

# Objectives, Concepts & Skills, and Vocabulary

UNIT	LAB	OBJECTIVES
<b>1: The Human Machine</b>	1: Human Form and Function	<ul style="list-style-type: none"> <li>• Understand body organization and anatomical position</li> <li>• Identify organs and organ systems of the human body</li> <li>• Describe the major functions of some organ systems</li> </ul>
	2: Understanding Human Senses	<ul style="list-style-type: none"> <li>• Investigate the effects of various stimuli on the senses</li> <li>• Collect data to map the distribution of tongue and skin receptors</li> <li>• Measure the response to sound</li> </ul>
	3: The Eye-Brain Connection	<ul style="list-style-type: none"> <li>• Label the structures of the eye and label the regions of the brain</li> <li>• Investigate how light affects the human eye</li> <li>• Analyze optical illusions and determine your dominant eye</li> </ul>
	4: Blood – the Marvelous Tissue	<ul style="list-style-type: none"> <li>• Determine the ABO and Rh blood type of simulated blood samples</li> <li>• Estimate the number of simulated cells in a blood sample</li> <li>• Identify simulated red blood cells, white blood cells, and platelets</li> </ul>
<b>2: Human Physiology</b>	5: Food Chemistry and Nutrition	<ul style="list-style-type: none"> <li>• Identify essential food nutrients</li> <li>• Test for nutrients in unknown samples using chemical indicators</li> <li>• Identify nutrient content in unknown samples</li> </ul>
	6: The Science Behind Drugs	<ul style="list-style-type: none"> <li>• Construct a simulated skin cell using dialysis tubing</li> <li>• Observe the process of chemical diffusion through the simulated cell membrane</li> <li>• Discover characteristics of drugs that make them ideal for transdermal delivery</li> </ul>
	7: Urinalysis	<ul style="list-style-type: none"> <li>• Construct a model of a nephron</li> <li>• Identify simulated blood cells using a microscope</li> <li>• Perform pH, protein, and glucose tests on simulated urine samples</li> </ul>
<b>3: Human Health Issues and Disease</b>	8: Smoking	<ul style="list-style-type: none"> <li>• Observe the effect of smoke inhalation on simulated lungs</li> <li>• Understand how tar and other pollutants accumulate in the lungs during smoking</li> <li>• Demonstrate the amount of trapped smoke residue in a normal breath</li> </ul>
	9: Transmission of Viruses	<ul style="list-style-type: none"> <li>• Simulate the transmission of a virus</li> <li>• Identify the individual who is the source of the infection</li> <li>• Calculate the percent of infected individuals after the simulated transmission process</li> </ul>
<b>4: Comprehensive Inquiry Investigation</b>	10: Culminating Lab	<ul style="list-style-type: none"> <li>• Calculate reaction time</li> <li>• Measure range of vision</li> </ul>

CONCEPTS & SKILLS	VOCABULARY
Making observations, organs, tissues, organ systems, anatomical position, respiratory system, digestive system, circulatory system, integumentary system, skeletal system, muscular system, nervous system	Cell, tissues, organs, organ system, dendrites, axon, axial skeleton, appendicular skeleton, ligaments, tendons, skeletal muscle, smooth muscle, cardiac muscle, epidermis, dermis, heart, atrium, ventricle, arteries, aorta, capillaries, veins, diaphragm, mechanical digestion, chemical digestion
Analytical thinking, making observations, nervous system, stimulus, neuron, response, human senses, skin receptors	Senses, stimuli, neurons, taste buds, saliva, olfactory cells, thermoreception, decibels, middle ear, inner ear, eardrum, hammer, anvil, stirrup, cochlea, auditory nerve
Making observations, analytical thinking, optical illusions, eye anatomy, brain anatomy, pupillary reflex, eye dominance, near point	Cornea, pupil, iris, sclera, lens, retina, rods, cones, optic nerve, macula, farsightedness, nearsightedness, astigmatism, parietal lobe, frontal lobe, occipital lobe, temporal lobe, cerebellum, brainstem, optical illusions
Blood, blood typing and blood types, antigens, red blood cells, white blood cells, platelets, analytical thinking, making observations	Blood, homeostasis, urea, plasma, red blood cells, hemoglobin, anemia, white blood cells, platelets, megakaryocytes, clot, ABO system, antigens, antibodies, blood typing, Rh protein
Making observations, analytical thinking, lipids (fats), carbohydrates, proteins, chemical indicators, vitamins and minerals, nutrition, organic compounds, water, elements	Macronutrients, micronutrients, organic compounds, carbohydrates, monosaccharides, disaccharide, polysaccharide, starch, glycogen, Calories, proteins, amino acids, lipids, hydrophobic, vitamins, minerals, covalent bond, polar molecule
Making observations, analytical thinking, drawing conclusions, solute, solvent, osmosis, diffusion, transdermal drugs, cell membrane	Cell membrane, cytoplasm, phospholipid, bilayer, polar molecules, semi-permeable, diffusion, osmosis, solutes, solvent, hypertonic, transdermal drug delivery
Making observations, analytical thinking, kidney structure, kidney function, diffusion, urine formation, urinalysis, protein and glucose testing, pH	Urine, kidneys, urinalysis, pH, hydrometers, specific gravity, excretory system, homeostasis, urea, nephrons, Bowman's capsule, glomerulus, osmosis, semi-permeable, ureter, urinary bladder, urethra
Making observations, analytical thinking, respiratory system, pollutants, smoking	Nicotine, smoke, alveoli, tar
Making observations, analytical thinking, Ebola virus, rate of transmission, viruses, diseases, transmission of viruses	Disease, virus, host, pathogens, sexually transmitted diseases, vaccine, immune system, antibody, Ebola virus, Ebola hemorrhagic fever
Reaction time, the human body, making observations, vision, stimulus	Reflex, reflex arc, macula, fovea, visual acuity, farsightedness, nearsightedness, astigmatism