Title: Skin Structure

Objectives

Students will be able to name the layers of the skin, understand the structure of the skin, and be able to label it from the outer surface inward.

Time frame to Complete

30 minutes

NRS EFL

4

Stackable Cert. Documentation	Technology	Study / Life skills	EL-Civics	Career Pathways	Police	Paramedic	Fire Rescue	Medical Asst.	EKG / Cardio	Phlebotomy	Practical Nursing	Healthcare Admin	Pharmacy Tech	IMT	AMT	HVAC	Welding	Other:	STNA				
						X		X		X	X								X				

Standard(s) Addressed in Lesson

Read with Understanding

Benchmark(s) Addressed in Lesson

R.4.5. Use context clues (for example, cause and effect and compare and contrast relationships) to determine the meaning of words in texts.
R.4.8. Understand meaning of some specialized content vocabulary (for example, "constitution").
R.4.12. Use structural elements and organizational strategies (for example, problem and solution, cause and effect) to aid in comprehension of print and electronic texts.
R.4.16. Construct meaning from text by evaluating relevance of prior knowledge and applying appropriate knowledge to new information read.

Materials

Your Skin packet (3 pages)
Paper and pencil
Skin diagram worksheet available from: http://www.enchantedlearning.com/subjects/anatomy/skin/label/label.shtml

Learner Prior Knowledge

Basic anatomy terms such as *hair, follicle, blood vessel,* and *sweat gland*.

Activities

Step 1 Ask students to identify the primary function of skin (protection). Ask students to identify any parts of the skin that they know. If they do not identify any, prompt them with the some key terms such as hair, follicle, blood vessel, and sweat gland. Be sure students understand those terms, and then explain that today they will learn the structure of skin and how it circulates blood throughout our bodies.

Step 2 Distribute the packet, Your Skin. Students should read the packet (either aloud or independently), paying attention to the words in bold print. Students should list each bold print word on a piece of paper and define it, using the information in the reading.

Step 3 Students then study their list of vocabulary words. To check for comprehension, distribute the skin diagram for students to label with the vocabulary words.

Step 4 Students check their answers and correct any mistakes. Teacher can answer questions or clarify information as necessary.

Assessment/Evidence

Completed diagram

Adaptations for Beginning Students

Beginning students may work with a partner or use their notes to help them label the diagram.

Adaptations for Advanced Students

Advanced students may research some additional parts of the skin (such as melanocyte, melanin, or corpuscles) or a related topic (such as sunburn, skin cancer, or moles and freckles) to explain to the class.

Teacher Reflection/Lesson Evaluation

This lesson was created by Middletown ABLE.

YOUR SKIN

Skin forms the largest organ of the body-weighing about 8 to 10 pounds and covering about 22 square feet in an average adult. The most important functions of the skin are, first, as a protective membrane over our entire body. The skin guards the deeper tissues of the body against excessive loss of water, salts and heat. The skin also is very tough and prevents harmful chemicals and invading organisms, such as bacteria and viruses, to enter our bodies. Second, the skin contains two types of glands that produce important secretions. These glands under are skin are the **sebaceous** and the **sweat glands. Sebaceous glands** produce **sebum**, and oily substance that lubricates our skin. **Sweat glands** produce sweat that cools the body as it evaporates from the skin surface. The network of nerves, within the skin, feeds us information about our surroundings. We are warned of many dangers, while on the other, touch can be one of our most soothing and pleasurable sensations. So, the skin:

- Protects our bodies
- Helps keep our bodies at just the right temperature
- Allows us to have the sense of touch

STRUCTURE OF THE SKIN

The skin is made up of three layers, each with its own important parts-**EPIDERMIS, DERMIS** and **SUBCUTANEOUS LAYER.**

- **Epidermis** is the outermost layer. Look down at your hands. Even though you can't see anything happening, your epidermis is hard at work forming new skin cells at the bottom. When the cells are ready, they start moving toward the top of your epidermis. This trip takes about two weeks to a month. As the newer cells continue to move up, older cells near the top die and are eventually worn off. A proportion of the dust that's picked up by your vacuum cleaner is composed of these dead skin cells. So just in the time it took you to read this, you've probably lost about 40,000 cells. Most of the cells in your epidermis (95%) work to make new cells and the other 5% make a substance

called **melanin**. Melanin gives skin its color. The darker your skin is, the more melanin you have.

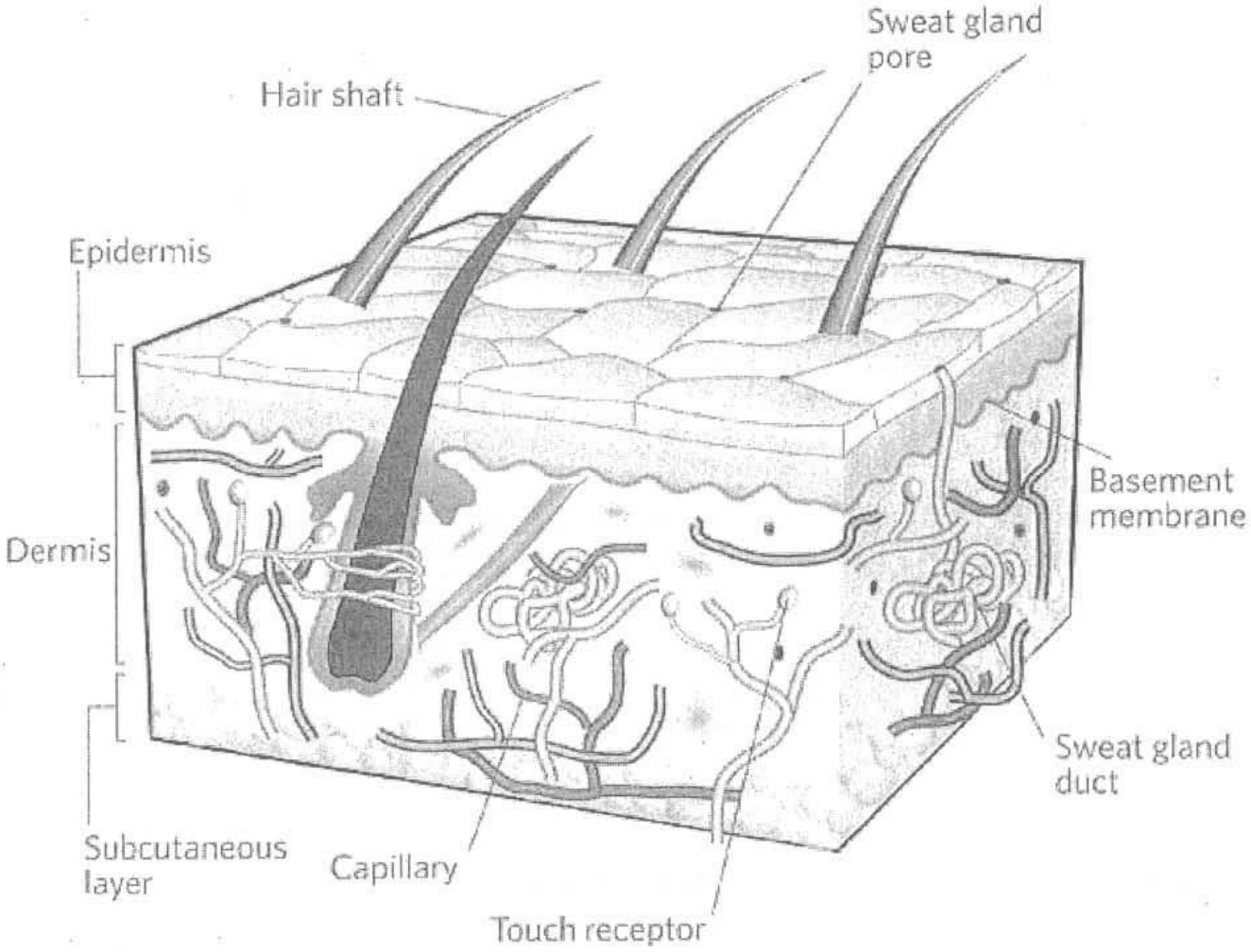
- **Dermis** is the next layer down under the **epidermis**. The **dermis** contains nerve endings, blood vessels, oil glands and sweat glands. It also contains collagen and elastin, which are tough and stretchy.

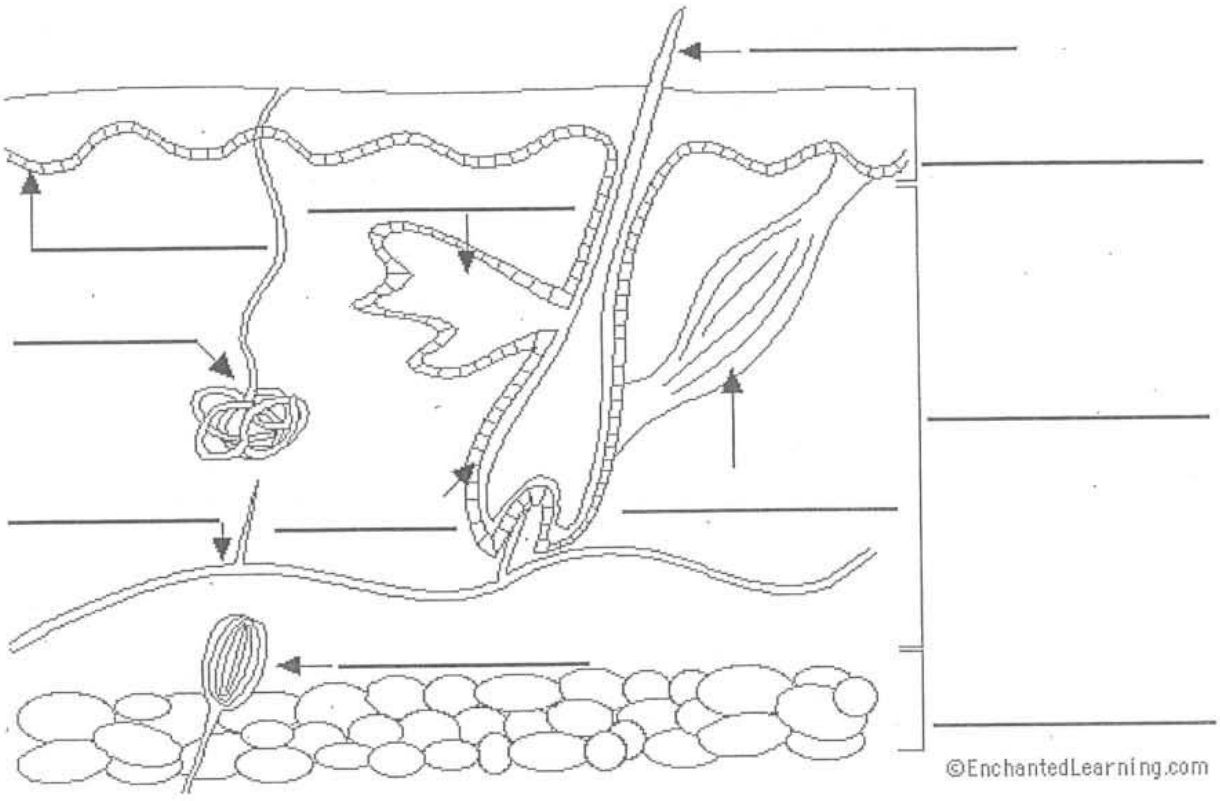
The nerve endings in your **dermis** tell you how things feel when you touch them. They work with your brain and nervous system, so that your brain gets the message about what you are touching.

Your **dermis** is also full of tiny blood vessels. These keep your skin cells healthy by bring them the oxygen and nutrients they need.

The **dermis** is home to oil glands too. These are called **sebaceous**, and they are always producing sebum. Sebum is your skin's own natural oil. It rises to the surface of your **epidermis** to keep you skin lubricated and protected. It also makes your skin waterproof-as long as **sebum's** on the scene, your skin won't absorb water and get soggy.

- **Subcutaneous** is the third and bottom layer of the skin. It is made mostly of fat and helps your body stay warm. It also acts as a shock absorber if you bang into something or fall down. This layer is where you'll find the start of hair. Each hair on your body grows out of a tiny tube in the skin called a follicle. Every follicle has its roots way down in the **subcutaneous** layer and continues up through the dermis. The hair shaft travels through the epidermis to appear on the skin surface. Along the side of each hair follicle is an attached small gland that produces an oily type of sweat that coats the hair.


Sweat gland pore
Hair shaft
Epidermis
Dermis
Basement membrane
Sweat gland duct
Subcutaneous layer
Capillary
Touch receptor



Skin Anatomy: Label Me!

Answers: Label the Skin Diagram

Human Anat

Read the definitions, then label the skin anatomy diagram below.

blood vessels - Tubes that carry blood as it circulates. Arteries bring oxygenated blood from the heart and lungs; veins return oxygen-depleted blood back to the heart and lungs.
dermis - (also called the cutis) the layer of the skin just beneath the epidermis.
epidermis - the outer layer of the skin.
hair follicle - a tube-shaped sheath that surrounds the part of the hair that is under the skin. It is located in the epidermis and the dermis. The hair is nourished by the follicle at its base (this is also where the hair grows).
hair shaft - The part of the hair that is above the skin.
hair erector muscle - a muscle is connected to each hair follicle and the skin - it contracts (in response to cold, fear, etc.), resulting in an erect hair and a "goosebump."

melanocyte - a cell in the epidermis that produces melanin (a dark-colored pigment that protects the skin from sunlight).
Pacinian corpuscle - nerve receptors that respond to pressure and vibration; they are oval capsules of sensc nerve fibers located in the subcutaneous fatty tissue
sebaceous gland - a small, sack-shaped gland that releases oily (fatty) liquids onto the hair follicle (the o lubricated and softens the skin). These glands are loca in the dermis, usually next to hair follicles.
sweat gland - (also called sudoriferous gland) a tube-shaped gland that produces perspiration (sweat). The gland is located in the epidermis; it releases sweat ont the skin.
subcutaneous tissue - fatty tissue located under the dermis.

Answers: Label Skin Anatomy Printout - EnchantedLearning.com