



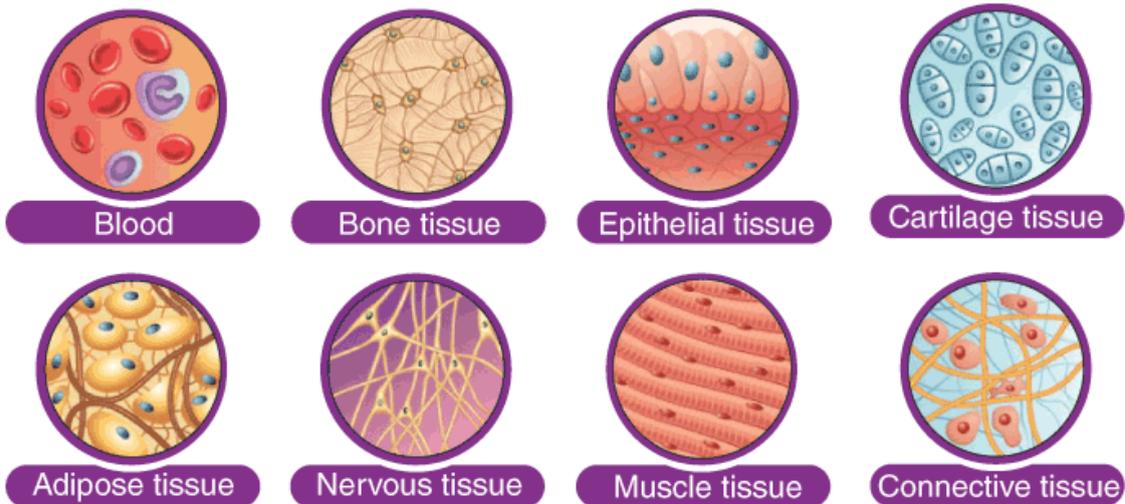
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## Animal Tissue

The animal cells are grouped together to form animal tissues. These tissues vary in their structure, function, and origin. The animal tissues are divided into epithelial, connective, muscular and nervous tissues.

### TYPES OF ANIMAL TISSUE



### Epithelial Tissue

Epithelial tissues form the protective covering and inner lining of the body and organs. These tissues were the first to evolve during evolution and were first formed during embryonic development. They develop from the ectoderm, mesoderm and endoderm of the embryo.

### Characteristics of Epithelial Tissues

Following are the important characteristics of epithelial tissues:

1. These can be single-layered or multi-layered.
2. The tissues have the power to regenerate.



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3. These are held together by gap junctions, tight junctions, zonula adheren, desmosomes, or interdigitation.
4. The plasma membrane of these cells is specialized into flagella, cilia, and microvilli.

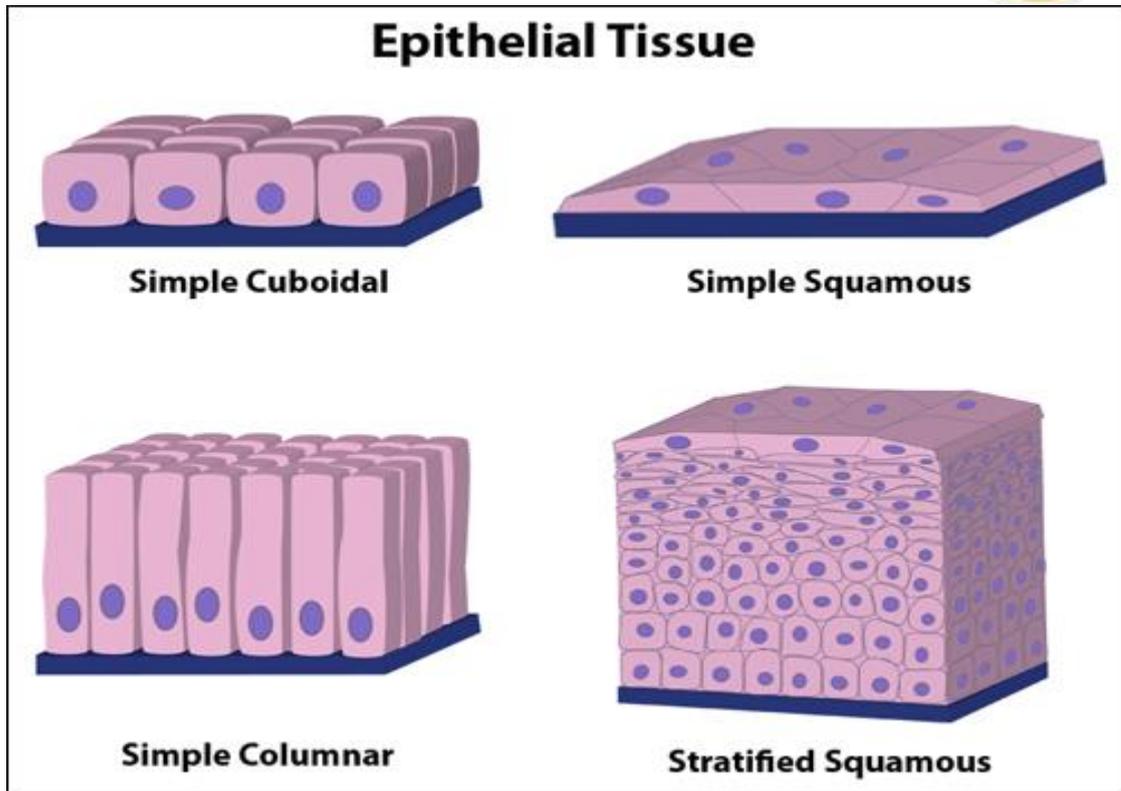
### Classification of Epithelial Tissues

Epithelial tissue can be divided into two groups depending on **the number of layers** (number of cells "thickness") of which it is composes.

- Epithelial tissue which is only one cell thick layer is known as **simple epithelium**. If it one cells (single cell layer), but appear more than one cell layer, it is known as **pseudo stratified epithelium**.
- If it is two or more cells thick layer such as the skin, it is known as **stratified epithelium**.

#### **Simple epithelium classified according to Shape of cell:**

- a. squamous epithelium. Cells appear flattened scale-like.
- b. Cuboidal epithelium. Cell height is same as cell width.
- c. Columnar epithelium. Cell height is greater than cell width.



### Simple Columnar epithelium

1. Ciliated Simple Columnar Epithelium
2. Glandular Epithelium.

### Glandular Epithelium:

- ✓ Columnar epithelium with goblet cells is called glandular epithelium.
- ✓ Columnar and cuboidal epithelial cells often become specialized as gland cells which are capable of
- ✓ synthesizing and secreting certain substances such as enzymes, hormones, milk, mucus, sweat, wax and saliva.
- ✓ Unicellular glands consist of single, isolated glandular cells such as the goblet cells.
- ✓ Sometimes a portion of the epithelial tissue become invaginated and a multicellular gland is formed.
- ✓ Multicellular glands are composed of clusters of cells. Most glands are multicellular including the salivary glands.



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