



High School Science Virtual Learning

# College Biology

## Chapter 15 Recap Part 1

May 12, 2020



# High School College Biology

## Lesson: May 12, 2020

### **Objective/Learning Target:**

Students will be able to discuss the history and origins of life and the evolution of prokaryotes and protists.



## Let's Get Started:

1. What is the name of the chemical reaction whereby monomers are linked together into polymers?
2. What are the reactants in cellular respiration?



Answers:

1. Dehydration Synthesis
2. Glucose and Oxygen



## Lesson Activity:

1. Read over pages 1-16 of the Chapter 15 Notes. ([Linked Here](#))
2. Watch this Crash Course video on [The History of Life](#).



## Practice:

1. What were the conditions on Earth 4 billions years ago?
2. List and describe the three most common types of prokaryotes.
3. How do some prokaryotes survive harsh conditions and how might this have played a role in early Earth?

## Practice Answers:

1. Earth was a very violent place 4 million years ago. Volcanic eruptions spewed gases like carbon dioxide, methane and ammonia into the atmosphere. The surface of the planet was still hot, but water vapor had begun to condense and form oceans.
2. Cocci, which is spherical; bacilli, which is rod-shaped and spirochetes, which are spiral or curved
3. Some prokaryotes can form endospores which are thick-coated, protective cells that are produced within a prokaryotic cell. These endospores can lie dormant until favorable conditions return.

## More Practice:

1. Place these events in the history of life on Earth in order.
  - a. Accumulation of O<sub>2</sub> in Earth's atmosphere
  - b. Colonization of land by plants and fungi
  - c. Diversification of animals (Cambrian explosion)
  - d. Origin of eukaryotes
  - e. Origin of humans
  - f. Origin of multicellular organisms
  - g. Origin of prokaryotes



## More Practice:

2. DNA replication relies on the enzyme DNA polymerase. Why does this suggest that the earliest genes were made from RNA?
3. Some species of cyanobacteria form symbiotic relationships with other organisms. What benefit might a protist or fungus receive from a cyanobacterial symbiont? What benefit might a plant receive from a cyanobacterial symbiont?



More Practice:

4. What are ribozymes? Why are they a logical step in the formation of life?

5. Using a microscope, how could you distinguish the cocci that cause staph infections from those that cause strep throat?

## More Practice Answers:

1. G, A, D, F, C, B, E
2. DNA polymerase is a protein, which must be transcribed from a gene. But a DNA gene requires DNA polymerase to be replicated. This creates a paradox about which came first - DNA or protein. But RNA can act as both an information-storage molecule and an enzyme, suggesting that dual-role RNA may have preceded both DNA and proteins.
3. Food (products of photosynthesis); usable form of nitrogen.
4. A ribozyme is an RNA molecule that functions as an enzyme. Ribozymes can perform some of the functions of both DNA and protein.
5. By the arrangement of the cell aggregates: group-like clusters for staphylococcus and chains of cells for streptococcus.



## Review Tools:

-[Kahoot 1](#)

-Bozeman Science Video [The Origin of Life](#)