Body Membranes

Membrane Anatomy
A body membrane is a sheet of tissues (usually more than one tissue) that covers and lines various body surfaces, most organs and all body cavities. We'll examine four different body membranes (serous membranes, mucous membranes, cutaneous membrane, and synovial membranes), which can be divided into two categories.

Epithelial membranes consist of epithelial tissue (various types) anchored to underlying tissue by connective tissue (usually areolar). Connective membranes, on the other hand do not have any epithelium. They consist entirely of connective tissue.

For each of these membranes, you should know 1) the type of membrane (epithelial or connective), 2) the specific types of tissues that make it up, 3) the locations in the body where it's found, and 4) the functions of the membrane.
Serous membranes are epithelial tissues that line body cavities that do not open to the exterior. These cavities include the thoracic cavity, the mediastinum (medial part of the thoracic cavity) and the abdominal cavity (superior part of the abdominopelvic cavity).

Each serous membrane is basically a flattened “loop” of membrane that is wrapped around organs, as shown in the figure. It might help to think of pushing a fist down into a partially-filled balloon. This means that there are two layers of serous membrane between each organ and its cavity wall.

One layer, called the visceral serous membrane, is attached to the organ and one layer, called the parietal serous membrane is attached to the cavity wall. The space between the visceral and parietal serous membranes is a cavity filled with serous fluid. Serous fluid is a very slippery lubricant, which protects the organs from scraping against other organs or the cavity walls.
Each serous membrane consists of a thin layer of simple squamous epithelium anchored to the organ or cavity wall by a thin layer of areolar tissue. Since simple squamous epithelium doesn’t secrete, it should be common sense that it doesn’t secrete serous fluid. Instead, interstitial fluid that leaks from the capillaries in the areolar tissue is filtered through the simple squamous cells, which results in the slippery serous fluid.
There are three different serous membranes:

The **pleura** surrounds the lungs. The **pericardium** surrounds the heart and the **peritoneum** surrounds most abdominal organs. (Some abdominal organs not surrounded by peritoneum include the kidneys, the rectum and the urinary bladder. These organs are called **retroperitoneal organs**.)

Don't forget that there are two layers to each serous membrane, separated by a cavity filled with serous fluid. The **visceral pleura** lines the lungs. The **parietal pleura** lines the thoracic cavity walls near the lungs. The **visceral pericardium** lines the heart. The **parietal pericardium** lines the mediastinum near the heart. The **visceral peritoneum** lines the abdominal organs. The **parietal peritoneum** lines the abdominal cavity.
The cutaneous membrane is another epithelial membrane, more commonly referred to as the skin. It consists of several layers of keratinized stratified squamous epithelium (the epidermis) anchored to the hypodermis by a thick layer of irregular dense connective tissue (the dermis). The cutaneous membrane is in constant contact with the exterior and is our main barrier between the outside world and the inside of our bodies. It is unique because of its waterproof nature (due to the keratinized layer) – it is the body’s only “dry” membrane.
The mucous membranes line internal body cavities that open to the outside world. In particular, three major tracts through the body are lined with mucous membranes: the digestive tract, the respiratory tract, and the urogenital tract. All of the mucous membranes are moist membranes. Most secrete mucous, and some absorb nutrients as well, but the tissues of the urogenital tract are kept moist by urine.

The epithelium of the mucous membrane varies depending on the location where it's found. The mucosa of the mouth and esophagus, for example, is lined by stratified squamous epithelium. The mucosa of the respiratory tract is lined with pseudostratified or simple columnar epithelium. The mucosa of the small intestine is lined with simple columnar epithelium.

The underlying connective tissue of mucous membranes is always connective tissue – a layer of areolar tissue called the propria lamina.
Synovial membranes are connective membranes that do not have an epithelial layer. The line the walls of the joint capsules in moveable joints – they line the ends of articulating bones, the ligaments that hold the joints together, and the bursae that separates bones and ligaments. Each synovial membrane is a thin layer of cushiony areolar tissue that secretes a slippery fluid called synovial fluid.