

EXAM EXPECTATIONS

MYP Biology

“Unit Ten- Cellular Energetics”

STATE that glycolysis is a common pathway found in both aerobic and anaerobic respiration
STATE that concentration gradients are a form of potential energy
STATE that enzymes usually end in -ase and sugars end in -ose
STATE that enzymes are not used up or changed when they catalyze a reaction
STATE that enzymes speed up chemical reactions by lowering the activation energy of the reaction
STATE that most enzymes are proteins
STATE that cells, organisms and even earth is an open system
STATE aerobic respiration produces the most ATP per molecule of glucose
STATE the location and role of central vacuoles
DEFINE thermodynamics
DEFINE system with respect to thermodynamics
DEFINE hydrocarbon
DEFINE organic molecules, inorganic molecules
DEFINE aerobic, anaerobic
DEFINE glycolytic pathway
DEFINE activation energy
LIST possible energy transfers possible in living organisms (ie. potential to kinetic)
LIST 3 products of the light reactions
LIST the three stages of cellular respiration in chronological order
LIST the by products of cellular respiration
LIST 3 products of the Calvin cycle
IDENTIFY the structure through which gases enter and leave a leaf
IDENTIFY an example of a closed or open system
IDENTIFY the organelles in which photosynthesis and cellular respiration occur
IDENTIFY from a list of choices an example of an exergonic or endergonic reaction
IDENTIFY the source of carbon in the building of glucose during photosynthesis
IDENTIFY an example of the first and second laws of thermodynamics
IDENTIFY the source of oxygen that is released during the light reactions
IDENTIFY the final electron acceptor in aerobic respiration
IDENTIFY 2 ways that plants utilize the sugars they produced during photosynthesis
IDENTIFY the summary equation for photosynthesis
IDENTIFY the locations of the light reactions and the Calvin cycle
OUTLINE the structure of the chloroplast
OUTLINE the structure of the mitochondria
OUTLINE how the electrons from the reaction center of photosystem II are replaced
OUTLINE the usefulness of each wavelength of light in powering photosynthesis
OUTLINE why muscle soreness or burning is associated with anaerobic exercise
OUTLINE diffusion, facilitated diffusion and osmosis
OUTLINE active and passive transport
OUTLINE why plants are green
OUTLINE carbon fixation
OUTLINE the role of ATP in the cell
OUTLINE the greenhouse effect
OUTLINE the relationships between enzymes, substrates and products in a chemical reaction
OUTLINE the role of cofactors or coenzymes
OUTLINE the first and second laws of thermodynamics
OUTLINE alcohol fermentation
DEDUCE an answer from **ANALYZING** a model of the oxidative phosphorylation
DEDUCE an answer from **ANALYZING** a model of the photophosphorylation
DEDUCE an products of the citric acid cycle from **ANALYZING** a model of the the cycle
DESCRIBE chemiosmosis
DESCRIBE the function and characteristics of enzymes
COMPARE aerobic respiration, anaerobic respiration and fermentation

COMPARE open and closed systems with respect to thermodynamics
COMPARE exergonic and endergonic reactions
COMPARE autotrophs and heterotrophs
COMPARE phototrophs and chemotrophs
COMPARE kinetic and potential energy
EXPLAIN the domino effects of destroying the electron transport chain in the mitochondria
EXPLAIN how mitochondrial cristae are adaptation selected by nature over time
DETERMINE the whether a reaction is endergonic or exergonic by examining a given chemical reaction
PREDICT the consequences should a cell run out of ATP
PREDICT the rate of glycolytic pathways at different times of the day or during different activities
DISCUSS where most of the captured energy from glucose is after the citric acid cycle
DISCUSS the danger of extremely high body temperatures
DISCUSS the role that trees/forests play in the greenhouse effect and climate change
SUGGEST why photosynthesis may be the most important process for all life on earth
SUGGEST how skeletal muscles might still work without mitochondria