Honors Biology – Unit 6 Objectives

1. Vocabulary: cell respiration, glycolysis, pyruvate conversion, Krebs cycle, electron transport system, NAD(H), FAD(H_2), coenzyme A, glucose, pyruvate, fermentation, lactate, alcohol, vinegar, mitochondrion, cytochrome, ATP synthetase, facultative aerobe, obligate anaerobe, obligate aerobe, aerobic respiration, anaerobic respiration, ATP, acetate, oxidation, reduction, concentration gradient.

2. Draw a mitochondrion and indicate the location of glycolysis, pyruvate conversion, the Krebs cycle, and the electron transport system.

3. Given a diagram of glycolysis, pyruvate conversion, the Krebs cycle, and/or the electron transport system, describe the origin, purpose, and/or destination of anything entering, involved in, or leaving the diagram.

4. Compare the net amount of ATP gained between the four main steps of aerobic respiration and the methods by which the ATP is generated.

5. Contrast the events that take place after glycolysis when O_2 is available to when it is not available and explain their significance.

6. Interpret laboratory data concerning energy processes to reach meaningful conclusions. You will want to remind yourself of what we did in lab.

7. Compare and contrast the structures and functions of chloroplasts and mitochondria.

8. Explain how lipids and proteins can be used for respiration. What must they be made into? Where do they enter the biochemical pathways/cycles? Aerobic? Anaerobic? Both?

9. Give examples of and describe the utility of sacrificing ATP output for heat.

10. Analyze given a situations depicting the levels of activity, blood glucose, glycogen, and stored fat. Explain the likely results of the activity level.