**AICE Biology Guided Reading: Photosynthesis (J&F Ch 13)**

Complete the following using your textbook and any online resources you deem helpful. This assignment is due Wednesday, February 12, and is worth **40 POINTS.**

1. As you are reading, complete SAQ’s 13.1-13.5. [5]

2. What is photosynthesis and what types of organisms are photosynthetic? [2]

3. Compare and contrast cyclic and noncyclic photophosphorylation. [4]

4. Explain the photolysis of water using the Hill Reaction. [2]

5. How do the light-dependent and independent reactions differ, and why are each of them important? [2]

6. Outline the Calvin cycle. [2]

7. Describe the structure of a photosynthesizing C3 leaf, including a labeled drawing. Indicate where stomata are located and what their function is. [2] (Hint, you might need to flip to an earlier chapter for this)

8. Describe the structure of a chloroplast using words and a diagram. Indicate what function each section of the chloroplast has, and label it on your diagram. [2]

9. Describe the four main factors necessary for photosynthesis and indicate why each one is important. [4]

10. Explain the concept of limiting factors and describe how each of the necessary factors for photosynthesis can serve as a limiting factor. [3]

11. Describe the structure of a C4 leaf with an included diagram. Create a separate diagram illustrating the bundle sheath cells and mesophyll cells. [3]

12. Outline the Calvin cycle in C4 photosynthesizers. What is different about this from C3 plants? [2]

13. Compare and contrast chlorophylls and carotenoids, including an explained difference in their absorption and action spectrums. [2]

14. Differentiate between primary and accessory pigments, and indicate which contains reaction centres. [2]

15. Outline how someone might extract the pigments of a leaf and separate them using chromatography. [3]