**Name**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Biology

**Date**: \_\_\_\_\_\_\_\_\_\_\_

**REVIEW GUIDE**: *Cellular Energy – Photosynthesis & Respiration*

TEST DATE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Resources*

Text:

Chapter 8.1 Energy and Life p226-228

Chapter 8.2 Photosynthesis: An Overview p230-234

Chapter 23.4 Leaves p680-683

Chapter 23.1 Specialized Tissues in Plants – Vascular Tissue p666

Chapter 9.1 Cellular Respiration: An Overview p250-253

Chapter 9.3 Fermentation p262-265

PowerPoint Notes:

 Cellular Energy

Labs & Assignments:

 Microscope Lab

 Photosynthesis Worksheet

 Photosynthesis POGIL worksheet

 Photosynthesis and Respiration POGIL worksheet

 Chloroplast and Mitochondria worksheet

*Energy and Life*

* From where do autotrophs obtain their organic matter? From where do photoautotrophs and chemoautotrophs obtain their energy?
* From where do heterotrophs obtain their organic matter? From where do heterotrophs obtain their energy?
* How is energy released from ATP?

PHOTOSYNTHESIS

* What is the balanced overall equation for photosynthesis? What are the reactants and what are the products?
* How do plants access light energy? What part(s) of the leaf are involved? What part(s) of the chloroplast are involved? How are they involved?
* How do plants access water? What part(s) of the leaf are involved? How are they involved? How do plants ensure they do not lose too much water? What part(s) of the leaf are involved in avoiding desiccation?
* How do plants access carbon dioxide? What part(s) of the leaf are involved? How are they involved? Where in the chloroplast is the carbon dioxide converted to sugar?
* Why are specific nutrients from the soil needed for photosynthesis to occur? Specifically think about nitrogen and magnesium.
* How do guard cells open the stoma?

CELLULAR RESPIRATION

*Aerobic Respiration*

* What is the balanced overall equation for aerobic respiration? What are the reactants and what are the products?
* Where in the mitochondrion is glucose first broken down/digested?
* Where in the mitochondrion is ATP generated? How is this structure specialized to ensure maximum production of ATP?
* How many ATP molecules are created from the energy released by one glucose molecule during aerobic respiration?

*Anaerobic Respiration/Fermentation*

* What is the balanced overall equation for anaerobic respiration/fermentation in yeast? What are the reactants and what are the products?
* What organisms produce lactic acid from anaerobic respiration/fermentation?
* Where in the cell does anaerobic respiration/fermentation occur?
* How many ATP molecules are created from the energy released by one glucose molecules during anaerobic respiration/fermentation?
* How do humans manipulate the fermentation of bacteria and yeast to produce food products and beverages?

OVERALL

* Be able to compare and contrast aerobic respiration and photosynthesis.
* Be able to state why respiration is important to all living things – what do they use it for?
* What types of cells may require more mitochondria than others? Why?
* What do organisms use ATP for?