

EXAM EXPECTATIONS
MYP Biology
“Unit Five- Common Challenge: Gas Exchange”

STATE the blood vessel where exchange between blood and interstitial fluid occurs
STATE the role of cholesterol in plasma membranes
STATE the first and second Laws of Thermodynamics
STATE that gases diffuse from higher partial pressures to lower partial pressures
STATE the blood vessel with the lowest blood velocity
STATE the color of light that contributes the least energy to photosynthesis
STATE that gas exchange across membranes is a passive process
STATE the source of carbon for photosynthesis
STATE the ultimate source (a process) of our food and oxygen
STATE the organelle in which cell respiration occurs
STATE the organelle in which photosynthesis occurs
STATE chemical bonds store potential energy
STATE the name of the muscle sheet that help move air in and out of the lungs
STATE that aerobic respiration produces far more ATP per glucose molecule than any other mode of ATP production
STATE that air holds more oxygen than water (assuming equal volumes)
STATE that water is more dense than air, also that it is a more viscous fluid
STATE that gas exchange in water saves energy by not having to maintain a wet respiratory surface
STATE muscle soreness associated with exercise is partly due to a build up of lactic acid
STATE 2 general uses that plants have for the sugars they produce through photosynthesis
DEFINE anaerobic, aerobic
DEFINE glycolysis
DEFINE entropy
DEFINE chemiosmosis
DEFINE photorespiration
DEFINE fermentation
DEFINE grana, stroma, thylakoids
DEFINE lipids
DEFINE interstitial fluid
IDENTIFY reactants and products in a chemical equation
IDENTIFY the overall chemical equation for cell respiration, for photosynthesis
IDENTIFY two basic types of circulatory systems that have evolved
IDENTIFY an animal from a list that possesses a single circuit of blood flow and a 2 chambered heart
IDENTIFY characteristics of molecules that would allow them to pass freely through membranes
OUTLINE why animals need a constant supply of oxygen
OUTLINE trade-offs of gas exchange in water versus on land
OUTLINE the relationship between the greenhouse effect and photosynthesis, and carbon dioxide
OUTLINE the route that air travels into and out from a human
OUTLINE the role of hemoglobin
OUTLINE the role of surface area with gas exchange
OUTLINE the structure and function of fish gills
OUTLINE how blood is transported by the blood
OUTLINE the relative size and number of blood vessels as blood moves away from the heart
OUTLINE the velocity and pressure of blood as it moves away from the heart
OUTLINE gas exchange in a leaf
OUTLINE the relationship between the greenhouse effect and fossil fuels, deforestation and the Industrial Revolution
OUTLINE how cells capture energy released by cell respiration
OUTLINE carbon fixation
OUTLINE how solutes and temperature effect the amount of dissolved oxygen in water
OUTLINE selective permeability (in reference to membranes)
OUTLINE the flow through the systemic and pulmonary circuits
OUTLINE the role of the lymphatic system

DESCRIBE the greenhouse effect
DESCRIBE the adaptations that an animal would need if it were to exchange gas with its body surface
DESCRIBE fluid mosaic model that describes plasma membranes
DESCRIBE the unique adaptation in birds that makes their respiratory system extremely efficient
DESCRIBE alcohol fermentation
COMPARE endothermic and exothermic reactions
COMPARE the entropy change in endothermic and exothermic reactions
COMPARE the potential energy of reactants and products in an endothermic reaction
COMPARE the potential energy of reactants and products in an exothermic reaction
COMPARE anaerobic and aerobic respiration (in general, stick to powerpoint info)
COMPARE lactic acid fermentation and alcohol fermentation
COMPARE potential and kinetic energy
COMPARE autotrophs and heterotrophs
COMPARE chemotrophs and phototrophs
COMPARE organic and inorganic compounds
COMPARE respiration and cellular respiration
COMPARE obligate aerobes, microaerophiles, aerotolerant anaerobes, facultative anaerobes, and obligate anaerobes
COMPARE passive and active transport
COMPARE diffusion and facilitated diffusion
COMPARE osmosis and diffusion
EXPLAIN the mechanism of breathing (ventilation) in humans
EXPLAIN the counter-current exchange that occurs in fish gills
EXPLAIN diffusion
EXPLAIN the relationship between air pressure and elevation
EXPLAIN why circulatory systems are needed for gas exchange in large animals
PREDICT the movement/direction of water across a membrane given solute concentrations on both sides on the membrane
DISCUSS why an animal must eat 100 pounds of food to gain 10 pounds of muscle
SUGGEST a consequence(s) if a cell can no longer produce ATP