

## Review Sheet for Lecture #07: Evidence of the Earliest Life

**Terms and Definitions:** bacteria, archaeans, eukaryotes, prokaryotes, zircons, microdiamonds, light carbon isotope signature, chemical fossils, body fossils, steranes, SCHNOP, monomers, panspermia, carbon fractionation,  $^{13}\text{C}$  depleted graphite

**Persons:** none

### Dates:

Age of the earliest undisputed body fossils (cyanobacteria): 3.43 billion years

Age of the oldest undisputed stromatolites: 3.48 billion year

**Places:** (know what significance these sites have to the earliest evidence of life on Earth)

Strelley Pool Fossil Site, Australia

Akilia Island, Greenland

Jack Hills, Australia

Labrador, Canada

Isua Greenstone Belt, Greenland

Kromberg Formation, South Africa

Apex Chert, Australia

Pilbara Craton, Australia

Neganev Iron Formation, Michigan

Deonar Formation, India

Baffin Island, Canada

**Organisms:** *Grypania*, *Tappania*, *Bangiomorpha*, also be able to identify fossils from ALL other fossil sites mentioned above

### Review Questions:

The origin of life is unexplained, therefore evolution is based on nothing more than faith.

Explain why this statement is wrong.

How do paleontologists generally tell the difference between a prokaryotic and a eukaryotic cell in the fossil record?

What kinds of environments might early life have taken hold in?

How have the Apex Chert fossils been reinterpreted lately?

How are steranes potential evidence for the first eukaryotes? What has caused these findings to be disputed?

Why is the record of “light isotopic carbon” no longer an unequivocal way of identifying early photosynthetic carbon?