

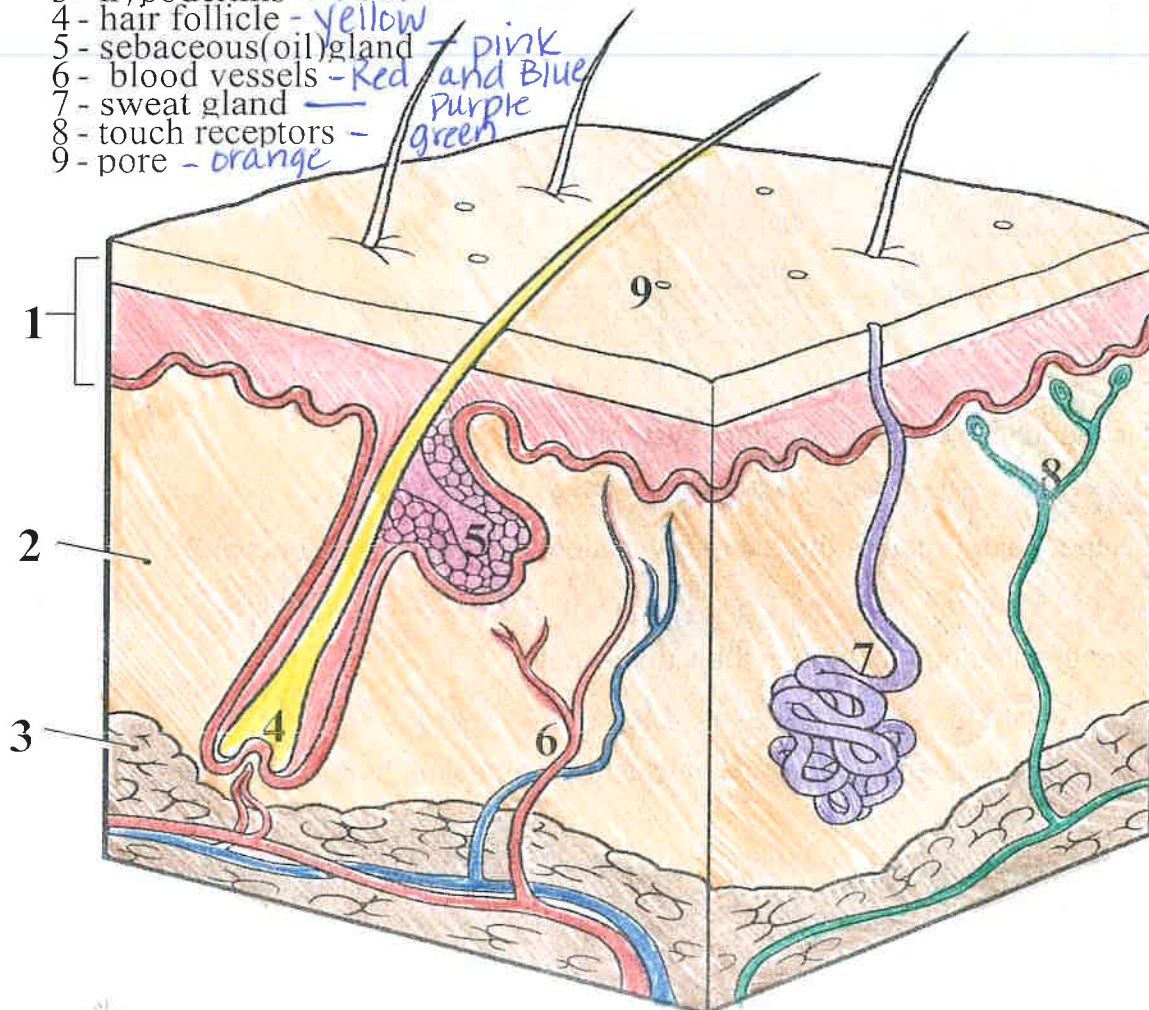
Integumentary System (skin)

Skin has three layers: The **epidermis**, the outermost layer of skin, provides a waterproof barrier and creates our skin tone. The **dermis**, beneath the **epidermis**, contains tough connective tissue, hair follicles, and sweat glands. The deeper subcutaneous tissue (hypodermis) is made of **fat** and connective tissue. The skin's main functions are to serve as a barrier to the entry of microbes and viruses, and to prevent water and extracellular fluid loss. Your skin has a very important part in the excretory system. It holds moisture into every part of your body. In the excretory system, the skin's job is to regulate one's body temperature. The salt in the skin helps in evaporation of the water off of the body, to cool off one who is hot. Sweat is excreted through sweat glands. Sweating helps the body maintain a cool, consistent temperature, which also helps one maintain homeostasis.

Heat and cold receptors are located in the skin. When the body temperature rises, the brain sends a nerve signal to the sweat-producing skin glands, causing them to release sweat onto the skin surface. The evaporation of sweat helps reduce the temperature of the skin surface which cools the body. The brain also causes dilation of the blood vessels of the skin, allowing more blood to flow into those areas, causing heat to be released from the skin surface. When body temperature falls, the sweat glands constrict and sweat production decreases. If the body temperature continues to fall, the body will start to generate heat by raising the body's metabolic rate and by causing the muscles to shiver.

Color the skin diagram

- 1 - epidermis - Red and Orange
- 2 - dermis - Orange
- 3 - hypodermis - Brown
- 4 - hair follicle - yellow
- 5 - sebaceous(oil) gland - pink
- 6 - blood vessels - Red and Blue
- 7 - sweat gland - purple
- 8 - touch receptors - green
- 9 - pore - orange

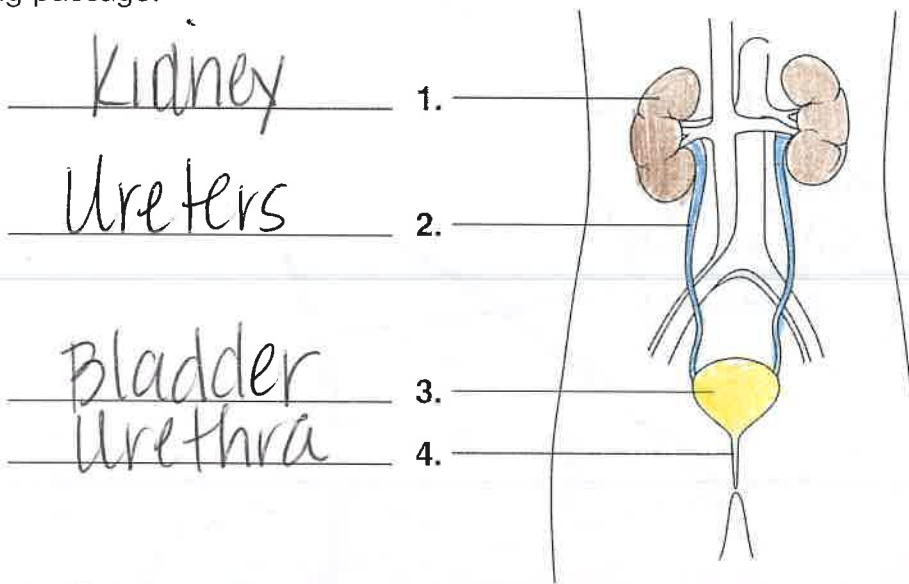


Excretory System (urinary tract)

The excretory system filters waste from the blood. The blood collects and carries waste materials from the cells to the kidneys. These materials are removed from the blood during a process called filtration. Excretion occurs when the waste products are removed from the body.

The **kidneys** (brown) are the primary organs of the excretory system. These two bean-shaped organs are the main blood filters of the body and remove liquid wastes, excess water, and bile from the blood. The filtered liquid is called urine. The kidneys make about 1.5 liters of urine each day, depending on the amount of water that is consumed. Urine is transported from the kidneys to the **bladder** (yellow) through long tubes called **ureters** (blue). The bladder stores the urine until it is released from the body through the urethra. The excretion of urine from the body is called urination.

Use the information in the reading to label the diagram of the excretory system. Color the organs of the excretory system on the diagram using the color listed after each organ in the reading passage.



1. What is the function of the excretory system?

filters waste from the body

2. What is the major organ of the excretory system and what is its function?

Kidney - filters blood of the body ÷ remove liquid waste.

3. What are the filtering factories in the kidneys called?

small sac of capillaries called glomerulus

4. List the correct sequence of organs in which urine passes before it is excreted from the body?

Kidney → ureters → bladder → urethra