



MODULE 2

Histology: The Study of Tissues

ON YOUR OWN QUESTIONS

- 2.1** A simple epithelial tissue sample has cells that produce mucus. Which type of simple epithelial tissue is it?
- 2.2** Order the three simple epithelial tissue types in terms of increasing distance between the free surface and the basal surface.
- 2.3** If the surface cells of stratified squamous epithelial tissue are alive, is the tissue moist (nonkeratinized) or keratinized?
- 2.4** If the number of cells between the basal and free surfaces in stratified epithelial tissue changes, which kind of epithelial tissue is it?

2.5 The secretions of an exocrine gland are examined, and it is determined that there is cytoplasm in the secretions. This narrows the type down to two. Which two types could it be?

2.6 What analysis could be done to determine which of the two types of exocrine gland is most likely being studied in the question above?

2.7 Name the connective tissue proper which has a function similar to these household items below.

a. Duct tape

b. Masking tape

c. A thick, warm blanket

d. The string on a kite

2.8 If you are looking under the microscope and are having a hard time distinguishing between cartilage and connective tissue proper, what one thing could you find to positively identify tissue as cartilage?

2.9

Indicate what kind of membrane you would find lining the surface of each of the following structures.

a. The heart

b. The elbow joint

c. The colon, which leads to the anus

2.10

Suppose a structure in the body is injured, but, after a fairly long time, it heals so that it is 100 percent functional again. Are its parenchymal cells most likely labile, stable, or permanent?

STUDY GUIDE QUESTIONS

1

Define the following terms:

| TERM | DEFINITION |
|-------------------------|------------|
| Exocrine glands | |
| Endocrine glands | |
| Merocrine glands | |

| TERM | DEFINITION |
|----------------------|------------|
| Apocrine glands | |
| Holocrine glands | |
| Extracellular matrix | |
| Fibroblasts | |
| Chondrocytes | |
| Stromal cells | |
| Parenchymal cells | |
| Labile cells | |
| Stable cells | |
| Permanent cells | |

2

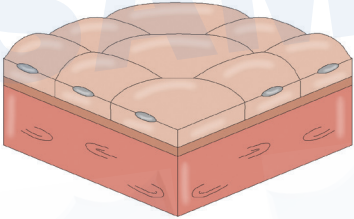
What are the four basic types of tissue?

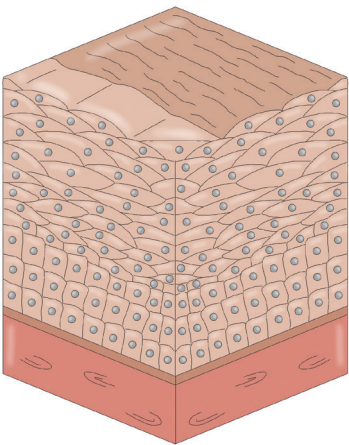
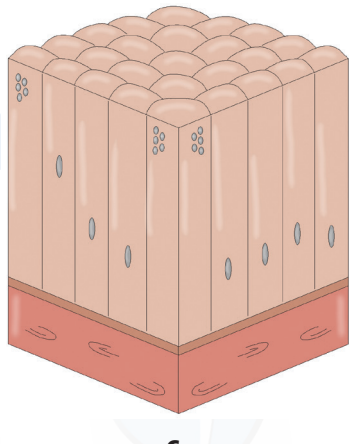
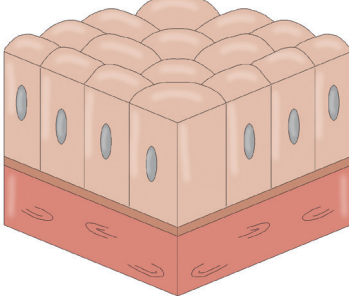
3 What two factors determine the distance from the free surface to the basal surface in epithelial tissue?

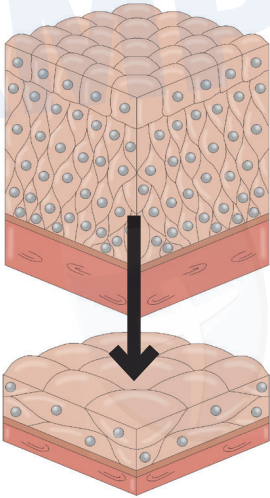
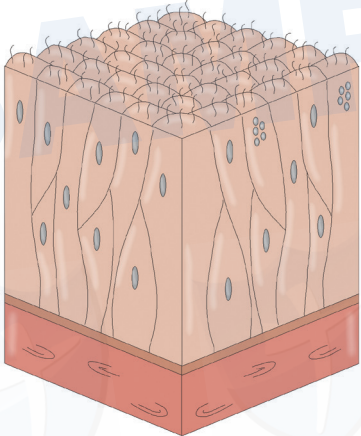
4 What is the basement membrane?

5 Is the basement membrane vascular or avascular? How do the epithelial cells get oxygen and nutrients?

6 Identify each epithelial tissue drawing below. Give the tissue's main function and at least one place it can be found in the body.

| TISSUE DRAWING | EPITHELIAL TISSUE | MAIN FUNCTION | ONE PLACE IT CAN BE FOUND IN THE BODY |
|--|----------------------|---------------|---|
|  <p>a.</p> | | | |

| TISSUE DRAWING | EPITHELIAL TISSUE | MAIN FUNCTION | ONE PLACE IT CAN BE FOUND IN THE BODY |
|---|-------------------|---------------|---------------------------------------|
|  <p>A 3D diagram of stratified squamous epithelium. It shows multiple layers of cells. The top layer consists of flattened, squamous cells. The underlying layers are composed of more rounded, polygonal cells. The entire tissue sits on a red basement membrane.</p> <p>b.</p> | | | |
|  <p>A 3D diagram of simple cuboidal epithelium. It shows a single layer of cells that are roughly cube-shaped. Each cell has a central, dark nucleus. The cells are arranged in a neat, grid-like pattern. The tissue is anchored to a red basement membrane.</p> <p>c.</p> | | | |
|  <p>A 3D diagram of simple cuboidal epithelium, similar to diagram c. It shows a single layer of cube-shaped cells with central nuclei, resting on a red basement membrane.</p> <p>d.</p> | | | |

| TISSUE DRAWING | EPITHELIAL TISSUE | MAIN FUNCTION | ONE PLACE IT CAN BE FOUND IN THE BODY |
|--|-------------------|---------------|---------------------------------------|
|  <p>e.</p> | | | |
|  <p>f.</p> | | | |

7

Which kind of exocrine gland has no cytoplasm in its secretion?

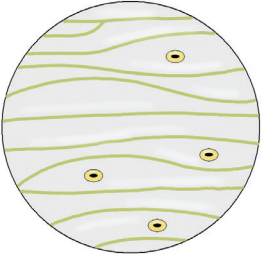
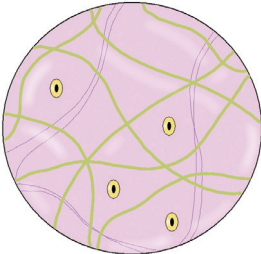
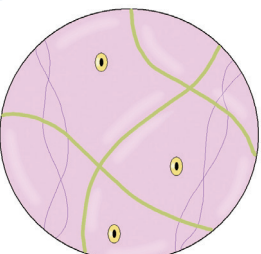
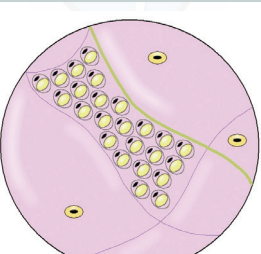
8

What are the four types of connective tissue?

9

What protein is found in all connective tissue proper?

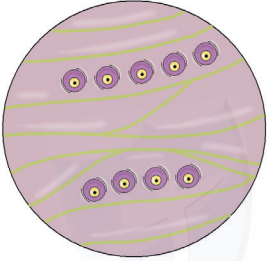
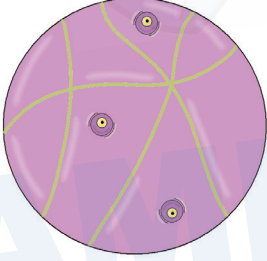
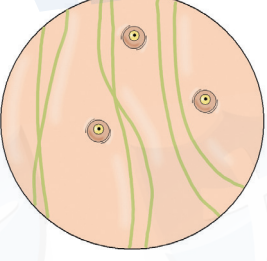
- 10** Identify the connective tissue proper by the sketch of its microscopic structure. Give its function and one place in the body where it is found.

| TISSUE DRAWING | CONNECTIVE TISSUE PROPER | MAIN FUNCTION | ONE PLACE IT CAN BE FOUND IN THE BODY |
|---|--------------------------|---------------|---------------------------------------|
| <p>a.</p>  | | | |
| <p>b.</p>  | | | |
| <p>c.</p>  | | | |
| <p>d.</p>  | | | |

- 11** Why do chondrocytes need a lacuna?

12

Identify the cartilage by the sketch of its microscopic structure. Give its function and one place in the body where it is found.

| TISSUE DRAWING | CARTILAGE | MAIN FUNCTION | ONE PLACE IT CAN BE FOUND IN THE BODY |
|--|-----------|---------------|---------------------------------------|
| a.  | | | |
| b.  | | | |
| c.  | | | |

13

Where, in general, will you find serous membranes? What about mucous membranes? What about synovial membranes? What does each type of membrane accomplish?

14

An organ's parenchymal cells are labile. If the organ is damaged, will it be as good as new once it heals?

15

In general, are connective tissue cells parenchymal or stromal?