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How Cells Have Evolved

Subject Outline
terms and
phrases

evolution, fossil evidence, endosymbiotic event, ribozyme

1. Explain the meaning of the statement 'Life on Earth has diversified over the last 3.5 billion years'.

2. Explain how each of the following pieces of evidence supports the idea that eukaryotic cells did not exist on Earth before prokaryotic cells.

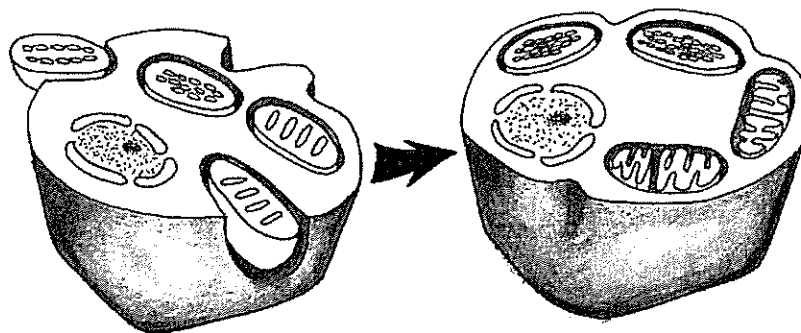
(1) fossils _____

(2) cell complexity _____

(3) early Earth's atmosphere _____

3. (a) What is meant by the term **endosymbiotic event**?

(b) Explain how endosymbiotic events may have led to the formation of the first eukaryotic cells. In your answer you should refer to the following diagram, on which you should put suitable labels.



(c) State four pieces of evidence that support the idea that the first eukaryotic cells were formed by endosymbiotic events.

- (1) _____
- (2) _____
- (3) _____
- (4) _____

4. (a) Explain how the first membranes may have formed spontaneously, eventually giving rise to simple cells. Illustrate your answer with a labelled diagram.

(b) Describe the possible roles of RNA and ribozymes in the first simple cells.
