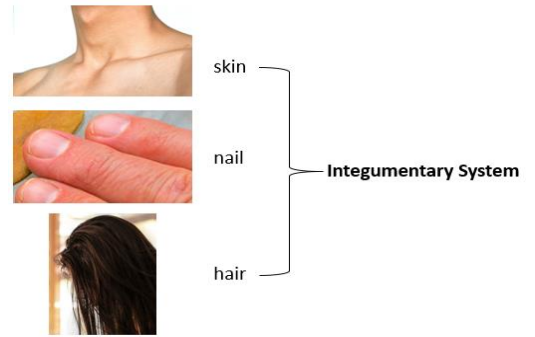


The Integumentary System Guided Notes – Student Edition

Organs and Functions

The integumentary system is the body's _____. It is made up of _____, _____, _____ and the glands and nerves on the skin.

The integumentary system acts as a _____ – protecting the body from bacteria, infection, injury, and sunlight. It also helps _____ the body temperature and allows the person to _____ skin sensations like hot and cold.

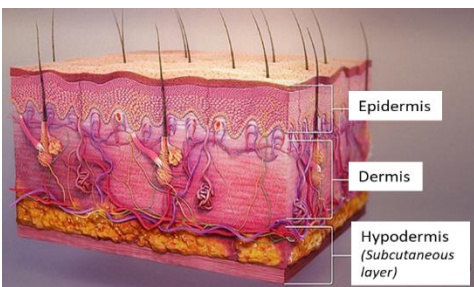


The integumentary system has many different functions:

- _____: The skin and hair provide a barrier against harmful substances, ultraviolet (UV) radiation from the sun, and temperature extremes.
- _____: The skin contains nerve endings that detect touch, pressure, pain, heat, and cold.
- _____: The skin can sweat and widen blood vessels to regulate body temperature.
- _____: The skin eliminates some wastes through sweat.
- _____: When exposed to UV light from the sun, the skin produces vitamin D, which is important for bone health.

The Skin

The skin is the body's _____ and _____ organ. It weighs about six pounds (or more) and is approximately _____ thick. However, it is _____ on sensitive areas like eyelids, and _____ on surfaces that take more stress, like the soles of the feet. One inch of the skin contains nearly _____ cells.

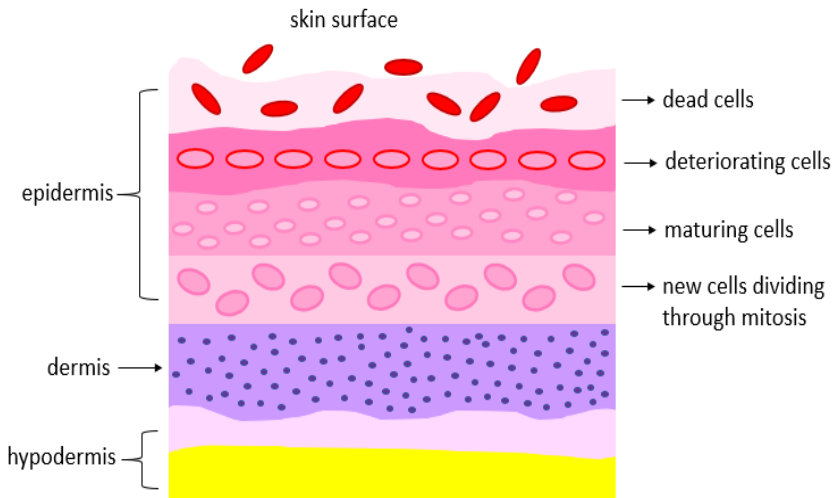


The skin covers the _____ surface of the body and has _____ layers, each with different functions. It comprises three main layers:

- _____
- _____
- _____

The Integumentary System Guided Notes – Student Edition

The _____ of the skin which is visible and tangible is epidermis. It consists almost entirely of _____. There are no blood vessels, nerve endings, or glands in this skin layer. Nonetheless, this layer of skin is very active. It is constantly being _____.

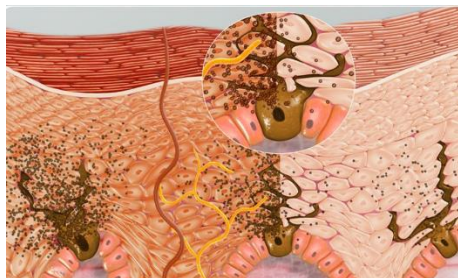
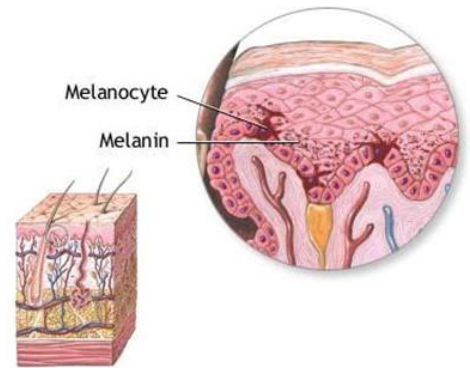


The cells at the bottom of the epidermis are always dividing by _____ to form new cells. The new cells gradually _____ through the epidermis toward the surface of the body.

As they move, they produce the tough, fibrous protein called _____.

By the time the cells reach the surface, they have filled with keratin and _____. On the surface, the dead cells form a protective, _____ layer. Dead cells are gradually _____ from the surface of the epidermis. As they are shed, they are _____ by other dead cells that move up from below.

The epidermis also contains cells called _____. These cells produce _____, a brown pigment that gives skin much of its color. Everyone’s skin has about the same number of melanocytes per square inch. However, the melanocytes of people with darker skin produce _____ melanin.

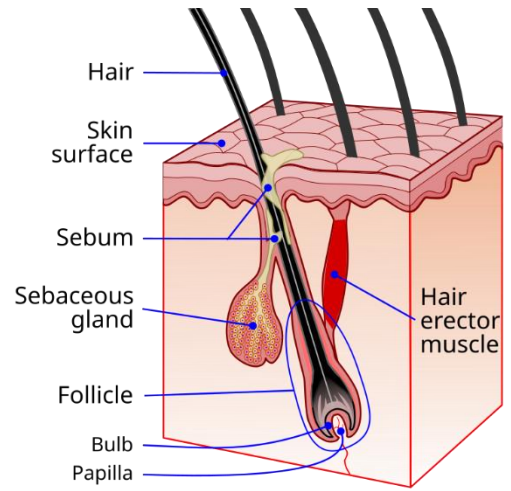


The amount of melanin that is produced depends partly on one’s _____ and partly on how much _____ strikes on skin. The more light the skin gets, the _____ melanin are produced by melanocytes. This explains why skin _____ when it’s exposed to sunlight.

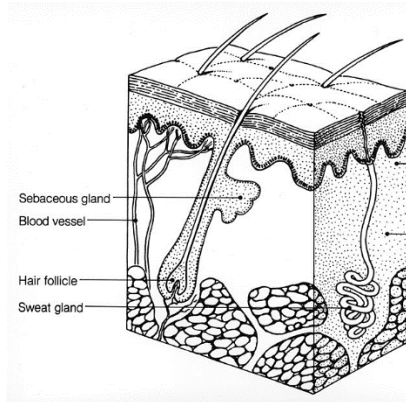
The Integumentary System Guided Notes – Student Edition

The dermis is the _____ layer of the skin. It is made of tough connective tissue. The dermis is attached to the epidermis by fibers made of the protein _____. The dermis is where most skin structures such as _____ and _____ are located. The nerve endings explain why skin can _____ pain, pressure, and temperature. If the skin is cut and it bleed, the cut has penetrated the dermis and _____ a blood vessel. The cut probably hurts as well because of the nerve endings in this skin layer.

The dermis also has _____ and two types of glands – _____ and _____. Hair follicles are structures where hairs _____. Each hair grows out of a follicle, passes up through the epidermis, and _____ above the skin surface. The _____ is the part of the hair that is above the skin. The _____ is a tiny muscle connected to each hair follicle and the skin. When it contracts it causes the hair to stand erect, and a " _____ " forms on the skin.



Sebaceous glands are commonly called _____. They produce an oily substance called _____. This oil is secreted into hair follicles. Then it makes its way along the hair shaft to the surface of the skin. Sebum waterproofs the hair and skin and helps _____ them from drying out. There are thousands of sebaceous glands all over the body. The only place where sebaceous glands are not found are on the _____ of the hands and the _____ of the feet. Most sebaceous glands are located on _____ and _____.



Sweat glands produce the salty fluid known as _____. Sweat contains excess _____, _____, and other waste products. Each sweat gland has a _____ that passes through the epidermis. Sweat travels from the gland through the duct and out through a _____ on the surface of the skin. The process of releasing sweat from the body is called _____.

The Integumentary System

Guided Notes – Student Edition

The hypodermis or _____ is the innermost layer of skin in your body. It is a layer directly below the dermis and serves to _____ the skin to the underlying fibrous tissue of the bones and muscles. The hypodermis consists of well-vascularized, loose, connective tissue and _____, which functions as a mode of _____ and provides _____ and _____ for the integument.

Importance of the Skin

Skin helps maintain _____ as it controls what enters and leaves the body. It prevents the _____ of too much water from the body. It also prevents bacteria and other microorganisms from _____ the body. Melanin in the epidermis _____ ultraviolet light. This prevents the light from reaching and _____ the dermis.



The skin helps maintain a constant body temperature. It keeps the body cool in two ways. Sweat from sweat glands in the skin _____ to cool the body.

Blood vessels in the skin _____, or widen, increasing blood flow to the body surface. This allows _____ to reach the surface and radiate into the environment. The opposite happens to retain the body heat. Blood vessels in the skin _____, or narrow, decreasing blood flow to the body surface. This _____ the amount of heat that reaches the surface so less heat is lost to the environment.

Hair

Only _____ have hair. Hair is a fiber made mainly of the tough protein _____. The cells of each hair are filled with keratin and no longer alive. The dead cells overlap each other, almost like shingles on a roof. They work like shingles as well, by helping _____ from hair.



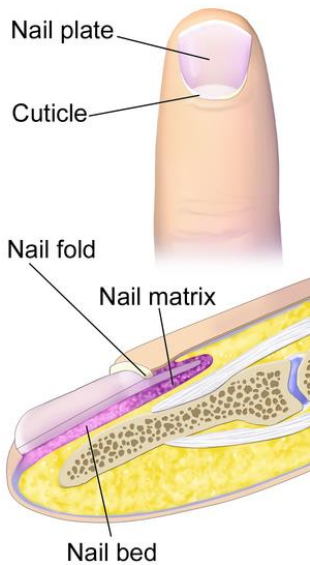
The Integumentary System Guided Notes – Student Edition



Head hair helps protect the _____ from sun exposure. It also helps _____ the body. It traps air so heat can't escape from the head. Hair in eyelashes and eyebrows helps keep water and _____ out of the eyes. Hairs inside the nostrils of the nose _____ dust and germs in the air so they can't reach the lungs.

Nails

Fingernails and toenails are made of specialized cells that _____ of the epidermis. They too are filled with keratin. The keratin makes them tough and hard. Their job is to protect the _____ of the fingers and toes. They also make it easier to feel things with the sensitive fingertips by acting as a _____ when things are handled.



Nail Anatomy

A fingernail consists of several parts including the following:

- _____ – the visible part of the nail
- _____ – the skin beneath the nail plate
- _____ – the tissue that overlaps the plate and rims the base of the nail
- _____ – the skin folds that frame and support the nail on three sides
- _____ – the whitish half-moon at the base of the nail
- _____ – the hidden part of the nail unit under the cuticle