Curriculum Units by

Fellows of the

Yale-New Haven Teachers Institute

Guide

2024

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## *Preface*

In February 2024 teachers from New Haven Public Schools became Fellows of the Yale-New Haven Teachers Institute® to deepen their knowledge of the subjects they teach and to develop new curricular material to engage and educate the students in their school courses. Founded in 1978, the Institute is a partnership of Yale University and the New Haven Public Schools, designed to strengthen teaching and improve learning of the humanities and STEM fields in our community's schools. Through the Institute, Yale faculty members and Public Schools teachers join in a collegial relationship. The Institute is also an interschool and interdisciplinary forum for teachers to work together.

Teachers had primary responsibility for identifying the subjects on which the Institute would offer seminars in 2024. Between August and December 2023, teachers who served as Institute Representatives canvassed their colleagues in New Haven public schools to determine the subjects they wanted the Institute to address. The Institute then circulated descriptions of seminars that responded to teachers' interests. In applying to the Institute, teachers described unit topics on which they proposed to work and the relationship of those topics both to Institute seminars and to courses they teach. Their principals verified that their unit topics were consistent with district academic standards and significant for school curricula and plans, and that they would be assigned courses or grade levels in which to teach their units during the following school year.

Through this process two seminars were organized:

- "Myth, Legend, Fairy Tale," led by Marta Figlerowicz, Associate Professor of Comparative Literature; and
- "Dynamic Earth, Foundation and Fate of Industrial Society," led by David Evans, Professor of Earth and Planetary Sciences.

Between February and July, Fellows participated in seminar meetings, studied the seminar subject and their unit topics, and attended a series of talks by the seminar leaders.

The curriculum units Fellows wrote are their own; they are presented in a section for each seminar. The units, which were written in stages over time, contain five elements: content objectives, teaching strategies, examples of classroom activities, lists of resources for teachers and students, and an appendix on the academic standards the unit implements. They are intended primarily for use by Institute Fellows and their colleagues who teach in New Haven and are disseminated online at teachersinstitute.yale.edu.

The Yale-New Haven Teachers Institute is a permanently endowed academic unit of Yale University.

## *I. Myth, Legend, Fairy Tale*

### Introduction

Myths, legends, fairy tales: these genres stem from a deep historical past, centuries or even millennia before the dawn of writing. For today's children, their abridgements or retellings often offer a gateway into reading. Given how closely many of us associate these genres with childhood, it is often hard to fathom how much attention they have also attracted from anthropologists and philosophers. For the latter, they offer entry points into broad questions including but not limited to: "how did writing change the way humans think?"; "do all myths across cultures have some qualities in common?"; "how do ancient mythologies and legends relate to contemporary mythscapes like the Marvel Universe, or to urban legends like the alligators that supposedly live in the NYC sewers?"

"Myth, Legend, Fairy Tale" created bridges between these two approaches. We read foundational philosophical and anthropological work about oral narratives and mythmaking alongside a selection of sources from around the globe. We also reflected on how these more abstract, academic debates can be brought back into the K-12 classroom. In our conversations, the Fellows brainstormed innovative approaches to teaching myths, fairy tales, and legends to children and adolescents. We also discussed some common problems and choices a teacher faces when choosing how to teach narratives like these. How can one teach a wide cross-cultural selection of sources without simplifying or stereotyping the cultures they come from? How does one handle the differences between the often much more explicit original versions of fairy tales and their expurgated nineteenth- and twentieth-century retellings? Are graphic novels or 'updated' versions of old stories a gateway into or a distraction from more 'genuine' literary and cultural experiences?

Successive weeks of our seminar deepened our collective awareness of the omnipresence of legends, myths, and fairy tales in our everyday lives: they are not merely ancient genres, but evergreen ones, with fresh examples sprouting around us daily. Our weekly sessions also continually reinforced an intuition with which I (somewhat selfishly) chose this seminar topic: even as academic writing about legends, myths, and fairy tales can inform K-12 teaching, the reverse is equally true. Teachers, who interact daily with children whose relationship to these genres is often franker and more credulous than adults', have insights into these genres' role in our decision making and self-fashioning that academics often cannot access with equal immediacy.

The Fellows' curriculum units reflect the depth and range of the experience they brought into our sessions. Several Fellows took myths, legends, and fairy tales as good gateways into teaching narrative form and rhetoric more generally. Because these stories are typically quite brief, students can more easily take an aerial view of their structure. Cheryl Bardoe's unit leans on narrative theory to enrich students' vocabulary for

describing the different parts of a successful story. Alexander Elnabli's leads students into an increasingly sophisticated understanding of allusion as a network of connections that bind texts, and textual traditions, together, while teaching them to reflect on the value of asking broad existential questions for which we often do not have non-mythical answers. Nancy Bonilla's and Sean Griffin's units focus on a popular contemporary young adult genre—dystopian literature—and connect it back to more traditional oral storytelling to help students understand why they are drawn to this modern genre and what lessons they derive from it.

The units developed by Daniel Croteau, Katie Yates, Kasalina Maliamu Nabakooza, and Felicia Fountain encourage students to think about the persistence of myth in their own self-understanding. Croteau does so through the prism of the continued cultural prominence of a mythical understanding of the hero. Yates focuses on the quest narrative; Nabakooza playfully connects mythical narrative to artmaking by leading students in creating fairy tale-inspired puppet theaters. Fountain's unit frames the study of myth within the context of students' attempts to discover their own family legends and mythologies and to reflect on their communal importance.

Jaimee Mendillo, Jessie Piper, and Rita Mercedes Begines-Cid work within more narrowly defined cultural contexts: Indigenous American myths, myths and legends developed by Latinx and Black American communities, and the legendary frameworks of medieval Spain. Mendillo leads her students into a more nuanced understanding of myth to introduce them to the wide range of cosmologies developed by different Indigenous American communities. The unit takes myth as an opportunity to dispel common preconceptions about the uniformity of Indigenous American cultures and belief systems. Piper's richly researched account of the legend of La Llorona and the fairy tales surrounding Brer Rabbit teaches students crucial lessons about cultural development and mutual influence as well as about the dangers of appropriation. Mercedes develops her unit in the context of foreign language teaching, using a variety of contemporary retellings and adaptations to introduce students of Spanish to a celebrated medieval epic poem from Andalusia*, El cantar de mio Cid*.

Ranging widely in their approaches and in the ages of students for whom they were produced, these units exemplify how much myths, fairy tales, and legends still have to teach us, both as treasure troves of cultural history and as genres that remain pivotal to our self-understanding even today.

Marta Figlerowicz

**Synopses of the Curriculum Units**

**24.01.01**
**Introducing Elements of Fiction through Myths, Fables, and Fairy Tales, by Cheryl Bardoe**

This unit will explore these essential questions: Why do humans need story? How are stories built? How can I build engaging stories? The unit is designed to be used in the fall to welcome grade 7 students back to school with short, high-interest readings and to establish learning strategies and classroom procedures that will be used throughout the year. Using the shorter texts of myths, fairy tales and fables will make it possible for students to analyze a whole text and to compare several whole texts to one another to recognize core elements character, setting, conflict/plot, and theme. Students will analyze the ancient Greek tale of Icarus, compare and contrast different versions of Cinderella, and read nonfiction texts that offer historical and scientific context about storytelling as a core aspect of human existence. Students will read like writers to draft their own fairy tale with a twist. The unit will culminate in a choice read in which students apply the concepts introduced to longer texts

(Developed for English Language Arts, grade 7; recommended for ELA, grade 8)

**24.01.02**
**Epic Poetry in Spanish Lessons: Cantar de Mio Cid, by Rita Mercedes Begines-Cid**

This unit has been devised for high-school and middle-school native and heritage Spanish speakers or given the case, high school level IV non-native students, as the unit shows multiple possibilities for scaffolding. In addition, it involves the development of thinking, creativity, active participation and improves the students' written and oral communication skills by using a poem from the Middle Ages as well as its adapted version (*El Poema de Mio Cid*). Students will get to know better about Spanish literature (more specifically about epic poetry or *Cantar de Gesta* "song of heroic deeds"). The focus of the unit will be the deeds of Rodrigo Díaz de Vivar, El Cid Campeador, a famous warrior who lived in the 11th century and whose accomplishments led to a number of historical accounts, legends and myths that were passed down orally. Apart from that, students will also learn about the historical and geographical context of the poem to broaden their understanding of this piece of literature. This didactic unit includes a wide range of learning strategies and different media: video, audiobooks, painting, games, open questions, comics, etc. so that the multiple intelligences can be catered accordingly.

(Developed for Spanish II NHS and Spanish IV, grades 10-12; recommended for Spanish grades 7-9)

**24.01.03**
**Dystopian Literature: A Reflection of Society Past and Present, by Nancy Bonilla**

One of the main objectives of this unit titled: Dystopian Literature: A reflection of society past and present is to analyze dystopian literature and make text to self and text to world connections. Students will be able to apply critical thinking skills when they analyze fictional dystopian literature and relate it to present day society. Students will be able to identify various themes in an array of readings. Students will then look to make connections with the issues, characters, and the fictional concept and if it is something that can happen "for real!" Students will then be given the opportunity to relate the ELA curriculum to the social studies units of study, specifically colonial American studies. As described in the unit, slavery is a prime example of dystopian life reflected in our past. Students will be able to research and support that statement with evidence. This unit will also help prepare students to engage in community service as they learn about some societal issues, how to identify the problem and then brainstorm some solutions as they prepare to move on to high school and engage with the community.

(Developed for Reading ELA, grade 8, and Writing ELA, grades 7-8; recommended for ELA Reading, grades 6-10, and ELA Writing, grades 7-10)

**24.01.04**
**Heroes, Past and Present: Restaging the Hero's Journey, by Daniel Croteau**

In this unit, students are asked to examine the work of critical theorists Joseph Campbell, Otto Rank, Lord Raglan, and Dr. Henry Louis Gates, Jr. to consider the role the hero plays in their world and in mythological writing. Students will generate their own definition of heroes in order to critique the work of myths. As a part of their learning, students will practicing modifying pre-written myths before they develop their own story. The unit places emphasis on group learning and metacognitive thinking about why writers interrupt and develop thoughts based on their previous experiences.

(Developed for Language Arts, grade 7; recommended for Language Arts, grades 6-8)

**24.01.05**
**Myth, Allusion, and the Humanities, by Alexander Elnabli**

In this introductory unit to 9th grade ELA, students will learn how myths and spiritual stories ask and answer fundamental, humanistic questions about where we come from, who we are, and where we are going. While teachers may choose alternatives, this unit proposes Text Sets that pair a modern poem that contains an allusion to a classic myth or spiritual text with a relevant excerpt from that source. The text sets detailed below to fulfill the learning goals of the unit include selections from Old Testament Bible's Genesis along with Robert Frost's "Nothing Gold Can Stay," the siren excerpt from

Homer's Odyssey along with Margaret Atwood's "Siren Song," and the Amar Chitra Katha graphic novel version of The Gita paired with T. S. Eliot's "The Dry Salvages. These foundational myths and spiritual stories are chosen because the concepts, themes, symbols, and images in them are highly alluded to in later and contemporary literature and philosophy and because they offer insights into humanistic questions that span across time and geography. Key Performance Task Prompt: *How does an author use allusion in order to communicate an answer to a fundamental human question? What is the value of studying ancient texts?*

(Developed for Freshman English, grade 9; recommended for AP Literature and Composition, grades 11-12; English 9 Honors, grade 9; and English 10, grade 10)

**24.01.06**
**Legends, Myths, Folktales–History's Voices and Stories of a People, by Felicia Smith Fountain**

Stories, folktales, myths, legends and even epic poems such as Beowulf have a purpose beyond entertainment. Beowulf, often tackled by college students and some high school students, revealed the important value put on strength for the Anglo Saxons. When oral stories in their various forms are passed down it may benefit the people that the legend or folktale is told about. It is important to find the artifacts about people and regions—unearthing the artifacts left within oral stories passed down. The work cannot stop there. Oral stories, folktales, myths and legends that have been adjusted, embellished or even twisted are of importance. Ancient beginnings and the exploration of cultural landscapes can be found when doing an "archaeological dig" through century old folktales, legends and myths.

When an oral story or folktale is adapted and told by another set of people about that same people how does that happen? Who decides that there will be another adaption of a people's or region's oral stories? This unit will help us look at stories from regions, but also who told those stories. Through this unit students will gain more insight into history embedded in oral traditions and folktales as well as influences that changed those oral stories. The impact and results of the variations in folktales, legends and oral stories, etc., will also be researched and analyzed by students who will then make connections to any variety of changes that occurred in the people of that region or country.

A driving theme is that Social Studies is more than just the geographic layout of landforms, tectonic plates, bodies of water and the people who lived there. It involves the study of land, people, culture, events as well as the changing of hands of economic, social and political power.

A unit that approaches Social Studies through the lenses of stories, fairy tales, legends and myths is a creative and authentic way to deepen the Social Studies curriculum for

New Haven Public Schools students. While this unit will be social studies-focused, it has a strong English Language Arts focus as well and would be successful as an integrated or interdisciplinary unit. There are a few ways to look at a unit involving myths, stories, legends and fairy tales. Fairy tales, myths and creation stories are an effective way to introduce the study of a society or set of people.

Students will read folktales of the people from countries in Africa, Europe, South America, China research narratives. Learning the major characteristics of folktales, legends and myths will be a part of the unit as well. Although the focus of the unit is to learn about countries, regions and people based on oral traditions. Students researching and documenting their own family stories based on interviewing family members is one of the unit's major project. Those stories will be written and illustrated by students. Additionally, scholars will have the choice to have their stories printed, bound and published in a collection or uploaded to a digital portfolio created by students.

(Developed for Social Studies, World History, and History, grades 7-8; recommended for American History, World History, Greek and Roman Mythology, and Humanities, grades 8-12)

**24.01.07**
**Reexamining Our World through Dystopian Literature, by Sean Griffin**

In this unit I introduce students to dystopian literature. Designed to supplement a reading program that I run at my school, the unit focuses on helping students understand the genre through the study of terminology, texts and writing. At the end of the unit students are invited to write their own dystopian stories in a group project meant to mimic the style of one of America's finest science fiction writers, Isaac Asimov. The unit begins with an examination of vocabulary associated with the genre and an attempt to clarify our understanding through music lyrics and music videos. We then turn to several definitive dystopian texts, including Shirley Jackson's *The Lottery*, Suzanne Collins' *The Hunger Games* and Isaac Asimov's *I Robot*. Utilizing journal writing, writer workshop, and the creative arts, students culminating group project allows them to become the creators of their own dystopian work.

(Developed for Read180, grade 8; recommended for Language Arts, grades 7-8, and English, grades 9-12)

**24.01.08**
**Unraveling Myths of Indigenous America: Creation Stories and Cultural Resilience, by Jaimee Mendillo**

This unit focuses on debunking the misconceptions that indigenous peoples of the Americas and the Caribbean were a homogeneous group that has disappeared into the

history books. This unit of study will invite my students on a journey of discovery and reflection as they are challenged to critically examine their preconceptions and assumptions about indigenous cultures. They will explore the diversity of indigenous peoples throughout the Americas and the Caribbean, focusing on creation myths as representative stories from various peoples across these regions, as well as the resilience of these communities. Students will have the opportunity to develop a more nuanced understanding of the complexities and continuities of indigenous life, as they continue to challenge the misconceptions that have obscured the vibrant histories of indigenous communities and are exposed to the persistent and enduring legacies of indigenous cultures.

(Developed for United States History, grade 8, and World History, grade 7; recommended for Social Studies, Native Americans, grade 5, and English Language Art, and Mythology, grade 6)

**24.01.09**
**Catch the Spark, by Kasalina Nabakooza**

The catalyst for this unit is a collection of folktales by the Sociologist Ernest Balintuma Kalibala. Kalibala introduces these African folktales with a dedication "for the children of America from whose racial inheritance these stories were taken." This unit builds on another visual arts lesson written last spring about the Dream Keeper book of poetry written by Langston Hughes for children because it connects main characters such as Wakaima the rabbit to the diasporic character trickster character of Br'er rabbit and makes other connections to the African diaspora through exploration of how poetry and visual art are connected. Storytelling with African folktales using sculpture and puppetry is the focus of this unit written for visual arts students in grades 3-4. Themes of cyclicity and morphology inspired by readings in the seminar Myth, Legend, Fairytale seminar led by Associate Professor Marta Figlerowicz of Comparative Literature at Yale have been important in the development of meaningful lessons within this visual arts unit. Students will be encouraged to use their voices to communicate ideas to each other through performance and whimsical creative play.

(Developed for Visual Arts, grades 3-4; recommended for Visual Arts, grades 3-4)

**24.01.10**
**The History and Legacy of Myth in the African and Latino Diasporas, by Jessie Piper**

The History and Legacy of Myth in the African and Latino Diasporas unit aims to illustrate how myth, legend, and folklore have shaped and been shaped by the diasporic experience of Africans and Latinos. This unit is designed for the African American/Black, Puerto Rican, and Latino Studies course at the high school level,

usually in grades 11-12. The unit could also be used in a United States history class. There are three anchor texts relating to the African diaspora, and three relating to the Latino diaspora. Teachers can choose to focus on one or both diasporas as part of the African American/Black, Puerto Rican, and Latino Studies curriculum. Through six suggested anchor texts, students will explore the following questions: What are myths/legends/fairy tales and why do they matter? What do they tell us?; How do people code cultural information in song? Why would people still sing these songs after the information becomes irrelevant? Does cultural information ever really become irrelevant?; What is cultural appropriation? Who can tell what stories? How does being an outsider to a culture change/bias/influence how a story is told?; How have indigenous religious figures interacted with the religious values of the colonizer (specifically Christianity)? The final project has students artistically represent how their chosen myth has changed and evolved over time and space and share their artistic representation in a roundtable format. Overall, this unit provides an opportunity to delve deeper into the culture(s) of these diasporas, which enhances the experience of studying these cultures in the African American/Black, Puerto Rican, and Latino Studies course.

(Developed for African American/Black, Puerto Rican and Latino Studies, grades 11-12, and Modern World History, grade 9; recommended for African American/Black, Puerto Rican and Latino Studies, grades 11-12; Folklore/Mythology, grades 9-12; and Black History Month and Hispanic Heritage Month, grades 6-12)

**24.01.11**
**Writing in Mythical Spaces, by Catherine Yates**

This unit rigorously examines a mythical relationship between research and writing based on anthropological and literary studies around how we understand who we are and how we understand our relationship with religion, education and society. It is a template to explore personal and cultural histories guided by a magical, transformative syntax of myths and fairytales following the logic, rationale, and strategies, teachers lead their students on detailed, vulnerable cultural and psychological journeys through research, poetics, fieldtrips, and celebration. In The Yale Review in an article about writing titled ‘Nothing ‘Nothing Is a Memory’ about the New York School poet Bernadette Mayer, Daniel Poppick writes in the Yale Review that the relationship between writing and myth. In Mayer’s hands, Aesculapius, the name of the Greek god of medicine, feels like a playful tribute to poetry’s trickster mutability, a tacit acknowledgment that the language we attach to things is itself mythology—an invention affixed to other inventions, endlessly corruptible. Any use that we attach to it is blown to smithereens…” This combination of mythology and writing leads us to a mythical space where we can investigate playfully what our stories and our experience means.

(Developed for Creative Writing, grades 9-12, and English Language Arts, Poetry, and Literature, grades 11-12; recommended for English Language Arts, Creative Writing, Poetry, and Literature, grades 11-12)

## *II. Dynamic Earth, Foundation and Fate of Industrial Society*

### Introduction

Throughout history, human development has been constrained by the limitations of our environment. Indeed, as some have quipped, "our civilization exists by geological consent, subject to change without notice." Many past empires' expansion phases were enabled through extensive natural resource extraction, followed by collapse in the context of resource limitation or natural disasters. Scientific and technological ingenuity of the industrial revolution gave our species -- for the first time in our planet's history -- the ability to utilize hundreds of millions of years' worth of stored solar energy in the form of fossil fuels, as well as billions of years' worth of material natural resources in the form of mineral deposits, to power our explosive population growth and prosperity. As human population has ballooned to nearly 10 billion, however, we have become more vulnerable than ever to the threat of natural catastrophes beyond our control, and furthermore we have collectively become a significant geological force through environmental alteration and climate change. For these reasons, understanding the dynamic Earth is key to the decision-making ability of a citizenry that not only has inherited the resource-based foundation of today's world of comfort, but also will steer our society's ultimate environmental fate.

Geology – the study of Earth from its atmosphere to its deep interior – benefits from our continuous progress in fundamental mathematics, physics, chemistry, and biology, along with related technological innovations. Accordingly, our scientific ability to "read" the planet's past and present, and to predict its future, has undergone constant refinement with measurable advances each year. To keep abreast of new insights into our planet's workings and evolution, a well-informed teacher might benefit from reviewing an introductory geology course at mid-career, noting how the material might have changed from when they first learned it, or how their life's experience has allowed them to relate more closely to the natural phenomena described in their curriculum. Among numerous excellent introductory geology textbooks, Stephen Marshak has reliably updated the content of *Earth: Portrait of a Planet* with current geological research and timely events in the public awareness such as recent natural disasters. This Y-NHTI seminar drew upon Marshak's textbook as a comprehensive basic resource for geological concepts.

The Fellows' curriculum units from this seminar covered a diverse range of specialty topics within geology. For any given subject matter in a K-12 pedagogical environment, a central challenge is how to convey a broad range of interconnected topics, often requiring numerous pillars of general scientific knowledge, to help students make meaningful connections despite variable quantitative backgrounds and perhaps quite limited experience with the natural world. Geographic awareness among students can also be quite restricted, especially if families lack the means to travel far from home. Present-day GPS-based navigation systems can provide excellent guidance to a destination, but

depending on the user settings, it's possible to follow a series of relative directions (e.g., "after 100 ft, turn right; after 300 feet, turn left, …") without any consultation of a map. The methods developed in the present Y-NHTI seminar utilize geospatial layering, that is, superposition of diverse datasets on a consistent absolute geographic framework: the world map in the context of latitude and longitude gridlines, visualized on zoomable digital displays. This approach enhances geospatial skills, which are useful not only in geology and environmental studies, but also across a broad range of other fields including public health, geopolitics, global-scale commerce, and cultural diaspora. Geospatial layering can also assist in the deduction of cause and effect. For example, strong regional correlations exist between earthquake zones, landslide hazards, and agricultural practices that are best suited for steep hillslopes; conversely, seismically stable land areas tend to be flat, with meandering rivers and well developed soils suitable for large-scale farming. All of these observations are interconnected, with plate tectonics as the ultimate driver.

The seminar utilized the free software Google Earth (hereafter abbreviated GE), which is more user-friendly than more advanced geographic information systems (GIS) geospatial software packages. Through the past decade, I have taught introductory geology classes at Yale using GE datasets that I either downloaded as stand-alone packages from government or private agencies, or produced from point data or raster images that I overlaid into GE. The dataset layers include: (1) extraterrestrial impact craters, (2) tectonic plates, earthquakes, and volcanoes, (3) mineral deposits, (4) geologic maps, (5) soils, (6) heat flow, topography, and landslide potential, (7) rivers and groundwater, (8) weather and climate, including climate from the last glacial maximum, (9) long-term geologic history, and (10) projections of future climate. The sequence is designed to follow cause-and-effect relationships around the global tectonic cycle, through the rock cycle, and into environmental factors facing the modern world.

In the context of such geospatial layering, I advised each Fellow to focus their Y-NHTI experience on several geographic locations to study, depending on their curricular goals and prior lived experience. One Fellow wanted primary school art students to visualize flowing water in all its forms, so two local areas with contrasting bedrock geology (and hence soils and groundwater flow) were selected: one in the fractured crystalline bedrock of the eastern Connecticut "highlands" (Branford) and the other in the low-lying coastal plain of the sediment-filled central Connecticut rift valley (New Haven). Another Fellow wanted to teach kindergartners about the world beneath their feet, so two contrasting locations were chosen from areas she knew well: one urban (New York City) and the other rural (Chesapeake Bay lowlands in Maryland). A third Fellow selected Venezuela as a country where some of her students had ethnic heritage, so three contrasting locations were studied: a small montane city in the high Andes (Mérida), a moderate-sized city along the vast Orinoco River plains (Ciudad Bolivar), and the sprawling capital city squeezed into a narrow valley within the northern coastal ranges (Caracas). The fourth Fellow wanted to investigate how the Roman Empire developed within the geologic contexts of diverse landscapes spanning a continent, so three contrasting

locations highlighted these differences: the volcanic heart of the empire (Rome and Pompeii, Italy), its distal frontier (London, UK), and an important landlocked mining district (Rio Tinto, Spain). Summary geologic contexts are provided for all of these regions in the paragraphs to follow.

**Steph Smelser: Branford, CT**

The geologic history of Branford begins with volcanic island chains in the Iapetus Ocean, which existed 500-300 million years ago (Ma), situated to the present east of ancestral North America. In Greek mythology, the titan Iapetus was father of Atlas; consequently, Iapetus was the name given to the now-vanished ocean that was directly ancestral to the modern Atlantic. The Iapetan island chains have geological remnants correlated between New England and Newfoundland, and even into the British Isles and northern Europe, that are distinguishable by diagnostic stratigraphic features. They are given the geologic-historical names Ganderia and Avalonia. Throughout late Paleozoic time, Iapetus Ocean narrowed via subduction, and Ganderia and Avalonia successively accreted to the eastern margin of Laurentia; according to some correlations, the collisional suture between Ganderia and Avalonia is between North Branford and Branford, respectively. The ultimate collision with Africa formed the supercontinent Pangea at about 300 Ma. Rocks formed at about this time include the famous Stony Creek Granite, well known as the base of the Statue of Liberty. Between 300 and 200 Ma, the Appalachians were directly connected to similar terrains in Europe, northwestern Africa, and northern South America, as part of an enormous mountain range that likely resembled today's Himalayas. Rocks of the middle crust have been exhumed across New England, which results in swirly patterns on the geological map, as the continental collision mangled and stirred together the Ganderian and Avalonian rocks. Many of the ancient fault lines and tectonic folds are visible as ridges and valleys in the present-day landscape, due to the differing erodibility of foliated gneisses, schists, quartzites, and marbles. Surface water (rivers and lakes) and groundwater flows haphazardly through such broken and contorted bedrock *en route* to Long Island Sound.

**Steph Smelser: New Haven, CT**

Due to a planetary-scale tectonic reorganization at about 200 Ma, the sites of former subduction and collision across New England became a rift zone that would eventually open the modern Atlantic Ocean. The rift valley of Hartford Basin, extending from New Haven northward through Massachusetts, is one of several "failed" arms of that ocean spreading: a crack that only widened moderately before stabilizing – for unknown reasons – while the "successful" rift zone jumped to the present-day continental shelf. As an aside, if the Hartford rift had in fact developed fully into ocean opening, all of eastern New England would have ended up as part of Africa. Nonetheless, as the Hartford Basin stretched apart through lower Jurassic time (about 200-180 Ma), sedimentary rocks (e.g. New Haven Arkose) and volcanic rocks (e.g. traprock diabases of West Rock, East Rock, Totoket Mountain, Sleeping Giant) filled the subsiding hole between the western and eastern highlands of the state. The contrasting permeability of sedimentary versus

igneous rocks within the Hartford Basin has profound effects on topography and erosion, soil, groundwater, and subsequent land usage by humans. Like the crystalline highlands of the state, volcanic traprock ridges are resistant to erosion, topographically steep, and thus more forested than farmed. Groundwater and surface streams and rivers will flow readily through the arkosic sedimentary rocks and along ancient fault lines, but must flow around the impermeable traprock except where it has been locally fractured. All of New England was covered by a vast ice sheet during the last glacial maximum at about 20 thousand years ago (ka), advancing as far as Long Island NY, which is "long" because of a continuous ridge of unsorted glacial debris (called a terminal moraine) derived and transported southward from upland sources throughout New England. When the ice front receded due to natural warming from small variations in Earth's orbit around the Sun, the lithosphere rebounded upward from the removal of the weight of that ice; present-day glacially eroded landforms dominate the southern New England landscape, even if partially covered by till, soil, and vegetation. Eventually, global sea level rose, creating Long Island Sound as we know it today. Anthropogenic global warming threatens to melt Earth's remaining ice caps in Greenland and Antarctica, and if no countermeasures are taken, coastal communities will bear the brunt of inundation, coastal erosion, and salty groundwater intrusion due to further sea level rise over the coming centuries.

**Carol Boynton: New York, NY**

New York City is built astride geological features that span a billion years of Earth history. The oldest rocks, named the Fordham and Yonkers Gneisses, are high-grade metamorphic rocks formed during collision about 1100 million years ago (Ma) between ancestral North America ("Laurentia") and other proto-continents to form a supercontinent that has been named Rodinia. Ore deposits of the Franklin district in northern New Jersey, and rocks throughout the Adirondack and Berkshire Mountains, were also created at that time. After several hundred million years, supercontinent Rodinia began to fragment, and Laurentia once again became isolated when the Iapetus Ocean opened to create a new eastern shoreline. The Inwood Marble was once a vast ~500 (Ma) shallow carbonate sedimentary bank (like today's Florida) covering the ancient passive margin, which lay across the equator in that era. Clastic sedimentary deposits from farther offshore on the continental shelf and slope were protoliths that eventually metamorphosed to become the Manhattan Schist and Hartland Formation. All of the aforementioned rocks, exposed throughout the Bronx and Manhattan, were compressed and tightly folded together about 450 Ma when intra-Iapetus volcanic arcs began colliding with the Laurentian margin. The landscape at that time would have looked similar to modern New Guinea, where the northern edge of Australia is beginning to subduct under Indonesia; because of the Australian plate's buoyancy relative to the Earth's mantle and adjacent oceanic crustal rocks, it resists subduction back into the planet's interior and instead forces up the New Guinea highlands to nearly 5 km above sea level (where alpine glaciers tower above equatorial rainforests). During one of the ancient Iapetan arc-continent collisions, a sliver of oceanic lithosphere detached from the subducting seafloor and was scraped into the mountain belt; this eventually became

exposed to the surface as the Staten Island Serpentinite. The faulting and folding of all these rocks continued until final collision of Laurentia with Africa to form Pangea, about 300 Ma.

After a hiatus of about 100 million years, near the end of the Triassic Period and into the Jurassic Period, Pangea began to break apart, forming an ever-widening sliver of the Atlantic Ocean. Newark Basin, exposed throughout north-central New Jersey and the western side of Staten Island, is a mirror image of Hartford Basin as described above. It contains low-lying brownstone sedimentary rocks (e.g. Stockton Formation) and cliff-forming traprocks such as the Palisades Sill that dominates the west bank of Hudson River. The Hudson River itself, following an impressively straight course like the Connecticut River, likely follows an extinct Triassic-Jurassic fault zone whose broken rocks were easier for the river to erode than their surroundings. As the mid-Atlantic spreading ridge receded ever-farther offshore in the widening ocean, the eastern passive margin of North America cooled and subsided, allowing sedimentary rocks of the Cretaceous (~100 Ma) Monmouth Group and Raritan Formation to blanket the basement rocks of the former collisions. These formations underlie eastern Staten Island, Brooklyn, Queens, and areas farther eastward across the length of Long Island (and onward to Martha's Vineyard and Nantucket). Subsequent sedimentary deposits on the Atlantic passive margin are only preserved offshore, or farther south across the coastal plains of the eastern seaboard.

Within the last few tens of thousands of years (~0.02 Ma), continental ice sheets advanced as far south as New York City. Their enormous erosive power sculpted the ancient bedrock (with beautiful striations on outcrops of Manhattan Schist in Central Park) and dumped their debris in terminal moraines across Long Island. "Brooklyn" which by some accounts means "broken land" in Dutch, is an apt description of the hummocky hills constituting those unsorted glacial debris piles. Modern New York City avails itself of its diverse geological history by exploiting all of the aforementioned features: the natural harbor and easy access to the deep continental interior via Hudson River, construction from the brownstones and traprock in the Newark rift zone, and sturdy metamorphic bedrock under downtown and midtown providing robust foundations for Manhattan skyscrapers.

**Carol Boynton: Lexington Park, MD**

Chesapeake Bay is a giant coastal plain estuary with tectonic stability and consequent lack of topographic relief. The "Fall Zone" (or Fall Line, named for abundant waterfalls or rapids along rivers draining the Appalachians) is a topographic escarpment separating the coastal plain from the Appalachian piedmont; to the northwest of this boundary, rolling hills expose Mesozoic and older bedrock; to the southeast only Cenozoic sediments are exposed as they cover the older rocks. The Fall Zone is well developed between Richmond VA and New York NY, roughly following the I-95 highway because the latter connects eastern US cities that were initially founded strategically along rivers

at the upstream limit of their commercial navigability by seafaring ships. Lexington Park lies well within the coastal plain, sitting atop about 800m of Cenozoic sedimentary rocks. Below these broad flat layers lie relatively narrow Mesozoic rift basins, from the time of initial Atlantic Ocean opening as described above, which cover even deeper layers of Paleozoic metamorphic rocks that likely mark the original collisional suture zone between Laurentia and Africa during the 300-Ma assembly of Pangea. Thus, as one imaginatively drills deeper into the crust, evermore ancient history is encountered. One peculiar addition to this typical story of the US Atlantic margin is the giant Chesapeake Bay bolide (asteroid or meteor) impact, which occurred about 35 Ma and left a crater 40 km in diameter. The circular fractures of bedrock are buried below hundreds of meters of overlying sediment, but the land/sea surface remained subtly influenced by the crater, steering ancient river courses across that ancient depression on their way to the sea. Modern-day Chesapeake Bay owes its fractal coastline to the dendritic drainage network of those ancestral river valleys, and was only geologically recently flooded after the last-glacial maximum (LGM, about twenty thousand years ago, or 0.02 Ma) polar ice caps melted and raised global sea levels more than 100 meters.

**Nancy Wattnem: Merida, Venezuela**

Merida lies within the easternmost splay of the northern Andes, in a small and narrow fault-bounded valley amid rugged terrain. Eastward propagation of the Andes subduction zone within the last 30 million years has dramatically uplifted the range (Pico Bolivar rises nearly 5000m above sea level) in a tectonically active belt that has generated a multitude of moderate earthquakes, but none over M7 in recorded history. Bedrock geology of the Merida Andes is quite complex, with numerous NE-striking faults and folds that commingle Paleozoic metamorphic and igneous rocks with Mesozoic sedimentary rocks. Bailadores copper deposits, exploited by a major mine in the region, formed within an ancient tectonic analog to the modern Andes subduction zone. The Merida Andes have a wedge-like cross-sectional structure, squeezing upward and thrusting outward, over both the oil-rich Maracaibo Basin to the NW, and the Rio Apure Llanos floodplains to the SE. Exploitable hydrocarbons in both basins formed from the burial of organic-rich sediments derived from the adjacent rising mountains.

**Nancy Wattnem: Ciudad Bolivar, Venezuela**

Ciudad Bolivar sits on the Orinoco River, firmly within the stable continental interior of the South American tectonic plate. Basement rocks of the Guiana Shield are exposed to the south, consisting of Archean to Paleoproterozoic (3-2 billion years old) gneisses, migmatites, granites, and metavolcanic greenstones. Those latter rocks host the major gold mines of El Callao district, formed about 2100 Ma when the Amazon craton was initially forming through collisions of volcanic island arcs. Since that time, the region has been tectonically stable, occasionally subsiding and covered by sedimentary rocks (including the ca.1900 Ma Roraima Sandstone that has since been broadly uplifted and eroded into flat-topped tepuis that host the world's highest waterfall, Angel Falls, and inspired the imaginative forays of Arthur Conan Doyle's "Lost World" and Pixar's

"Up"). The same broad arching of the continent that exposes basement rocks to the south of the Orinoco has removed all previously overlying sedimentary cover. A slight downward tilt to the north, followed by gentle regional uplift, has preserved and exposed a thin veneer of Neogene clastic sediments (Mesa Formation), which is a several-million-year-old precursor of the Orinoco floodplain and contains vast but largely unexploited petroleum reserves. The modern river takes its course along the boundary between Mesa Formation terraces to the north, and uplifted basement rocks to the south. Due to the intense seasonality of rainfall throughout the Orinoco catchment area, the river level rises and falls about 15m each year. The river's rainy season discharge ranks third globally, surpassed only by the Amazon and Congo (central Africa). Ciudad Bolivar occupies a strategic location where the river channel narrows; its high terraces remain emergent even in the wet season, allowing continuous settlement in proximity to the watercourse. The mighty river was only spanned by a bridge near Ciudad Bolivar as recently as 1967, taking advantage of the unusually high grounds on both banks at that location.

**Nancy Wattnem: Caracas, Venezuela**

Caracas occupies a narrow valley south of the Cordillera de la Costa, which separates city from sea. The region is tectonically active, as the Caribbean Plate slides eastward past the northern edge of South America – occasionally generating large earthquakes. Coastal mountains rise to about 2000m above sea level, and represent wrinkles along that right-lateral transform boundary (similar to the coastal ranges of central California). Within the Venezuelan coastal ranges, the northern edge of Amazon Craton Precambrian rocks, along with a poorly understood complex of Paleozoic igneous and metamorphic rocks, are uplifted and exposed in an E-W striking anticline. Mesozoic sedimentary rocks dip away to the north and south, on both sides of that structure, which is dissected by numerous faults of variable orientations and causing a rugged hilly landscape. The city of Caracas exploits a relatively spacious (though still narrow in absolute terms) flat valley floor within that landscape, created by a local downdropping of crust that was filled by recent sediments derived from modern erosion of the coastal mountains. Narrowness of the valley implies that Caracas's three million residents need to contend with both water and air pollution, and also increasing landslide hazards as the city expands upward into the Cordillera's flanks.

**Matt Schaffer: Rome, Italy**

Seven hills above the Tiber River provided strategic advantage over that waterway as it connected interior agricultural regions with the Mediterranean Sea; and thus the city of Rome was founded. The river flows westward through a topographic gap between two dormant calderas of the Roman (or "Lazio") volcanic province; neither has erupted in recorded history, but their ash and flow deposits have been used extensively in Roman urban development, and they dominate the low-relief landscape of west-central Italy. Magmatism along the western Italian peninsula, in the Roman volcanic province as well as Campania with active Vesuvius, is due to lithospheric extension behind an eastward-migrating "rollback" of the Adriatic subducting slab. The counterintuitive key to

understanding Italian bedrock geology is that the Adriatic Sea is actually underlain by thinned continental crust, whereas the crest of the Apennine Mountains is composed almost entirely of thrusted slices of Mesozoic deep-sea sediments. The Adriatic seafloor was once a Bahamas-like carbonate bank extending northward as a peninsular prong of the African tectonic plate. After it collided with Europe to form the Alps ca. 30 Ma, the western Mediterranean destabilized and subduction tore off pieces of southern Europe, which rode on the upper tectonic plate above the southward-retreating subduction zone. Some of those fragments became stranded as islands (Mallorca, Sardinia, Corsica) when the plate boundary interface jumped further southward around 15 Ma, and others continued to sweep all the way to the Kabylie Ranges of northern Africa. Eastward, as the Adriatic slab drops into the mantle, the Italian peninsula manifests a tectonic wave propagating across the Mediterranean: narrowing the Adriatic while simultaneously widening the Tyrrhenian Sea. Thus, eastern Italy experiences compressional faulting and folding in front of the wave, while western Italy experiences extension and volcanism in its wake.

**Matt Schaffer: London, UK**

London is located in the interior of the Eurasian plate, which explains its lack of tectonic activity and low topographic relief. A relatively thin cover of Jurassic-Eocene (200-50 Ma) sedimentary strata lies horizontally above a mildly folded Paleozoic (500-300 Ma) sedimentary sequence that itself probably rests on Ediacaran (ca.600 Ma) volcanic-arc basement whose nearest surface exposure is in the Welsh borderlands. Pleistocene glaciers advanced from the Scottish highlands as far south as Hertfordshire (the low hill country just north of London), but the Thames River valley only experienced periglacial conditions during recent ice ages. The Thames itself is tidal as far west as the London metropolitan area, and narrows from its broad estuary mouth to the place where Romans built their colonial fortifications at a strategic place to cross the river. Today's London must accommodate the environmental consequences (e.g., groundwater pollution) of breathtaking urban expansion across a low-relief landscape that will undoubtedly feel the effects of 21$^{st}$-century sea level rise.

**Matt Schaffer: Rio Tinto, Spain**

The vastly rich sulfide mines of Rio Tinto, which runs red because of oxidative weathering of pyrite, have been exploited for thousands of years. The metals include zinc, copper, lead, silver, gold, tin, and others; they were concentrated during subduction magmatism ca. 350 Ma, during a complex process of collisional phases ("Variscan") of the assembling Pangea supercontinent. The orebodies are found in a volcanic-sedimentary succession that is moderately folded and intruded by late-Variscan granites as a result of the collision(s). The entire region was recently (last 5-10 million years) exhumed in a broad arch due to initial lithospheric buckling in advance of the westward-migrating Betic-Rif mountain belt (in both southeastern Spain and northeastern Morocco, with a letter-C shape dissected by the Strait of Gibraltar). The hilly country around Rio Tinto, and its characteristically dry Iberian climate, is transected by small ephemeral

streams. Ores extracted from this mining region don't have the benefit of a major river allowing transport to markets, thus the Roman road-based infrastructure was well suited for their early exploitation.

In the context of these geological vignettes, the curricular units developed by Y-NHTI Fellows, described in the following sections, draw upon their exploratory studies of these regions. The geospatial skills that the Fellows developed can be used in any area of the world, and transmitted to their students whether through explicit usage of Google Earth or through complementary methods and media. As global-scale challenges face generations to come, it is hoped that these units will help future citizens and leaders recognize our special geological gifts that are the foundation of industrial society, as well as understand the actions we must collectively take to secure a desirable fate for both our own species and the entire world's environment that we now steward.

David Evans

**Synopses of the Curriculum Units**

**23.02.01**
**Geology in Kindergarten, by Carol Boynton**

In this four-week unit, young students learn some basic aspects of how our Earth works. *The Street Beneath My Feet* by Charlotte Guillian and Yoval Zommer starts this unit off. This double-sided foldout book shows a journey down through the layers of the Earth, all the way to the planet's core and out the other side. One side of the foldout shows the ground beneath the city, while the reverse side shows the ground beneath the countryside. The story follows a boy walking down a noisy city street, his red sneakers pounding the pavement, and he wonders, "What's going on deep in the ground?" This overview of basic earth science provides an interesting and clear visual for Kindergarteners to begin asking questions about what it is like to be a geologist. Throughout this curriculum unit students will conduct exploratory investigations to learn how geologists discover through science things they cannot see, and they will build models showing the surface of the Earth with the layers that lie beneath.

(Developed for Science, grade K; recommended for Science, grades K-2)

**23.02.02**
**Natural and Human Histories: Using Geology to Study the Roman Past, by Matthew Schaffer**

In this unit, students will combine the skills and methods of geoscience and history to interpret the life and lands of the Roman Republic and Empire. Students will examine the concepts of plate tectonics, volcanism, river systems, and ore deposits, considering at the same time patterns of settlement of Roman cities, material culture, mining, and the expansion of Empire. Historical concepts are taught in conjunction with geoscience topics, allowing students to use cross-disciplinary approaches to the study of the past. This unit will take students across Europe, from the frontiers of Rio Tinto in Iberia and London in Britannia to the city of Rome itself. Students will consider the geological processes that caused the famous eruption of Vesuvius, which both destroyed the city and preserved its built environment for study by future generations. Students will conclude this unit with a portfolio project that asks them to conduct independent research into the geology and history of a location in the Roman Empire. Students will understand how the earth system shaped history, and how humans shaped the earth system, building connections to the geological and environmental problems of the present day.

(Developed for Read180 grade 8; recommended for World Regional Studies II, grade 7; AP Human Geography, grades 10-12; and Read180, grades 7-12)

**23.02.03**
**Water Flow Connection: Discover Your Relationship with Water through S.T.E.A.M, by Stephanie Smelser**

The goal of the unit of study is to combine the domains of Science, Technology, Art, and Math to raise both Science awareness as well as overall mindfulness to Water, Flow, and Connection. The other goal of this unit of study is for the heart to get connected, to allow students the opportunity to make their own relationship or friendship with water through their own personal inquiry and creativity. I want students to research water independently, with a group, or a peer, only to find their own personal heart connection or friendship with water, that then inspires a powerful water google slide show presentation and amazing water related work of art.

Water is everywhere in nature yet water is a resource many take for granted. Technology has been designed and developed to help human connections yet it appears that humanity is less connected than ever before. Technology supports science, yet it also appears that our earth needs support, especially our water as a resource, that needs our attention. I ask is our technology supporting water resource issue? I wonder what is my relationship or friendship with water and I wonder what relationship are other people having with water?

This unit of study invites students to consider their own relationship with water through the lens of the S.T.E.A.M disciplines.

(Developed for S.T.E.A.M., Art, and Water, grade 5; recommended for Art, Science, S.T.E.A.M., and Water, grades K-12)

**23.02.04**
**The Deep Impact: How Our Physical World Impacts Our Culture, by Nancy Wattnem**

This unit is designed for sixth grade students and will serve approximately 50 students in three classes. The class will meet three times a week. I plan for the unit to cover about four weeks of class time or twelve, 50-minute class periods. The unit is designed to be multidisciplinary which will reenforce skills learned in math and ELA, however, the driving instruction will be based off the Connecticut Social Studies Framework: Human-Environment Interaction: Places, Regions, and Culture. This unit will help explain the connections between the physical and human characteristics of a region and the identity of individuals and cultures living there. Some of the student lead learning activities will be conducting a QFT, vocabulary, Cornell Note taking, games and mini projects. The teacher will guide students through using Google Earth to help identify their countries and what natural resources are available in that area. Within each lesson, students will be asked to connect the physical sciences to how they influence the culture in that area. To

conclude the unit, the students will create a map of their country of choice which will and highlight it's unique characteristics. Students will make connections between what resources are available in that area and what characteristics influence their culture.

(Developed for Social Studies, grade 6; recommended for Social Studies, grade 6)

**Curriculum Units by Fellows of the**
**Yale-New Haven Teachers Institute**
**1978-2024**

**2024**

| | |
|---|---|
| Volume I | Myth, Legend, Fairy Tale |
| Volume II | Dynamic Earth, Foundation and Fate of Industrial Society |

**2023**

| | |
|---|---|
| Volume I | Poetry as Sound and Object |
| Volume II | Latinx Histories, Cultures, and Communities |
| Volume III | Writing Queer and Trans Lives |
| Volume IV | Energy and Environmental History of New Haven and the American City |

**2022**

| | |
|---|---|
| Volume I | Writing about Nature |
| Volume II | The Long Fight for a Free Caribbean, 1700s-1959 |
| Volume III | Ethnic Studies: Theory, Practice, and Pedagogy |

**2021**

| | |
|---|---|
| Volume I | The Social Struggles of Contemporary Black Art |
| Volume II | Developing Anti-Racist Curriculum and Pedagogy |
| Volume III | How to Do Things with Maps |
| Volume IV | The Earth's Greenhouse and Global Warming |

**2020**

| | |
|---|---|
| Volume I | The Place of Woman: Home, Economy, and Politics |
| Volume II | Chemistry of Food and Cooking |

**2019**

| | |
|---|---|
| Volume I | Digital Lives |
| Volume II | Teaching about Race and Racism Across the Disciplines |
| Volume III | Human Centered Design of Biotechnology |

**2018**

| | |
|---|---|
| Volume I | An Introduction to Income Inequality in America: Economics, History, Law |
| Volume II | Engineering Solutions to 21st-Century Environmental Problems |

**2017**

| | |
|---|---|
| Volume I | Adapting Literature |
| Volume II | Watershed Science |

**Curriculum Units by Fellows (continued)**

| | | |
|---|---|---|
| | **2016** | |
| Volume I | | Shakespeare and the Scenes of Instruction |
| Volume II | | Literature and Identity |
| Volume III | | Citizenship, Identity, and Democracy |
| Volume IV | | Physical Science and Physical Chemistry |
| | **2015** | |
| Volume I | | Teaching Native American Studies |
| Volume II | | American Culture in the Long 20th Century |
| Volume III | | Physics and Chemistry of the Earth's Atmosphere and Climate |
| Volume IV | | Big Molecules, Big Problems |
| | **2014** | |
| Volume I | | Picture Writing |
| Volume II | | Exploring Community through Ethnographic Nonfiction, Fiction, and Film |
| Volume III | | Race and American Law, 1850-Present |
| Volume IV | | Engineering in Biology, Health and Medicine |
| | **2013** | |
| Volume I | | Literature and Information |
| Volume II | | Immigration and Migration and the Making of a Modern American City |
| Volume III | | Sustainability: Means or Ends? |
| Volume IV | | Asking Questions in Biology: Discovery versus Knowledge |
| | **2012** | |
| Volume I | | Understanding History and Society through Visual Art, 1776 to 1914 |
| Volume II | | The Art of Biography |
| Volume III | | Anatomy, Health, and Disease: From the Skeletal System to Cardiovascular Fitness |
| Volume IV | | Engineering in the K-12 Classroom: Math and Science Education for the 21st-Century Workforce |
| | **2011** | |
| Volume I | | Writing with Words and Images |
| Volume II | | What History Teaches |
| Volume III | | The Sound of Words: An Introduction to Poetry |
| Volume IV | | Energy, Environment, and Health |

**Curriculum Units by Fellows (continued)**

**2010**

| | |
|---|---|
| Volume I | Interdisciplinary Approaches to Consumer Culture |
| Volume II | The Art of Reading People: Character, Expression, Interpretation |
| Volume III | Geomicrobiology: How Microbes Shape Our Planet |
| Volume IV | Renewable Energy |

**2009**

| | |
|---|---|
| Volume I | Writing, Knowing, Seeing |
| Volume II | The Modern World in Literature and the Arts |
| Volume III | Science and Engineering in the Kitchen |
| Volume IV | How We Learn about the Brain |
| Volume V | Evolutionary Medicine |

**2008**

| | |
|---|---|
| Volume I | Controlling War by Law |
| Volume II | Storytelling: Fictional Narratives, Imaginary People, and the Reader's Real Life |
| Volume III | Pride of Place: New Haven Material and Visual Culture |
| Volume IV | Representations of Democracy in Literature, History and Film |
| Volume V | Forces of Nature: Using Earth and Planetary Science for Teaching Physical Science |
| Volume VI | Depicting and Analyzing Data: Enriching Science and Math Curricula through Graphical Displays and Mapping |

**2007**

| | |
|---|---|
| Volume I | American Voices: Listening to Fiction, Poetry, and Prose |
| Volume II | Voyages in World History before 1500 |
| Volume III | The Physics, Astronomy and Mathematics of the Solar System |
| Volume IV | The Science of Natural Disasters |
| Volume V | Health and the Human Machine |

**2006**

| | |
|---|---|
| Volume I | Photographing America: A Cultural History, 1840-1970 |
| Volume II | Latino Cultures and Communities |
| Volume III | Postwar America: 1945-1963 |
| Volume IV | Math in the Beauty and Realization of Architecture |
| Volume V | Engineering in Modern Medicine |
| Volume VI | Anatomy and Art: How We See and Understand |

**Curriculum Units by Fellows (continued)**

**2005**

| | |
|---|---|
| Volume I | Stories around the World in Film and Literature |
| Volume II | The Challenge of Intersecting Identities in American Society: Race/Ethnicity, Gender and Nation |
| Volume III | History in the American Landscape: Place, Memory, Poetry |
| Volume IV | The Sun and Its Effects on Earth |
| Volume V | Ecology and Biodiversity Conservation |

**2004**

| | |
|---|---|
| Volume I | The Supreme Court in American Political History |
| Volume II | Children's Literature in the Classroom |
| Volume III | Representations of American Culture, 1760-1960: Art and Literature |
| Volume IV | Energy, Engines, and the Environment |
| Volume V | The Craft of Word Problems |

**2003**

| | |
|---|---|
| Volume I | Geography through Film and Literature |
| Volume II | Everyday Life in Early America |
| Volume III | Teaching Poetry in the Primary and Secondary Schools |
| Volume IV | Physics in Everyday Life |
| Volume V | Water in the 21st Century |

**2002**

| | |
|---|---|
| Volume I | Survival Stories |
| Volume II | Exploring the Middle East: Hands-On Approaches |
| Volume III | War and Peace in the Twentieth Century and Beyond |
| Volume IV | The Craft of Writing |
| Volume V | Food, Environmental Quality and Health |
| Volume VI | Biology and History of Ethnic Violence and Sexual Oppression |

**2001**

| | |
|---|---|
| Volume I | Medicine, Ethics and Law |
| Volume II | Art as Evidence: The Interpretation of Objects |
| Volume III | Reading and Writing Poetry |
| Volume IV | Race and Ethnicity in Contemporary American Art and Literature |
| Volume V | Bridges: Human Links and Innovations |
| Volume VI | Intelligence: Theories and Developmental Origins |

**Curriculum Units by Fellows (continued)**

**2000**

| | |
|---|---|
| Volume I | Women Writers in Latin America |
| Volume II | Crime and Punishment |
| Volume III | Constitutional and Statutory Privacy Protections in the 21st Century |
| Volume IV | Ethnicity and Dissent in American Literature and Art |
| Volume V | Sound and Sensibility: Acoustics in Architecture, Music, and the Environment |
| Volume VI | The Chemistry of Photosynthesis |
| Volume VII | Bioethics |

**1999**

| | |
|---|---|
| Volume I | Women's Voices in Fiction |
| Volume II | Art and Identity in Mexico, from the Olmec to Modern Times |
| Volume III | Immigration and American Life |
| Volume IV | Detective Fiction: Its Use as Literature and as History |
| Volume V | How Do You Know? The Experimental Basis of Chemical Knowledge |
| Volume VI | Human-Environment Relations: International Perspectives from History, Science, Politics, and Ethics |
| Volume VII | Electronics in the 20th Century: Nature, Technology, People, Companies, and the Marketplace |

**1998**

| | |
|---|---|
| Volume I | The Use and Abuse of History in Film and Video |
| Volume II | Cultures and Their Myths |
| Volume III | Art and Artifacts: The Cultural Meaning of Objects |
| Volume IV | American Political Thought |
| Volume V | Reading Across the Cultures |
| Volume VI | Selected Topics in Contemporary Astronomy and Space Science |
| Volume VII | The Population Explosion |

**1997**

| | |
|---|---|
| Volume I | Twentieth Century Latin American Writing |
| Volume II | American Children's Literature |
| Volume III | American Maid: Growing Up Female in Life and Literature |
| Volume IV | Student Diversity and Its Contribution to Their Learning |
| Volume V | The Blues Impulse |
| Volume VI | Global Change, Humans and the Coastal Ocean |
| Volume VII | Environmental Quality in the 21st Century |

**Curriculum Units by Fellows (continued)**

| | |
|---|---|
| | **1996** |
| Volume I | Multiculturalism and the Law |
| Volume II | Environmental and Occupational Health: What We Know; How We Know; What We Can Do |
| Volume III | Race and Representation in American Cinema |
| Volume IV | Remaking America: Contemporary U.S. Immigration |
| Volume V | Genetics in the 21st Century: Destiny, Chance or Choice |
| Volume VI | Selected Topics in Astronomy and Space Studies |
| | **1995** |
| Volume I | Gender, Race, and Milieu in Detective Fiction |
| Volume II | Film and Literature |
| Volume III | The Constitution and Criminal Justice |
| Volume IV | Coming of Age in Ethnic America |
| Volume V | The Geological Environment of Connecticut |
| | **1994** |
| Volume I | Family Law, Family Lives: New View of Parents, Children and the State |
| Volume II | Poetry in the Classroom: Incentive and Dramatization |
| Volume III | Understanding the Ancient Americas: Foundation, Flourishing, and Survival |
| Volume IV | Racism and Nativism in American Political Culture |
| Volume V | The Atmosphere and the Ocean |
| | **1993** |
| Volume I | The Symbolic Language of Architecture and Public Monuments |
| Volume II | Folktales |
| Volume III | Twentieth-Century Multicultural Theater |
| Volume IV | The Minority Artist in America |
| Volume V | Environmental Science |
| | **1992** |
| Volume I | The Constitution, Courts and Public Schools |
| Volume II | Writing and Re-writings of the Discovery and Conquest of America |
| Volume III | Reading and Writing the City |
| Volume IV | The National Experience: American Art and Culture |
| Volume V | Ecosystems: Tools for Science and Math Teachers |

**Curriculum Units by Fellows (continued)**

**1991**

| | |
|---|---|
| Volume I | Regions and Regionalism in the United States: Studies in the History and Cultures of the South, The Northeast and the American Southwest |
| Volume II | The Family in Art and Material Culture |
| Volume III | Afro-American Autobiography |
| Volume IV | Recent American Poetry: Expanding the Canon |
| Volume V | Adolescence/Adolescents' Health |
| Volume VI | Global Change |

**1990**

| | |
|---|---|
| Volume I | The Autobiographical Mode in Latin American Literature |
| Volume II | Contemporary American Drama: Scripts and Performance |
| Volume III | The U.S. National Parks Movement |
| Volume IV | American Family Portraits (Section I) |
| Volume V | American Family Portraits (Section II) |
| Volume VI | Genetics |
| Volume VII | What Makes Airplanes Fly? History, Science and Applications of Aerodynamics |

**1989**

| | |
|---|---|
| Volume I | American Communities, 1880-1980 |
| Volume II | Poetry |
| Volume III | Family Ties in Latin American Fiction |
| Volume IV | Detective Fiction: Its Use as Literature and History |
| Volume V | America as Myth |
| Volume VI | Crystals in Science, Math, and Technology |
| Volume VII | Electricity |

**1988**

| | |
|---|---|
| Volume I | The Constitution in Public Schools |
| Volume II | Immigrants and American Identity |
| Volume III | Autobiography in America |
| Volume IV | Responding to American Words and Images |
| Volume V | Hormones and Reproduction |
| Volume VI | An Introduction to Aerodynamics |

**Curriculum Units by Fellows (continued)**

**1987**

| | |
|---|---|
| Volume I | The Modern Short Story in Latin America |
| Volume II | Epic, Romance and the American Dream |
| Volume III | Writing About American Culture |
| Volume IV | The Writing of History: History as Literature |
| Volume V | Human Nature, Biology, and Social Structure: A Critical Look at What Science Can Tell Us About Society |
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**1986**

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| Volume VI | Fossil Fuels: Occurrence; Production; Use; Impacts on Air Quality |

**1985**

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| Volume II | American Musical Theater |
| Volume III | Twentieth Century American Fiction, Biography, and Autobiography |
| Volume IV | History as Fiction in Central and South America |
| Volume V | Odysseys: Nineteenth and Twentieth-Century African-American History Through Personal Narrative |
| Volume VI | Time Machines: Artifacts and Culture |
| Volume VII | Skeletal Materials-Biomineralization |
| Volume VIII | The Measurement of Adolescents |

**1984**

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**Curriculum Units by Fellows (continued)**

**1983**

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| Volume II | Greek and Roman Mythology |
| Volume III | Reading the Twentieth Century Short Story |
| Volume IV | America in the Sixties: Culture and Counter-Culture |
| Volume V | Drama |
| Volume VI | Cross-Cultural Variation in Children and Families |
| Volume VII | Medical Imaging |

**1982**

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| Volume II | Autobiography |
| Volume III | The Constitution in American History |
| Volume IV | An Unstable World: The West in Decline? |
| Volume V | Society and Literature in Latin America |
| Volume VI | The Changing American Family: Historical and Comparative Perspectives |
| Volume VII | Human Fetal Development |

**1981**

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| Volume I | The "City" in American Literature and Culture |
| Volume II | An Interdisciplinary Approach to British Studies |
| Volume III | Human Sexuality and Human Society |
| Volume IV | Writing Across the Curriculum |
| Volume V | The Human Environment: Energy |
| Volume VI | Computing |

**1980**

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| Volume I | Adolescence and Narrative: Strategies for Teaching Fiction |
| Volume II | Art, Artifacts, and Material Culture |
| Volume III | Drama |
| Volume IV | Language and Writing |
| Volume V | Man and the Environment |
| Volume VI | The Present as History |
| Volume VII | Problem Solving |

**Curriculum Units by Fellows (continued)**

**1979**

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| Volume I | The Stranger and Modern Fiction: A Portrait in Black and White |
| Volume II | Themes in Twentieth Century American Culture |
| Volume III | Remarkable City: Industrial New Haven and the Nation, 1800-1900 |
| Volume IV | Language and Writing |
| Volume V | Strategies for Teaching Literature |
| Volume VI | Natural History and Biology |

**1978**

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| Volume I | Language and Writing |
| Volume II | 20th Century Afro-American Culture |
| Volume III | 20th Century American History and Literature |
| Volume IV | Colonial American History and Material Culture |