

History of the Earth Internet Lab

In this lab you will explore the beginnings of the Earth to make connections on how and why we have the atmosphere we do, water on the surface and living organisms.

1. Using descriptive sentences, what do you think the Earth was like 4.56 billion years ago in terms of what the atmosphere was made of, what the surface of the planet looked like, and what was on the surface?

After you have completed your write-up on what you think Earth was like, create the following timeline and watch the you tube video clip at <https://www.youtube.com/watch?v=Gyn754vw8ZQ>

On your paper under your answer for question #1 set up a timeline of major events like this:



As you come across major events in Earth's history accurately plot it on your time line. Half way would be about 2.28 bya (billion years ago). (Major events would be formation of the Moon, first water, first life, first oxygen in the atmosphere, first multi-celled organisms, first invertebrates, first fish, first amphibians, first reptiles, first mammals, major extinction events)

Use the information from the video to answer question 2-6:

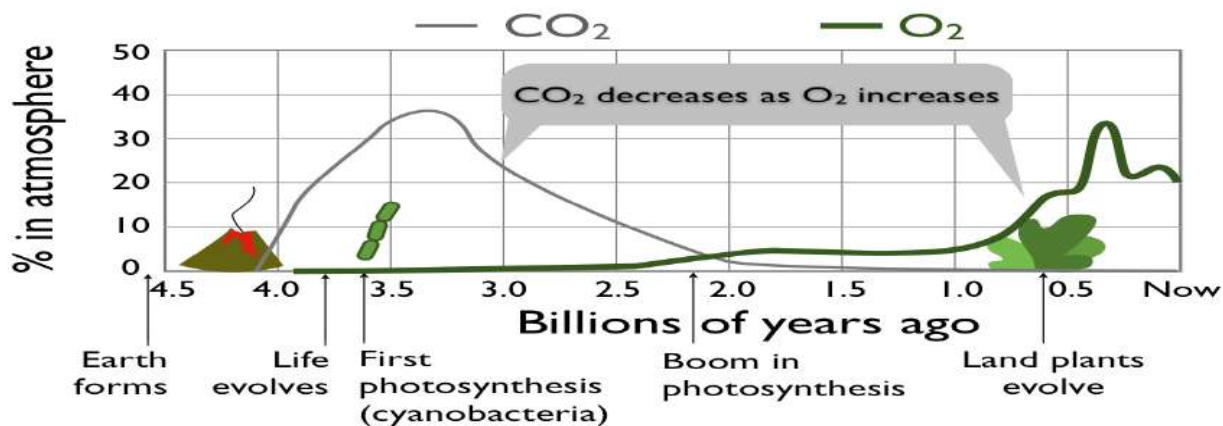
2. How did the Earth form?
3. Where did the Moon come from?
4. What was the surface of the planet like right before and after the formation of the Moon?
5. What gasses made up the first atmosphere?
6. What is the best estimate for when water started accumulating on the surface of Earth?

Go to <http://www.physicalgeography.net/fundamentals/5b.html> and answer the questions

7. What were the main gasses in the atmosphere from 4.4 bya-4.0 bya?
8. How did the gasses change from 4.0 bya to 3.3 bya?
9. After 3.3 bya what happend to the atmosphere?

Look at Figure 8.45 below and click on <http://www.scientificpsychic.com/etc/timeline/atmosphere-composition.html> to answer the following questions.

Figure 8.45. CO₂ and Earth's Atmosphere Over Time



Concentration of CO₂ and O₂ in Earth's atmosphere over its history. Dramatic changes happened as plants used CO₂ to grow their biomass and released O₂ during photosynthesis. Graph by M. d'Alessio, based on data from Holland 2006.

10. What is the magnetosphere? How did it form and why is it important to life on Earth?
 11. Where did the 1st CO₂ on Earth come from?
 12. When did CO₂ increase in the atmosphere? What caused the CO₂ level to increase?
 13. When did CO₂ start to decrease in atmosphere? What caused the CO₂ level to decrease?
 14. What was highest % of atmospheric CO₂ in earth's history – compare to what the % is now.
 15. When did life begin and start evolving on earth?
 16. When did the first photosynthetic bacteria appear on earth?
 17. What happened to the first Oxygen that was produced by living organisms?
 18. How did photosynthetic organisms affect CO₂ levels in the atmosphere?
 19. What is an anaerobe and what eventually killed them off?
 20. What is Ozone, when did it start forming, how does it form and why is it important to life?
 21. When was the biggest mass extinction on Earth and what caused it?
 22. What type of organism began to thrive after the mass extinction that occurred 251 million years ago?
- Go to <https://www.sciencenewsforstudents.org/article/dinosaurs-extinction-asteroid-eruptions-doom>
23. Read the article and summarize what happened 65-66 million years ago during this mass extinction event. What events caused the mass extinction, what do we know, what don't we know, what organisms died off and what organisms became the dominant creatures on Earth?