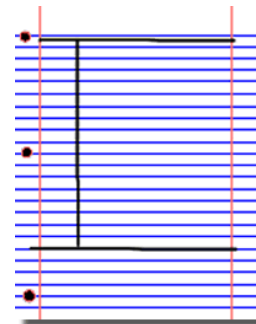


**AP Biology Homework Guidelines:**

ALL Homework should be saved in a notebook that can be used later as a resource to study for the AP Biology Exam

**Possible Homework Strategies and Descriptions:**

1. **Cornell Notes:** Divide paper as shown in diagram to the right. Notes go in the top right box (Don't use complete sentences – diagrams and concept maps are welcome), key points go in the top left, a summary of information goes on the bottom (this should be done in complete sentences).
2. **Guided Readings:** Each student will answer a set of questions based on information from the textbook.
3. **Concept Mapping:** Each student will create a concept map about main themes of each chapter. Making connections and relationships from the information given.
4. **Traditional Outlines:** Each student will read the chapter and generate an outline based on information in the chapter
5. **MasteringBiology.com:** Each student will log on using their student accounts and answer questions regarding the chapter we are discussing in class.



**For ALL Strategies:** Please read each through the chapter once. Consider taking notes and drawing diagrams or concept maps. Think about what you have read and follow that up by answering the following questions completely, in detail and in your own words.

**GRADING:** Please note the due date for each assignment. You are to submit your work on the day it is due. You will receive zero credit for any late work (refer to syllabus for policies.) All work submitted must be your own. You may not collaborate with others on homework or use words that are not your own. If you need to quote the text, include the proper citations. If you choose not to follow the Academic Honor Code proper action will be taken.

**Chapter 9 – Cellular Respiration****Due – 10/20****Guided Reading:**

1. How are cellular respiration and fermentation examples of catabolic, energy-yielding pathways?
2. How is ATP recycled in a cell? What is the benefit?
3. What is a redox reaction? What is the end result of this reaction?
4. In the conversion of glucose and oxygen to carbon dioxide and water, which molecule is reduced? Which molecule is oxidized? What happens to the energy that is released in this redox reaction?
5. What is the importance of dehydrogenase and the coenzyme NAD<sup>+</sup>?
6. How is energy released in the electron transport chain?
7. Review and study the overview of cellular respiration – get the big picture! Create a concept map or graphic organizer to show your work.
8. What is the ten step process that turns glucose into pyruvate? Emphasize the enzymes involved. Flash cards anyone?
9. In the Krebs Cycle acetyl CoA is added to oxaloacetate to form citrate, which is progressively decomposed back to oxaloacetate. What are the products released with each turn of the Krebs Cycle?
10. What are the sources of the electrons that enter the electron transport chain? How and where are they converted into ATP?
11. ATP synthase, the inner membrane space and chemiosmosis, what is the relationship between these three?
12. How efficient is the energy conversion from glucose to ATP? In what form is energy lost?
13. When oxygen is absent glycolysis is part of fermentation. There are two types of fermentation. What are they? Where do they occur? What are the products and reactants?
14. How much more ATP can be generated by respiration than by fermentation? Explain why.

**Chapter 10 – Photosynthesis****Due – 10/27****Guided Reading:**

1. What is the difference between an autotroph and a heterotroph? What are the two types of autotrophs, explain the difference between them?
2. What is the function of chlorophyll? What types of cells contain chlorophyll? What is the role of stomata?
3. Describe the structure of a chloroplast.
4. Figure 10.3 shows the fate of the atoms in photosynthesis. Summarize how scientists discovered this include the original idea that CO<sub>2</sub> was split to form oxygen, the challenge by Van Neil, and the basis for this challenge and then how Van Neil's hypothesis was proved.
5. Explain why photosynthesis is considered a redox reaction.
6. By ONLY using figure 10.4 on page 180 summarize the light reaction of photosynthesis. – The big picture.
7. Referring to the first 2 paragraphs on p. 181 and figure 10.4 summarize the Calvin Cycle, also known as the light independent reaction.
8. What portion of the electromagnetic spectrum is most important to living things? Be specific.
9. What is the relationship between the energy in a photon and the wavelength of light?
10. Why do leaves appear green when you look at them?
11. What is a photosystem? What is the relationship between photosystem I and photosystem II?
12. Compare and Contrast the two possible routes for electron flow.
13. Chemiosmosis occurs in both the mitochondria and the chloroplasts as the final stage of the ETC turning ADP into ATP. How is chemiosmosis different in each organelle?
14. It takes 3 CO<sub>2</sub> molecules to make one glucose molecule. What are the three phases of the Calvin Cycle that each CO<sub>2</sub> must pass through? Why are the names of these phases appropriate?
15. What possible explanation is there for photorespiration, a process that can result in the loss of as much as 50% of the carbon fixed in the Calvin cycle?

**\*Cell Respiration Lab – 10/21-10/24****\*Photosynthesis Lab – 10/29-10/31****\*Unit Test – 11/6***\*Dates subject to change*