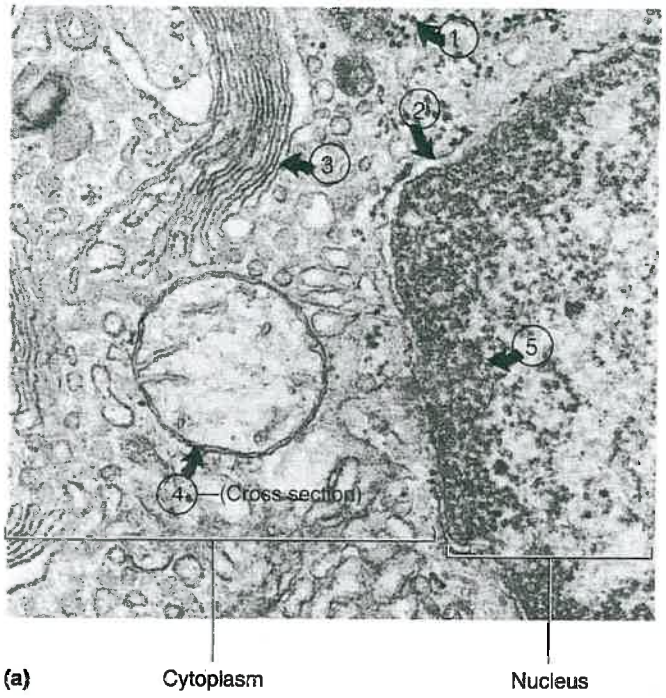
Answer the following questions after observing the transmission electron micrographs in figure 5.4.

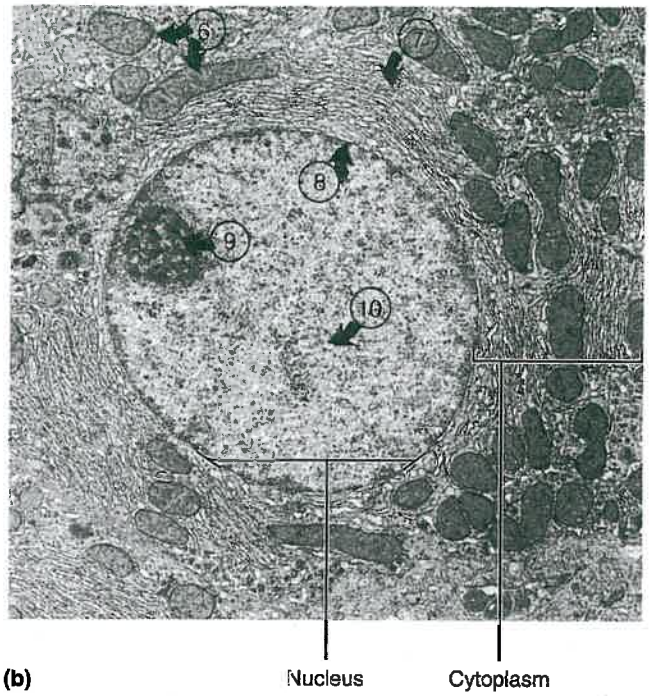
11. What cellular structures were visible in the transmission electron micrographs that were not apparent in the cells you observed using the microscope? _____

_____

12. Before they can be observed by using a transmission electron microscope, cells are sliced into very thin sections. What disadvantage does this procedure present in the study of cellular parts? _____

_____




**Terms:**
Chromatin (use 2 times)
Endoplasmic reticulum
Golgi apparatus
Mitochondria
Mitochondrian (cross section)
Nuclear envelope (use 2 times)
Nucleolus
Ribosomes

**Figure 5.4** Transmission electron micrographs of cellular components. The views are only portions of a cell. Magnifications: (*a*) 26,000×; (*b*)10,000×. Identify the numbered cellular structures, using the terms provided. A

# Notes

Figure 5.1 Structures

1 6
2 7
3 8
4 9
5 10

Critical thinking application

Learning extension