Endosymbiosis of Mitochondria & Chloroplasts Notes Outline

**DO NOW**: A typical cell of *prochlorus* has a diameter of about 1 µm. Euglena are unicellular organisms that are about 0.05 mm in length. How many procholorus cells in a straight line would be as long as an Euglenoid?

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I. Chloroplasts

A. Chloroplasts are: (structure)

B. Chloroplasts do: (function)

C. Structure:

II. Mitochondria

A. Mitochondria are: (structure)

B. What they do: (function)

C. Do plant cells have mitochondria?

III. Similarities between chloroplasts & mitochondria

A.

B.

C.

IV. Important details (why they’re AMAZING)

A. DNA:

B. reproduction:

C. genetic code is different from the cells they are found in, but the same as some \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

V. Prokaryotes & Endosymbiosis

A. What’s a prokaryote?

B. Endosymbiotic Theory:

C. Life on Earth originated \_\_\_\_\_\_ billion years ago, according to fossil and other evidence. For the

next \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ years, prokaryotes were the only type of cells on Earth.

Eukaryotes first show up on Earth about \_\_\_\_\_\_ billion years ago.

**Cell Biology Video**

8:35 Eukaryotes are larger and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ than prokaryotes.

10:20 What did the chloroplasts from plant cells do in the chicken egg?

10:45 What happens to the chloroplasts eaten by the sea slug?

11:30 What is symbiosis?

12:00 What does the large cell provide to the chloroplasts?

12:10 What do the chloroplasts provide to the host cell?

12:50 What is *Euglena?*

\*\*\*13:00 – 13:30 What did antibiotics do to the chloroplasts in *Euglena* cells?

14:00 What do mitochondria do?

15:00 There is less evidence for the symbiosis of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ in eukaryotes

**YOUR TURN: THINK!**

1. In 12 words or less, describe the endosymbiosis theory

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Of all the data supporting endosymbiosis theory, which do you think is the best? Why?

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