QUESTIONS BEFORE WE START?

Friday 8 Sept	Chapter 2.2 Life's origins and diversity	34-41	**Complete** beSocratic #4

Course		Days	Time	Room	Rosters	Email Class	Final Exam
Core Bio I: Fundamentals MCDB-1111-001		MWF	10:00 AM - 10:50 AM	GOLD A120	CLASS ROSTER PHOTO ROSTER		TBD

Given current events, note: a hurricane is a non-equilibrium system. Why isn’t it alive?

Is life a natural or a supernatural process? how can we decide?

In your groups (2 groups per table): generate a list of key experiments - what do they show, what do they conclude or imply?

What types of “controls” (if any) were involved?

Pasteur's experiment ... We often think about experiments in terms of "controls", which enable us to isolate the various factors involved in a process. When Pasteur broke the neck of a flask, what type of control was it?

what does a positive control test for?

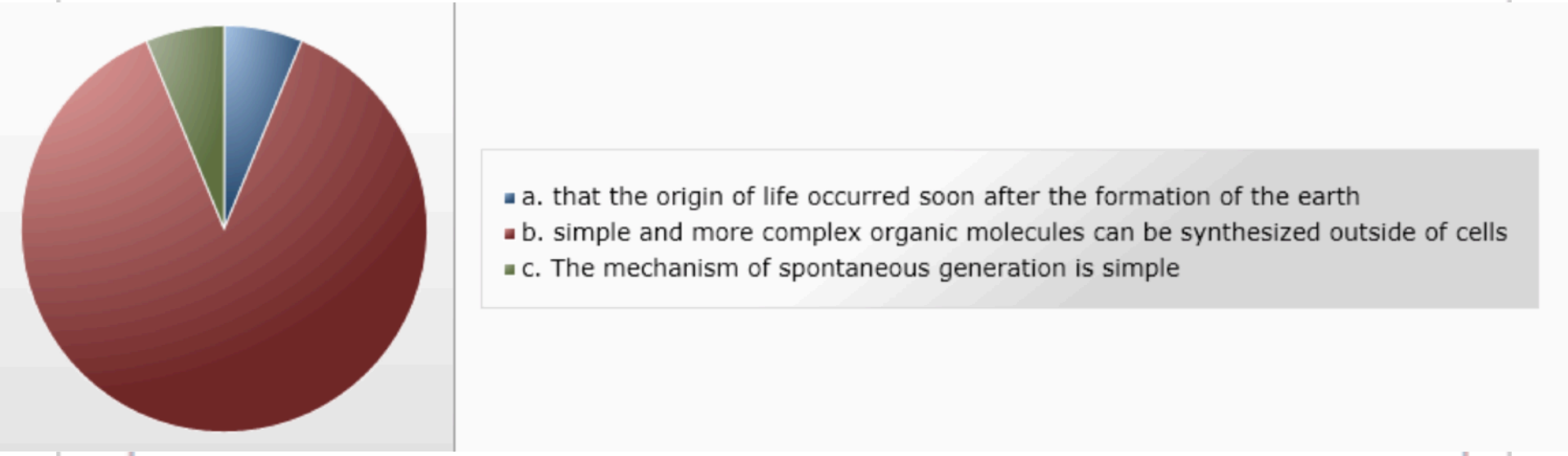
- negative control
- positive control
- not a control at all, just part of the experiment
- unsure

pasteur's flasks

Assume that Pasteur found **no** growth in the broth after he broke the flasks' necks; how would that have altered the interpretation of his experimental results?

Wohler's synthesis of uream and subsequent studies proved ...

- **a. that** the origin of life occurred soon after the formation of the earth
- b. simple and more complex organic molecules can be synthesized outside of cells
- c. The mechanism of spontaneous generation is simple
- d. The origin of life involved electricity



Miller-Urey experiment

Conducting Miller-Urey Experiments

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Jack Shostak video

Assumptions about the composition of the early atmosphere…

Prebiotic Systems Chemistry: New Perspectives for the Origins of Life

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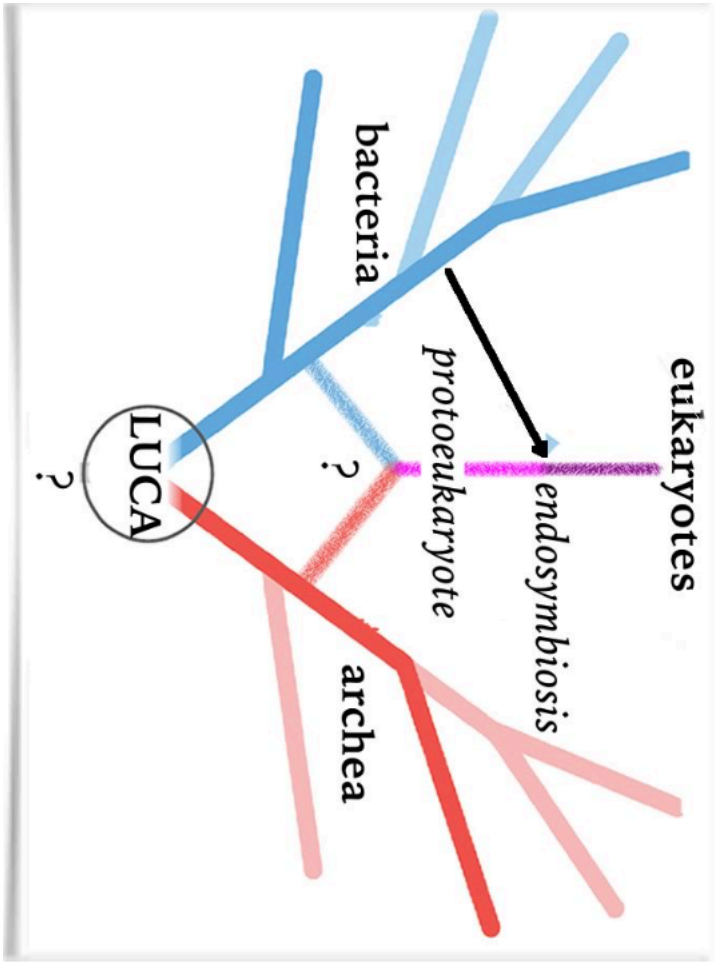
LUCA

what is time axis on this image →

How would you plot biodiversity →

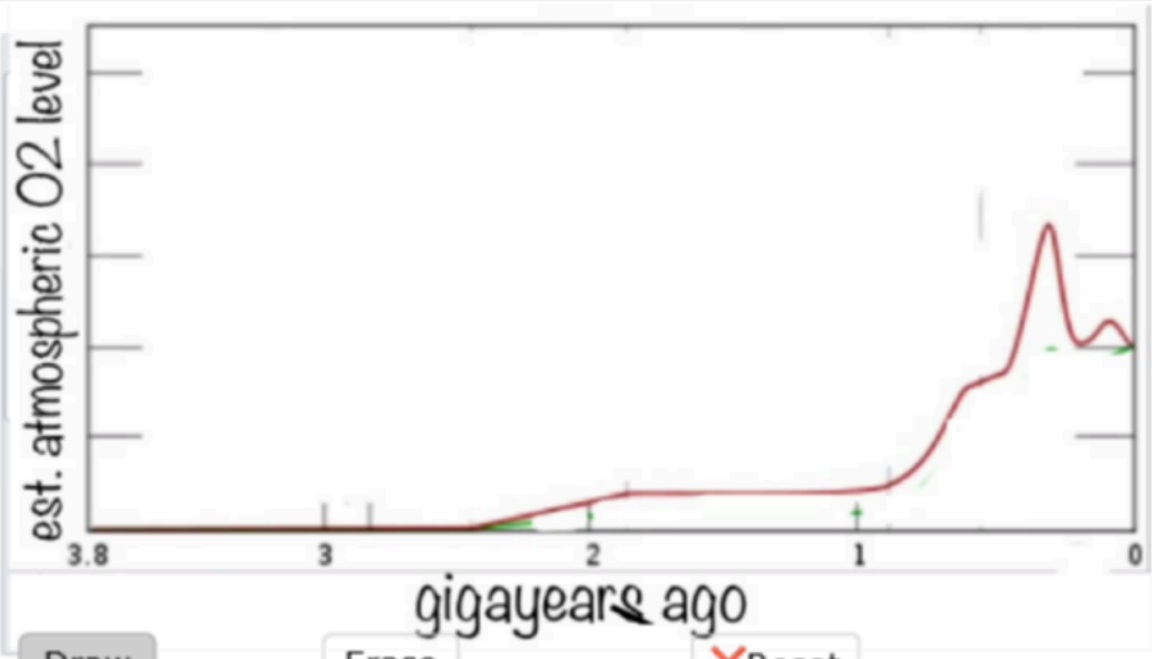
where did oxygenic photosynthesis arise?



appearance of O2 (oxygenic photosynthesis)

The apparance of different types of organisms can influence the survival and evolution of others.

This graph diplays an estimate for the levels of atmospheric O2 over Earth's history; **draw an arrow** to indicate when you think O2 excreting organisms first appeared.



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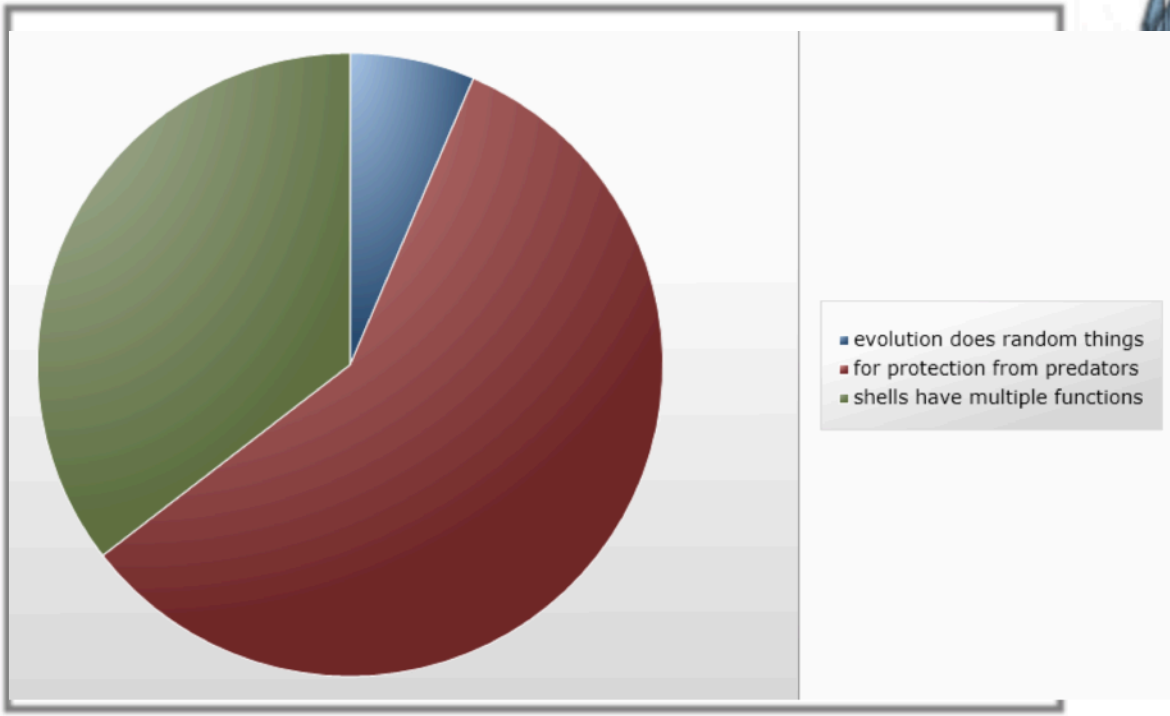
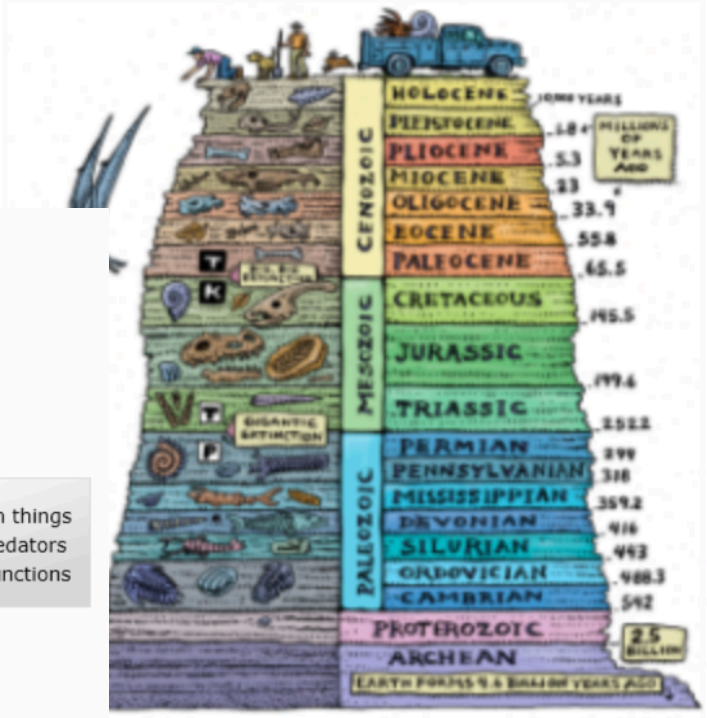
What type of evolutionary event could influence the future of human evolution.

1. When did oxygenic photosynthesis arise (and why do you think so?)
2. When do you think aerobic respiration arise? (why do you think so?)

Consider the fossil record, at some point in the past you to find evidence for organisms with shells; what kinds of plausible model could you make to explain this observation and what type of (fossil) evidence would support your conclusions.





Organisms might develop a shell bacause...

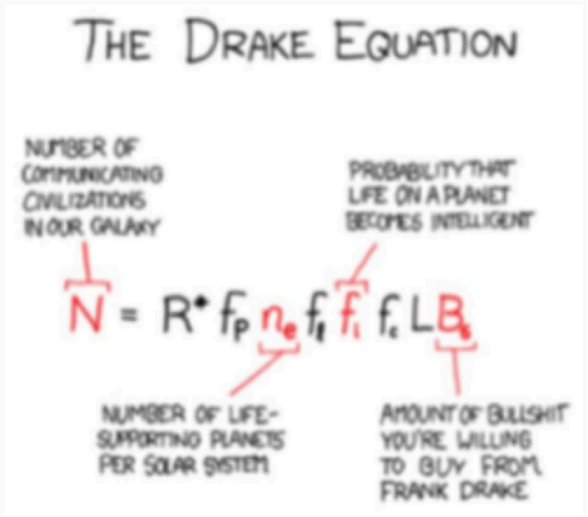
explain your logic

volution does random things

- for protection from predators
- shells have multiple functions
- shells are pretty

What factors make the Drake equation non-scientific?

- [ ] R* = The rate of formation of stars suitable for the development of intelligent life.
- [ ] fo = The fraction of those stars with planetary systems
- [ ] ne = The number planets, per solar system, with an environment suitable for life.
- [ ] fl = The fraction of suitable plants on which life actually appears.
- [ ] fi = The fraction of life-bearing planets on which intelligent life emerges.
- [ ] fc = The fraction of civilization that develop a technology that releases detectable signs of their existence into space.



Why should a scientist be ashamed to act as if the Drake equation is scientific?

Next five classes - basic evolutionary mechanisms

Monday 11 Sept	Chapter 3.1 Evolutionary mechanism	42-49	**Complete** beSocratic #5