

# BIG HISTORY

# FULL COURSE GUIDE

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## Welcome to the Big History Project!

*Where did we come from? What causes change? Where are we heading?*

Big History takes on these questions that originate with the dawn of time, and gives students a framework to tell the story of humanity's place in the Universe. It's more than a history course. Big History helps students see the overall picture and make sense of the pieces: it looks at the past from the Big Bang to modernity, seeking out common themes and patterns that can help us better understand people, civilizations, and the world we live in.

Big History arose from a desire to transcend traditional self-contained fields of study and grasp history as a whole, looking for linked ideas and connections across history's entire spectrum. By teaching students to explore these connections, and to effectively question, analyze and postulate, it provides a foundation for thinking not only about the past, but also the future and the changes that are reshaping our world.

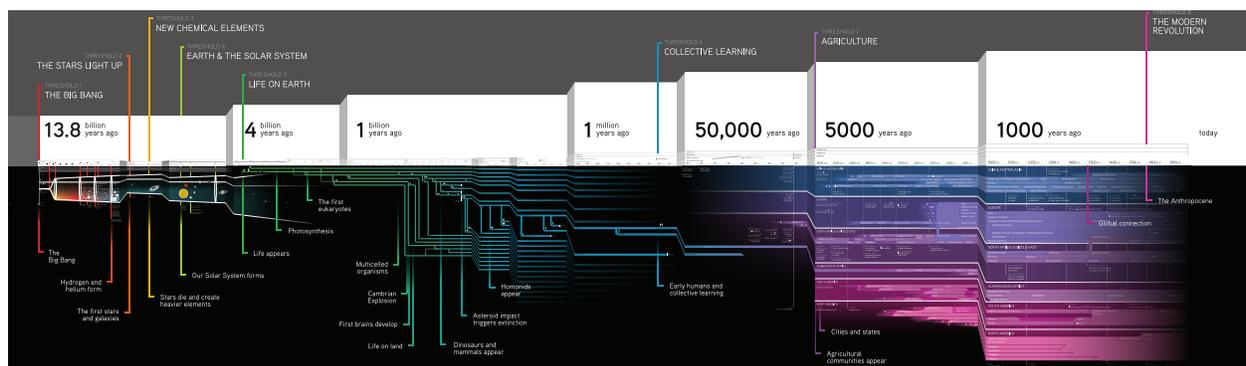
The Big History Project represents a strong collaboration between teachers, university faculty and technical professionals. Built from the ground up to support the Common Core and best practices from classrooms around the world, the course includes a rich and comprehensive set of videos, readings, infographics, and classroom activities for students and teachers. Throughout, students encounter challenging ideas and questions and learn to connect ideas across 13.8 billion years of time and an array of disciplines. The course asks students to thoughtfully and rigorously engage with the claims they encounter along the way.

Big History is a free online set of course materials. These materials will always be free. All we ask of teachers is to share what they have learned so we can continually make the course better. The best ideas within the course have always come from the teachers that teach it. Here's what teachers have said about teaching Big History for the first time—we look forward to hearing about your experience!

Big History requires students to examine big questions:

- How has the Universe and life within it grown more complex over the past 13.8 billion years?
- How do we know what we know about the past?
- How can we judge claims about the past?
- Why does what we “know” change over time?
- How does what happened during the early days of the Universe, the Solar System, and the Earth shape what we are experiencing today?

Students get to participate in the important and exciting work of exploring, developing, and testing big answers.



*Big History timeline*

## Who Should Teach Big History?

The Big History Project is an interdisciplinary study of change over time from the Big Bang to the future, but at its core, it is a history course. To that end, Big History is designed as a ninth- to tenth-grade history course (for 14 to 15-year-old students). Students will still achieve many of the same outcomes of a high school world history course. Many schools teach Big History in place of world history, world geography or as an elective course in the history department. Some middle schools have offered Big History, simplifying some of the most complex readings. Big History is also used as a capstone course for high school seniors, as there are infinite opportunities for students to delve deeply into complex topics across a range of subjects. Although Big History is designed as a full-year course, some schools will teach it in a single semester, skipping some of the Investigations or the project-based learning (PBL) activities.

The Big History Project (BHP) is a technology-based course, but it is not a self-taught course. BHP assumes a teacher is available to discuss content with students, and to evaluate student work. The course relies heavily on a series of videos, including talks from Big History founder David Christian and other noted scholars. While the various articles and graphic content may be printed and shared in hard copy, it would be very difficult to teach BHP without showing the videos. At the same time, the Big History Project does not require every student to have a computer in the classroom. Many schools teach Big History by showing the videos in class and distributing hard copies of readings for use at home.



*Microscopic to the cosmic*



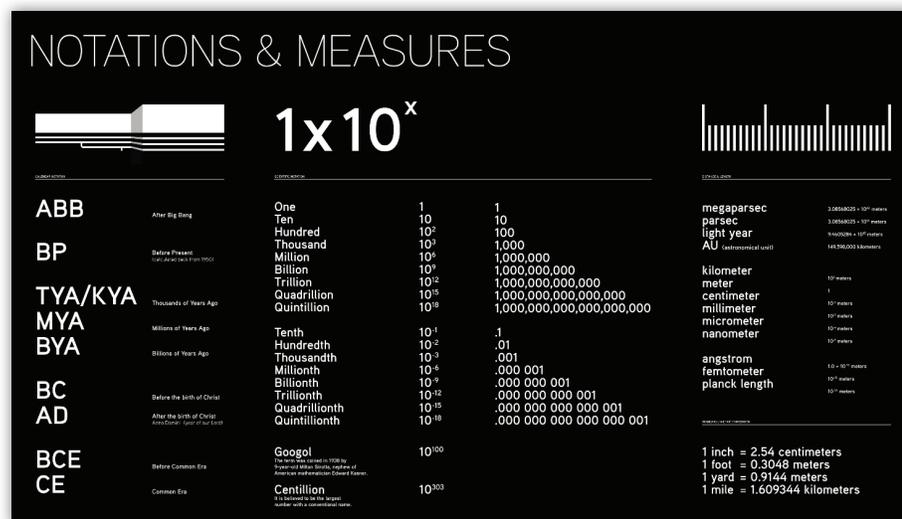
## Course Themes

The Big History course focuses on three essential skills and three key concepts that we want students to master. The essential skills are: thinking across scales, integrating multiple disciplines, and making and testing claims. The core concepts are: thresholds, collective learning, and origin stories.

## Essential Skills

### Thinking across scales

- Big History encourages students to think across scales, from the massive expanse of the Universe to the smallest of atoms.
- Thinking across scales helps students understand how taking different perspectives can change our understanding of history. This is realized not only through zooming in and out, but also via an understanding of periodization and causation.
- Students need to think across scale in terms of both time and distance. This helps us to frame our experience at the level of the personal, family, community, national human and geological.



Notations and Measures infographic

### Integrating multiple disciplines

- Big History encourages the use of interdisciplinary thinking and methodologies. Students should integrate the insights of multiple disciplines when analyzing and drawing conclusions about historical information, including social, physical, and natural sciences.
- Students should become aware of a range of scholarly disciplines and understand the types of questions they ask, the types of conclusions that they draw, and the types of evidence they use to support their findings.

### Making and testing claims

- Big History encourages students to develop a thoughtful, consistent, and rigorous approach to testing new ideas and information.
- Students should apply these techniques in their writing and other academic discourse.

## Core Concepts

### Thresholds

- Big History looks at the Universe as a series of moments called thresholds. These moments are characterized by a set of ingredients and just-right ‘Goldilocks Conditions’ that result in new forms of complexity. Big History tells the story of the Universe by using these moments to describe Universal change.
- The use of thresholds is unique to Big History, but it provides a helpful means of analysis that can be applied to more traditional historical contexts and other disciplines.

### Collective learning

- Collective learning is the human ability to share, preserve, and build knowledge over time. In Big History, this is the defining characteristic that separates humans from other species.

### Origin stories

- There are numerous explanations of the origins of our planet as well as the Universe as a whole. Since the time of the earliest humans, we have struggled to make sense of our world. Big History represents one point of view, and is considered a modern, scientific origin story.
- The Big History origin story is incomplete and will continue to evolve as science and scholarly inquiry continue to advance.

### World History



Big History includes selected World History topics in support of local standards in New York, California, and other regions around the world. While not a replacement for a world history course, they explore the intersection of Big History and world history. Either a globe icon or the notation (WH) denotes these activities, videos, and articles.

### Science

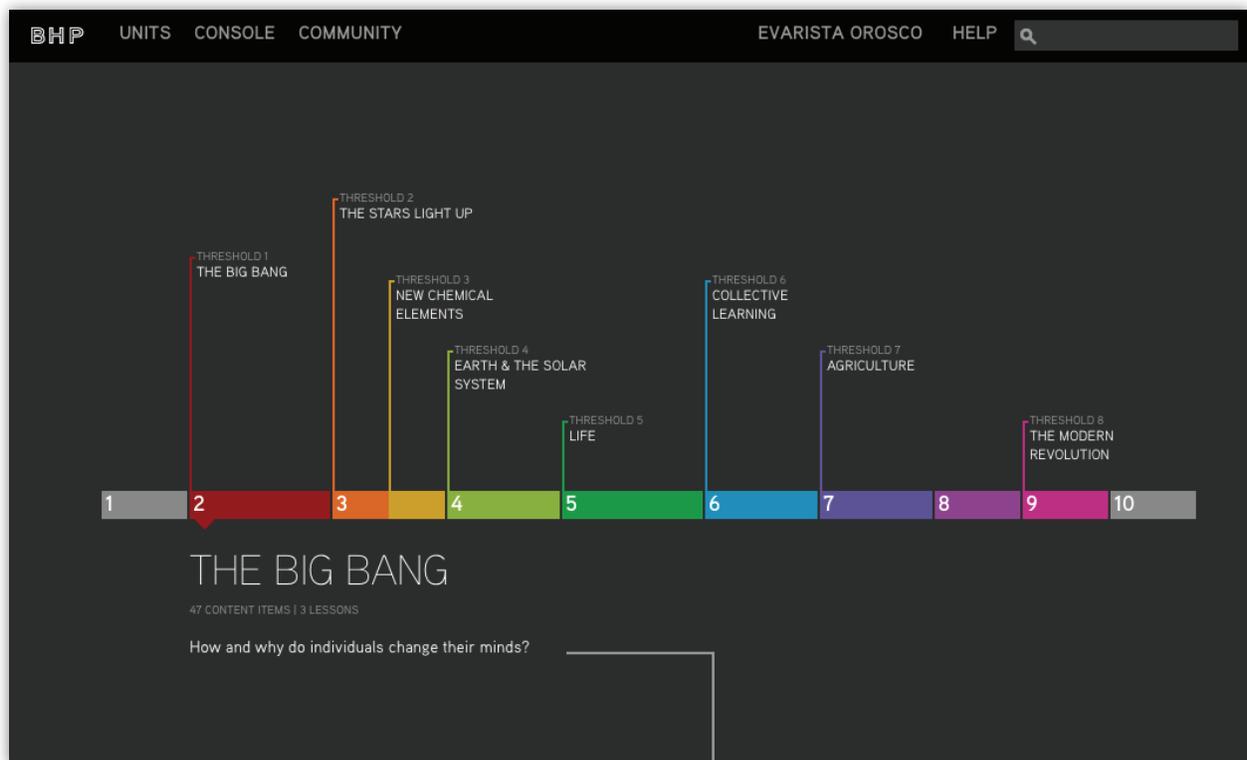


The Big History science extension aims to increase the depth of STEM and general science content in the course. Either a beaker icon or the notation (Sci) denotes these activities, videos, and articles.

### Course Learning Outcomes

1. Explain how thresholds of increasing complexity, differing scales of time and space, claim testing, and collective learning help us understand historical, current, and future events as part of a larger narrative.
2. Integrate perspectives from multiple disciplines to create, defend, and evaluate the history of the Universe and Universal change.
3. Deepen an understanding of key historical and scientific concepts and facts; use these in constructing explanations.
4. Engage in meaningful scientific inquiry and historical investigations by being able to hypothesize, form researchable questions, conduct research, revise one’s thinking, and present findings that are well-supported by scientific and historical evidence.
5. Critically evaluate, analyze, and synthesize primary and secondary historical, scientific, and technical texts to form well crafted and carefully supported written and oral arguments.
6. Communicate arguments to a variety of audiences to support claims through analysis of substantive texts and topics; use valid reasoning and relevant and sufficient evidence through individual or shared writing, speaking, and other formats.
7. Locate and understand how our own place, our community’s place, and humanity as a whole fit into and impact Big History’s narrative.

8. Engage in historical analysis using the theories and practices from multiple disciplines, toward an integrated, interdisciplinary understanding of the history of the Universe.



Big History Timeline page

Roll-over sections of the timeline to reveal Unit details

## Course Structure

### Part 1: Formations and Early Life

#### Unit 1: What Is Big History?

*Driving Question: Why do we look at things from far away and close up?*

1. Define thresholds of increasing complexity, origin stories, and scale. (CO1)
2. Understand that Big History is a modern, science-based origin story that draws on many different types of knowledge. (CO2, CO8)
3. Understand how you fit into the Big History narrative, using the concept of “thresholds” to frame your past, present, and future, as well as the history of the Universe. (CO1, CO7)
4. Understand what disciplines are and consider how the viewpoints of many different scholars can be integrated for a better understanding of a topic. (CO2, CO8)
5. Learn to use timelines as a way to compare the scale of personal and historic events. (CO7)

6. Identify a thesis statement and how writing is structured, and evaluate both of those elements in writing. (CO6)

## Unit 2: The Big Bang

*Driving Question: How and why do individuals change their minds?*

1. Explain the basics of the Big Bang theory and the primary evidence that supports this theory. (CO1, CO3, CO6)
2. Using evidence from texts, explain why views of the Universe have changed over time and the roles that scientists played in shaping our understanding of the origin of the Universe. (CO3, CO5)
3. Understand how to use claim testing to evaluate a claim or resource. (CO1, CO3, CO5, CO6)
4. Locate Ptolemy, Copernicus, Galileo, Newton, and Hubble on a timeline and explain what each added to our collective understanding of the structure of the Universe. (CO1, CO7)

## Unit 3: Stars and Elements

*Driving Question: How can looking at the same information from different perspectives pave the way for progress?*

1. Describe how stars form. (CO3, CO5)
2. Explain what happens in the life of a star and explain what happens when a star dies. (CO1, CO3, CO5)
3. Explain how the death of stars results in the creation of heavier elements. (CO1, CO3)
4. Explain why the formation of stars and the emergence of elements are so important in our world. (CO3, CO4, CO7)
5. Understand what scholars from multiple disciplines know about a topic and the questions they can ask to understand the topic from an integrated perspective. (CO2, CO5, CO8)
6. Understand how to use and apply the concept of periodization. (CO2, CO3, CO4)
7. Identify various types of causes and consequences, including short-term, long-term, and triggering events. (CO1)

## Unit 4: Our Solar System and Earth

*Driving Question: How and why do theories become generally accepted?*

1. Explain why planets are more complex than stars. (CO1, CO3)
2. Use evidence to explain how the Earth and its atmosphere developed and changed over time. (CO4, CO5, CO6, CO8)
3. Explain the basic mechanisms and key pieces of evidence for plate tectonics, and how plate tectonics impacts life on Earth. (CO3, CO4, CO5, CO6), (CO2)
4. Define geology, the types of questions geologists ask, and the tools they use to answer those questions. (CO3 CO5, CO8)
5. Explain why geology is important to understanding the history of the Earth. (CO2, CO8)
6. Understand how geologists can work with historians and scientists from other disciplines to form a deeper understanding of the history of the Earth. (CO2, CO8)
7. Understand multiple causes and how identify them. (CO3)

- Demonstrate an ability to construct an argument in writing. (CO6)

## Unit 5: Life

*Driving Question: How and why do theories evolve?*

- Describe the conditions that made it possible for life to emerge on Earth. (CO1, CO3)
- Explain the differences between life and nonlife. (CO3)
- Describe the major events in the development of life on Earth and explain what is meant by the term biosphere. (CO3, CO5)
- Use evidence to explain adaptation and evolution, including Darwin's theory of natural selection and DNA. (CO4, CO5, CO6)
- Demonstrate using texts as evidence in historical writing. (CO3, CO6)

## Part 2: Humans

### Unit 6: Early Humans

*Driving Question: What makes humans different from other species?*

- Describe human evolution, using evidence and connection to other species of mammals. (CO3, CO4, CO5)
- Explain whether or not symbolic language makes humans different. (CO4, CO5, CO6, CO8)
- Describe how early humans lived. (CO3, CO5)
- Explain collective learning. (CO1, CO3)
- Understand what scholars from multiple disciplines know about a topic and the questions they can ask to gain an understanding of the topic from an integrated perspective. (CO2, CO5, CO8)
- Show early human migration on a map. (CO3, CO7)
- Demonstrate using BHP concepts accurately in writing. (CO1, CO6)
- Demonstrate an understanding of multiple causes and how they complicate the relationship between causes, consequences, and their interaction with one another. (CO3)

### Unit 7: Agriculture and Civilization

*Driving Questions:*

- To what extent was farming an improvement over foraging?*
  - What makes human societies similar and different? (WH)*
  - Why do societies collapse? (WH)*
- Define agriculture and describe where it emerged. (CO3, CO5)
  - Identify the features of agrarian civilizations. (CO3, CO5)
  - Understand the similarities and differences between the lifestyles of hunter-gatherers and farmers. (CO3, CO5, CO6)
  - Describe how early civilizations formed and their key features. (CO2, CO3, CO6)
  - Understand what scholars from multiple disciplines know about agriculture and civilization and the

information they can derive from them using an integrated perspective. (CO2, CO5, CO8)

- Describe how agrarian civilizations formed and analyze their key similarities and differences. (CO3, CO4, CO5, CO7)
- Use sentence starters to strengthen ability to make an argument in writing. (CO6)

## Unit 8: Expansion and Interconnection

*Driving Question: What are the positive and negative impacts of interconnection?*

- Analyze what propelled the expansion and interconnection of agrarian civilizations. (CO2, CO3, CO5)
- Investigate the implications of interconnected societies and regions by looking at how commerce has spread. (CO2, CO3, CO5, CO8)
- Explain how new networks of exchange accelerated collective learning and innovation. (CO1, CO3, CO5, CO6, CO8)
- Describe the changing characteristics of societies in the four world zones before and after oceanic travel and the thickening of global networks. (CO2, CO3, CO5, CO7)
- Use sentence starters to strengthen ability to use texts as evidence in writing. (CO5, CO6)
- Analyze a complex historical event through the lens of causality. (CO3, CO5)

## Unit 9: Acceleration

*Driving Question: To what extent has the Modern Revolution been a positive or a negative force?*

- Describe accelerating global change and the factors that describe it. (CO3, CO5, CO6, CO8)
- Understand the key features that define the Anthropocene. (CO2, CO3, CO5, CO6, CO7, CO8)
- Describe the acceleration in world population, technology, science, communication, and transportation. Explain how they have benefited and threatened humanity. (CO2, CO3, CO5, CO6, CO8)
- Explain the changes in the use, distribution, and importance of natural resources on human life. (CO2, CO5, CO7, CO8)
- Use sentence starters to build skills in applying BHP concepts to writing. (CO1, CO6)
- Analyze the causes and consequences of shifts in world population, including the impact of industrialism and commerce. (WH) (CO3, CO5, CO6, CO8)
- Analyze the causes, characteristics, and long-term consequences of World War I, the Great Depression and World War II. (WH) (CO3, CO5, CO6, CO8)

## Unit 10: The Future

*Driving Question: What's the next threshold?*

- Explain the Big History story and its defining features and patterns. (CO1, CO2, CO3, CO4, CO7, CO8)
- Identify important human and environmental issues that affect the future of our species and the biosphere. (CO2, CO3, CO4, CO6, CO7, CO8)
- Propose a vision of the future based on new understandings of the past. (CO4, CO6, CO7, CO8)

## Course Content

The Big History Project course includes a wide range of materials. All course contents come with teaching notes, are available online, and can be downloaded for offline use. These resources include the following:

- **Videos:** A series of talks by historian David Christian, Crash Course, Jacqueline Howard, and other noted scholars presenting challenging topics to students, including visualizations of more complex ideas.
- **Texts:** A series of articles and essays by eminent scholars and BHP staff, including first source material. All texts in the course, other than those in the Investigation Libraries, have been leveled, and each article has three or four versions to accommodate students of all reading levels.
- **Activities:** Lessons include both standard activity types (vocabulary activities, for example) as well as customized activities to maximize student engagement and learning.
- **Infographics:** Data-rich illustrations created to illuminate complex topics such as the life of stars and the chemical make-up of the oceans.
- **Image galleries:** Each lesson includes a set of historical and informational illustrations to highlight key ideas and concepts.

The collage displays various educational resources from the Big History Project. At the top left is a video frame featuring David Christian, Professor of History, speaking. To its right is a large infographic titled "AGRICULTURE & CIVILIZATION" which maps the origins of agriculture in six regions: The Fertile Crescent, Blue River Valley, Yellow & Irrigated River Valleys, Papua New Guinea, Mesoamerica, and the Andes. Below the infographic is a lesson activity page titled "WHAT'S FOR DINNER TONIGHT? Evidence of Early Agriculture. The First Farmers. 1200L." which includes a "COMPARE AND CONTRAST ESSAY" section with a "Purpose" and "Process" section. At the bottom right is a page titled "Tycho's Supernova Remnant" showing a colorful image of the remnant and a brief description of the 1572 supernova.

*A selection of course materials*

## Lesson Resources

BHP provides a flexible structure for teachers to present the content to their students. The course is divided into units that roughly align with the eight thresholds. Each unit is divided into a set of suggested lessons. Teachers may use this structure, including a set of lessons written by experienced BHP classroom teachers, or incorporate the material into their own lesson plans. Each unit includes the following lesson resources:

## Activities

Activities are woven into every unit and are an integral part of every lesson to help students learn, experience, practice, and test concepts covered in the course. Certain activity types are included in multiple units, offering students and teachers consistent practices for exploring Big History themes. Our “Closing” activities are used for formative assessment throughout the course.

## Investigations

Investigations ask students to further explore some of the big issues tackled in each unit by answering the unit’s driving question. They encourage students to use the provided material to make arguments and explanations about change over time, while developing student literacy and critical thinking skills. Each investigation asks students to:

1. Frame a historical or other social science problem.
2. Read, analyze, corroborate, and synthesize sources from a selected library of texts and experiences.
3. Develop an explanation or build an argument to resolve their research question.
4. Evaluate their own and others’ claims.

## Project-Based Learning Activities

Project-based learning (PBL) is an opportunity for students to deeply explore a complex question, problem, or challenge. The Big History Project includes three PBL activities:

- Unit 5: Invent a Species

*Guiding documents*

*Activities, Investigations, and project-based learning activities*

*Additional resources*

The screenshot displays the Big History Project unit view for Unit 2, 'The Big Bang'. The interface is organized into several sections:

- Unit Header:** '2. The Big Bang' with a brief introductory text.
- 2.0 How Did Our Understanding of the Universe Change?:** A grid of lesson cards including 'DD Notebook', 'How Did Our View of the Universe Change?', 'Changing Views Timeline', 'Claudius Ptolemy', 'Galileo Galilei', 'Nicolaus Copernicus', 'Isaac Newton', 'Edwin Hubble', 'Views of the Universe Debate', 'Cosmology and Contrast Essay', 'Human History Compare and Contrast Essay', 'The Big Bang', 'Threshold 1: The Big Bang', and 'Lesson 2.0 Quiz'.
- 2.1 The Big Bang:** A grid of lesson cards including 'Big Bang Snap Judgment', 'A Big History of Everything - H2', 'Threshold 1: The Big Bang', 'This Threshold Tackles The Big Bang', 'Questions about the Big Bang', 'Electromagnetism - H2', 'Jacqueline Howard: Looking into the Past', 'Big Bang Milestones', 'Timeline: The Big Bang', and 'Lesson 2.1 Quiz'.
- 2.2 Claim Testing:** A grid of lesson cards including 'Claim Testing Snap Judgment', 'Approaches to Knowledge', 'How Do We Decide What to Believe?', 'DD Notebook', 'Claim Testing Episode 1: First Contact', 'Claim Testing Worksheet: The Big Bang', and 'Investigation 2 - Input Form'.
- Other Materials:** A grid of additional resources including 'The Big Bang: A Brief History of the Big Bang - H2', 'What Emerged from the Big Bang?', 'Cosmic Microwave Background', 'The Structure of Scientific Revolutions', 'Henrietta Leavitt', 'Tycho Brahe', 'Science, Theology & the Copernican Revolution', 'The Vatican Observatory', and 'Glossary Challenge'.
- Web Links:** A list of external resources such as 'Henrietta Leavitt & the Human Computers: Great Minds - Smithsonian', 'Big Bang Bratley - James Lovell', 'What Happened at 380,000 Years ABB? - Cameron Ghelley', 'The Expanding Universe - Tim McKay', 'Stellar Parallax - Khan Academy', 'Four Fundamental Forces - Khan Academy', 'Why Gravity Gets So Strong Near Dense Objects - Khan Academy', 'Introduction to Light - Khan Academy', 'Introduction to the Doppler Effect - Khan Academy', 'The Galileo Project', 'Stephen Hawking's Universe - PBS Online', and 'NASA's Cosmic Origins Spectrograph - NASA'.

*Big History Project unit view*

- Unit 7: How Many People Could Earth Support Now and 100 Years from Now?
- Unit 10: What Is the Next Threshold?

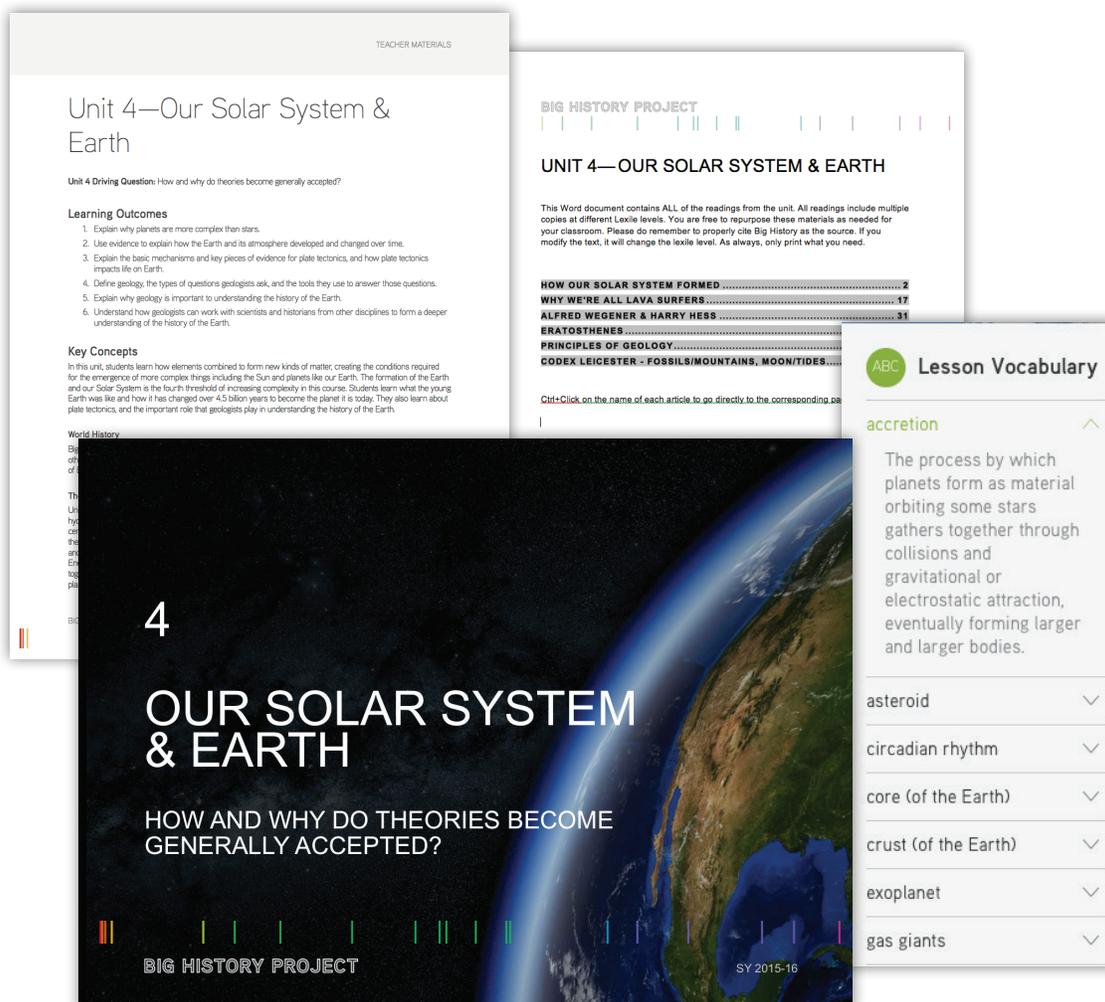
Each of these activities covers two weeks of instructional time. Students work in groups to research their questions, compose a written response, and share their results with their class and the community. Each of these projects is written to follow the PBL methodology of the Buck Institute for Education: <http://www.bie.org/>.

### Guiding Documents

In every lesson, we provide methodologies that address reading, writing, and approaches to teaching and learning. These guiding documents offer suggested approaches, but you can adapt all lessons to your preferred format. You'll find the guides in the Teaching Big History section of this document.

### Additional Resources

Web links to relevant public content are available in every unit. A unit-specific glossary and easy access to the complete course glossary are available on each unit's main page. Students can also search for glossary terms in the Search field on every page of the site.



A selection of guiding documents and additional resources

## Extended Big History Offerings

In addition to the course offered at the Big History Project website, there are a number of other Big History offerings for students and the larger community. These resources, used in tandem with the school course, can provide ways for teachers to involve parents in Big History's content.

### Big History Public Course

<https://www.bighistoryproject.com/pages/syllabus>

Big History's public course is shorter and targeted at individuals who simply want to learn more about the subject. Following a magazine-style layout, the site presents 8 to 12 hours of content (in contrast to the school version's 80 to 150 hours.)

Some schools have used this site to engage parents in the material and even had contests to see which class got the most certified parents.

### Big History on Khan Academy

<https://www.khanacademy.org/partner-content/big-history-project>

The Khan Academy website is hosting a slightly condensed version of the Big History course. Aimed at individuals, it includes many of the classroom materials as well. This allows classroom teachers to use the growing set of Khan Academy analytic tools and mobile applications, while still delivering the same great Big History course.

### Big History on YouTube

<https://www.youtube.com/user/bighistoryproject>

All of the video assets we can share publicly are available on You Tube. This makes it easy for teachers and students to reuse and re-purpose our content for presentations or other content.

### Crash Course Big History

<http://bit.ly/1GK4Nsc>

John and Hank Green take on Big History with their unique sense of humor and serious insights. The web series, developed in cooperation with the Big History Project, provides a complementary point of view on the course content.

### Jacqueline Howard Presents

<http://bit.ly/1JggqKu>

In her Talk Nerdy to Me channel, Jacqueline Howard, editor for Huffington Post Science, explores the science of the mundane and the magnificent. In this special series for Big History, Jacqueline looks at a wide range of earthly to celestial subjects including money, pets, planets, energy, and the history of the Universe.



*The Big History Project public course*

## Planning Your Course

Every teacher teaches Big History a little differently to reflect the needs and interests of their students, their school and themselves. We designed Big History as a year-long course aimed at 9th graders (14-15 year olds). However, many teach the course over a semester. We provide support for this model as well.

Many schools teach Big History by integrating the course with other subject areas. For example, a version of Big History that combines English / Language Arts might align the fiction reading selections to help students develop strategies for reading complex informational texts as well as expository writing. While the Big History Project does not formally support any of the integrated versions of the course, we do provide exemplar course plans from schools are teaching the course this way.

To help you plan your Big History course, we have provided a series of sample course plans shaped by our classroom teachers who are teaching the course in the 2015-16 school year. In addition to the exemplars, we have a planning template to help you document where you might deviate from one of these example course plans.

- Sample Big History Full Year Course Plan
- Sample Big History Semester Course Plan
- Sample Big History Full Year Integrated ELA Course Plan
- Sample Big History Full Year Integrated World History Course Plan
- Sample Big History Full Year Integrated Science Course Plan

	Supported Deployments		Customer Created Deployments			
	Full Year	Semester	Middle School	World History	ELA Integrated	Science Integrated
Description	Traditional BHP course	A condensed version	Simplified or extended version of Big History for younger students	Year-long course combining Big History and World History	Year-long course combining history and ELA	Year-long course combining history and science
Target Student	9th & 10th grade students	9th & 10th grade students	7th & 8th grade students	9th & 10th grade students	9th & 10th grade students	9th & 10th grade students
Course Hours	160 hours	85 hours	160 hours	85 hours	160 hours	160 hours
Instructional Hours	80 hours	80 hours	80 hours	80 hours	80 hours	80 hours
Supplemental Hours	80 hours	5 hours	80 hours	5 hours	80 hours	80 hours

# Teaching Big History

The Big History Project spans 13.8 billion years of history and incorporates the insights of more than a dozen disciplines over the course of 10 short units. Along the way, students are presented with challenging readings and asked to write their responses to some of our biggest questions. As a teacher, The Big History Project provides real opportunities to put inquiry at the center of student learning. Rather than a series of disconnected facts and faces, Big History provides students with a means of bringing the entire curriculum all together.

Like any new course, getting ready to teach the Big History Project for the first time requires a bit of preparation. To help you, we've put together "Teaching Big History". Developed in collaboration with our teachers and the University of Michigan, the course covers everything from getting started, the instructional approach, using the website and the course content itself. In 5 sessions spanning about 9 1/2 hours, you can get an in depth preparation.

- Learn the course: 8 thresholds, 10 units. 13.8 billion years. It's a lot to cover in the summer before you teach the class for the first time. Teaching Big History will give you a brief synopsis of each threshold using the key assets from the course.
- Get familiar with the approach: Big History is a reading and writing intensive course with a heavy focus on inquiry. In Teaching Big History, you'll cover instructional concepts like claim testing, interdisciplinarity, and thinking across scale and how they are applied in the course. You'll also dig into our approach to reading and writing and the instructional resources we provide to guide discussions, readings, projects and activities, and to make an impact on literacy skills, even for struggling students.
- Engage with the community: The BHP Teacher Community is an essential part of the experience for BHP teachers. More than a place to ask a question, teachers compare notes, exchange ideas and share lessons and student work. At the end of Teaching Big History, we encourage you to explore a unit or two and share your notes in the community.

Teaching Big History

- Plan your year: In the last session, we'll help you get a jump-start on planning your year. You'll get to see how other BHP Teachers have structured their course plans and hear their tips for teaching Big History Project in a variety of environments. Then head over to the BHP Teacher Community on Yammer to work on your course plan, ask questions and get more suggestions from your fellow learners.

In this section, you will find the following guides:

- Reading
- Discussion
- Writing
- Assessment
- Driving Question Notebook
- Little Big History (LBH)
- Project-Based Learning (PBL)
- Openings
- Vocab Activities
- Interpreting Infographics
- Homework

## Teacher as Lead Learner

Before delving into the individual guides, we want to share the Big History instructional philosophy regarding the teacher's role in the classroom. Big History is interdisciplinary and uses a wide range of knowledge and methods, which can feel daunting to teachers. Indeed, Big History is really, really big. But you don't have to be an expert on everything. You can successfully teach Big History knowing what you already know. The most important thing is teaching how to learn.

Veteran teachers of Big History quickly realize that it is not possible to have complete command over 13.8 billion years of history. Instead, their role in the classroom is to model historical analysis—a method of systematic and deliberate exploration that seeks to make sense of the past. In Big History, the teacher moves from being the source of knowledge into the role of lead learner.

While science, for instance, is a major element of Big History, we don't always ask students to go very deep on the underlying mechanics of scientific phenomena.

Instead, we ask them to fold the consequences of scientific understanding into historical analysis, and to think through the implications of scientific insights. For example, we do ask students and teachers to understand that the distribution of chemical elements in the Earth has influenced critical components of humans' social and political behaviors. Mining and trading of gold is one illustration. Why is gold found where it's found? Why is it used as currency? Why can't we produce more gold? These are all topics covered in the course.

Big History is, after all, a history course. Historical analysis has always sought to draw upon the insights of a variety of disciplines, both social and scientific in nature. So do the fields of geography, geology, anthropology, and archaeology. What makes Big History unique is that it draws upon an even broader array of disciplines, such as chemistry, physics, and astronomy to inform historical analysis.

This course emphasizes how one engages with new ideas and information rather than a single set of concepts and facts. Students have to learn how to hypothesize, ask questions, seek out resources, analyze documents and content, make claims, support those claims, and write clear and cogent arguments. You already know how to do all of these things, and our course guides will help you teach them well.

You are skilled at all of the intellectual practices needed to help your students be successful in Big History. As the lead learner, you are not expected to be the holder of all knowledge—instead, you are the leader in seeking knowledge. You may not know how stars formed, but you know how to figure out how they formed. You know how to model finding this knowledge. And sometimes that might even mean finding an expert in a particular field.

You will certainly find a place for the content you love to teach. As you begin to go through the course materials and explore the Big History story, you will start to recognize where you could use additional resources such as other primary source materials or how to weave pieces of literature and art into the narrative. What's important, especially as part of developing your students' twenty-first century skills, is that students know how to ask questions, find and make sense of information, and apply what they've learned.

Perhaps the most important aspect of teaching and learning Big History is to remember not to lose sight of the narrative. The purpose of the Big History story is for students to learn how the Universe progressed from something incredibly simple to the most complex lifeforms that we are currently aware of today. While the vast majority of the Universe's history has revolved around the creation of stars, planets, and galaxies, Big History focuses on how humans are connected to everything in the Universe and how humans will deal with the challenges of the future.

Big History veteran teachers have found the following list of books extremely helpful in supplementing their knowledge of the topics covered in the course:

- David Christian, *Maps of Time: An Introduction to Big History*, 2005
- David Christian, *This Fleeting World: A Short History of Humanity*, 2007
- Fred Spier, *Big History and the Future of Humanity*, 2011
- Cynthia Stokes-Brown, *Big History From the Big Bang to the Present*, 2008
- Bill Bryson, *A Short History of Nearly Everything*, 2002

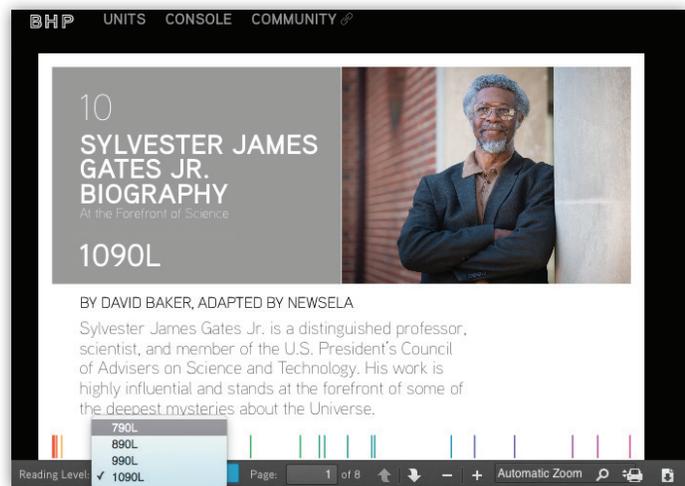
## Big History Reading Guide

The Big History course provides you and your students with a lot of difficult readings, so we include a variety of resources and a particular instructional approach to help ensure that your students understand the course material. Note that this is about helping your students read in general, it's not a guide on how to teach reading history.

### Reading Resources for Teachers

*We offer these resources to help you provide each student with appropriate readings.*

1. **Lexile Measures**—The Lexile level of each text is provided so that you can differentiate accordingly for your students.
2. **Multiple versions of readings**—Newsela, a group that provides nonfiction news articles at varying reading levels, has edited our readings and provided three or four versions of each, ensuring that students at all reading levels can access each reading.
3. **Vocabulary**—Vocabulary activities are suggested throughout the course to help your students to become familiar with the key words that represent big ideas. Understanding these words should increase comprehension of the course readings.
4. **Teaching tips**—Teaching tips are provided throughout the lessons to help approach texts with your students.



*Levelled readings options*

### Approach to Reading

Some of the reading involved in Big History can be challenging, but it is vital for the course. To help your students prepare to discuss each text, complete Investigations, and master Big History's essential skills, we have mapped out a deliberate approach to the reading.

These methods have been borrowed from long-established methodologies and best practices for teaching reading.

We urge you and your students to go over each text three times. First, read for gist; next, read for facts and last, read for comprehension and extension.

While three reads may sound like a lot, in the end it will save you and your students time. It will help ensure that students can decode and fully comprehend each article, allowing all students to access the information that will help them be successful in the course. Through this process, students will, in general, complete readings more quickly and understand more deeply than with one cold read.

In the course lessons, we've linked each of the three reads to a reading activity: the Preview section of each reading activity corresponds to the capturing gist read. The Key Ideas section corresponds to the factual read. The third read maps to the Conceptual Thinking section and addresses the texts' implications and why they matter..

### Reading 1: Preview — Capturing Gist

The first read isn't really a full reading—rather, it's a skim that helps capture the general idea of what a reading is about. When reading for gist, we encourage you to follow this format:

1. **Title**—Have students read the title of the text. What do they think it's going to be about?
2. **Headings**—Read headings in a text (if any are present). Does this change what they think it's about? Have they learned more?
3. **Resource quality**—Is it an opinion? A primary document? A research report? Examine the author or resource. Is it legitimate? Have students use their knowledge of claim testing to assess the quality and veracity of the source and how that impacts the types of information they may encounter.
4. **Summarize**—Ask students to briefly summarize what this article is about. A fun way to do this is to ask students to “Tweet this.” In 140 characters or less, they should provide what they believe to be the gist of the article. This should point to the main theme, premise, or assertion. This is also an assessment of how they comprehend the importance of titles, authors, and other high-level elements of a text.

### Reading 2: Key Ideas — Factual

Informational reading is the type of reading that students are most used to doing. This type of reading helps students ask questions such as: What was this article about? What are the main themes or claims in the reading? What new information do I know after reading this?

1. **Vocabulary**—Begin the second reading of the text by drawing students' attention to one or two essential words related to big ideas identified on the Text Genome report for that article. Ask students to find sentences in which that word is used. Then, ask them to explain the meaning of the word in that sentence and context.
2. **Annotation**—At the end of each paragraph, have students stop and think about the content of that paragraph and make notes in a notebook or the text margins. If they don't understand something, they can put a question mark to remind themselves to ask about it later. This is not a space for thoughts or opinions, just simple facts.
3. **Retell and rank**—Either through writing or discussion, at the end of a reading have students share the key points from the article. Then, have them rank what they learned, from most important to least important. This not only helps them remember the contents of the article, but also helps you understand if they are focusing on and understanding the key informational points. In addition, it gives students access to what others think is the most important information, helping them to view content from a variety of perspectives.

### Reading 3: Conceptual Thinking

This third reading goes beyond understanding the contents of the article, to understanding the implications of those contents. Why does that information matter? What does it have to do with the Big History narrative? This is arguably the most important part of the reading strategy, but students must first understand the basics of each article from the first and second readings.

After every article and video in the lessons, you'll find a Conceptual Thinking section. The questions in this section prompt the exploration of big ideas; help compare, contrast, and explore contradictions; lead to deeper disciplinary and interdisciplinary understanding; promote transfer to familiar or less familiar situations, issues, ideas, and contexts; and encourage analysis and application. It's important that you ask these types of questions throughout the course—and not just use the ones that are provided—to continue to deepen student understanding.

## Big History Discussion Guide

One goal of Big History is to help students communicate and collaborate effectively. We want students not only to think and write like historians, but to talk like historians as well. Use the key terms in discussion. Explain how to respectfully disagree and challenge statements. Start with structured discussions at the beginning of the school year, and soon, your students will learn to engage in thoughtful and meaningful discourse without prompting from you.

### Goals for Discussion

1. Support the development of academic language
2. Press for justification and reasoning (that is, use claim testing in discussion)
3. Promote rich and engaging discourse

### How to Meet These Goals

We don't advise doing all of these things at once. Rather, practice each of the main goals and establish norms around those goals and then add the next goal to your list.

Keep in mind that the faster you and your class can master this type of accountable talk the better, but it is more important to do it right than to do it quickly. Finally, the development of rich classroom discourse is a joint effort between you and your students. Make sure to impress upon your students that getting everyone comfortable with historical and scientific argumentation is a shared responsibility—it isn't easy for anyone, including teachers, to always engage in this way.

### *Goal 1: Support the Development of Academic Language*

No matter what your students' level of literacy and vocabulary understanding, the more you use academic language in the classroom, including glossary terms and key course terms, the more they will understand and use these words.

1. Start by explaining what academic language is to your students. Ask them: How do scientists talk? How do historians talk? How does this compare to everyday language? Remind them that in this class you are all going to communicate like historians.
2. Keep a word wall in the classroom. Add key terms to this wall throughout the year. Point each other to the word wall when academic language could be used in place of everyday talk.
3. Play discussion games.. Note that the goal of these games is not meant to be overly negative or critical, but rather to create a fun way for students to learn to recognize the code switching from informal daily discourse to formal academic debate. Some ideas for discussion games:
  - a. Make a few people in the class the “academic language police.” Make it their job to call people out when they are not using academic language when they could. Rotate the “police” game through a few different classes so everyone has a chance to play this metacognitive role.
  - b. Have an academic language “swear jar.” Each time a student (or you) are caught not using academic language, you or your students have to complete a task related to that word: use it in a sentence, write the definition on the board, write a quiz question, and so on.
  - c. Point out examples of academic language in both course readings and online videos. Have students annotate text to point out what language is academic and what is not. Or, while watching a video, have students note when a speaker is or isn't using academic language.

4. Watch this video, College Talk, with your students: <https://www.teachingchannel.org/videos/improving-student-vocabulary>. It's about a convention that a second grade teacher uses, but the idea behind it applies to all grade levels.

### **Goal 2: Press for Justification and/or Reasoning (i.e. Claim testing)**

Big History teaches the importance of testing claims, and backing up conclusions or assertions. In using academic discourse in the classroom, we are forced to think about and use the concepts of authority, evidence, intuition, and logic. It holds us accountable to our assertions and moves beyond *what* something is and toward *why* something is the way that it is. There are many ways to ask students “why” questions, but if you can use a specific set of questions and prompts with your students, it's easier to establish norms around these conventions.

We suggest you present the following list of questions to your students (and post these permanently in the room.) Discuss how each question connects to one of the claim testers, and then have the students ask you and each other these questions until they are part of everyday discourse.

- Does your answer seem reasonable? Why or why not?
- Would you describe your method and explain why it works?
- How would you prove that? What can you say or show that would convince us your conclusions make sense?
- Do you agree with what you've just seen and heard? Why or why not?
- Do you have a reason why you don't agree?
- Did anyone else draw the same conclusion but have a different way to explain it?
- Can you convince the rest of us your answer makes sense?

### **Goal 3: Promote rich and engaging discourse**

We hope that we've created lessons and activities in Big History that support rich and engaging discourse.

To ease discussion, it is important to create a classroom climate in which students feel comfortable both sharing their thinking, and graciously giving and receiving constructive feedback. It is also important to create an atmosphere where students have equal opportunity to share their thinking. Not all students are comfortable with whole-class discussion, so it's important that while you are working on this type of discourse, you provide a variety of venues for participation. Some possibilities:

1. **Turn and talk**—Students turn and talk to the person next to them about the topic at hand. We encourage you to have students physically turn to one another in these types of discussion. Body orientation and eye contact matter for engaged discussion.
2. **Think, pair, share**—Similar to turn and talk, but allows students time to reflect on a topic or question before talking to a partner, and allows them to validate ideas with someone else before sharing with the entire class. This process often works well for students who like to have more time to formulate their thoughts before presenting to the class. Students can also share their partner's ideas, which encourages effective listening and communication during the “pair” portion.
3. **Role assignment**—Students are assigned a position to represent. For example, each student might be assigned one of the pressing-for-justification questions and they are responsible for using those questions to ensure accountable talk is taking place. Or, each student takes on the role of one of the claim testers, using authority, evidence, intuition, or logic.

## Big History Writing Guide

You've probably heard us say once or twice that Big History is a big course with a lot of big ideas. To make sense of all this information, and to help them develop their own ideas, we encourage students to write. A lot. We encourage them to write informally to get out their initial understanding of the ideas. We have them write formally to solidify their thinking and refine the arguments it represents. All along the way, students will use a singular rubric to help them understand what makes good writing. They will write, review, and refine their work multiple times. This will not be easy for them. However, our research with the University of Michigan has shown that this hard work makes a real difference in the quality of their writing, which is a terribly unsurprising conclusion. Clear, consistent expectations, frequently revisited, is not a magic formula, it's just good teaching.

Let's take a quick look at how we approach writing in the Big History Project.

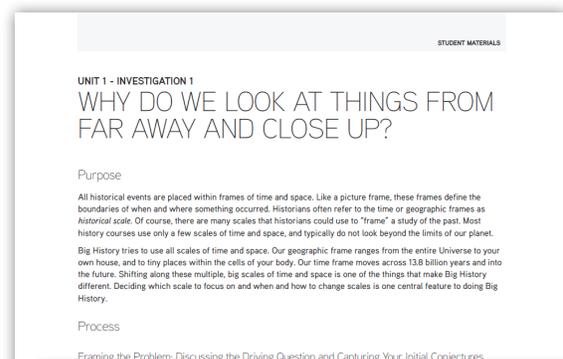
### Formal Writing Assessments

At the end of each unit, we ask students to write something we call an Investigation. Like document-based questions (DBQs), these activities start with a driving question such as, "Why do we look at things far away and up close?" "What makes humans different from other species?" and "What's the next threshold?"

Each Investigation asks students to read a short collection of documents related to the driving question, and then write a multiparagraph essay complete with thesis, intro and conclusion, and evidence from the documents they've read, backing up their claims.

Each Investigation takes about two days to complete. The first day is dedicated to reading and analyzing the texts as well as formulating a response. The second day is dedicated to writing. You are, of course, free to use the Investigations in whatever way best meets the needs of your students. However, if you modify the Investigations, they might not work with BHP Score, which you'll hear about in the next section. The machine scoring used by BHP Score was developed using samples of the Investigations as written. While the system is smart, it can't adjust to your adaptations of the activity. It's not that smart.

In each Investigation activity, students return to the unit's driving question and develop their conjectures about the topic. They will have had practice, thanks to the DQ Notebook exercises. Next, they'll explore the documents in the Investigation Library and take notes in preparation for the writing exercise. The second day is dedicated to writing. Again, this is where claim testing really comes in handy, and you'll see your students pushing their use of these ideas and becoming more sophisticated writers.



*Investigation 1 Student Materials and Investigation Library*

## BHP Score

How do you get to Carnegie Hall? Practice, practice, practice! The old joke applies here for writing. For students to really understand how to write well, they need lots of quality feedback on their work. The challenge has always been that teachers are already spending hours a day grading after class. Grading more isn't really an option. This is why we created BHP Score, a service that provides immediate feedback on student writing for the nine Investigations. This feedback is NOT intended to replace that of teachers. It is a formative tool that helps students improve their drafts and final submissions you do see. The nature of the service has allowed many teachers to spend more one on one time with students while the rest of the class is productively using the tool to support their writing. Significantly, this service is entirely free.

BHP Score uses Revision Assistant, a product from [Turnitin](#). To use the service, teachers must first enable the tool in the BHP website's Teaching Console. Next, they need to open, or make available, each Investigation to the students. Once an Investigation is available, students can click on the Investigation tile that appears for each unit to launch Revision Assistant. Students can "signal check" (submit their composition for grading) at any time. While they might be tempted to do so early and often, they will likely find their scores will be quite low until they have a complete first draft of their essays. Once the student feels confident in their submission, they can "turn in" their essay. Along the way, teachers get real time updates on the number of signal checks and the latest scores for each student. This makes it easy to spot who might need a little extra support. Once the essays for the entire class are officially turned in, the teacher can close the essay, so no further submissions will be accepted.

For more information about using BHP Score, see the [BHP Score Guide](#).

*BHP Score and Revision Assistant Writing Space*

## BHP Writing Rubric

Big History Project believes that for students to get better at writing, they need to understand what good writing looks like. In the beginning of the year, students read a sample student essay and use our rubric to grade it. They'll revisit that same rubric throughout the year to look at specific elements of peer writing and make recommendations for how to improve the work. By helping their fellow students get better, they gain an understanding of the high expectations in this course, and they don't have to meet them alone. In the final Investigation writing activity, students will apply the same review to their own writing.

Throughout the course, students will use a simple five-row rubric to evaluate writing. You can find it here. The five areas of writing evaluation are:

- **Claim and Focus** Examines whether the student makes a clear claim about the topic early in the essay and focuses on proving it.
- **Analysis and Evidence** Examines whether the student chooses the right evidence and explains how it supports the claim and analysis.
- **Organization** Examines whether the student presents ideas in a structure that enhances the analysis and uses transitions throughout the essay to make connections clear.
- **Language and Style** Examines whether the student uses specific, interesting language and clear sentence structure to communicate ideas.
- **Applying BHP Concepts** Examines whether the student chooses and accurately applies the relevant BHP concepts in a way that shows understanding, and further supports the argument and evidence presented in the essay.

BIG HISTORY PROJECT  
**WRITING RUBRIC**

	Advanced
<b>Claim and Focus*</b> Make a clear claim about the topic early in the essay and focus on proving it.	The essay makes a precise significant claim based on (and/or sources). The claim is stated position, using it to support and develop and counterclaims while addressing the demand.
<b>Analysis and Evidence</b> Choose the right evidence and explain how it supports the claim and analysis.	The essay cites the most valid evidence to its claim, drawing information substantively from multiple sources to defend its position and refute counterclaims. The student demonstrates insightful careful understanding acknowledging inconsistencies in evidence and explains the relationship between claims and support.
<b>Organization</b> Present ideas in a structure that enhances the analysis. Use transitions throughout the essay to make connections clear.	The essay incorporates transitions within a clear organizational structure that enhances the relationship among ideas and cohesion and clarity. The logical progression of the constructed, including introduction and a conclusion follows from the support and analysis.

BIG HISTORY PROJECT  
**WRITING RUBRIC**

	Advanced	Proficient	Developing	Emerging
<b>Language and Style</b> Use specific, interesting language and clear sentence structure to communicate ideas.	The essay has an established, formal style and objective tone that is maintained throughout. The essay uses varied sentence structure, precise language, and domain-specific vocabulary in a way that addresses the complexity of the topic. Few errors are present, and they do not interfere with meaning.	The essay has an established, formal style that is maintained throughout. The essay uses mostly correct, varied sentence structure and generally uses precise language and domain-specific vocabulary in a way that generally addresses the complexity of the topic. The essay may have some errors, but they do not interfere with meaning.	The essay attempts to establish a formal style that may not be maintained throughout. The essay attempts to vary sentence structure and uses some domain-specific language that may be domain-specific at times but may address the complexity of the topic inconsistently. The essay contains some errors that may interfere with meaning.	The essay does not establish a formal style. The essay uses little variety in sentence structure, and the language is general and not domain-specific. The essay contains errors that interfere with meaning.
<b>Applying BHP Concepts†</b> Choose and accurately apply the relevant BHP concepts in a way that shows understanding, and further supports the argument and evidence presented in the essay.	The essay applies at least two BHP course-level concepts and/or unit-level concepts or content. The concepts or content are connected to the argument or evidence in the essay, and misconceptions are avoided. There are no errors in applying BHP concepts or content, and the essay demonstrates a clear understanding of the topic and the concepts. The essay <i>might</i> include information about the overall time period discussed in the essay and <i>might</i> make use of broader historical or scientific knowledge than is located in the course.	The essay applies one BHP course-level concept and/or unit-level concept or content. The concept or content is connected to the argument or evidence in the essay, and misconceptions are avoided. There are no errors in applying BHP concept or content to illustrate or support concepts and claims, or to inform the essay.	The essay tries to apply at least one BHP course-level and/or unit-level concept or content, but does not fully articulate the concept's meaning or connection to the argument and/or evidence. It does avoid explicit misconceptions of the concept but may make an occasional minor error in applying BHP facts or concepts to illustrate or support concepts and claims, or to inform the essay.	The essay incorrectly or inappropriately mentions at least one BHP course-level concept and/or unit-level concept or content, and it may include misconceptions of that concept. The essay may make many minor errors or a major error in applying BHP facts or concepts.

\*Turnitin, LLC, created the first four rows of this rubric for use with their Revision Assistant and Turnitin tools.

†The "Applying BHP Concepts" row of the rubric should be used by teachers and students to assess student learning and understanding in this area. Teachers should not assess student writing using Turnitin reports exclusively.



BHP Writing Rubric

A couple of key points to note about the BHP Writing Rubric. First, BHP Score can only grade the first four rows of the rubric. The only evidence the service can evaluate are details drawn from the prompt itself. Thus, it doesn't grade whether the students demonstrate full knowledge of the ideas presented across the course. This is one reason why it is essential for teachers to grade student work themselves and not merely rely on BHP Score. Second, this rubric is different from the one used before the 2018/19 school year. The earlier version of the rubric is more detailed and tailored to BHP alone. The rubric used by Turnitin for Revision Assistant is aligned with the Common Core and the College Board assessments, although it is used in a variety of contexts. We use this rubric across the course for the sake of consistency. Teachers may elect to use the previous BHP Writing Rubric for their final essay scoring. [This earlier version of the rubric is available here.](#)

## Claim Testing

In Big History, we refer to the notion of claim testing. Students use this idea when reading new materials to ask themselves if a claim is consistent with their intuition, if it is supported by evidence, if it is made by a trusted authority, and if it is logical. We'll cover claim testing later in more detail, but it's important to highlight here that claim testing is a powerful tool for writing. Rather than simply asking students to cite evidence, claim testing gives them a concrete approach to elaborating on their ideas. You might ask students: Is the author's claim intuitive to the reader? Has a single or have multiple pieces of evidence been used? Are the authorities for each piece of evidence provided? Is the argument logical?



*Bob Bain explains the four Big History claim testers*

Together, the BHP Writing Rubric and claim testing are a powerful yet simple means for students to look at their own work. This will take time, however. The first few times they use these tools, they might be a little clumsy. However, over the course of the term, students start to think about the questions these tools represent out of habit, which is really our goal here.

## Little Big History

We encourage every class to have some kind of comprehensive end-of-term paper for this course. It gives students something to develop over the year, and it also gives them a way to show off what they've learned. The Little Big History project is one such assessment, with resources and activities spread across the year. Students write a history of an object or idea they care about through at least three thresholds, and from the perspective of at least three disciplines. At least one of these thresholds must be prehuman and at least one of the disciplines must be history. Working as a group, students will explore many separate aspects of this topic, and then they will each complete a 5–7-page paper detailing their individual findings. This project gives students an opportunity to really dive into a single topic, researching different components and following their interests. Many teachers have even held Little Big History Nights, inviting parents and community members to come in and watch presentations, which is a great way to engage the community.



Sample student Little Big History projects

## Classroom Writing Activities

Most of these activities are intended to support student writing in the Investigations, but they are also designed to help students develop a consistent set of habits for writing.

### Driving Question Notebook

The first such activity is the Driving Question Notebook—or DQ Notebook. This activity asks students to respond to the driving question for each unit. They do this at the very beginning of the unit, even before they get into the content, because they may not know much about the topic, but they know *something*. And, it turns out, this is important. Learning scientists call this “activating prior knowledge.” Students create a mental model that later allows them to organize the ideas and correct misconceptions they brought to the course, as well as expand on their initial understanding. Students will revisit their DQ Notebooks later in the unit, and will then be able to cite evidence from the materials they’ve studied.

### Investigation writing

Immediately preceding all Investigations are Investigation Writing activities. These are a series of nine activities that scaffold and gradually build up student writing skills throughout the year. In the first part of these activities, students learn to identify, analyze, and revise BHP student writing in relation to the criteria from the BHP Writing Rubric. Then, they’ll put the pieces together and examine student writing by attending to all criteria of the rubric. These activities will help students understand the different elements of good historical writing, which will help them improve their own writing.

Each of the Investigations are eligible for grading by BHP Score. Students can submit their drafts as often as they like for immediate feedback.



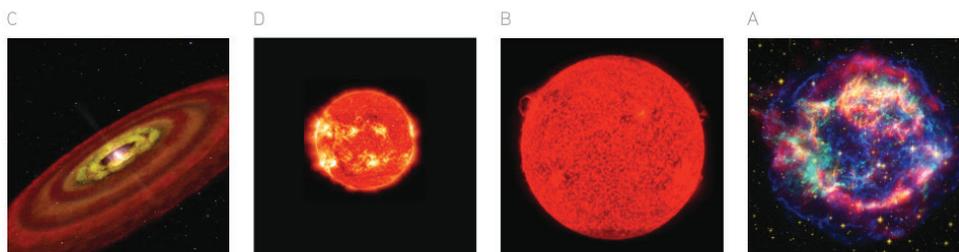
## Openings Guide

Most Big History lessons start with an opening activity. Opening activities are short warm-up exercises to informally assess students' understanding and knowledge about the day's topic. They are also meant to be fun and easy. We strongly encourage all teachers to use the opening activities—these are in many ways just as important as assessment activities since what you learn from your students in the opening may change the way you approach that day's lesson.

Openings serve the following purpose:

1. **Transition**—All openings serve as a transition into class. They all start with a prompt, question, or other activity that students can start working on independently as soon as they are ready. Establishing this transition routine early in the school year will help students to get the hang of automatically engaging with this when they come in the door.
2. **Activate prior knowledge**—All openings allow for students to think or talk about information they may already know related to the day's topic. This prepares them to learn and also helps you understand the gaps in prerequisite knowledge that may exist in your classroom.
3. **Reveal misconceptions**—It is easy to develop misconceptions about scientific and historical concepts. The opening activities can give you a sense of your students' misunderstandings, so you can directly target them.
4. **Assess student understanding**—Openings are an informal assessment activity, but they can still provide invaluable knowledge to both you and your students about what they know and what they still need to learn.
5. **Fun!**—Openings are meant to be fun, low-pressure activities. They invite student participation and aim to engage all students and ease transition into each Big History lesson.

**Directions:** Place the images in the correct order from the birth of a star to its death. Briefly describe what stage in the lifecycle of a star is represented in each image.



1. = C - Protostar - A star that has not yet reached the fusion stage. It grows by accretion, acquiring mass from surrounding interstellar dust and gas.

2. = D - Star - The star shines as nuclear reactions inside produce light and heat. The vast majority of stars in the Universe are in this stage, including our Sun.

3. = B - Red Giant - The star expands and glows red as it cools, eventually blasting away its outer layers.

4. = A - Supernova Remnant - The result of an explosion of a star; consists of material ejected from the explosion. Only the most massive stars become supernovae.

### Lesson 3.0 Opening: The Life of a Star

## Assessment in Big History

Big History takes a multifaceted approach to assessment. We embed assessment throughout the course; every activity is developed for students and teachers to gain insight into their understanding. The course gives teachers many opportunities to review student work both formally and informally, and find opportunities for improvement and enrichment. However, all assessments are optional and to be used at the teacher's discretion.

It is important to note that the importance of assessment goes far beyond the teacher: if a student does not have insight into assessment processes and outcomes, the results are only providing the teacher with information about how to change instruction. Students can also monitor their own learning, strengths and weaknesses, and course expectations. Throughout the course, students should reflect on their own work and learn to provide constructive feedback on the work of peers. We encourage this type of reflection through student use of rubrics and peer review, in addition to the daily assessment that comes through using the Big History approaches to discussion.

### Rubrics

We have a consistent set of rubrics to grade student writing, presentations, and the Little Big History activities. We provide a standardized set of rubrics for a few reasons. First, it's confusing for students and teachers alike if we are constantly changing some of the core evaluating mechanisms in the course. Second, consistent standards give students a clear understanding of how to meet the expectations and be successful in the course. Before students are ever graded using Big History rubrics, they first use those rubrics to grade other work. This way, they clearly understand all of the elements of an assignment. Using the same rubric also helps students track their own improvement throughout the course, providing a tangible way to see how their writing is improving and the particular things that they need to focus on.

### Closings

Each lesson in the Big History curriculum closes with an assessment activity. These come in many forms and may include quick activities such as a class vote or an exit card, a small group or whole class discussion, or a peer review. They may also be more formal assessments, often in the form of a final paper or investigation writing.

For the most part, the assessment activities are intended to serve as formative assessment, so that both you and your students can regularly monitor their understanding of the concepts in the course. Depending upon how your students respond and perform in these various activities, you may choose to reinforce certain concepts as needed.

### Writing Assessments

Throughout the course there will be formal writing assessments. There are formal research papers as well as investigation-related writing. Writing assignments are one of the most important activities in Big History. Not only do students improve their general writing, a skill that is of paramount importance, but they also learn how to write historical and scientific papers. As part of these papers, students learn to ask important questions, hypothesize, conduct research, synthesize information, and justify their claims. In assessing student writing, you will not only get a sense of how your students are developing these vital skills, but you will also be able to gauge their understanding

of the course material at a deeper level. In addition, when students peer review others' writing in the course, they will gain an even deeper understanding of their own strengths and weaknesses.

### Lesson Quizzes

There are quizzes for each lesson in the course. These quizzes were created by seasoned Big History teachers



using Big History learning outcomes and key vocabulary. One thing to keep in mind with these quizzes is that in many cases they are better used as a class exercise rather than a typical assessment test. It's nearly impossible to prevent students from finding the answers to the quizzes—they can find a way to create a teacher account on the Big History website and get all of the answers they need. That said, the information in the quizzes include things that we really want students to know to be successful in the class. So, if you approach a quiz as a group activity, you will get a great sense of what your students have learned, what they are struggling with, and what kinds of practices they need to improve upon. They are great for homework, studying, small group, and whole class activities.

## Driving Question Notebook Guide

The Big History curriculum has students keep a course-related journal focused in what we call the Driving Question Notebook – referred to as the DQ Notebook throughout the course. This particular journal focuses upon the driving questions from each unit. The aim is to help both students and teachers connect back to the core themes and big ideas of the course.

Students will write in their DQ Notebooks multiple times over each unit. We provide a worksheet for each unit with the driving question and other relevant directions. You should only print these once per unit and the students should reuse them for each of the unit’s DQ Notebook activities. Each time students encounter the driving question, they will be asked to look at it from a new perspective, revising and refining their initial understanding of the unit’s core concepts. The emphasis here is for students to focus on concepts rather than formalized writing.

An additional focus of the DQ Notebook is assessment. While you might not want to formally grade these assignments, they should be useful in understanding how your students’ thinking is progressing, where they are gaining mastery, and where they might need additional instruction. Students can also use them to examine how their thinking has progressed over the course of a unit. Not only does this success feel encouraging, it also mimics the scientific process—as we gather more evidence, our thinking changes. Our earlier ideas may not have been wrong (or perhaps, they were), but the newer ideas are more informed and developed.

The DQ Notebook is a place for students to write informally. It is more about thoughts and ideas and less about perfect grammar and spelling. The Big History course offers many opportunities for formal academic writing; the DQ Notebook isn’t meant to be one of them. We still want students to be thoughtful, back up claims with evidence, and so on, but we really want this to be a space where students can respond to questions, hypothesize, and ask questions of their own without concern for “good” writing.

*Driving Question Notebook worksheet*

## Vocab Activities Guide

Vocabulary has to be more than just a list of words students memorize and bemoan. These words represent big (and sometimes medium-sized) concepts critical to the unit, to the lesson and to the individual readings and videos. And, it turns out, just memorizing the definition doesn't always help students understand what the word means. To really get the idea of each work, you need to see the word in a variety of contexts. For each reading and video in the course, the Big History Project provides a vocabulary report from Text Genome. This report will highlight key concepts referenced in that asset and provide context. Throughout the course, Text Genome will provide related terms (semantic network), forms of the word (morphology) and examples, rather than the definition. These words were selected to be age appropriate and highlight key ideas from the course.

The image shows two overlapping screenshots from the Big History Project interface. The left screenshot displays a contextual menu for an article titled 'Origin Story: Mayan'. The menu options are: Open, Download, Text Genome, and Mark as Optional. The right screenshot shows a 'Mayan Vocabulary' report. It includes a table with two columns: 640L and 800L. Below the table, there are sections for 'accept' and 'civilization', each with a table detailing its cluster, semantic network, word family, and examples.

**BIG HISTORY PROJECT**

**Mayan Vocabulary**

This TextGenome report provides a summary of key vocabulary for each article in the course. For each word, you will find the cluster, semantic network and word family as well as examples of the word used in a sentence. To find the definition, you will need to go to the glossary available from the Help menu. These reports will help you make sense of the critical words for each text as well as in vocabulary activities.

640L	800L
Length: 491 words Grade: 3	Length: 493 words Grade: 4
Themes: • Land/terrain (14) • Types of people (12) • Size/quantity (9) • The human body (7) • Animals (6)	Themes: • Land/terrain (14) • Types of people (12) • Size/quantity (9) • The human body (7) • Time (7)

**Vocabulary Words**

**accept**

Cluster:	Feelings/emotions
Semantic network:	accept, admit, assume, bear, consent, have, receive, swallow, take
Word Family:	acceptable, acceptance, accepts, unacceptable, accept, acceptant, accepting, accepted
Examples:	<ul style="list-style-type: none"> <li>Banks usually refuse to accept altered checks.</li> <li>We did not want to accept the expensive gift.</li> <li>Wilson was ready to see the treaty rejected rather than accept it with reservations.</li> </ul>

**civilization**

Cluster:	Groups
Semantic network:	acculturation, civilisation, civilization, culture, education, home, order, refinement, sphere
Word Family:	civilizing, civilizations, civilian, civil, civility, uncivil, civilized, civilization, uncivilized, civilians, civilize
Examples:	<ul style="list-style-type: none"> <li>It takes specialists for a civilization to develop.</li> <li>Most archaeologists think that cities are signs of a civilization.</li> <li>Civilization also involves things like writing, trade, complicated manufacturing, and high levels of art and government.</li> </ul>

*The contextual menu, a.k.a three dots menu with link (left) to a Text Genome report (right)*

In each unit, there will be two vocab activities. For the first one, students may not have seen all of the words yet, but it provides a context to help them understand the texts later. This first activity will include two different types of questions. One is a fairly simple fill-in-the-blank question. The goal here is to help students become familiar with the words in context and to give them a sense of how comfortable they are with the words. The other question asks students to use the vocabulary to fill in the blanks in sentences in an effort to develop their understand of context. For the second vocabulary activity, students are presented with more challenging questions where they have to fill in the blank choosing from related terms (semantic network) or forms of the same word (morphology).

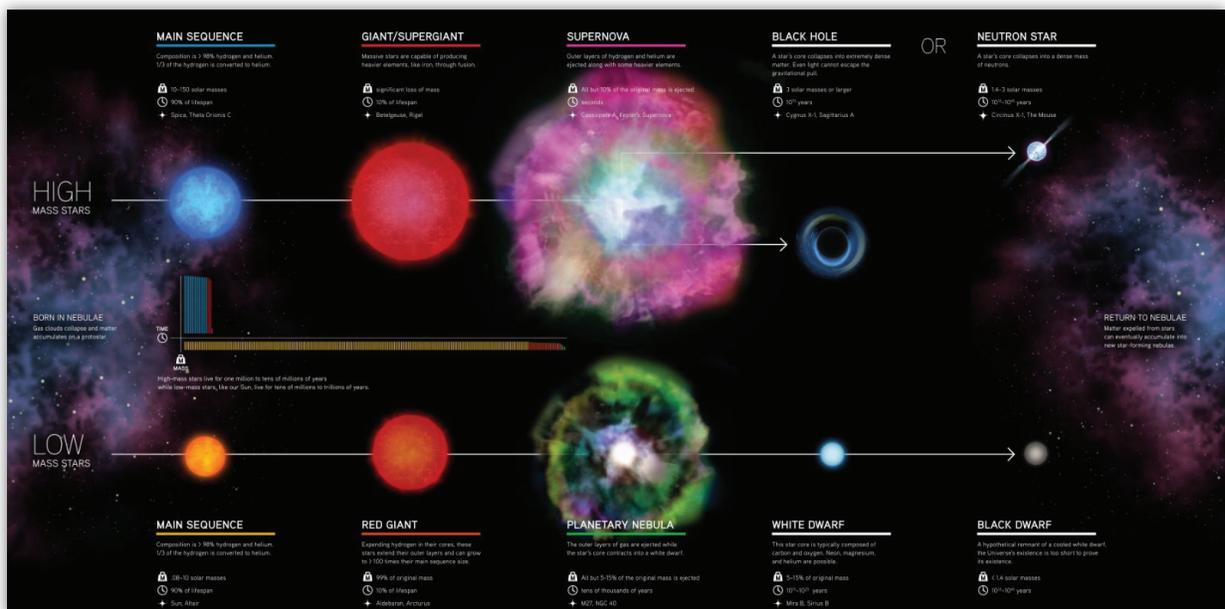
## Interpreting Infographics Guide

Infographics are visual representations of information meant to simplify complex concepts by presenting data in a way that tells a story or makes an argument. Big History often uses infographics to display and summarize information. Interpreting them is a skill that requires students to understand the relationships between the data displayed, the technical vocabulary, and what the author is trying to say through the vertical representation. We recommend you provide your students with a set of questions that will help them pick out the key features of an infographic. In addition, while some students might easily understand the information, there are other elements of infographics, such as sources, that are easily forgotten.

For example, this infographic from Unit 3 helps students to understand the life cycle of stars, the different kinds of stars that exist, and what the stars produce.

Have students ask themselves the following questions when they look at an infographic. These questions are also in the Infographic Worksheet for students to refer to throughout the course.

1. What is the first thing that catches your eye? What might this tell you about what you are looking at?
2. What is the title? Does that reinforce your thoughts regarding what you thought this was about, or change them?
3. What is the story that the infographic is trying to tell? Is it a pure visualization, does it show change over time, is it comparing and contrasting?
4. What are the patterns and connections visible in the infographic?
5. What is the quantitative information presented in the graphic? What does it tell you?
6. What is the data source? Use your claim testers to determine if this data source is valid and robust.
7. Why do you think the authors chose to present the information in this way? Who is their audience?
8. Summarize the infographic in a few sentences. What is the gist of the infographic and what are the most important take away points?



*The Life Cycle of Stars infographic*

## Homework Guide

Homework is an important aspect of any type of learning. The development of mastery and expertise can only happen through repeated deliberate practice, and the way that people use their time to learn has a large impact on learning. Learning scientists have shown that “deliberate practice” around a topic, including the monitoring of one’s own learning, is what leads to successful learning. Therefore, the process of doing homework that you carefully assign not only helps students recall and revisit what they have learned, but it is also a “deliberate” way of doing this, requiring a process of self-monitoring out of the classroom that will lead to maximum learning.

We chose not to include homework suggestions in the lessons—we know many schools have conventions around homework and we don’t want to disrupt that process. We expect that homework will often emerge organically from course content, often for work that you did not have time to finish with your students in class. However, sometimes it is helpful to be more deliberate around homework, and we’ve received some great tips and tricks from Big History teachers about reinforcing learning beyond the classroom.

### Video

We love the idea of using videos as homework. Videos are vital to the course, but can take up a lot of class time. While it’s hard to ensure access for all students, if you assign video homework with enough notice, you can help students find a way to watch the videos in a school library, a public library, or on a smart phone, for example.

Some things to keep in mind when assigning video homework:

- We strongly recommend that you begin the course by watching the videos in class in order to help students grasp the complex information that is being presented. View the main content videos multiple times to ensure students understand the material. Watch the video all the way through the first time and then show it again, stopping at moments where content needs to be explained more thoroughly.
- It’s best to assign an activity along with the video. Passive video watching, like passive reading, often leads to little or no comprehension of the video. The discussion questions we provide can be great prompts for students. Or, you might assign a larger question for students to think and write about in relation to the video.
- Assigning a 10-minute video along with an activity will likely take students a lot longer than 10 minutes. Please keep that in mind when thinking about assigning videos for homework.

### Readings

As with videos, it’s important to ensure that reading is an active process. We suggest sending the Three Close Reads Worksheet home with students. If students don’t have technology access at home, reading assignments can always be printed at school for students to take with them.

- As described in our reading guide, we provide three or four different versions of the same article for students at different reading levels. This allows all students to access the same content, but it is differentiated to fit their specific academic needs.
- As with the video homework assignments, carefully gauge how long it will take to read an article. If the reading assignment is particularly long, consider having students do the first and second close reads at home, and then have them do the third read in class.

## Little Big History

The Little Big History (LBH) project is the culminating project of the Big History course. It allows students the opportunity to delve into an event, object or idea from a Big History perspective. This project has both collaborative and individual aspects, and results in either a presentation or service project.

Exactly what is a Little Big History? A LBH will do the following:

- With a compelling narrative, it tells the story of an object across at least three thresholds (one of them pre-human)
- It incorporates the perspectives of at least three disciplines, including history.

Working in teams, your students might choose to investigate one of the following:

- an object or a commodity (anything that is bought and sold)
- a process or technical innovation
- a social construct or institution
- an activity

Basically, it can be just about anything that interests them and that they can research. However, many teachers have reported it is much easier for students to research objects than more abstract concepts. To make things simpler for their students, one team of teachers limits the class to “things they can buy at Walmart.”

At the end of the project, each member of the group will complete a collaborative group paper, an individual paper, and a group presentation on the subject of their LBH. The best Little Big History projects are great stories, that highlight connections and insights about the subject. Students need to work together to ensure they bring their story to life.

The Little Big History Project is a significant amount of work. Students begin work selecting their topics in the second half of the course and begin writing in earnest in unit 8. To help prepare students to work on their Little Big Histories, students are exposed to activities that help them view examples or become familiar with the rubrics that will be used to evaluate their work later in the year.

It is worth noting that the History Channel program Big History was inspired by the Little Big History Project. The episodes of this show provide students with a wealth of examples of what a Little Big History can be, for example, tracing the role of salt or silver in trade and civilization. It can be helpful to have students watch videos, such as Silver Supernova, to give them an idea of what an LBH project might look like.

### LBH Project Units 6-10

In the second half of the course, you will encounter LBH activities that help students complete the project. The LBH projects are big, and it's important to be sure to pace the last few units appropriately so students have time to work on them. It's also a great idea to make an event of the final presentations – this tends to invite a higher quality



*Unit 3 Silver: A Little Big History*

product from students and generates a lot of excitement.

### **Lesson 6.1.6 – Little Big History Kickoff**

- Students are introduced to the LBH project for the first time. They will get into their LBH project groups and begin brainstorming some possible ideas for their projects.

### **Lesson 6.3.7 – Little Big History – Choosing Your Focus**

- Students make a final decision about the LBH object they'll study and research for their culminating project of the year.

### **Lesson 7.0.11 – Little Big History Biography**

- Students will answer a general set of questions about their Little Big History topic. This activity will help them become more familiar with their LBH topic and formulate better research questions when they start their final project. In addition, students will spend focused time reviewing and applying the collaboration rubric that will be used at the end to grade their participation in the group.

### **Lesson 7.2.8 - LBH – Research Questions**

- Students explore the questions they might answer in researching their Little Big History project.

### **Lesson 8.3.12 – Little Big History Final Project**

- This is the last structured Little Big History activity before the final presentations. Students will narrow down the subject of their paper and to choose how they would like to present it.

At this point, please be sure to schedule class time, check-ins, or homework around these final activities so students continue to work on the projects. We highly recommend that you do not have students working on other projects at the same time that they are working on their LBH's.

## Project-Based Learning

Project-based learning (PBL) is an instruction method that has students explore a complex question, problem, or challenge in depth. Veteran Big History teachers have reported having great fun, and successful learning when using these projects. Each activity covers two weeks of instructional time. The Big History Project includes three PBL activities:

- **Unit 5:** Invent a Species — This project challenges groups to invent a new species. They have to decide where their species came from, how it evolved, what skills and abilities it has, the trends that led to its survival, and so on. The development of their species must be grounded in scientific thought and reason. The deliverables for the project are a model of the species and a Wikipedia entry about that species.
- **Unit 7:** Feeding the World — This PBL, asks pairs of students to determine how many people the Earth could support now and in 100 years, and what conditions would be necessary to support those numbers. The deliverables for this project are an infographic, a narrative of each condition, and a structured poster presentation.
- **Unit 10:** What Is the Next Threshold? — In groups, students determine the next threshold. But rather than just imagining something, they have to use their knowledge of the prior threshold to rationally and scientifically predict what is next. They will create a threshold card and a podcast or newscast that explains the next threshold and the rationale behind why this prediction is logical and based in reason.



Figure 1. Student example: Invent a species

In each, students work in groups for two weeks to research their questions, compose a written response, and share their results with their class and the community. Each of these projects is written to follow the PBL methodology of the Buck Institute for Education: <http://www.bie.org/>.

## Join the Community

This course is driven by a deeply engaged group of educators. We draw much of the instructional content from the best practices of Big History veteran teachers. By contributing feedback and suggesting new ideas, current teachers play an immensely important role in the continual improvement of the Big History course.

You can join other Big History teachers in community discussions (online and offline), and by attending our Big History Project summits and “cluster meetings” to share your ideas and help shape the course.

**Use the appropriate Group to talk about course preparation, Unit content, Little Big Histories, assessments or make general comments.**

**Search for posts across the Big History Teacher Community**

**Description of the discussion Group**

**Members participating in this Group**

**Core resources highlighted for this Group**

**Posts related to the Group**

*BHP Teacher Community*

## Big History Project Evaluation Efforts

As part of our ongoing efforts to make the course as good as it can be, the Big History Project has teamed up with the University of Michigan to run an ongoing evaluation effort. The goal of these efforts is to help us answer the following questions:

- What are the reactions of students and teachers to the BHP program and materials?
- What is the impact of the Big History Project on student reading and writing abilities?
- What can be done to improve the quality of the BHP materials and program?

To provide insight into these questions, we ask teachers and students to complete a set of brief surveys as well as a series of short assessments. All data collected is stored anonymously, in accordance with the requirements of the University of Michigan Institutional Review Board.

A subset of the larger Big History community has been identified as ‘Design Partners’. These schools have agreed to provide data on a specified schedule for the 2017/18 school year in the United States and for the 2017 and 2018 school year in Australia. While we will review survey data from all schools in the Big History Community, we will only score data coming from our design partners.

The Wave 1 data is intended as baseline data for students. While we are using investigation 2, we ask that you give this writing assessment in the first week of school. Please do not wait until the end of unit two. We are interested in learning what skills the students are bringing into the BHP classroom.

Design Partners in the United States have been asked to submit data on the following schedule:

### Wave 1 September 14

- Teacher Perception Survey
- Student Perception Survey
- Investigation 2

### Wave 2 February 38

- Teacher Perception Survey
- Student Perception Survey
- Student Concept Assessment
- Investigation 6

### Wave 3 June 7

- Teacher Perception Survey
- Student Perception Survey
- Student Concept Assessment
- Investigation 9

Unit Logs Due at the conclusion of each unit

If you have any questions about the evaluation program or any other topic related to Big History, please contact us at [help@bighistoryproject.com](mailto:help@bighistoryproject.com).









