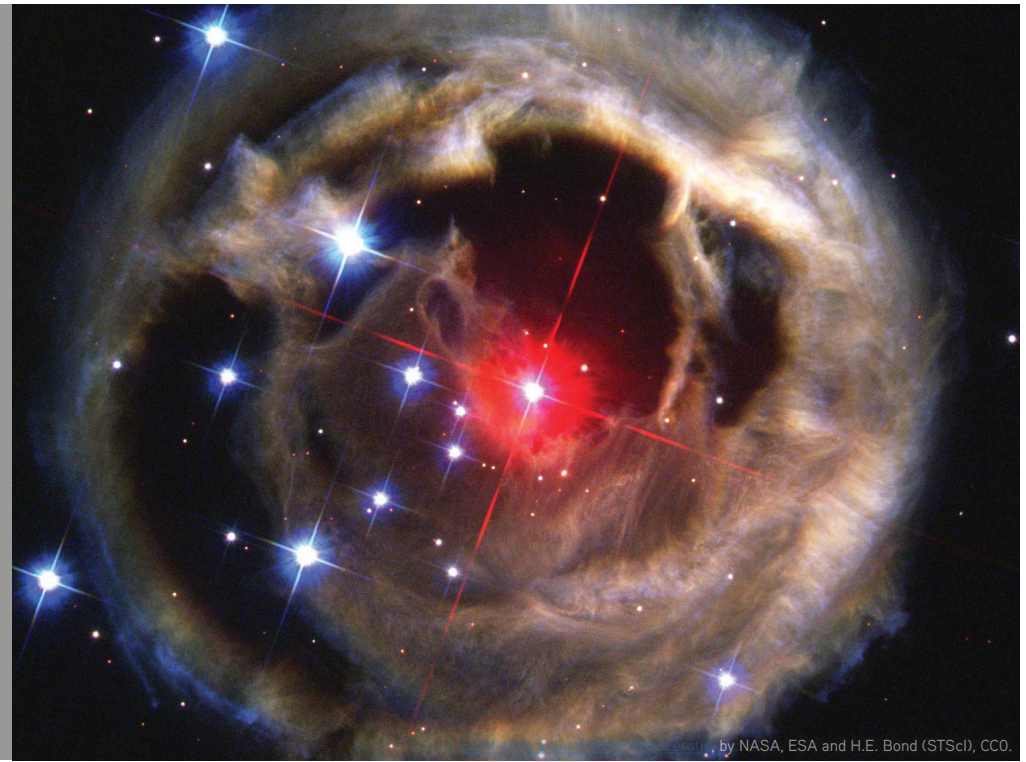


1

Big History: An Overview



By John Green, adapted by Newsela.

History is an attempt to understand both our insignificance and our significance. To study history is to better understand the world and your place in it.

820L



BIG HISTORY PROJECT

What Is History?

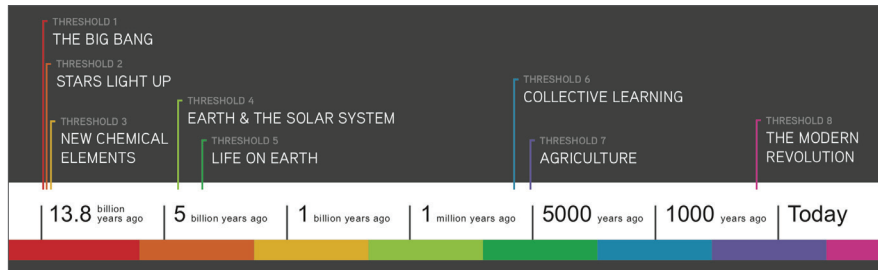
History is the attempt to better understand the world we live in and our place in it. You and every other living human are the latest chapter of the human story. Everything that has happened so far has led up to this point.

What Is *Big* History?

Yet, there is a lot more to history than the human story. If you think of history as the story of life on Earth, almost all of it happened before we showed up. After all, we've only been around for the last 250,000 years. That is less than 0.01 percent of the history of life on Earth.

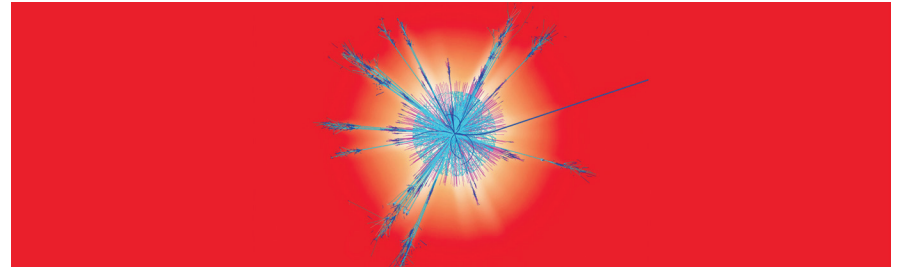
Big History places human history within the story of the Universe itself. It is a way to better appreciate the big picture.

Thresholds of Increasing Complexity



There are eight key turning points in Big History. These are called thresholds. They are moments when the Universe or our world became much more complex than it had been previously. Big History is organized around these turning points.

Threshold 1: The Big Bang



Big History and the Universe itself began around 13.8 billion years ago with the Big Bang. In a split second, all matter expanded at enormous speed and became the Universe. What was there before the Big Bang? That question cannot really be answered, because there was no “before” until the Big Bang happened. The Big Bang created not only space but also time. That idea is very hard to understand, but don't worry about it. The important thing to know is that around 13.8 billion years ago, very suddenly, the Universe exploded into being.

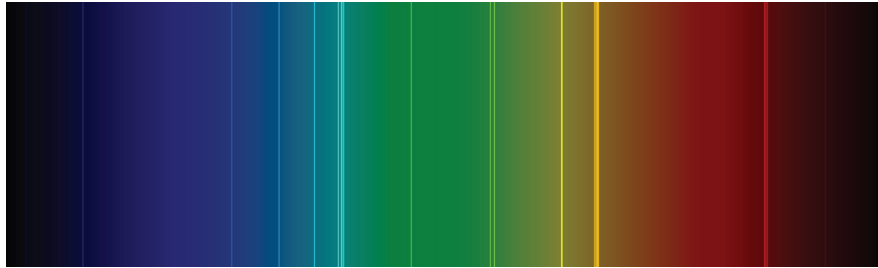
Threshold 2: The Stars Light Up



After the Big Bang, the Universe expanded and cooled. After 380,000 years, it was cool enough for the simplest atoms to form. These were hydrogen and helium. For a very long time, the Universe was almost entirely made up of nothing but hydrogen and helium. After a few hundred million years, clouds of hydrogen and helium began to collapse.

The increasing heat and pressure this produced led to the formation of the first stars. Stars represent the second threshold of increasing complexity in Big History. Over time, gravity grouped stars into galaxies, which created further complexity in the Universe.

Threshold 3: New Chemical Elements



Stars made the Universe more complex, but the Universe was still primarily made up of hydrogen and helium. This changed when the first generation of stars died. Their death created very high temperatures and pressures, which led to the formation of more complex atoms. Planets and living things first became possible once these more complex and varied atoms existed because they could not have formed without them. Thus, the death of stars is the third threshold of increasing complexity in Big History.

Threshold 4: Earth and the Solar System



Our Sun is a star. Like all other stars, it was formed from the collapse of a huge cloud of gas and dust particles. More than 99 percent of this material went to make up the Sun, but thin bits of loose matter orbited around it at various distances. Eventually, the matter in each orbit was drawn together by gravity. Small lumps of matter were created. Over time, these lumps grew larger and larger and formed the planets. This process is called accretion. It is how our Earth was formed around 4.5 billion years ago.

Threshold 5: Life



On the floor of Earth's oceans, there are vents that release heat from deep underground. The heat given off by these volcanic vents made chemicals in the water go through ever-changing reactions. Around 3 billion years ago, those reactions led to the formation of the first living organisms. The earliest living things were single-celled creatures. Like all living organisms, they were subject to the laws of evolution. Generation by generation, they slowly changed. In time, entirely new species were formed.

For 2 billion years, single-celled, microscopic organisms were Earth's only form of life. The first multicellular life didn't show up until around 1 billion years ago. But slowly, life grew more and more complex. Large, multi-cellular organisms eventually spread, not only in water but also on land. They became what we call animals.

One hundred million years ago, dinosaurs ruled the land. About 65 million years ago, however, most of them died off. Now other types of large animals could take their place. In the last 65 million years, mammals have been the most successful of these. Mammals are warm-blooded animals with fur or hair. They include primates, such as monkeys, apes, and humans.

Threshold 6: Collective Learning



Our ancestors, the hominins, were primates. They first appeared between 5 million and 7 million years ago in Africa. Over millions of years, hominins evolved in important ways, both physically and socially. About 200,000 years ago, our own

species, *Homo sapiens*, appeared. *Homo sapiens* means “wise humans.”

Modern humans developed language, which allowed them to share complex ideas and pass on knowledge from generation to generation. This process is known as collective learning. Its development was the sixth threshold of increasing complexity.

Threshold 7: Agriculture



Our ancestors survived by hunting animals and gathering wild plants. This way of living is known as foraging. It supported early humans for millions of years. About 12,000 years ago, humans began to farm for the first time. The spread of agriculture brought major lifestyle changes. Because foraging for survival was no longer necessary, people were able to live in settled communities. This allowed for the growth of cities and governments and the rise of new skills and trades.

Threshold 8: Modern Revolution



About 300 years ago, the speed of technological change suddenly became much greater. New inventions began to completely change the world. This change is called the modern revolution. It led to the rapid growth of the human population and the rise of our highly interconnected modern world. So far, the modern revolution is Big History's final threshold.

What's Next?

The story of the Universe isn't only about the past. We know this story doesn't end with Threshold 8. So, what's next? What might the next threshold of increasing complexity be? When you reach the end of this course, you will be able to make some informed guesses about the future.

But first, let's really dig into what got us here.



Articles leveled by Newsela have been adjusted along several dimensions of text complexity including sentence structure, vocabulary and organization. The number followed by L indicates the Lexile measure of the article. For more information on Lexile measures and how they correspond to grade levels: <http://www.lexile.com/about-lexile/lexile-overview/>

To learn more about Newsela, visit www.newsela.com/about.



The Lexile® Framework for Reading

The Lexile® Framework for Reading evaluates reading ability and text complexity on the same developmental scale. Unlike other measurement systems, the Lexile Framework determines reading ability based on actual assessments, rather than generalized age or grade levels. Recognized as the standard for matching readers with texts, tens of millions of students worldwide receive a Lexile measure that helps them find targeted readings from the more than 100 million articles, books and websites that have been measured. Lexile measures connect learners of all ages with resources at the right level of challenge and monitors their progress toward state and national proficiency standards. More information about the Lexile® Framework can be found at www.Lexile.com.