

UNIT 3 - CELLS, HISTOLOGY, INTEGUMENTARY SYSTEM

STANDARDS AND OBJECTIVES

STANDARD

03 Students will describe basic concepts of structures and functions of cells, histology, and the integumentary system.

OBJECTIVES

- 03.01 Identify the four principle parts of a generalized animal cell and their functions. (nucleus, cytosol, organelles & cell membrane)
- 03.02 Describe the structure and function of the cell membrane.
- 03.03 Describe a selectively permeable membrane and factors which influence permeability.
- 03.04 Contrast intracellular and extracellular fluid in terms of location and composition.
- 03.05 Describe each of the following cellular transport processes and classify them as active or passive. (Passive processes – diffusion, osmosis, facilitated diffusion, dialysis, and filtration. Active processes -- phagocytosis, exocytosis and active transport)
- 03.06 Review the osmotic effects that occur when a cell is placed in an isotonic, hypotonic, or hypertonic solution.
- 03.07 Describe the function of the following structures within the cell. (nucleolus, gene, chromatin, chromosome, DNA, ribosomes, endoplasmic reticulum, Golgi complex, mitochondria, lysosomes, vacuole, peroxisomes, microfilaments, microtubules, centrioles, centrosomes, flagella, cilia, microvilli)
- 03.08 Compare and contrast mitosis and meiosis.
- 03.09 Identify the general characteristics and functions of each of the four principle types of tissues. (Epithelial - strategies for tissue identification [arrangement & cell shape]; Connective - adipose, cartilage, dense fibrous, blood, bone; Muscular - skeletal, smooth, cardiac; and Nervous)
- 03.10 Contrast exocrine and endocrine glands.
- 03.11 Differentiate between the four basic types of membranes. (mucous, serous, synovial, cutaneous)

- 03.12 Describe the structures and functions of the integumentary system components.
(skin, glands, hair, nails)
- 03.13 Describe the major layers of skin.
(epidermis, dermis, subcutaneous [hypodermis])
- 03.14 Describe the functions of sudoriferous (sweat) and sebaceous (oil) glands.
- 03.15 Identify the following diseases or disorders of the integumentary system.
(acne, skin cancers [basal cell carcinoma, squamous cell carcinoma, malignant melanoma], decubitus ulcers)