

A&P—Ch. 4—Body Membranes & Integumentary System (Skin) (pg. 91-95)

1. Body Membranes

What do they do? (Functions)	2 Main Groups + Examples for each
<ul style="list-style-type: none"> • Cover Surfaces • Line Body Cavities • Form protective sheets around organs • Lubricate organs to reduce friction 	<p>Epithelial Membranes – Cutaneous (skin), Mucous, and Serous Membranes.</p>
	<p>Connective Tissue Membranes – Synovial Membranes (Joints)</p>

2. The skin or integumentary system is often referred to as the CUTANEOUS membrane.

Classification of Body Membranes

3. Epithelial Membranes

Type	Main Ideas	Supporting Details/Examples
Cutaneous	<p>Skin = Cutaneous Membrane</p> <p>Main function = protection from external threats & water loss</p>	<ul style="list-style-type: none"> • Made of Superficial Epidermis and Deep Dermis • Made of Stratified Squamous Epithelium • It is dry membrane
Mucous	<p>Lines all body cavities that are open to the exterior (such as digestive, urinary, respiratory, and reproductive tracts).</p>	<ul style="list-style-type: none"> • Composed of epithelium (usually Stratified squamous and simple columnar) that rests on a loose connective tissue membrane called the lamina propria. • These are “wet” or moist membranes that are bathed in secretions • Adapted for secretion and absorption • Many examples produce mucus (Digest. and Resp. Sys.)
Serous	<p>Line body cavities that are NOT open to the exterior environment.</p> <p>Double layered membrane</p> <p>Always come in pairs (visceral and parietal).</p>	<ul style="list-style-type: none"> • Composed of a small layer of simple squamous over a thin layer of areolar tissue. • Visceral = covers outside of organs • Parietal = on outside and close to ventral body cavity • Layers are separated by a clear fluid called serous fluid which reduces friction • Peritoneum, Pleura, Pericardium are examples.

4. **Serous membranes** occur in double layers (pairs).

Parietal Definition	Draw & label where the parietal layer would be:
The outermost layer of serous membrane that lines the ventral cavity.	

Visceral Definition	Draw & label where the visceral layer would be:
The innermost layer of the serous membrane that covers the outside of the organs that the membrane surrounds.	

5. Specific names of serous membranes depend on their locations. Give the specific location for each of the following:

Peritoneum: _____ Serosal lining of the abdominal cavity and covering its organs _____

Pleura: _____ Serosal lining around the lungs _____

Pericardium: _____ Serosal lining around the heart _____

6. **Connective Membrane**

Type	Main Ideas	Supporting Details/Examples
Synovial Membranes	Line the fibrous capsules surrounding joints where they provide a smooth surface and secrete a lubricating fluid.	<ul style="list-style-type: none"> • Composed of connective tissue and contain no epithelial cells • Contains small sacs called bursae and tube-like tendon sheaths (both cushion organs moving against each other during muscle activity)

7. List all of the parts of the integumentary system below:

Skin and its Derivatives: Hair, Nails, Sweat (sudoriferous) Glands, and Oil (sebaceous) Glands

8. Using page 93, complete the following coloring exercise.

Four simplified diagrams are shown in Figure 4-1. Select different colors for the membranes listed below, and use them to color the coding circles and the corresponding structures.

- Cutaneous membrane
- Parietal pleura (serosa)
- Synovial membrane
- Mucosae
- Visceral pericardium (serosa)
- Visceral pleura (serosa)
- Parietal pericardium (serosa)

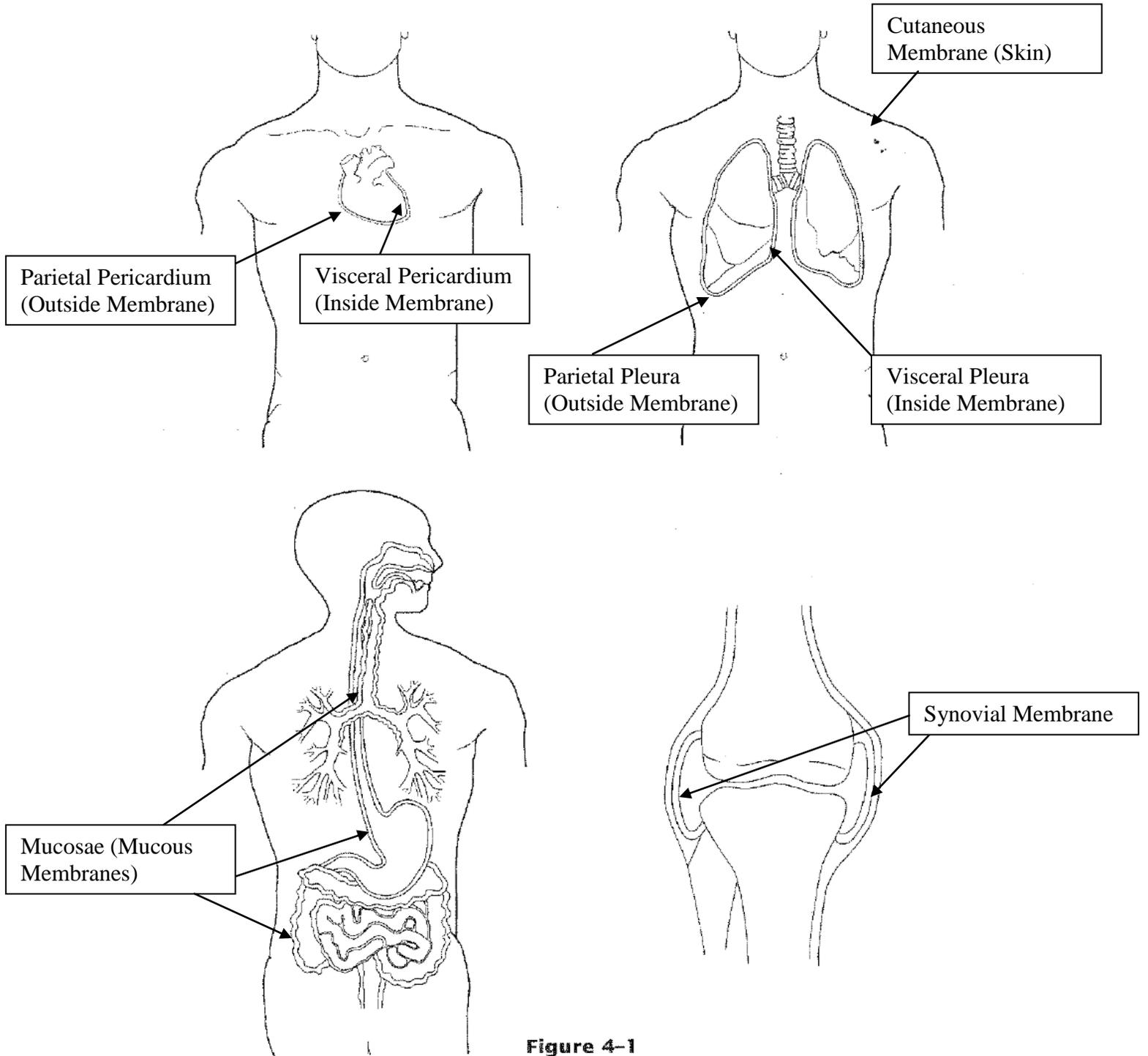


Figure 4-1

9. Using pages 94-95 and Table 4.1, complete the following table using your own words:

Basic Skin Functions

Protective Functions (List all 6)	How does the skin provide this type of protection?
Protects against Mechanical Damage	Creates a barrier made of keratin (protein that toughens cells) and pressure receptors which alert the nervous system of possible damage.
Protects against Chemical Damage such as acids and bases.	Keratin creates an impermeable barrier and contains pain receptors to alert the nervous system of burning/damage to cells.
Protects against Bacterial Damage	Has an unbroken surface so bacteria cannot invade, also has an acid mantle that inhibits bacteria, phagocytes ingest foreign material and pathogens (like bacteria) and prevents them from going deeper.
Protection against Ultraviolet Radiation	Melanocytes of skin produce the pigment melanin which absorbs UV radiation and offers protection from harmful rays of sun.
Protection against Thermal (heat) Damage	Contains Heat/Cold/Pain receptors to sense changes in temperature.
Protects against Dessication (drying out)	Contains waterproofing substances including keratin to keep excess water out and keep necessary water in.

Other Functions (List all 3)	How does the skin provide this type of protection?
Aids in body temperature regulation	Heat Loss – by activating sweat glands and allowing capillaries to flush blood towards the skin’s surface so heat can be dissipated/released Heat Retention – By allowing capillaries to flush blood away from skin surface and keep the warm blood deeper.
Aids in Excretion of Urea and Uric Acid (metabolic waste products)	Sweat these compounds out through sweat glands.
Synthesizes Vitamin D	Certain Cholesterol molecules in skin are converted to vitamin D via sunlight.

10. The skin protects the body by providing three types of barriers. Classify each of the protective factors listed below as an example of a chemical barrier (C), a biological/living barrier (B), or a mechanical/physical barrier (M).

- a. Macrophages (white blood cells) **B**
- b. Intact epidermis **M**
- c. Bactericidal secretions (kills bacteria) **C**
- d. Keratin protein **C, M**
- e. Melanin pigment **C**
- f. Acid mantle **C**