

Chapter 14 - The History of Life

Name _____

Read pages 390 - 400. This chapter introduces us to concepts needed to understand the non-Biblical ideas on the origins of life and evolution. As you read, the following questions will direct you to ideas, facts, and concepts that I think you should get out of this section.

I = Individual

P = Pair

G = Group of three or four

- I** 1. Since our book focuses on life, it does not tell us what the universe was like prior to life. Other scientists suggest that the universe is around 15 billion years old, give or take a billion or so. On page 392, Earth's early history, and Clues in rocks on page 393,
- how old is the earth?
 - how old is life?
- I** 2. A key word in this section is **fossil**. What is a fossil?
- G** 3. Work in your group and examine Table 14.1, writing down the six categories of fossils. For each category, identify whether you are looking at an actual organism or a representation of an organism.
- G** 4. On page 394, Student 1 read paragraph one aloud. Why are fossils not found in igneous or metamorphic rocks?
- G** 5. On page 394, Student 3 read paragraph two aloud. What kind of rocks are fossils found in?
- I** 6. In your own words, summarize how a fossil is made.
- I** 7. What are the two ways of dating fossils?
- G** 8. Group: Name two radioisotopes used for dating.
- G** 9. Discuss with your group how relative dating works. Jot down a brief explanation.

- G** 10. Group: In order to date fossils, scientists must make some assumptions and have some information about the rocks and isotopes near the fossil. On page 395, discuss and jot down four criteria that must be known or used to be able to date fossils found in sedimentary rock.
- G** 11. Check out the Geologic Time Scale on pp. 396 - 400. There are four eras. With your group, set up a table in your notebook. Name the eras down the rows. In three columns list the starting year, ending year, and two major characteristics relating to organisms for each era.
- P** 12. Section 14.2 is a difficult section because it goes against our Christian beliefs, yet, it is important for us to understand what science has to say about life origins so we can intelligently discuss matters of Life and death with them. It is also a difficult section to follow and understand. Divide your group into pairs.
- a) Find two early theories on the origins of life.
- b) Under the part of Modern Ideas on origins of life, there is one hypothesis and one theory as well as a large discussion on requirements for life and its evolution. List the hypothesis and the theory. (pp. 402-406)
- P** 13. I think this section suggests there are four main things that are needed (sufficient) for life. See if you can identify these four things from page 404.
- P** 14. What is the significance of the Miller-Urey experiment for understanding the secular origin of cells and life?
- I** 15. Describe how the hot springs of Yellowstone National Park (see a picture on page 413) might be similar to conditions on an early earth? Also, which “origin of life” theory might this be similar to?