Changes During Precambrian Time	Name:
	Period:
Answer the questions below from Chapter 9, Section 3.	
Precambrian Time—Life Develops (p.279)	
1. How many years ago was Earth formed?	
2. About how many years ago did life first appear?	-
Life and Oxygen (p.279)	
3. Cyanobacteria added to Earth's atmosphere.	
4. Look at Figure 5. What did ozone do that helped life survive on land? a. increased radiation b. reduced radiation c. increased oxyge	n d. reduced oxygen
Organisms That Are More Complex (p.279)	
5. In what way are cells of eukaryotes different from cells of prokaryotes?a. They are larger.c. They have a nucleus.b. They are smaller.d. They don't have a nucleus.	
Now, use the chart titled "Life Originates and Diversifies" and p.279 to help you.	
1. "mya" means millions of years ago. Looking at the chart, will you find the olde the bottom? <i>Hint: think about where the oldest rock layers will be found.</i>	st information at the top or
2. According to the chart, how old is Earth? mya.	
3. What were the two earliest forms of life on Earth?	
and	
4. For a very long time, there was no oxygen in the atmosphere of Earth. There simple forms of life called cyanobacteria. These were important because they used by all plants today. What is the name of this process, and what gas does	were, however, very started a process that is s it produce?
The name of the process is	and the gas it
produces is called	
5. As oxygen was slowly added to the atmosphere, life began to get more compli first, organisms with no nucleus (prokaryotes) or organisms with a nucleus in t	cated. Which showed up heir cells (eukaryotes)?

6. When iron is exposed to oxygen, it begins to rust. That means that any rocks that have iron bands (layers) in them would change color from dark grey to orange brown (rust color) when exposed to oxygen. How would rocks with iron bands help geologists to know if there was oxygen in the atmosphere when the rocks were formed?

- 7. As oxygen was being added to the atmosphere, it began to form a protective layer of ozone around Earth that blocked some of the radiation from the sun. Why was this layer so important for life on Earth?
- 8. Did sexual reproduction start before or after there was lots of free oxygen in the atmosphere?
- 9. Presume that Earth's earliest life appeared around 3800 mya. Sexual reproduction started about 1100 mya. For how long on Earth was the only form of reproduction asexual? Show your work below.



diagram from The Human Evolution Coloring Book (2000) by Adrienne L. Zihlman