Office of Curriculum and Instruction

**Big History**

**Grade 12**

**ABSTRACT**

Students in Big History collaborate to study a unified story of history. Students investigate common patterns across the entirety of history, from the creation of the universe to the Common Era and beyond. The study of history as a whole enables students to better understand people, civilization, and our place in the universe. In addition, this unified story provides students with a deeper awareness of our past, better preparing them to help shape the future. Students employ a web-based curriculum provided by the Big History Project. As students study the patterns of history, they develop a critical-thinking skill and engaged in 21st Century Learning.

Adopted by the Somerville Board of Education on July 25, 2017
# Big History
## Grade 12

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<thead>
<tr>
<th>Month/Marking Period</th>
<th>September</th>
<th>October</th>
<th>November</th>
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<tbody>
<tr>
<td><strong>2016 New Jersey Student Learning Standards</strong></td>
<td>RH. 11-12. 1-10; WHST. 11-12. 1-10; SL.11-12. 1-6</td>
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### Essential Question:
- What is Big History?
- How has our understanding of the universe evolved?
- In what ways do the stars serve our solar system?
- What theories may explain the creation of our solar system?
- How is it possible to define life?
- What makes humans different?

### Content:
- **Course Overview/Reasons for Studying History**
- **The Big Bang**
- **Stars and Elements**
- **The Solar System and Earth**
- **Life**
- **Early Humans**

### Skills and Topics:
- **summarize the major origin stories and identify the major features/attributes origin stories**
- **Compare and contrast origin stories,**
- **Analyze various texts and visuals to assess diverse historical perspectives.**
- **Debate reasons for learning about Big History.**
- **Assess the major disciplines that contribute to the study from which big history draws evidence to construct a modern**
- **Analyze claims in articles, essays, and stories regarding the Big Bang Theory.**
- **Compare and contrast three models of the universe (such as: Ptolemy, Newton, and Hubble).**
- **Collaborate to provide different approaches to knowledge and technological innovations (e.g. parallax, Doppler Effect, spectroscope, absorption lines, red shift)**
- **Analyze how changing of our understanding**
- **Describe the position of our Solar System in the Milky Way galaxy.**
- **Create a spatial scale of the Solar System, including the size of planets and the distance between planets.**
- **Contrast how our Sun’s formation 4.5 billion years ago was different from the first generation of stars.**
- **Define the process of accretion and the formation of the rocky planets, citing evidence scientists use to explain this process.**
- **Differentiate living from non-living things.**
- **Investigate the function of DNA and the evidence that provides for the relationship among living organisms.**
- **Connect the Goldilocks Conditions to the origination of life on Earth.**
- **Research how living things adapt and evolve.**
- **Analyze the six major turning in the history of life on Earth.**
- **Assess the methods**
- **Track the major steps in the development of homo sapiens.**
- **Distinguish characteristics among organisms along the evolutionary path.**
- **Evaluate the evidence used to support the theory of human evolution.**
- **Assess the qualities that make the human species distinctive (e.g symbolic language and collective learning.**
- **Analyze Paleolithic communities and their cultures.**
- **Analyze factors that**
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<tr>
<th>Scientific origin story (such as Biology, Chemistry, Physics-Anthropology, etc.)</th>
<th>of our universe is an example of collective learning.</th>
<th>Compare and contrast the rocky and gassy planets in our Solar System.</th>
<th>Scientists use to situate living things and changes in living things on the geologic time scale.</th>
<th>made human adaptation to different climates and environments possible.</th>
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<tr>
<td><strong>• Synthesize learning in the completion of the Investigation Problem.</strong></td>
<td><strong>• Assess how scientists are able to construct the story of the Big Bang.</strong></td>
<td><strong>• Research the most widely accepted theory for how Earth’s moon was formed.</strong></td>
<td><strong>• Collaborate to explain the astronomical, geological, and biological forces that have shaped the history of life within the biosphere.</strong></td>
<td><strong>• Research the concept of the biosphere, interactions between humans and the environment, and the impact of the environment on human development.</strong></td>
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<td><strong>• Determine the fundamental forces that emerged from the Big Bang.</strong></td>
<td><strong>• Describe the roles that gravity, hydrogen and helium, and the process of nuclear fusion play in the formation of stars</strong></td>
<td><strong>• Analyze the formation of the Earth’s layers including the structure and function of each of the layers that formed.</strong></td>
<td><strong>• Assess how a great diversity of species increases the chance some living organisms will survive in the face of dramatic changes in the environment.</strong></td>
<td><strong>• Synthesize learning in the completion of the Investigation Problem.</strong></td>
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<td><strong>• Determine the Goldilocks Conditions that enabled the creation of stars</strong></td>
<td><strong>• Explain what evidence scientists have used to understand the creation and lifecycle of stars</strong></td>
<td><strong>• Track the process and conditions that evolved on early earth that allowed for life to develop.</strong></td>
<td><strong>• Synthesize learning in the completion of the Investigation Problem.</strong></td>
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<td><strong>• Illustrate the relationship between the lifecycle of stars and creation of new elements identified on the periodic table</strong></td>
<td><strong>• Synthesize learning in the completion of the Investigation Problem.</strong></td>
<td><strong>• Research both the theory of plate tectonics and its connection to the Big History story.</strong></td>
<td><strong>• Differentiate among eons, eras, periods, epochs, and ages on a geologic time scale, and explain absolute dates on Earth.</strong></td>
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Integration of Technology: [http://www.state.nj.us/education/](http://www.state.nj.us/education/), Big History Project web-based classroom, content-related websites, Internet, Web Quests, ThinkQuest, wireless laptop computers, interactive maps, iPads, SMART Boards, Google apps, Google Docs, prezis, wikis, VoiceThread, video streaming, podcasting

Writing: Open-ended responses, conclusions and analysis of exploratory activities

Formative Assessments: Oral presentation, multimedia presentations, self-assessments, peer assessments, scoring rubric, benchmark assessments

Summative Assessments: Section quizzes, unit investigations, reports, presentations, benchmark assessments

Performance Assessments: Oral reports, debates, re-enactments, dramatizations, multimedia presentations

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21st Century Skills: Creativity and Innovation, Media Literacy, Critical Thinking and Problem Solving, Communication and Collaboration, Information Literacy

Resources: Online curriculum, trade books, magazines, periodicals, newspapers, professional journals, maps, videos, CDs, YouTube, culturally-authentic documents, teacher-created resources

Modifications and Accommodations: Adjustable Lexile level on all articles, daily reference to class outline (timeline), multisensory approach (video, infographics, audio, etc), graphic organizers, web-based curriculum allows for flexible completion of assignments, project-based learning, endless possibilities to expand on content, and differentiated capstone project.

Intervention - Teachers will address intervention needs by using the following tools/strategies:
- Computer-assisted instruction
- Instructional Level - Teachers will utilize texts that stretch the students’ instructional level. Differentiated materials may be found in the book room and Newsela.com.
- Text to Speech (Speak It!)

Enrichment/Gifted:
- Tired graphic organizers to add complex layers
- Raise levels of intellectual demands
- Differentiate content, process or product depending on students’ readiness, interests and/or learning styles
- expanded open-ended questions

ELL Students:
- Sheltered Instruction Strategies
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**Essential Question:**
In what ways did agriculture contribute to the development of civilization?
Why did civilizations expand?
What factors may have contributed to the rate of human driven acceleration?
What’s next?
Little Big History Projects

**Content:**
- Agriculture and Civilization
- Expansion and Interconnections
- Acceleration
- The Future
- Capstone Project

**Skills and Topics:**
- Determine ways in which the development of agriculture revolutionized human history.
- Evaluate why humans transitioned from a nomadic to sedentary life.
- Trace the emergence and growth of diverse agrarian civilizations throughout the agricultural era.
- Compare and contrast the major scales of organization including such as governance structure, social hierarchies, economic systems, and exchange networks.
- Extend study of specific civilizations across regions and
- Identify four world zones of interaction.
- Compare and contrast the four world zones via geography and climate, plants and animals, and the characteristics of human communities.
- Map key networks of exchange among civilizations within the four world zones.
- Research goods, people, ideas, diseases, and technologies that moved across four world zones.
- Employ primary source documents, maps, data, and graphs to describe the consequences of new conquests and interactions among the four world zones.
- Evaluate factors that have affected the pace and spread of change, collective learning, and complexity over the past two hundred years.
- Analyze the consequences of industrialization and urbanization worldwide.
- Track major changes in human energy production throughout the study of civilization.
- Assess the consequences of increasing global inequalities among the diverse regions of the world.
- Debate the beneficial and harmful outcomes of significant
- Assimilate prior learning in oral and written form.
- Collaborate to identify trends of the past that have been present effect.
- Predict and explain trends that will shape the near future.
- Analyze humans’ overall impact on the biosphere.
- Identify a researchable topic and frame higher-level research questions for the Little Big History Project.
- Use advanced searches effectively to gather and draw relevant information and evidence from multiple authoritative print and digital sources.
- Assesses the usefulness, credibility, and accuracy of each source in answering the research question.
- With guidance and support from peers and adults, plan, revise, edit, and rewrite a final paper.
- Integrate information and BH concepts into the text selectively to maintain the flow of ideas while avoiding plagiarism.
- Use appropriate formatting, graphics,
- Assess how paleontology, anthropology, and archeology inform historians about early life.
- Research major technological record keeping and organizational innovations of the era of agrarian civilization.
- Debate reasons for the prosperity and failure of civilizations.
- Synthesize learning in the completion of the Investigation Problem.

between 1500 and 1800 AD.
- Compare and contrast economic and political systems of 1500-1800 AD with those prior to 1500 AD.
- Analyze the relationship between the increasing pace of change and innovation and the scale and complexity of human societies throughout the agrarian era.
- Evaluate the value of Malthusian cycles in understanding the agrarian era of human society.
- Synthesize learning in the completion of the Investigation Problem.

- Compare and contrast the major scales of social organization across the history of civilizations.
- Synthesize learning in the completion of the Investigation Problem.

- Evaluate the value of Malthusian cycles in understanding the agrarian era of human society.

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Interdisciplinary Connections:

| World Language: | 7.1.N.H.A.3 |
| 21st Century Life/Careers: | 9.2.12.3 - 4 |
| CRP: | 1,2,4,7,8,12 |

21st Century Themes:

- Global Awareness
- Financial, Economic, Business, and Entrepreneurial Literacy
- Civic Literacy
- Health Literacy
- Civic Literacy
- Health Literacy
- Critical Thinking and Problem Solving
- Life and Career Skills
- Creativity and Innovation
- Media Literacy
- Information and Communication Technologies Literacy
- Communication and Collaboration
- Information Literacy

Resources:

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- Periodicals
- Newspapers
- Professional journals
- Maps
- Videos
- CDs
- YouTube
- Culturally-authentic documents
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*2016 New Jersey Student Learning Standards:*

<table>
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<th>RL</th>
<th>Reading Literature</th>
<th>N</th>
<th>Real Number System</th>
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<td>RI</td>
<td>Reading Informational Text</td>
<td>A</td>
<td>Algebra</td>
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<td>W</td>
<td>Writing</td>
<td>F</td>
<td>Functions</td>
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<tr>
<td>SL</td>
<td>Speaking and Listening</td>
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<tr>
<td>L</td>
<td>Language</td>
<td>S</td>
<td>Statistics and Probability</td>
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KEY COMPONENTS OF BIG HISTORY

The Big History Project (BHP) includes content related to New Jersey Student Learning Standards for Social Science for both world history and US history and applies to the Next Generation Science Standards (NGSS). BHP provides a review of middle school content related to the human story from emergence to the beginning of the age of exploration, placing it in a larger context. In addition, it prepares students for the more elaborated and critical study of human history from the Renaissance to the present.

Chronological Thinking
By the end of high school, Big History students should not only be able to use chronological thinking to compare events, but also to evaluate their consequences for the present day. BHP supports students’ abilities to consider change over time and encourages increasingly complex consideration of the import and impacts of beliefs, values, technology, politics, and economic forces. BHP helps strengthen the foundation for such complex thinking. The Investigations in each unit provide good opportunities to link various factors like these as students consider causation and change over time. For example, the Investigation in Unit 4 has students read a range of sources to create a timeline that accounts for the gradual acceptance of David Wegener’s Theory of Plate Tectonics. In Unit 9, students consider population trends, literacy rates, the spread of democracy, carbon dioxide levels over time, and several other factors as part of writing an essay on whether the Modern Revolution has been a positive or negative technical, social, and cultural force. BHP also focuses on the concept of periodization in history, providing a meta-discussion of how historians and others think about time.

Spatial Thinking
Spatial thinking is built into the BHP framework. One foundational concept is the “four world zones” of human habitation – that the move from agricultural civilizations to the modern world was largely made possible by interconnections among the four world zones resulting from exploration, trade, and migration.

As indicated by that last example, the senior high expectation that students be able to construct graphic representations of human and physical spatial phenomena is practiced in BHP. In almost every unit, students map journeys or migration routes (see example activities in Lessons 4.2, 7.1 and 8.1), actively compare developments in different locations (e.g., the “Comparing Civilizations” project in Unit 7), and show the movement of people and goods around the world. In the World Zones Game in Unit 8, which reinforces the idea that the intersection of populations, resources and innovations influences outcomes for people in particular locations, students create a continent. In addition, senior NJ students are supposed to “Relate current events to the physical and human characteristics of places and regions.” In Lesson 8.3, the “Personal Supply Chain” activity has students choose one item they own and map its provenance back to its raw materials, thus connecting what they are studying about 18th and 19th-century world exchange to their present reality. In Units 9 and 10, students spend time considering current and future energy use patterns in relation to global issues.

Critical Thinking
In its focus on argumentative writing, debate, and challenging previously held assumptions, BHP develops critical thinking throughout the course. From the beginning of the year, BHP has students learn to test claims, evaluate evidence, and use primary and secondary sources, including digital materials and timelines, maps, graphs, and photographs, in addressing essential questions. They use this evidence in writing informational and argumentative texts, developing graphic materials, and creating multimedia presentations.

Not only are students continually reviewing a range of sources, but the frequent argumentative writings and the periodic debates provide opportunities to build the 12th grade skills of “Distinguishing valid arguments from false arguments when interpreting current and historical events.” In the Investigation Writing, “Was farming an improvement over foraging?” in Unit 7, students confront the prevailing assumption that the march of progress towards agriculture was an unalloyed good and, consequently, consider an alternate reality. In debating “Is Change Accelerating” in Lesson 9.1, students argue that innovation either can or cannot keep up with accelerating population growth and climate change; thus updating their understanding of Malthusian cycles.
Big History also provides opportunities for students to build their ability to locate and choose resources in the course of completing the numerous assignments that involve researching topics. Students begin writing researched essays early in the course in Unit 2. Writing activities start with researching questions offered by the course and writing comparison-contrast essays across given and researched source materials (e.g., comparing a famous and a neglected scientist for a lesson 2.0 essay). Writing activities then work up to developing their own questions and goals for group and individual reports in the final Little Big History project. In the initial part of the course, given materials outnumber independent searches; however, by the end of the course, students are routinely using the Internet and other research sources for their own purposes.

**Writing:** Writing is a key component of students’ knowledge production in Big History. Students engage in formal and informal writing continuously throughout the course in ways that more than meet progress indicator WHST.9-10.10, “Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.”

Students are required to write explanations and arguments drawing from texts, representations of data, experiences, videos, and other sources of information. As noted earlier, students engage in short-term and long-term research writing throughout the course. Students also write compare-and-contrast essays using primary and secondary sources. To assess and learn from these writing assignments throughout the course, a writing rubric is utilized. The rubric addresses the following categories of skills:

Students engage frequently with the rubrics used in BHP, using them to evaluate sample texts, their own writing, and to engage in peer response. This practice builds metacognition in writing, and makes expectations for academic writing explicit for all learners.

**Investigations:** In parallel with the content of the course, Investigations challenge students to use complex and varied texts (e.g., primary and secondary sources, quantitative data, and graphics). Students take up and address big and enduring questions (“Why do people change their minds?” “To what extent has the Modern Revolution been a positive or negative force?”). Investigations engage students in short, focused research, using BHP-provided documents, artifacts, and objects to make arguments and explanations about change over time, culminating in a written presentation and assessment of their findings. Each Investigation asks students to answer a Unit’s driving question by analyzing, synthesizing, and evaluating evidence to construct their own answers, while developing student literacy and critical thinking skills. Each Investigation asks students to:

**Little Big History:** The Little Big History (LBH) project demands that students use advanced search methods to gather information and evidence from multiple authoritative print and digital sources while maintaining and sustaining their focus on a researchable question. This reflects our attempt to realize the goals of the Common Core in an engaging and constructive activity. The LBH calls on students to employ at least two approaches to knowledge in addition to History (such as Cosmology, Chemistry, Biology, or Anthropology) and take their research back to a time before humans. Student papers in the past have ranged from histories of an element (such as silver or gold), to a commodity (such as bananas, tobacco, or Cheez-Its), to events or activities (such as formation of dictatorships or the cinema). In short, the LBH project calls upon students to conduct a research project framed around a self-generated question; narrow or broaden their inquiry when appropriate; analyze and synthesize multiple sources; and demonstrate their understanding of different audiences. To complete this sustained research project, Big History expects students to:

**Conclusion**
The Big History Project provides an opportunity to widen student perspectives, give them practice in grappling with large, foundational concepts, and develop essential disciplinary and literacy skills through engaging materials and activities. The provided materials are rich and designed to promote substantive classroom interaction around essential questions.