SBI4U METABOLIC PROCESSES Unit Checklist

Name: _____

loreescience

Topic	Objective(s)	Key Concepts	Approx. # Hours Not including making notes	Video Lessons & Notes	Activities Check answers & Uploaded to OneNote	Mastery Checks Thatquiz.org Min 75%
1	**Intro to Cellular Respiration & Types of Reactions:** Understand *how processes fit together: Glycolysis, Pyruvate Oxidation, Krebs Cycle & ETC* *Identify & describe the 4 main types of biochemical reactions*	*- ATP input and output* *- Energy Carriers* *- Anabolic* *- Catabolic* *- Redox* *- Neutralization*	2 hrs online	❑ *1 video*	❑	❑ **Got It!**
2	**Glycolysis & Pyruvate Oxidation**: *Explain the chemical changes and energy conversions occurring* *Identify molecules and their roles throughout the processes*	*- Anaerobic in cytoplasm* *- Role of NAD^+/NADH* *- Energy invest/harvest* *- Net 2 ATP* *- Oxidation of pyruvate* *- Names of molecules*	1 hr online	❑ ❑ *2 videos*	❑	
3	**Kreb's Cycle / Citric Acid Cycle**: *Explain the chemical changes and energy conversions associated with Kreb's Cycle* *Identify molecules and their roles throughout the process*	*- Oxidation reactions* *- Production of NADH/FADH2* *- Names of molecules*	1.5 hrs online	❑ *1 video*	❑	❑ **Got It!**
4	**Electron Transport Chain:** *Explain the chemical changes and energy conversions associated with the E.T.C.* *Identify molecules and their roles throughout the process*	*- Matrix & cristae* *- Movement of electrons* *- Coupled reactions* *- Redox reactions* *- Coenzymes* *- Role of O_2* *- Electrochemical gradient & ATP*	2.5 hrs online	❑ ❑ *2 videos*	❑	
5	**Regulating Cellular Respiration & Alternative Pathways**: *Explain the process of using proteins and lipids as energy molecules and how they fit into the chemical processes*	*- Calculating ATP* *- Muscle fatigue, BMR, activity level…* *- Deamination* *- ß- oxidation*	2 hrs online	❑ *1 video*	❑	❑ **Got It!**
6	**Anaerobic Respiration:** *Explain the chemical changes and energy conversions associated with anaerobic cellular respiration*	*- Fermentation* *- Recycle NAD^+/NADH* *- Lactic Acid* *- Ethanol*	1.5 hrs online	❑ *1 video*	❑	
Cellular Respiration Test: Tuesday May 18th						
7	**Photosynthesis – Light Reactions & Calvin Cycle**: *Explain the chemical changes and energy conversions associated with photosynthesis* *Describe, compare & illustrate the matter and energy transformations occurring during cellular respiration and photosynthesis*	*- Chloroplast structure, chlorophyll, transpiration, leaf structure, thylakoid, membranes & stroma* *- Pigments & visible spectrum* *- Light & electrons* *- Z-scheme, Cyclic & Non-cyclic ETC, role of H_2O & O_2* *- RUBISCO, RuBP & Redox*	2 hrs online	❑ ❑ *2 videos*	❑	❑ **Got It!**
8	**Photosynthesis – Environment & Light Curves:** *Explain how environmental conditions affect the chemical changes and energy conversions of photosynthesis and photorespiration.*	*- Light Curves* *- Irradiance* *- Stomata* *- Climate change & effects on chemical processes* *- Light saturation*	2 hrs online	❑ *1 video*	❑	❑ **Got It!**
9	**Photosynthesis in C4 & CAM Plants**: *Explain how plants have adapted and have altered the chemical changes and energy conversions associated with photosynthesis*	*- Alternative forms of carbon fixation* *- C3, C4 & CAM Plants* *- Photorespiration* *- Bundle sheath, mesophyll,* *- PEP carboxylase*	2 hrs online	❑ *1 video*	❑	
Photosynthesis & Comparisons Test: _____						

Quizzes & Tests	Date
Cellular Respiration Test	**Tuesday May 18th**
Photosynthesis & Comparisons Test	

Metabolic Processes Terms to Know

- 1,3-Bisphosphoglycerate
- 1,3-bisphosphoglycerate
- 2-Phosphoglycerate
- 3-Phosphoglycerate
- Absorption
- Acetaldehyde
- Acetyl-CoA
- ADP
- Aerobic
- Amino Acids
- Anaerobic
- Antenna Pigment
- Anthocyanins
- ATP
- ATP Synthase
- b6-f Complex
- Bundle-Sheath
- C3 Plant
- C4 Plant
- Calvin Cycle
- CAM Plant
- Carotenoids
- Chemical Energy
- Chlorophyll
- Chlorophyll a
- Chlorophyll b
- Chloroplast
- Citrate
- CO_2 Limited
- Coupled Reaction
- Cyanobacteria
- Cyclic Electron Flow
- Cytosol
- Light Independent Reactions
- Light Limited
- Light-Compensation
- Deamination
- DHAP
- Dihydroxyacetone-Phosphate
- Electron Transport Chain
- Electronegativity
- Endosymbiotic Theory
- Energy Return
- Ethanol
- $FAD^+/FADH_2$
- Fatty Acids
- Fermentation
- Ferredoxin
- Fructose-1,6-Bisphosphate
- Fructose-6- Phosphate
- Gluconeogenesis
- Glucose-6- Phosphate
- Glyceraldehyde- 3-Phosphate
- Glycerol
- Glycolysis
- Guard Cell
- Heavy Water
- Inter-membrane
- Investment
- Irradiance
- K^+ Diffusion
- Kreb's / Citric Acid Cycle
- Lactate
- Lactic Acid
- Lactic Threshold
- Light Dependent Reactions
- Light Independent Reactions
- Light Limited
- Light-Compensation Point
- Light-Saturation Point
- Magnesium
- Malate
- Malic Acid
- Mesophyll
- Mitochondria
- Mitochondrial Matrix
- $NAD^+/NADH$
- NADP Reductase
- $NADP^+/NADPH$
- Non-Cyclic Electron Flow
- Oxaloacetic Acid
- Oxidative Phosphorylation
- P680
- P700
- PEP Carboxylase
- Phosphoenolpyruvate
- Phosphofructokinase
- Photons
- Photophosphorylation
- Photorespiration
- Photosynthesis
- Photosystem
- Phytol tail
- Pigment
- Plastocyanin
- Plastoquinone
- Porphyrin Ring
- Primary Electron Acceptor
- Product
- Pyruvate
- Pyruvate Oxidation
- Reactant
- Reaction Center Chlorophyll
- Redox
- Respiration
- Ribulose bisphosphate
- RUBISCO
- RuBP Carboxylase
- Spectrum
- Stomata
- Stroma
- Substrate-level Phosphorylation
- Sugar Splitting
- Sulfur Bacteria
- Thylakoid Interior
- Transpiration
- Vacuole
- VO_2 Max
- Wavelength
- Xanthophylls
- β-Oxidation