I. **Simple Organs** (an organ is a structure composed of 2 or more major tissues)

A. Glands (already discussed under epithelial tissues)

B. Membranes (flat sheets of tissue that cover or line a part of the body)

1. Typically consist of a layer of epithelium and connective tissue (except synovial membranes).
2. Classification:
    a. **Serous membrane**:
        i. Composed of a layer of simple squamous epithelium (**mesothelium**) supported by a layer of areolar connective tissue.
        ii. Line closed body cavities such as the thoracic, and abdominopelvic cavities, and also covers the outside of the organs found within closed cavities (heart, lungs, stomach, etc.).
        iii. Consist of 2 parts, a parietal and a visceral layer.
            (a) The **visceral layer** covers the outside of the organ.
            (b) The **parietal layer** folds out to line the inside of the closed cavity.
        iv. The epithelium produces **serous fluid** that accumulates between the parietal and visceral layers.
        v. Include the **pericardium** (covers the heart), **pleura** (covers the lungs and lines thoracic cavity) and **peritoneum** (covers abdominal organs and lines the abdominopelvic cavity).
    b. **Mucous membrane**:
        i. Line tracts that are open to the external environment (digestive, reproductive, respiratory, urinary).
        ii. The innermost layer is composed of epithelial tissue. Which tissue is dependant upon the tract.
            (a) The openings and exits to the tracts will have stratified squamous.
            (b) The digestive and reproductive tracts have simple columnar.
            (c) The urinary tract has transitional.
            (d) The respiratory tract has pseudostratified ciliated columnar.
        iii. There is an underlying layer of connective tissue for support and to attach the epithelia to deeper tissues.
        iv. There may also be a layer of smooth muscle associated with the membrane in some of the tracts.
        v. Most mucous membranes will have goblet cells within the epithelial layer for the production of mucous. The mucous is important for protection and lubrication.
    c. **Synovial membrane**:
        i. Line joint capsules and bursae.
        ii. Composed or areolar connective tissue and adipose.
        iii. Secretes a **synovial fluid** into the joint cavity to lubricate the ends of the bones, and also to nourish the cartilage covering the ends of the bones.
    d. **Cutaneous membrane** (integument/skin): Consists of 2 layers
        i. Functions:
            (a) Temperature regulation.
            (b) Protection
            (c) Sensation

(d) Secretion (oil and sweat)
(e) Synthesis of Vitamin D

ii. Epidermis:
(a) The outermost layer of the skin.
(b) Composed of keratinized stratified squamous epithelium.
(c) **Keratin** is a fibrous protein that accumulates within the cells protecting them from heat, microbes and chemicals. It also allows the cells to be waterproof.
(d) Consists of 5 layers:
(i) **Stratum basale (germinativum**): The deepest layer of the epidermis. A single layer of keratinocytes and melanocytes. **Melanocytes** are cells that produce packets of the pigment **melanin** which are deposited within adjacent keratinocytes. Melanin pigments absorb UV light. This is the layer where new keratinocytes are being generated.
(ii) **Stratum spinosum**: 8 to 10 layers of keratinocytes. Also contains **Langerhans cells** (a macrophage) to phagocytize debris and microbes that penetrate the skin.
(iii) **Stratum granulosum**: 3 to 5 layers of keratinocytes. Cells are beginning to flatten out, lose their organelles and die. Significant keratinization is occurring.
(iv) **Stratum lucidum**: Present only in thick skin of the fingertips, palms and soles of the feel. 3 to 5 layers of flattened, clear, dead keratinocytes.
(v) **Stratum corneum**: 25 to 30 layers of flattened, dead keratinocytes. Keratinocytes within this layer are constantly being shed as newer cells are pushed up from the layers below. Cells are filled with keratin.

iii. Dermis:
(a) The second, deeper layer of the skin.
(b) The superficial 1/5 of the dermis consists of areolar connective tissue.
(i) Contains folds (**dermal papillae**) to increase surface area and is responsible for fingerprints.
(ii) Some sensory receptors are found within this layer.
(c) The deeper 4/5 of the dermis consists of dense irregular connective tissue.
(i) Has collagen and elastic fibers for strength and elasticity.

C. **Superficial fascia**:
1. Also known as the **subcutaneous layer** or **hypodermis**.
2. Consists of areolar connective tissue and adipose.
3. Anchors the skin to the underlying layers.