Name: _____ **AP Biology**

Chapter 25 Active Reading Guide
The Origin and Diversification of Eukaryotes

Section 1

1. What was the earliest form of life on the planet? How long ago did this life-form first occur?

2. What unique ability was originated with cyanobacteria? How did this alter life on Earth and lead to a wave of mass extinctions?

3. The first eukaryotes did not appear until approximately 2.1 billion years ago. Explain the evolution of eukaryotes by endosymbiosis.

4. Summarize three lines of evidence that support the model of endosymbiosis.

5. Protists vary in structure and function more than any other group of organisms. However, here are some common traits:
   a. All have membrane-bounded organelles, and so are _____.
   b. Most are single-celled, or _____.
   c. They get their food in several ways. Some contain chloroplasts and do photosynthesis, and so are considered _____. Others ingest food particles and so are _____.

6. Define secondary endosymbiosis.

7. Endosymbiosis is a key component of eukaryotic evolution. Many protists are also the result of secondary endosymbiosis. Describe the key steps in several secondary endosymbiotic events.

Section 3 & 4

8. Malaria is a leading cause of infectious disease. Over 250 million people in the tropics are infected each year, and 900,000 die each year. The parasites that cause malaria are in the genus Plasmodium. Plasmodium uses both mosquitoes and humans in its complex life cycle, shown below. Explain the eight steps in the Plasmodium life cycle.
   1.

   2.

   3.

   4.

   5.

   6.

   7.

   8.

9. Answer these questions about the ciliate Paramecium.
   a. How does the Paramecium obtain food?

   b. How do food vacuoles and lysosomes help with nutrition?

   c. The Paramecium is hypertonic to its surroundings, so how does this organism maintain water balance?