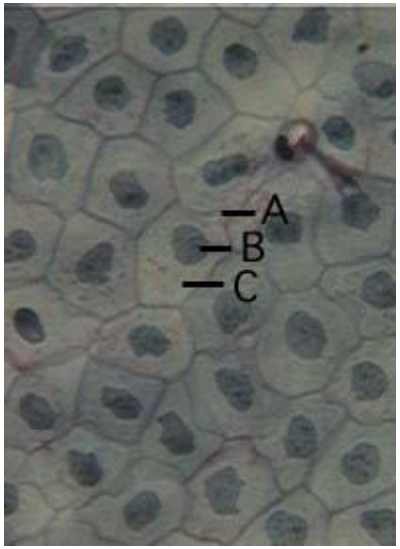
Tissues

The Fabric of the Body

What is a Tissue?

- A tissue is a group of similar cells that work together to carry out a specific function.
- The study of tissues is called *Histology*.



4 Types of Tissues

1. Epithelial Tissue (the epis): They protect the body covering all surfaces and lining all cavities. Some epi tissue forms glands.

- It's been said, "nothing enters or leaves the body w/out touching or passing an epi cell."

4 Types of Tissues

2. Connective Tissue (cts): supports and protects the organs of the body. They also connect and hold parts of the body together.
3. Muscle Tissue: designed for moving the body.
4. Nervous Tissue: transmits & receives impulses throughout the body.

Epithelial Tissue or Epithelium

- Functions of epithelium:

1. *Protection:* The main job. Skin is all epi tissue.
2. *Absorption:* Epi lining the inside of the intestine takes in molecules of digested food.

Functions of Epithelium

3. *Secretion:* many epi cells produce enzymes, mucus, and sweat. They leak them to the outside.
4. *Excretion:* epi cells in the kidney can pull out metabolic waste and pass it to the urine.

Functions of Epithelium

5. *Transport*: some epi cells have structures, like cilia, that can move objects. Ex., cilia in throat can move dirt from the lungs & cilia in the reproductive system can move sex cells.
6. *Sensory Functions:*epi cells form taste buds and smelling structures in the nose.

Epithelial Cell Shapes

- 3 Main Shapes:

1. Squamous: thin & flat cells (usually 6-sided)
2. Cuboidal: appear cubed shape
3. Columnar: look like small columns when viewed from the side. The nucleus is usually at the bottom of the column.

Epithelial Cell Layers

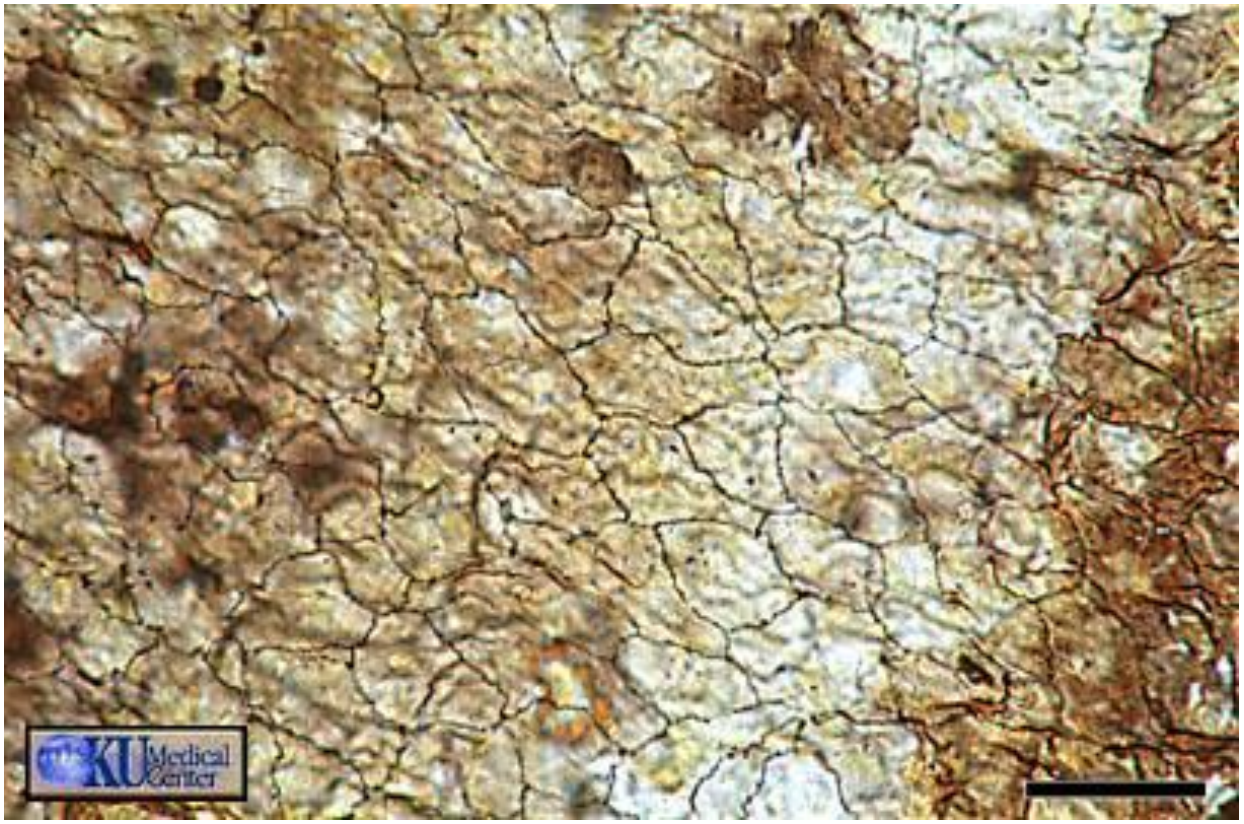
- 3 Kinds of Layers

1. Simple: composed of only 1 layer of cells
2. Stratified: more than 1 layer of cells
3. Pseudostratified: looks like more than 1 layer but only has 1.

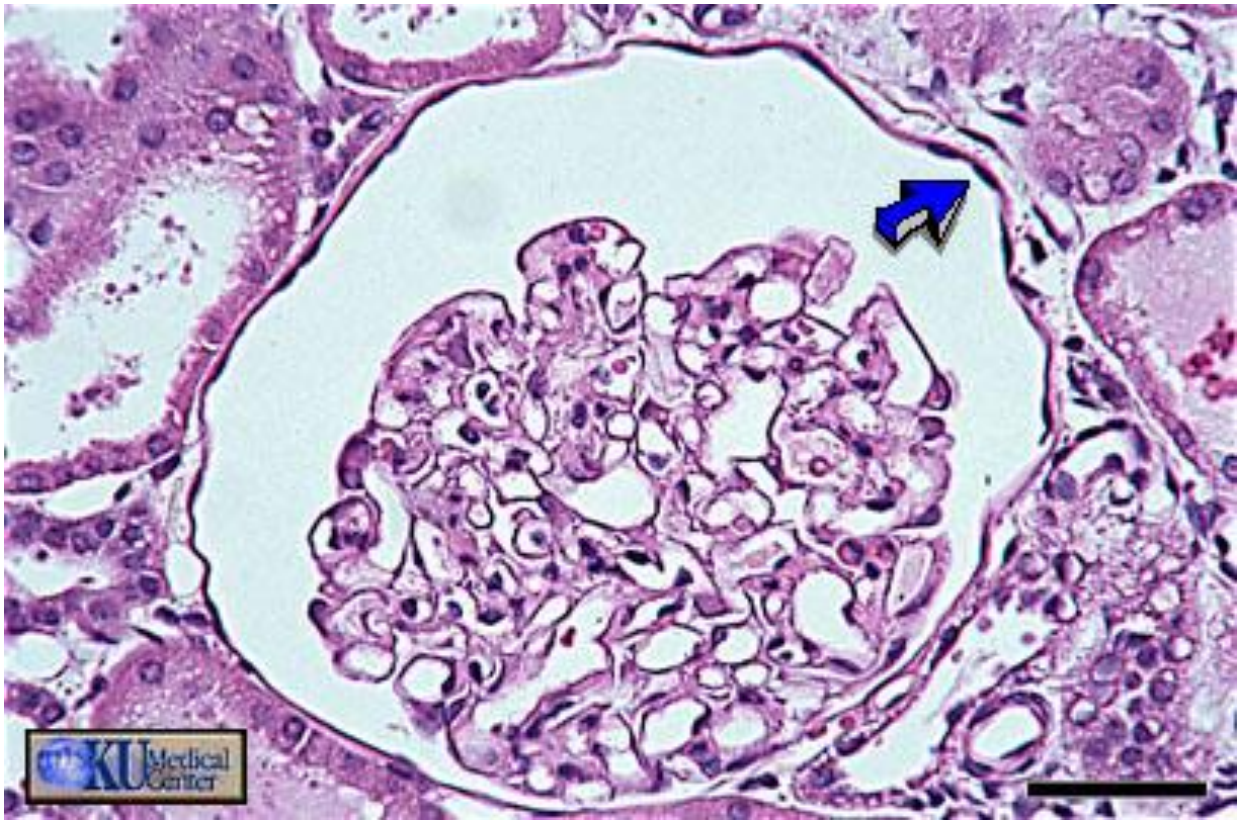
Epi Cells You Need to Know

1. Simple Squamous
2. Simple Columnar
3. Simple Cuboidal
4. Pseudostratified ciliated columnar epi
5. Stratified squamous
6. Ciliated Columnar
7. Transitional

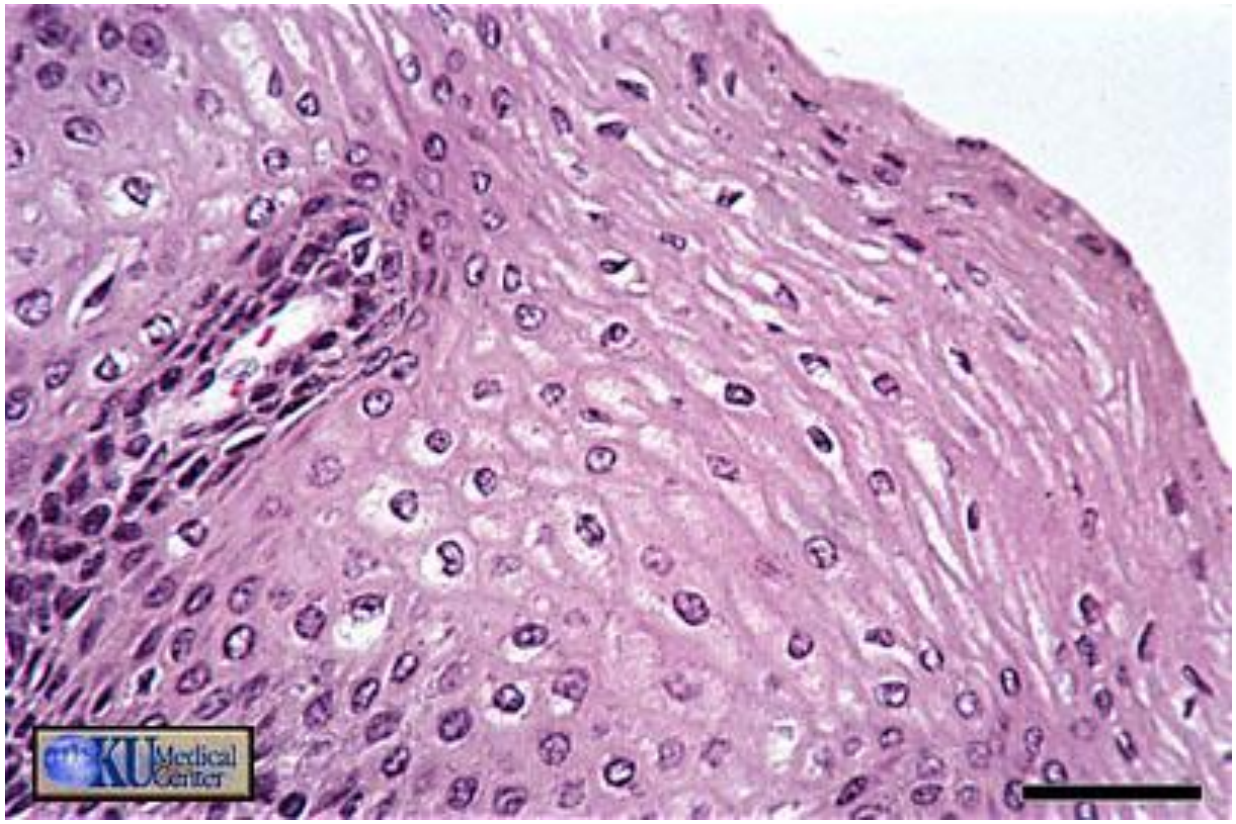
Simple Squamous Epithelium



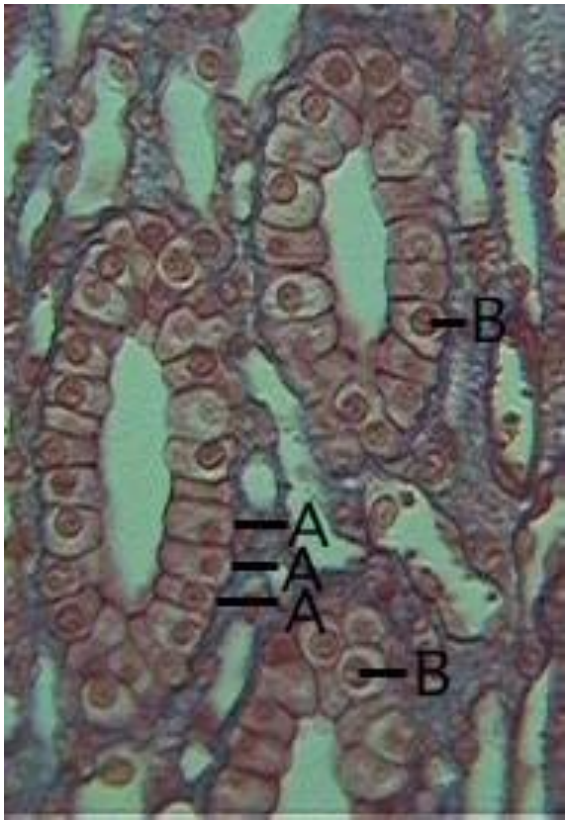
Side View of Simple Squamous



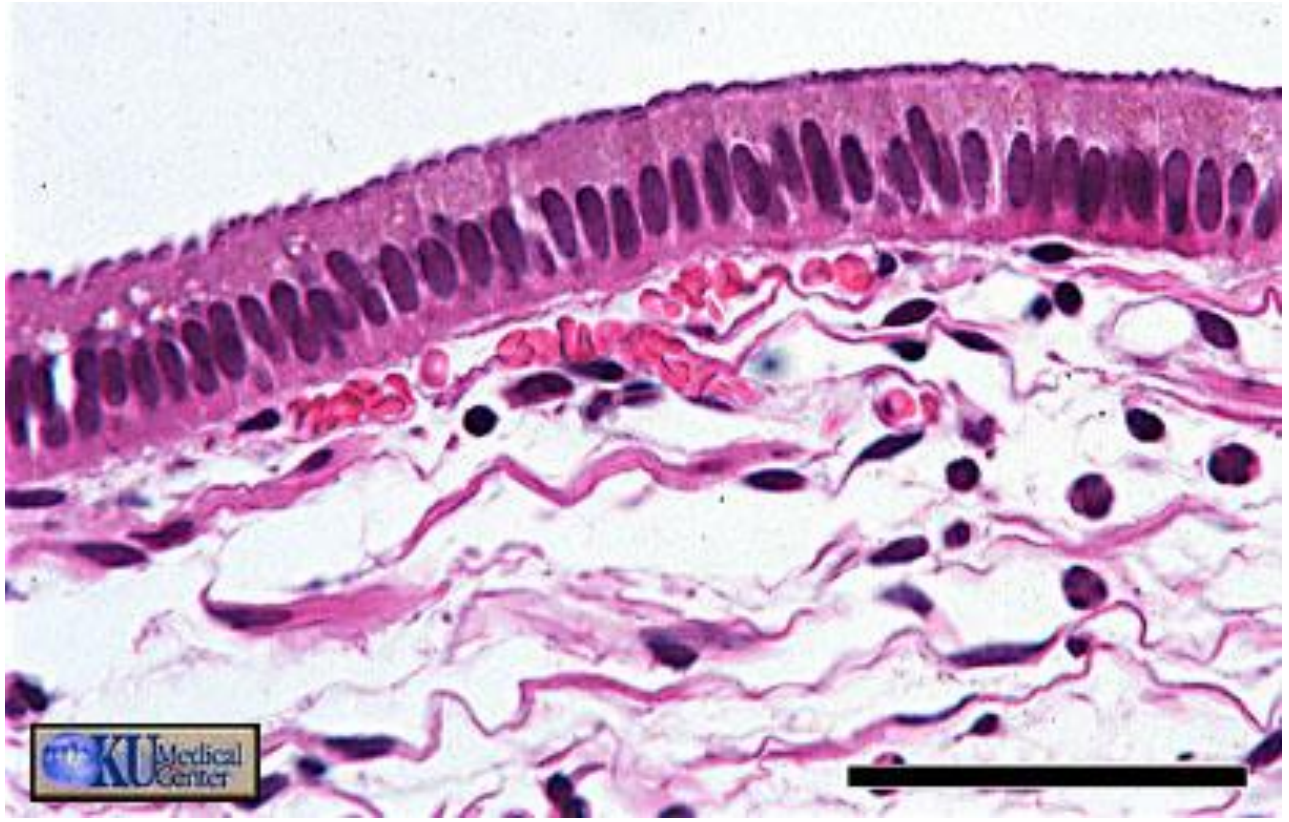
Stratified Squamous



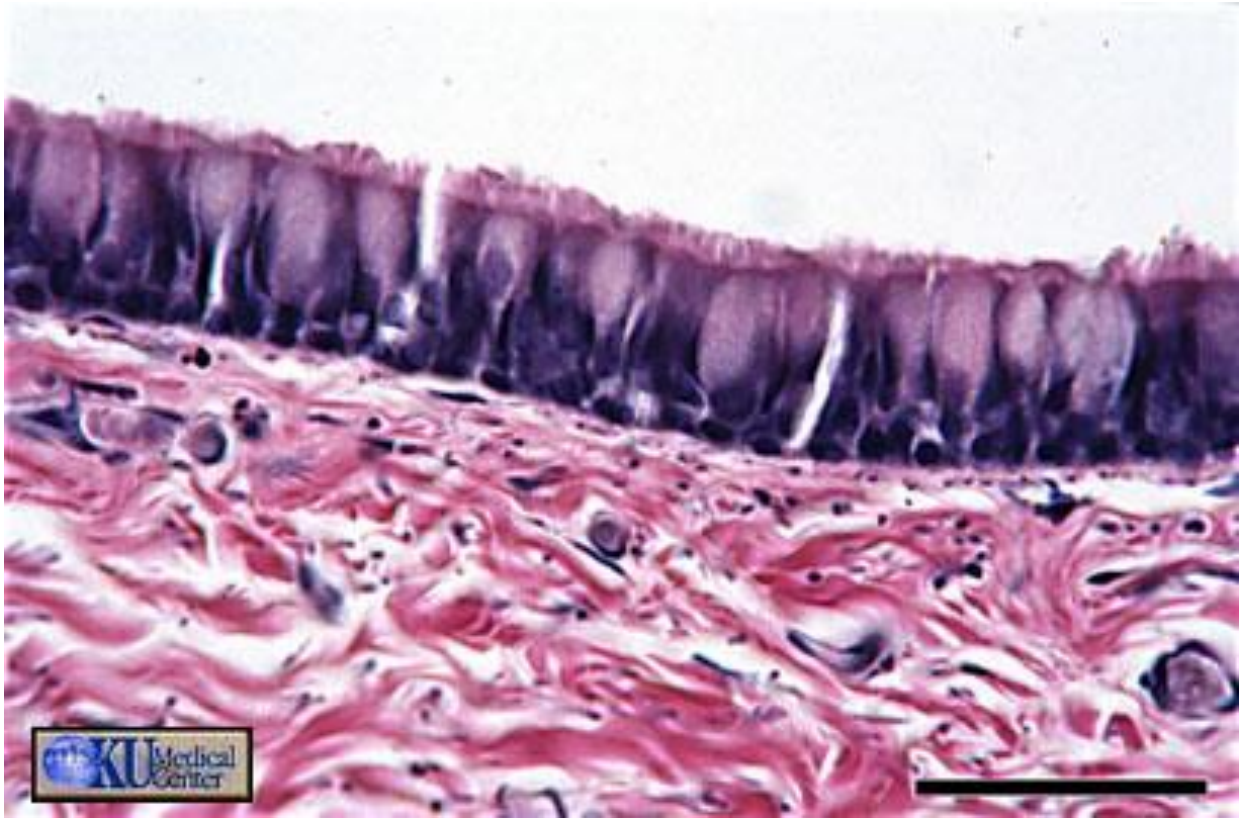
Simple Cuboidal



Simple Columnar



Pseudostratified Ciliated Columnar



Transitional Epithelium

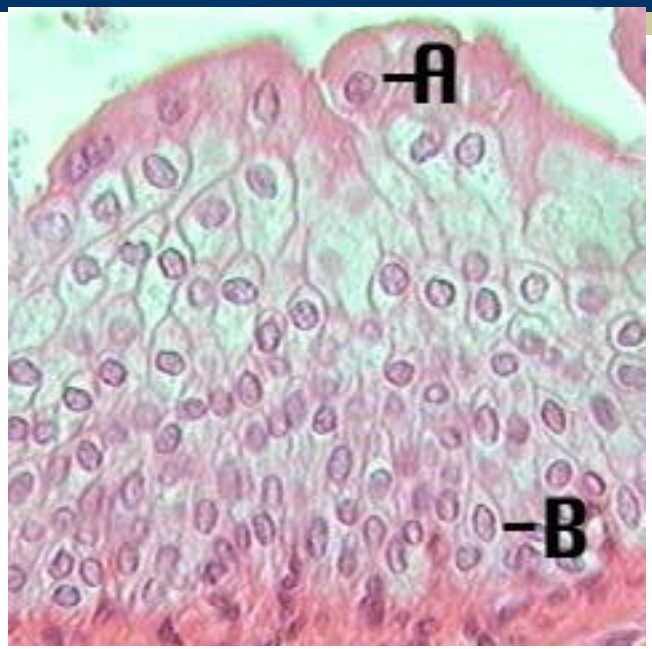


TABLE 4–1 Classifying Epithelia

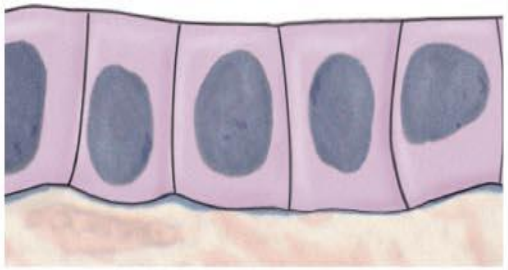
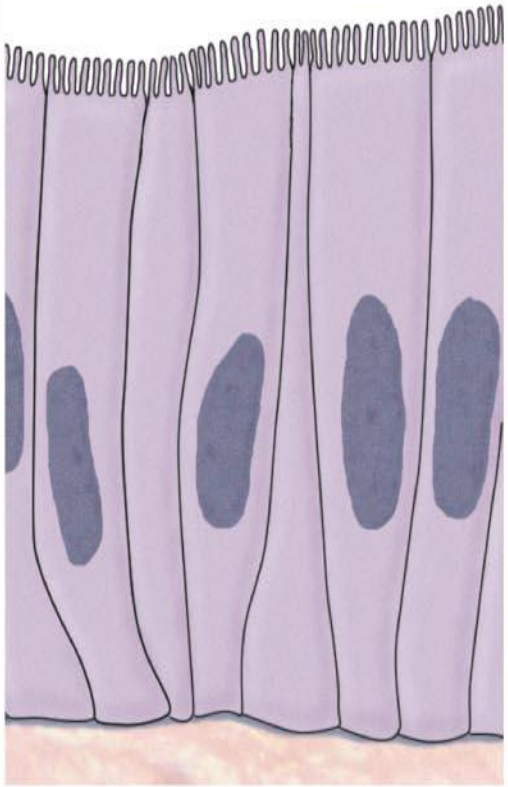
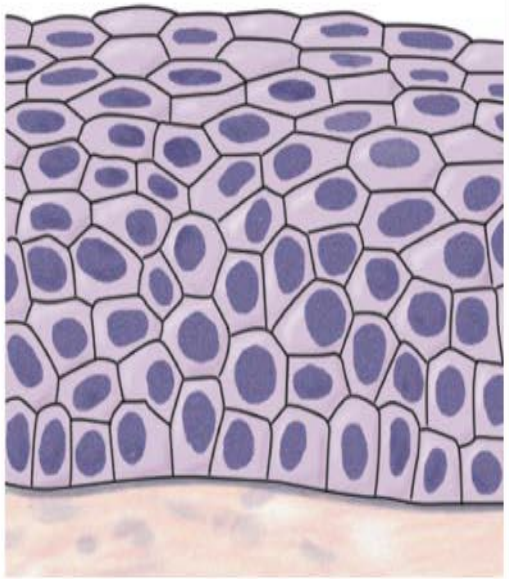
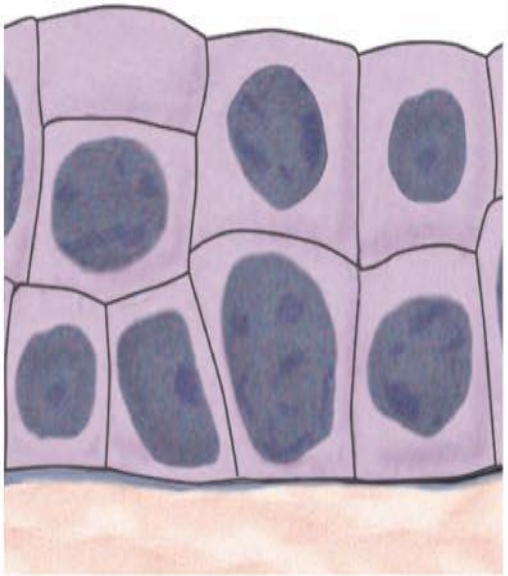
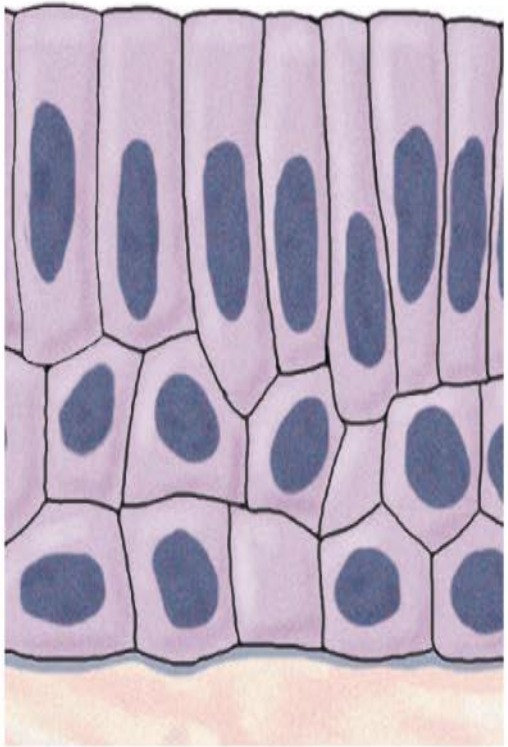
	SQUAMOUS	CUBOIDAL	COLUMNAR
Simple	 Simple squamous epithelium	 Simple cuboidal epithelium	 Simple columnar epithelium

TABLE 4–1 Classifying Epithelia

	SQUAMOUS	CUBOIDAL	COLUMNAR
Stratified	 Stratified squamous epithelium	 Stratified cuboidal epithelium	 Stratified columnar epithelium