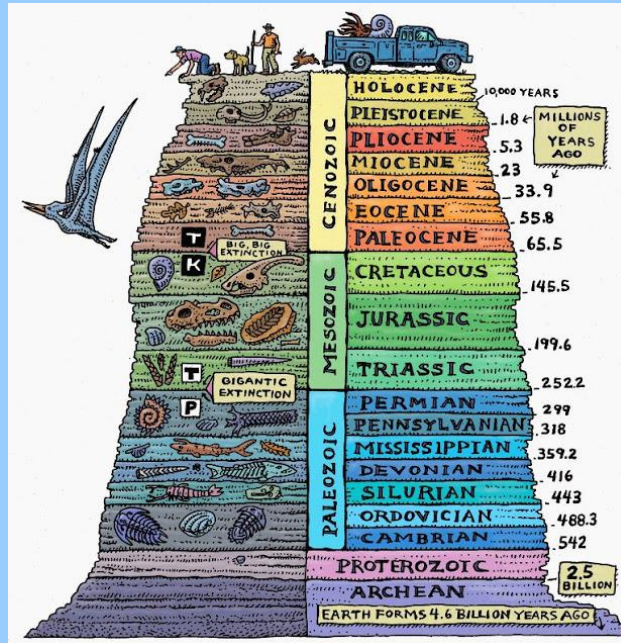




Deep Time and the History of Life



The Toilet Paper Deep Time History of Life

Read my essay. Watch the Football Field Video. Write your two paragraph summary and opinion:

[So much Time, so Few Events—TP. History of Life](#)

by Larry Frolich



[Earth History on a Football Field \(4 min.\)](#)



The Geologic Time Scale (now get the details...ouch!)

[Geological Time, from The Digital Atlas of Ancient Life](#)

Please go through the five topics on this incredible review of Geological Time from The Digital Atlas of Ancient Life from the Paleontological Research Institution.

- [1. Geological time](#)
- [2. Relative age dating](#)
- [3. Absolute age dating](#)
- [4. Geological time scale](#)
- [5. Geological maps](#)

This is just a fantastic online resource of digitized images of life from the past, organized and accessible to students. What a gem!

This resource really has it all. They show you the best and most easily understood Geologic Time Scale. They explain how we date rocks and fossils, both in a relative sense, using their relative position in the rock strata, and absolute sense using radiometric dating. And then, when you go through these five screens, then you will come away an expert on Geological Time and even understand what a geological map is, and why they might be so important, as in modern life would be impossible without them...another example of how nothing in biology, or geology, makes sense without evolution.

Your two-paragraph summary and opinion here will be pretty detailed...might need a couple of pages!

[Geological Society of America Official Geological Time Line v5.0](#)



ADDITIONAL RESOURCES

[T.P. Timeline of Life](#)

(this is school kids doing the T.P. Timeline activity)

- [Spreadsheet of Life on Earth with key events](#)
- [ASAP Science--The Evolution of Life on Earth](#)
- [Margreet de Heer—History of Earth in 5 ½ minutes](#)
- [How many mass extinctions have there been? Minute Earth](#)
- [A Brief History of Everything. Minute physics with Neil de Grasse Tyson](#)

(this is more about early cosmic history before Earth forms, but does have a few minutes on Earth at end)

- [Best Online Interactive Universe Timeline ever, from John Kyrk](#)

(used to be the best but requires Flash and no longer seems to be working right... 😞)

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EVENT	TIME BEFORE PRESENT (Ga--billions of years ago (Ma--millions of years ago)	SHEET NUMBER ON THE TYPICAL ROLL OF 200 SHEETS
Formation and Solidification of Earth	4.6-4.0 Ga	1
Oldest Rocks Known	3.8 Ga	10
Earliest evidence of life--carbon forms in rock	3.8 Ga	10
Earliest fossil prokaryotic cells	3.5 Ga	25
Oxygen levels rise steeply due to increase in photosynthetic activity	2.5 Ga	75
Complex eukaryotic cells appear in fossil record	1.5 Ga	125
First multicellular organisms in fossil record	600 Ma	170
Burgess Shale--explosion of multicellular diversity--most multicellular animal groups represented in primitive form	515 Ma	176
First land vertebrates	350 Ma	183
<i>Archaeopteryx</i> --precursor to birds (and other dinosaurs)	150 Ma	192
End Cretaceous Extinction--goodbye dinos, hello mammalian, bird, flowering plant diversity	65 Ma	196
Lucy-- <i>Australopithecus</i>	4 Ma	200 (last 1/5 of sheet)
<i>Homo erectus</i> , fire	1 Ma	200 (last 1/20 of sheet)
Start of agriculture, settlements	10,000-20,000 years ago 10-20 Ka	200 (last fibers)

Teaching notes for this activity [\[link\]](#)