

Curriculum Units by
Fellows of the
Yale-New Haven Teachers Institute
Guide
2008

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Preface

In March 2008, sixty-one teachers from twenty-four New Haven Public Schools became Fellows of the Yale-New Haven Teachers Institute to prepare new curricular materials for school courses. Established 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 the sciences in our community's schools. Through the Institute, Yale faculty members and school teachers join in a collegial relationship. The Institute is also an interschool and interdisciplinary forum for teachers to work together on new curricula.

The Institute has repeatedly received national recognition as a pioneering model of university- school collaboration that integrates curriculum development with intellectual renewal for teachers. Between 1998 and 2003 it conducted a National Demonstration Project which showed that the approach the Institute had taken for twenty years in New Haven could be tailored to establish similar university-school partnerships under different circumstances in other cities. An evaluation of the Project concluded that the Institute approach promotes precisely the dimensions of teacher quality that result in increased student achievement. Based on the success of that Project, in 2004 it announced the Yale National Initiative to strengthen teaching in public schools, a long-term endeavor to establish exemplary Teachers Institutes in states throughout the country.

Teachers had primary responsibility for identifying the subjects the Institute would address. Between October and December 2007, Institute Representatives canvassed teachers in each New Haven public school to determine the subjects they would like the Institute to treat. The Institute then circulated descriptions of seminars that encompassed teachers' interests. In applying to the Institute, teachers described unit topics on which they proposed to work and the relationship of these topics to Institute seminars and to courses they would teach in the coming school year. Five seminars were organized, corresponding to the principal themes of the Fellows' proposals. Between March and August, Fellows participated in seminar meetings, researched their topics, and attended a series of lectures by Yale faculty members.

The curriculum units Fellows wrote are their own; they are presented in six volumes, one for each seminar. A list of the 187 volumes of Institute units published between 1978 and 2008 appears on the following pages. The units contain four elements: objectives, teaching strategies, sample lessons and classroom activities, and lists of resources for teachers and students. They are intended primarily for the use of Institute Fellows and their colleagues who teach in New Haven. Teachers who use these units may submit comments on them at <http://teachers.yale.edu>.

This *Guide* to the 2008 units contains introductions by the Yale faculty members who led the seminars, together with synopses written by the authors of the individual units. The Fellows indicate the courses and grade levels for which they developed their units; many of the units will also be useful at other places in the school curriculum. Copies of the units are deposited in all New Haven school libraries. Guides to the units written in earlier years, a topical

Index of all 1694 units written between 1978 and 2008, and reference lists showing the relationship of many units to school curricula and academic standards are available from the Institute. An electronic version of these curricular resources is available on the Institute's Web site at www.yale.edu/ynhti/.

The Yale-New Haven Teachers Institute is a permanently endowed unit of Yale University. The 2008 Institute was supported also in part by grants from the Howard Hughes Medical Institute. The New Haven Public Schools, Yale's partner in the Institute, has supported the program annually since its inception. The materials presented here do not necessarily reflect the views of the funding agencies.

James R. Vivian

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I. Controlling War by Law

Introduction

Warfare, both in the United States and elsewhere, typically has two recurring features: the expansion of Executive power, unchecked by democratic processes in legislatures or courts; and the suppression of individual rights, including the infliction of terrible atrocities. This seminar and the curriculum units that emerged from it explored the way that legal institutions have responded, or failed to respond, to these distinctive features of warfare.

We began this exploration by considering the role of the United States Supreme Court during the nineteenth century in responding to the U.S. Civil War. The curriculum units by Robert Osborne, “Lincoln and the Constitution,” and Ralph Russo, “Law and the Civil War,” address this issue.

We then proceeded to examine the role of American courts during twentieth century warfare. We considered judicial responses

(1) to governmental restrictions on free speech (including criminal prosecution of wartime dissent during World War I, and the Executive branch attempt to suppress publication of the Pentagon papers during the Vietnam War): the curriculum unit by James Brochin, “The Switchroom,” considers this issue;

(2) to restrictions on individuals’ rights against arbitrary detention (including the Japanese West Coast internment during World War II, and the current confinement of so-called “illegal enemy combatants” at Guantanamo): Matthew Dooley’s curriculum unit, “The Japanese West Coast Internment in World War II,” addresses this issue;

(3) to infliction of atrocities in the My Lai Massacre during the Vietnam War and in Abu Ghraib prison during the current conflict in Iraq: Joseph Corsetti’s curriculum unit, “The My Lai Massacre,” deals with this issue.

We then shifted our attention to the role of tribunals in other jurisdictions (including international institutions) in attempting to provide retrospective justice after the conclusion of warfare. We considered (1) the trial of Adolph Eichmann in Jerusalem for his role in the Nazi Holocaust; (2) the trials of other Nazi officials, immediately following the war in the Allied War Crimes trials at Nuremberg and subsequently in German courts; (3) the reaction of international institutions to the 1994 genocide in Rwanda; and (4) the work of the South African Truth and Reconciliation Commission in its efforts to devise a novel form of retrospective justice to the human rights abuses committed during the apartheid regime. The curriculum units by Julia Biagiarelli, “Accountability and Reconstruction after the U.S. Civil War,” and Melanie Laputka, “Southern Cone Transition from Dictatorships,” deal with these general questions about retrospective justice.

Robert A. Burt

Synopses of the Curriculum Units

08.01.01

The Writ of Habeas Corpus, The Constitution and Abraham Lincoln, War President, by J. Robert Osborne

The writ of habeas corpus came from the legal traditions of English common law. It survived because it represented the struggle of the individual against the excess of governmental abuse. It directly addressed the inequality of power between a citizen and the government and is the basis of this curriculum unit. The writ is an excellent beginning to the study of the origins of the government of the United States and is a key legal concept to follow through the history of America. This unit focuses on the effects of war in the maintenance of this basic right, particularly the American Civil War. Abraham Lincoln did not hesitate to suspend the writ of habeas corpus when he believed that the Union was threatened and his actions will be the primary focus of the unit. Significant time is devoted to the origins of the writ itself and what it means. The curriculum unit also links Lincoln's struggles with Chief Justice Taney and the Supreme Court with the very recent developments in the legal history of habeas corpus in the Supreme Court's decision of the case, *Boumediene v. Bush*.

(Developed for U. S. History I, grade 10; recommended for U. S. History, grades 10-11)

08.01.02

A Prescription for Conscription? Lessons from the Draft in the American Civil War and Compulsory Service in Subsequent Conflicts, by Ralph E. Russo

The purpose of this unit is to examine the concept and historical record of conscription in United States history. In light of current warfare taking place and debate over whether there should be a draft or some form of national service, teachers and students in United States history classes and civics should find information in this unit helpful. The drafts conducted in the Civil War are the first uses of national conscription in United States history. For this reason and because the Civil War is a prominent part of my United States I History curriculum, the Union and Confederate drafts are primary points of study in this unit. However, the employment of the draft in subsequent conflicts in United States history are also included to highlight issues associated with conscription. Because the debate over initiatives to re-institute conscription for the military and/or national service are current issues that may specifically affect students, this unit is an excellent opportunity to apply historical examples and historical thinking to a contemporary issue. This unit contains suggested activities for inquiry into the development of the first national draft during the Civil War and describes a cooperative learning strategy for investigating drafts in subsequent United States conflicts. The unit offers information aimed at sparking discussion and/or debate about the prospect of compulsory national service.

(Developed for U.S. History I, grade 10; recommended for History and U.S. History, grades 9-12)

08.01.03

The Switchroom: NSA Spying and Defending the Constitution, by James P. Brochin

The purpose of this unit is to examine the limits of governmental power to intercept communications during times of war or times of fear of terrorism. Students will begin with examining tensions and fears surrounding the Cold War, including Soviet spying on their own citizens. Then, students will examine the causes and consequences of the McCarthy era, and the extent to which government intimidated political nonconformists. The heart of the unit is the examination of the National Security Agency's warrantless wiretapping of telephone calls and e-mail, as well as its monitoring of Internet use, at AT&T and other telecommunication companies' facilities. A primary focus is the story of the AT&T employee Mark Klein's discovery and exposure of the NSA spying program and the recently passed law giving AT&T and others retroactive immunity for cooperating with the NSA.

(Developed for U. S. History II and Civics, grade 11; recommended for U. S. History II and Civics, grade 11)

08.01.04

Japanese-American Internment and the United States Government, by Matthew Dooley

This curriculum unit is designed to come to grips with the United States government's decision to intern one hundred and twenty thousand people of Japanese descent after Imperial Japan's surprise attack on Pearl Harbor and the simultaneous invasions all over Asia and the Pacific. The unit deals with primary sources which were known only to the President of the United States and a few key advisors until they were declassified in the 1970s. These sources are original transmissions sent from Japanese consulates in America to Tokyo, Japan. The main point of this unit is to grapple with a theme which runs through the history of the United States: national defense versus liberty and civil rights.

(Developed for American History, grade 8; recommended for grade 8)

08.01.05

Accountability in the My Lai Massacre, by Joseph A. Corsetti

It lasted just four short hours, but the events of March 18, 1968 have come to represent all that the American public hated about the war in Vietnam. The atrocities of My Lai called into question the conduct of the war. This unit explores the many causes of those atrocities. The first part of the unit explores how men become soldiers and the particular experience of Charlie Company. The second half of the unit details the events that happened at My Lai. Students are asked to determine the relative culpability of the soldiers, and learn about rescuer and bystander behavior through two individuals, Hugh Thompson and Ronald Haeberle. In the end, the goal of the unit is to have students make connections between the past and the current war in Iraq. Two incidents are explored, Haditha and Abu Ghraib.

(Developed for U. S. History II, grade 11; recommended for U. S. History, grade 11)

08.01.06**Accountability and Reconstruction after the United States Civil War, by Julia Biagiarelli**

This unit includes information on events at the close of the United States Civil War until federal troops left the South in 1879. Also included in the background information are the amendments to the United States Constitution which accorded rights to those who had formerly been legally enslaved. Primary sources of information where people involved describe their thoughts and feelings during this period of transition are used in the development of lessons that require students to respond through their own journal writing as seen through the eyes of those who were present during these events.

The objective for students is to describe the circumstances which existed at the close of the Civil War; how these circumstances drove the policies of Reconstruction; and the effectiveness of Reconstruction. Daily assessment of students' grasp of the concepts and events presented will be through assigned journal entries written as if each student were a particular person living during Reconstruction. Students will also research individuals who played a major role in Reconstruction. The culminating project assigned will be a timeline from 1864 to 1879.

(Developed for U. S. History, grade 8; recommended for U. S. History, grade 8)

08.01.07**Dictatorship and Transition in the Southern Cone, by Melanie Laputka**

The purpose of this unit is to educate students about the social, political, and historical aspects of the major dictatorships in the recent past of the Southern Cone. Specifically, this unit focuses in depth on Argentina and Chile. In this unit, students examine the major human rights violations that occurred in the twentieth century in two neighboring countries to the south. They also consider and evaluate the idea of retrospective justice, and how it was served (or was not served) after these dictatorships. Finally, students will reflect on the idea of international responsibility, and the idea of *unofficial* history.

(Developed for Spanish 2 and 3, grade 10; recommended for Spanish and Social Studies, High School grades)

II. *Storytelling: Fictional Narratives, Imaginary People, and the Reader's Real Life*

Introduction

The term “storytelling” which provided the main rubric for our seminar describes a dauntingly vast area for exploration — much of human experience, in fact, might be said to fall within its bounds. The terms that appear in our seminar’s subtitle, however, and the intriguing array of possible relations among them, suggested several more pointed, though large questions — questions which shaped our inquiry as we first set out and which evolved, deepened, and took on new dimensions in the course of our study.

What cognitive and emotional or even moral claims does “narrative” make on us — as an account of sequential events, sometimes (but not always) linked as cause and effect? Along with a set of questions about the features, functions, and enduring appeal of narrative, we embarked on our inquiry wondering about the powerful effects of untrue events and unreal characters on listeners and readers of stories. What do fictional narratives about imaginary people offer the reader in a world full of compelling stories of real suffering, real loss, and real survival? What cognitive, emotional, or even moral claims do *fictional* narratives, in particular, make upon us?

As we discussed novels and short fiction in the course of our study, we repeatedly asked ourselves about the impact and implications of stories about characters who may never have existed but who nonetheless inhabit a narrative world that includes features of historical reality — such as chattel slavery, racial hatred, sexual and political violence, abject poverty, or the difficult, fraught advance of social change. In discussing Mark Twain’s classic novel, *Huckleberry Finn*, often taught in high-school and college classrooms, we encountered versions of these questions in the fierce, on-going controversies about the real-world force of Twain’s treatment of the historical institution of slavery, and of his fictionalized characterizations of that race of people who were subject to it. We struggled with related questions about readers’ readiness to extract generalizations about a human group — to find fodder for “stereotypes” rather than imaginative experiences of other selves — within narratives about unfamiliar people, times, or places when we discussed Zora Neale Hurston’s *Their Eyes Were Watching God* and the recent best-selling novel about Afghan characters, Khaled Hosseini’s *The Kite Runner*.

One working premise of this seminar was that the same large questions about narrative, about fictionality, and about literature’s effects on readers may be brought to a wide spectrum of works — ones addressed to pre-school-age readers, to elementary- and middle-school-age readers, to adolescents, and to adults. We discussed Russell Hoban’s *Bread and Jam for Frances*, Arnold Lobel’s Frog and Toad stories, and Laura Numeroff’s *If You Give a Mouse a Cookie*; E. B. White’s *Charlotte’s Web*; J. K. Rowling’s *Harry Potter and the Prisoner of Azkaban*; short stories about African American adolescents by Sharon G. Flake and the fictionalized memoir-vignettes of Sandra Cisneros’ *House on Mango Street*; stories by D. H. Lawrence, James Joyce, and Edward P. Jones; the novels I have mentioned by Twain, Hurston, and Hosseini; and selected non-fiction, including Richard Wright’s *Black Boy*.

In pursuing this wide-ranging investigation, it was an essential resource for us that as a group, we encompassed participants who teach second-graders, fifth-graders, seventh- and

eighth-graders, high-school students from freshmen to seniors, and college and graduate students. Individually, our bodies of teaching experience and the main emphases of our teaching goals are shaped by the ages, skill-levels, needs, and concerns of the students we teach, as well as by the particular institutional contexts of our classrooms; over and over again we found that our different teaching audiences provided us with a variety of perspectives. We might ask the same large questions of fictional narratives written for readers of different ages, but sometimes we found that our inquiries developed differently, and led to different conclusions, when we considered the particular developmental stages of different reader-audiences. While the wide range in age-level of participants' students repeatedly proved a source of great interest, it also at times created challenges, as it revealed gaps within the functions of teaching literature at different points in a young person's education, and exposed differences among the basic, unspoken tenets and aims we each held as teachers. These moments in which our perspectives or main concerns diverged were illuminating as well.

For example, along with the large questions that I have formulated above, we became quite interested in the questions about the function of fictionality raised by those works that violate the presumably clear boundary between fictional and non-fictional characters and events. Considering critical studies of the elements in *Black Boy* that are not strictly accurate, we discussed ways in which a kind of "truth" that cannot be reduced to individual biographical event might be conveyed in narratives that incorporate the experiences of a larger group within the story of a narrator who at times speaks for a composite self or collective life. To render the "truth" of some historical experiences, we also speculated, might require telling some un-truths; Wright repeatedly depicts, as a key truth about the racism that formed him, the severe restrictions it imposed on his ability to speak the truth about himself. The process of discerning "What is real? What is true? What is reliable?" within texts inhabiting a border zone between fiction and non-fiction is central to Ruth Chaffee's unit, designed for tenth-grade special education students and encompassing both the traditional genres of novel and memoir and newer kinds of digital media texts. Fellows in the seminar who teach younger students, however, felt that the aims appropriate to their students were instruction in storytelling, narrative structure, and literary devices, and an initial introduction of the categorical distinction between fictional and non-fictional works, which had to be established before it could be problematized at a later age.

And yet the collection of richly thoughtful and imaginative curriculum units that emerged from our seminar demonstrates, I think, strong continuities in the functions of both narrative and fictional experience for students — for human beings — of all ages, as well as beautifully displaying a variety of facets within those complicated phenomena. Katherine Massa's unit on "Storytelling as a Strategy to Increase Oral Language Proficiency of Second Language Learners" reminds us of the oral origins of all storytelling, offering a carefully sequenced series of activities to develop second-graders' abilities both to tell and to listen to stories. Grace Malangone's unit for fifth-graders turns our attention away from narrative structures to other, equally important features of compelling stories: focusing on "the use of figurative language to convey detail and character feelings in texts," the unit builds on students' previous study of personification, similes, and imagery to explore how those literary devices contribute to the larger text within which they appear. Like several other units, Malangone's unit progresses from reading to writing activities, from the examination of figurative language in *Charlotte's Web* and other texts to students' creation of their own children's books.

Mary Lou Narowski's and Deborah Boughton's units aim to develop the critical thinking skills of middle-school readers and of freshman and sophomore readers in high school. Narowski ambitiously seeks to introduce middle-school readers to a sampling of what advanced students of literature term "critical approaches" — historical, biographical, feminist, and formalist. Inspiring her students to "see and appreciate literature as a multi-layered construct of meaning," Narowski begins with a literal act of "seeing" images of the Sistine Chapel, without and then with the illumination of material, historical, and biographical contexts. Combining the imaginative and the analytical, Narowski and Boughton both show that "critical thinking" and imaginative and creative engagement in fact require each other. Boughton uses coming-of-age stories, grouped under a series of rubrics emphasizing different aspects of "coming of age," as the literary material with which her students reflect on and practice their own coming-of-age as readers and thinkers, increasingly able to think abstractly, independently, and with the recognition of complexity and contradiction.

Elizabeth K. Johnston's and Sandra K. Friday's units, too, encourage reflective and critical thinking through a reflective relation between reader and text. In her unit, "Reshaping our Lives with the Circular Journey of Storytelling," Johnston aims to teach students "to see themselves somewhere in other people's stories," linking their experiences as intent readers with a return to memories of their own pasts, made newly available to them as stories that may be reinterpreted, reimagined, perhaps fictionalized, and shared. In her unit centered on very short stories, Friday asks students to "find" themselves "in the fiction." She has chosen several stories that depict how powerfully characters' interactions with others are determined by specific aspects of their own identities: their cultures, their ethics and capacities for empathy, their fears and anxieties, their race and race consciousness. As she comments, "Some of the protagonists learn from their decisions, interactions, and outcomes, and some don't. Of course, the question is, 'What does the *reader* learn from tracking these decisions, actions, and outcomes?'"

MarcAnthony Solli has designed a unit on the "American Gangster" which will serve as the second half of a course on mythology, moving the focus of that course from classical hero-figures to the American anti-heroes at the center of *The Godfather*, *Scarface*, *American Gangster*, and *The Sopranos*. Responding to this set of protagonists requires the maturely complex and nuanced forms of thinking and feeling that Boughton seeks to develop in her students, for these protagonists are both heroes and villains, attractive and repulsive, spectacularly successful and finally doomed. In the sophisticated critical approach that Solli develops in this unit, he guides his students towards an ability to see their responses to such anti-heroes in complex and critical ways, enabling them as well to see the complexities of freedom and determinism in their own lives.

Finally, Joan Z. Jacobson, in her unit entitled "Visualizing Myself Ten Years From Now," boldly calls on her students to extend their depictions of themselves in visual and written journals beyond the present and into an imagined future — insisting that "fiction," the imaginative conception of unreal characters and events, may allow us to conceive what *might be*, what has yet to come to pass, as well as the deeper human truths of what has been.

Jill Campbell

Synopses of the Curriculum Units

08.02.01

Storytelling as a Strategy to Increase Oral Language Proficiency of Second Language Learners, by Katherine Massa

My unit on storytelling is designed for second-grade students. In this unit, storytelling is used as a strategy to increase oral language proficiency of second language learners or students who are substantially below grade level in language skills. In many instances our students' oral language skills are not developed enough to support the curriculum and objectives of their grade level. These students require formal language instruction before they can be expected to become fluent readers, writers and thinkers. Storytelling is a great avenue to pursue when looking for ways to improve your classroom's oral language proficiency. This unit on storytelling gives the students the daily practice they need in order to advance their language skills. The unit progresses each week through different levels of storytelling, each building upon the last, increasing in difficulty and skill. It will help students understand how telling stories and story structure enable them to express themselves more clearly. The students will also learn through storytelling that their ability to listen to others will increase, expanding their vocabulary, knowledge base, and awareness of sentence structure.

(Developed for Literacy, grade 2; recommended for Literacy, grade 2)

08.02.02

The Use of Figurative Language to Convey Detail and Character Feelings in Texts, by Grace Malangone

This unit is designed to enhance the Language Arts curriculum. This unit will educate students on the importance of being descriptive by using imagery and similes to convey details to the reader, so the reader can form a powerful visual image while reading. The unit will also educate students on the use of personification to convey a character's feelings or perspective to the reader. This unit is divided into five parts. Each part is followed by a lesson plan. The introduction to the unit consists of general review of the previously taught concepts; that is personification, similes, and imagery. The first part of the unit will focus on the portrayal of animal characters with realistic emotions. The second part of the unit will focus on making personification literal. The third part of the unit will focus on the use of similes to create comparisons in the reader's mind. The fourth part of the unit will focus on the use of imagery in descriptive writing. During the above four parts of the unit the students will be asked to keep and maintain a writer's log. This writer's log will serve as a note-taking journal and a means for reflection on learning. The fifth part of the unit is the overall goal of the unit. The goal of the unit is for students to work cooperatively in groups of three to write and illustrate a children's book using figurative language to convey character feelings, character physical descriptions, and create powerful visual descriptions.

(Developed for Language Arts, grade 5; recommended for Language Arts, grade 5)

08.02.03

***Animal Farm: Critical Approaches — Unpeeling the Layers,* by Mary Lou Narowski**

This unit is designed for an urban, middle-school class using *Animal Farm*, by George Orwell, as its main text. The purpose of this unit is to bridge the gap between my students' cursory examination of a text and a more highly developed assessment, where they dig deeper and demand more of what they experience. It is my goal to get them to a place where they can consider a piece of literature on several levels, being able to "unpeel" the structure and expose the complexities and sophisticated nuances of the text. In other words, they will learn to see and appreciate literature as a multi-layered construct of meaning. I will use an interdisciplinary, differentiated modality of instruction to accomplish my goals.

In order to present this idea effectively, I begin with the familiar, a visual scene that they can "read" without words and then use incremental steps through metaphoric poems and short stories, finally arriving at the novel itself. Along the way, students are offered essential questions to get them to understand that stories are more than just plot. These questions lead to the introductions to the historical, biographical, feminist, and formalistic approaches to literature.

(Developed for Language Arts, grades 7-8; recommended for Middle School Language Arts, grades 7-8, and High School English, grades 9-10)

08.02.04

***Coming of Age as a Reader, Writer and Thinker,* by Deborah Boughton**

This unit proposes strategies that teachers can use to help their students come of age as thinkers. It is suitable for freshman and sophomore students and provides activities that prepare students for the Response to Literature section of the Connecticut Academic Performance Test. As they practice strategies that experienced readers use to understand, interpret, connect to and evaluate literature, students will examine a varied array of texts that focus on the theme of coming of age.

(Developed for English, grades 9-10; recommended for English, grades 9-10)

08.02.05

***Reshaping Our Lives with the Circular Journey of Storytelling,* by Elizabeth K. Johnston**

Whether we like to admit it or not, as teachers, we must face the reality that most of our ninth-grade students find almost every other aspect of twenty-first-century living more interesting than reading. This makes our job, especially the job of teaching literature, difficult, to say the least. I've designed this unit, for the beginning of the school year, with this challenging reality in mind. However, in having students trace the journeys of their own lives, in teaching them to see themselves somewhere in other people's stories, I'm telling them they've got to find stories interesting; they are about them! This unit focuses on storytelling in literature, beginning with children's picture books. It contains a variety of ideas, strategies and lessons designed to help students see themselves as storytellers, readers, and an invaluable part of a larger learning

community. The unit is recursive in nature, as students will continually go back to their past memories, as well as their past writing, in an attempt to grow as individuals, and as readers and writers of stories.

(Developed for English, grade 9; recommended for English and Language Arts, grade 9)

08.02.06

Short Stories: Finding Ourselves in the Fiction, by Sandra K. Friday

This four-to-five-week unit explores how decisions that fictional characters make about interacting with other characters are driven by their identities: their cultures (and sometimes subcultures), their personal ethics, their capacities for empathy, sometimes their fears and anxieties, their sense of justice, and their race and race consciousness. These interactions result in outcomes, some promising, some disquieting, and some unresolved. Some of the protagonists learn from their decisions, interactions, and outcomes, and some don't. Of course, the question is, "What does the *reader* learn from tracking these decisions, actions, and outcomes?"

Students will use two graphic organizers to answer the Language Arts CAPT questions, "How does the main character change from the beginning of the story to the end and, equally important, *why*?" Once they have recorded their observations about the protagonist's character "At first," "But then," and "Finally," they will record evidence from the story to support their observations.

Examining fictional characters in four very short stories, students ultimately will see themselves reflected back, as they identify and challenge their own personal ethics, and their own capacities for empathy, their own cultures and in some cases subcultures, their own fears and anxieties, and their own racial consciousness, through decisions they make about how they interact with others, and the outcomes of these interactions. Following their exploration of each of the four stories, and reflecting on their own identities, they will craft fiction or nonfiction stories, and complete the two graphic organizers for each piece they write.

(Developed for English, grades 9-12; recommended for English, High School grades 9-12)

08.02.07

Narrative Voice: What is Real? What is True? What is Reliable? by Ruth Chaffee

This three-week unit is specifically designed for tenth-grade students in a special education resource room, but has a number of activities and ideas that could be easily adapted and expanded for the regular education setting. The unit will explore issues of reliability of the narrative voice and characteristics of different genres, as well as real-world and digital texts. One of the most important skills in life is to be able to evaluate voice, whether in a text, online, or face-to-face. We all do this constantly in our everyday lives when we read the news, meet a new person, or shop for a car. We are incessantly determining whether the source of information we encounter is trustworthy. With more information continuously available at our fingertips in the digital era, the skill of discernment becomes even more necessary. In this unit, students will

evaluate traditional texts from multiple genres such as *The Adventures of Huckleberry Finn*, *Catcher in the Rye*, and *Monster*, as well as digital texts, such as Myspace, Wikipedia, and phishing scams. Through readings, activities, discussions, and writing, students will develop their own tools of evaluation of voice to apply to texts and non-literary situations.

(Developed for Special Education, grade 10; recommended for English and Special Education, grades 9-12)

08.02.08

The Godfather to American Gangster: A Mythology of the American Anti-hero, 2008, by MarcAnthony Solli

This unit consists of approximately four class sections of block period ninety-minute seminars in which students will enjoy exposure to and discussion of various model samplings of versions of the lone anti-hero, a figure who exemplifies the deepest "American" yearnings for a free, yet ordered existence within the parameters of the hierarchies of his own criminal design. This figure also serves as a dramatic counterpoint to the traditional heroic code exemplar of the Arthurian "knight in shining armor" or to the ancient Homeric model of a moderately flawed, though highly idealistic vision of the "wanderer" who remains ever faithful (though not necessarily sexually so) to familial, spousal, and communal/ethnic commitments and codes of appropriate conduct while off on twenty-year adventures (i.e., Odysseus).

Our primary texts include F. Scott Fitzgerald's *The Great Gatsby*, Mario Puzo's and Francis Coppola's *The Godfather* (and its filmic representations), Brian DePalma's *Scarface* (a retread of *Macbeth*), Ridley Scott's *American Gangster*, and David Chase's *The Sopranos*. The culminating activity or assessment for learners of this unit will be to synthesize, create, and present to other classmates an original, unique version of the heroic or anti-heroic pattern represented in mythology.

(Developed for Mythology, grades 10-12; recommended for English, grades 10-12)

08.02.09

Visualizing Myself Ten Years from Now, by Joan Z. Jacobson

This unit sets out to enrich high-school students through the art of journal-making, with a clearer understanding of themselves in their present lives and what they may hope to achieve in the future. It is designed for a course called "Journals and Publications." In the first half of the journal, the student needs to convey how he envisions himself in his present world through his written word, graphic illustration and/or drawing. In the second half of the journal he is ready to create a written and graphic look into his future. Hopefully his thoughts for the future will be touched with optimism and hopefully his dreams may lead him on to a greater sense of empowerment. The tools to help motivate his imagination come in the way of films, art publications, graphic novels, and art reproductions. Artists discussed in this unit whose work will inspire the imagination include Salvador Dali, Edward Hopper, Joseph Cornell, and Frida Kahlo. Also, by using a wide variety of strategies and media, students can develop their power of drawing and writing about their dreams and hopes as a means of realizing these aspirations for the future.

(Developed for Journals and Publications, grades 9-12; recommended for Creative Writing and Visual Arts, High School grades 9-12)

III. Pride of Place: New Haven Material and Visual Culture

Introduction

Local history remains the foundation of all historical inquiry, but it is essential to connect the specifics of place to broader interpretive themes. To provide teachers from a wide variety of subjects, from social studies and literature to science and art, pertinent historical themes and issues, this seminar focused specifically upon New Haven’s material culture and artistic practice. Close interpretative analysis of artifacts provided real, palpable insights into production and consumption, demonstrated how people construct and manage social relationships, and revealed the values or aspirations of a specific time period. The goal was not to illustrate New Haven history through objects but rather to analyze and interpret elements of the built environment in a contextual manner through the example of New Haven.

Divided into five different temporal periods — Colonial Town, Commercial Expansion, Industrialized Landscape, City Beautiful, and Mixed Modernisms — the seminar explored maps, buildings, gravestones, metalwares, clocks, furniture, sculpture, and painting. Readings provided general overviews of the period and offered models for interpretation, but the emphasis of the seminar was engaging directly with the primary artifactual sources. We handled maps, architectural drawings, gravestones, furniture, and metalwares, and met in front of photographs, paintings, and sculpture. In short, New Haven became our classroom. Engaging resources from local museums, libraries, and art galleries, as well as the architecture and streets of our community itself, the seminar built up visual and material literacy in a contextual way and made the immediate New Haven built environment come alive with possible academic forays.

The variety of topics covered in the units produced for the seminar testifies to the Fellows’ engagement. A first-grade teacher, Carol Boynton identifies mapping as an effective means of engaging her students with their physical surroundings. In addition to developing mapping exercises, she links mapping to the drawing of architectural elevations and plans and demonstrates that mapping is not neutral or objective but in fact is a culturally inscribed activity. As an alternative to political or military history, Zania Collier offers a unit for her fifth-graders that unwraps the town of New Haven in 1750 by concentrating on the topography, the role of the central common, and the buildings of that time period. She makes the past come alive through the selective use of maps, church records, and probate records and the introduction of questions about class and economy. Waltrina Kirkland-Mullins focused upon a specific type of object, the fence, to chart changing socioeconomic trends in New Haven from the eighteenth to the early twentieth centuries for her young learners. In charting the change from simply joined wooden or piled stone fences to cast iron fences to wrought iron fences, she pays attention to the role of materials and applications, demonstrating that fences reflected changing technology and resource use and structured social interaction in increasingly restrictive ways.

Rather than zero in on a specific type of object, Pedro Mendia-Landa emphasizes the linkage among objects and calls for the contextualization of an assemblage within its natural setting — the room. Borrowing the term “period room” from museological sources, he charts the intersection of culture and technology in the change of functions or room use over time. This diachronic study focuses upon the problems of waste removal and the role of the parlor/sitting

room/living room. An art teacher for older elementary-school students, Melissa Sands brings the perspective of an artist to public art and its messages. Intrigued by the possibility of a public perceiving public art in ways different from that intended by the artist, she contrasts the didactic public work undertaken in the 1930s under the auspices of the WPA with the fashionable work commissioned under the Percent for Art Program of the past two decades. Her exercises require the students to develop more critical visual literacy. In her high-school Spanish classes, Laura Tarpill probes deeper into Hispanic culture in New Haven by turning her students' attention to their home environment. Raising their awareness of the material world and how it constructs identity, she has developed a curriculum that has them looking around their quotidian worlds for ways in which they function within both American and Hispanic cultures. It is a participatory unit that relies on student fieldwork and comparative analysis.

Fieldwork also lies at the heart of Sara Thomas's high-school art class, which will be working with the New Haven Museum and Historical Society to revise the 1982 publication *Inside New Haven's Neighborhoods*. After introducing her students to the dynamic nature of neighborhoods through mapping exercises linking Sanborn fire insurance maps and Google Maps, she will instruct them in the history and theory of architectural photography and then turn them out into the field to document the five neighborhoods for which she is responsible. Memory and commemoration lie at the heart of Huwerl Thornton's unit for elementary-school students. Intrigued by memorial stones in Grove Street Cemetery and the names of important but often forgotten local figures in the names of streets, he has constructed a unit that encourages students to pay attention to names and history and to develop ideas and attitudes for the memorialization of the living. A high-school art teacher, Kristin Wetmore chose to explore the Amistad case of 1839-40. Rather than simply examine the incident through the lens of legal history or civil rights, she developed a unit that focuses upon the geography of the Amistad case, the manner in which it was represented in popular culture of the period, the lack of interest in the case for more than a century, and the recent reawakening of interest. Like the other units, it touches on issues such as place, memory, representation, and everyday life. The work of the seminar emphatically underscores that material history is indeed the most powerful form of local history.

Edward S. Cooke, Jr.

Synopses of the Curriculum Units

08.03.01

Mapping the Neighborhood, by Carol Boynton

Many teachers in primary grades are teaching in self-contained classrooms, generally focusing on literacy and math. I would like to build background knowledge for teachers to feel comfortable teaching about mapping and map-making. My goal with this unit is to bring this fun, exciting skill into the classroom social studies curriculum for first- and second-graders.

First-grade students come to school in the fall ready to learn. This eagerness is invigorating. One way to tap this energy is to provide an engaging hands-on curriculum to keep them involved and learning. Despite the various levels within the class, everyone can participate and learn how maps are made, what they mean, how to use them, and what they tell us about our neighborhoods.

This curriculum unit takes the notion of learning sequentially, from the micro to the macro – starting from mapping the classroom environment to defining the school space to gaining an understanding of the neighborhood. My hope is that this curriculum will excite students about the world right outside their doors at school and in their own neighborhoods. Incorporating art, math, vocabulary development, and physical activity into this social studies unit offers something for everyone!

(Developed for Social Studies, grade 1; recommended for Social Studies, grades 1-2)

08.03.02

Pride of Place: New Haven circa 1750, by Zania Collier

This unit is designed to teach fifth-graders in New Haven about the look of New Haven in 1750, how the colonists interacted with one another, and how the town grew from a beginning plan. Everyday life during the colonial period is difficult for today's children to understand or embrace. Much of colonial history is still taught through political and military events and significant leaders. Resources that inform students about daily colonial life have not been made available to them, or those that have been presented are not interesting to the children.

This unit offers a window into the past of New Haven so that the students will be able to learn, understand, and appreciate the rich history and culture of the city through a focused exploration of New Haven circa 1750. This unit contains three distinct but related aspects. We begin with the Wadsworth Map of 1748. The map serves as a springboard to the introduction of the "Marketplace," which later became known as the "Green" and where the meetinghouse was located. The third focal point are the homes surrounding the town center and their inhabitants in the mid-18th century. These three perspectives can provide the fifth-graders with a real connection to life in colonial New Haven. This unit can be modified to teach sixth, seventh and eighth-graders, as well. Students of any age can grasp the concepts within this unit with appropriate age and learning modifications.

(Developed for Social Studies, grade 5; recommended for Social Studies, grades 5-8)

08.03.03

Breaking Down Fences — Revealing The Past, by Waltrina Kirkland-Mullins

Young learners take an adventurous look at New Haven history through material culture in the form of fences. This interactive journey will help students learn that different types of fences were not only used as utilitarian objects to delineate agricultural zones or articulate property lines but also as implements that structured class relationships.

Students will use an inquiry research-based form of discovery: How do fences and gates speak to the history of New Haven? How far back can they be traced? For what purposes were they made, and how did their creation impact the New Haven community? What resources and types of labor were used to create them? Who contributed to their creation, and how were they crafted? Are cultural and socio-economic diversity in any way reflected in these functional objects? Can this look at material culture be carried over into other communities? These questions and more will be explored and evaluated in this eight-week curriculum unit study. Several excursions to New Haven landmarks are incorporated into the unit. Because of the interactive nature of this unit study coupled with CMT prep and follow-up final exams, implementation between April and June is strongly recommended.

In keeping with the literacy focus of our school district and the different modalities with which children learn, the unit concludes with student creations of a three-dimensional fence design, accompanied by a historical fiction journal-writing piece highlighting how and why the fence was created. Through this interactive experience, students will reinforce and internalize their understanding of material culture as it pertains to community, culture, and New Haven history!

(Developed for Social Studies and Language Arts, grade 3; recommended for Social Studies and Language Arts, grades 3-6, with additional research component through grade 8)

08.03.04

Cultural Artifacts in a Time of Change: Material Culture of Daily Life, by Pedro Mendia-Landa

This unit provides the elementary-school teacher with a framework for the study of everyday American artifacts representative of the time period between 1800 and 2000. Because the specific functions of rooms have changed over these two centuries, the organizational rubric for this unit is the “period room.” The consideration of the context of function is further elaborated through the analysis and interpretation of specific objects that structure and enable the activities within these room settings. By studying period rooms across time, students will be able to observe the different technological, industrial, social, demographic, economic, and cultural changes that took place.

This unit is based on the premise that artifacts are essential to the interpretation of past history. Through the study of objects as social and historical documents, one can have a better, or at least tangible understanding of history and everyday life. In this unit artifacts become primary

sources from which we can extract historical information. Although this unit focuses mainly on the parlor/living room and the bathroom/kitchen as period rooms, the methodology of study is applicable to other rooms and material culture regardless of time period. A list of student, teacher, and electronic resources, extension activities and standards is provided for the implementation of the unit.

(Developed for Integrated Social Studies and Language Arts, grade 5; recommended for Social Studies and Language Arts, grades 5-6)

08.03.05

Discovering New Haven’s History of Public Art, by Melissa Sands

On an average day people view a multitude of everyday objects, buildings, signs, and artwork occupying the landscape we live in. Many people pass these elements of the built environment without even being aware of their existence, context of creation, or intended message. Their stories have become lost over time as viewers bring different background knowledge to the interpretation of the work. I intend to connect students with works of art they have access to on any given day yet may never have known existed. Those artworks tell the history of the place students live and later will help them tell their own visual story.

Through investigation of these artworks students will become familiar with the visual cues that will allow them to interpret the history behind the artwork. Full understanding of these historical works will better enable the students to develop their own artwork. We will begin our investigation by asking students to give their personal interpretation. What is the theme of the artwork? What time period or moment in history is the work intended to represent? Who created the artwork? Who commissioned the work and how may this have influenced the artist’s design? Why was this historical period or person chosen for the site where it is located? As our research finds the answers, students will reformulate their interpretation of the artwork and begin to understand the time period it was intended to represent as well as the artist choices for its representation. At the conclusion of our research into the creation of public artworks and the stories behind them, students will partake in the creation of their own public artwork. We will have backers and committees that will approve proposals and limit budgets. My intent is to bring this unit full circle and remind students of what happened during the creation of the artworks they have researched and interpreted.

(Developed for Art, grade 7; recommended for Art and Art History, grades 7-12)

08.03.06

Tools and Art in the Hispanic Homes of New Haven, by Laura Tarpill

This unit is intended for a Spanish III lower-level class and will be taught mid year. In this unit, students will focus on how objects help define each person. They will also look at the links between their culture and Hispanic culture by comparing and contrasting objects and art found in the home. This will impress upon students the cross-cultural importance of the home and its objects while they simultaneously study the Hispanic cultures within the larger “American” culture. Students will first define the word “home” and think about what it means to them. They will then have a chance to look at realia (tools and art) from the Hispanic home. This realia

might include la Negrita trinket, la Virgen de Guadalupe paintings, tropical houseplants, Fabuloso cleaner, plátanos, Adobo, etc. Students will then be asked to make connections between their own culture and the Hispanic cultures by bringing in and cataloguing some realia from their own culture. By the end of the unit, students will have a greater appreciation for the differences and similarities between Hispanic cultures and their own cultures.

(Developed for Spanish Third Year, grades 9-12; recommended for Spanish Second and Third Year, grades 9-12)

08.03.07

My Maps, My Neighborhood, by Sara E. Thomas

I would like my students to learn more about the histories of their neighborhoods, to look at photographs of their neighborhoods at different time periods, to read oral histories of these places and to begin to really understand the rich history of where they come from through a variety of sources. As an end result students will take photographs capturing the neighborhoods as they look currently. Through a comparison of “then and now” photographs I believe students will gain a greater appreciation of New Haven and their own neighborhoods. I will be teaching this lesson in my Digital Art class, where students learn digital photography, the basics of Photoshop, and the research applications of Google Earth/My Maps. The results will be digital maps with images and information added.

(Developed for Art, grades 9-12; recommended for Art and Photography, grades 9-12)

08.03.08

Living Memorials: Honoring Your Family, by Huwerl Thornton, Jr.

This unit looks at how people over time have created monuments and memorials for people or significant events in history. It will explore how people as a community choose to commemorate and memorialize. This is known as collective memory. We will be looking specifically at war monuments throughout the United States and here in New Haven. The unit will also look at personal memory and how individuals choose to memorialize family members in death by way of headstones in a cemetery. We will also explore other ways in which individuals choose to memorialize loved ones through songs, poems, and artwork.

The students will create various forms of artwork using a variety of mediums, including for loved ones in their families who are still alive. This is a way to give honor and show appreciation to a loved one while they are able to appreciate it. It is not usually until someone has passed away that memorials are done for that person and they are not there to appreciate it. This is a way for students to express their love and appreciation so that both parties can enjoy it together.

(Developed for Social Studies, grade 3; recommended for Social Studies, grades 3 and up)

08.03.09

The Amistad Story: Commemorating a Local Narrative, by Kristin Wetmore

Why should my students study the Amistad case? It is a fascinating narrative for several reasons. It was really the first civil rights case in this country. It happened before the Civil War, at a time when black people had few rights, if any. It is a David and Goliath story, good vs. evil, right vs. wrong. The case illustrates how the people of New Haven came together for a just cause. The case still has relevance today. New Haven and its residents played an important role in the odyssey of the Amistad captives. A small group of committed people from New Haven helped bring about change that resonated for years.

The first time I taught about the Amistad captives, I came across a quote by Dr. John Henrik Clarke in *The Middle Passage* by Tom Feelings. He wrote, “Of the countless number of Africans ripped from the villages of Africa – from the Senegal River to northern Angola – during the nearly four centuries of the slave trade, approximately one third of them died on the torturous march to the ships and one third of them died in the holding stations on both sides of the Atlantic or on the ships. If the Atlantic were to dry up, it would reveal a scattered pathway of human bones, African bones marking the various routes of the Middle Passage.” I have never forgotten this image. This is the reason I think it is so important to teach all students of the struggle to overcome such atrocities.

(Developed for Arts on Display and in Action, and Visual Art, grade 10; recommended for Social Studies and Art History, grades 7-12)

IV. Representations of Democracy in Literature, History and Film

Introduction

Given that my own field of expertise is the sixteenth and seventeenth centuries in England, the design of a seminar of use to teachers in American schools was a considerable challenge. I created a topic that I thought might be adaptable to teachers of English and history or civics, and eventually enrolled one of the latter and a Spanish teacher. The topic of democracy was dear to my heart, and I presented the seminar as one with a thesis, to be proved or disproved, that democracy is in fact unrepresentable, because “the people” are unrepresentable. The arts of all kinds tend to require single protagonists.

I believed that we needed to start with a scaffolding, however flimsy, of political thought, from Aristotle’s *Politics* through John Locke and Thomas Paine, to lead us to Alexis de Tocqueville’s *Democracy in America*. This went down more smoothly than I had feared, though we had to return at the end of the seminar to recall what Aristotle had actually written about democracy, the sixth of his six kinds of regimes. I had also thought to illustrate the political thought of the ancien regimes by way of two plays of Shakespeare, *Julius Caesar*, sometimes taught in high schools, and *Coriolanus*, which is in a way its sequel. I also wanted to raise the question of what is capable of representation on the live theater (how many persons can fit on a stage?), as a prelude to American drama of social protest, in the form of Clifford Odets’ *Waiting for Lefty* and Arthur Miller’s *Death of Salesman*. I wanted the Fellows to consider what kind of language a dramatist is limited to, given that they must work immediately, with no looking back. This focus on medium and genre I tried to keep going throughout the seminar. Unfortunately, the Fellows found the Shakespeare plays more difficult to read than practically anything else!

By similar token, I included the two representations of the signing of the Declaration of Independence, by John Trumbull (almost contemporary with the event) and Howard Chandler Christy’s much later rendering, in order to see the limits of painting in representing not only democracy, but ideas in general. The tendency to fall back on group portraiture to describe a revolutionary event means that Trumbull’s painting looks formally British! This would lead to our better understanding the election series by George Caleb Bingham, which we considered after reading Tocqueville, since the two were close in time. We used Bingham’s paintings, which themselves were partly based on Hogarth’s satirical election series, to deepen our understanding of what paintings can show, how they control the tone and value of the event in question, and what democracy looked like when it excluded both women and blacks.

We then moved on to the Civil War era, considering the language of Lincoln’s Gettysburg Address, and some poems and prose by Walt Whitman, including his rather unwieldy but telling *Democratic Vistas*, published when the Civil War was over and the strains on American democracy were beginning to show in their most familiar form, corruption. This led naturally to the satirical novel by Henry Adams, entitled *Democracy*, whose theme is that political corruption is inevitable in any system. Although at this point the Fellows seemed rather overwhelmed, I subsequently supplied to each of them a paperback version of the novel. Based on what I had told them about it, or quoted from it, they all planned to read it later in the summer.

We were now moving into the twentieth century, and considering how democracy fared as an ideal when the Depression hit, along with the great Drought. The idea was to compare Walker and Agee's *Let us now praise famous men* and John Steinbeck's *The Grapes of Wrath*, which I intended as a central text for the seminar. Speaking generically, both are works of protest, the one a combination of photographs (without commentary) and a wrathful poetic description of tenant farmers' hardships, the other a novel with fictional characters but a firm underpinning of documentary fact. We also compared Steinbeck's novel with the film featuring Henry Fonda, noticing how the film avoided the harshest aspects of Steinbeck's saga.

This was the period in which ideas of democracy fastened on the idea of the common man. We did some work, of course, on Roosevelt's New Deal and his speech on the Four Freedoms, piously illustrated by Norman Rockwell and scathingly represented by Ben Shahn. The same motif resurfaced in Capra's film, *Mr. Smith Goes to Washington*, the common man theme identified in the hero's surname, even if his first name is Jefferson, and Miller's *Death of a Salesman*, which was accompanied by the author's essay on the possibility of common man tragedy. Then, with George Orwell's *Animal Farm*, we considered how the theme of corruption faced by Adams and Whitman turned into wholesale satire (in the form of an animal fable) of socialist ideas.

But it would not have been good to end on such a sour note. Instead, the Fellows watched the film *Salt of the Earth*, a film about unionization, produced in defiance of the Hollywood blacklist by a blacklisted producer, and acted by blacklisted Hispanics and real miners. That the workers win eventually because the women take over the picket line was not only true to the facts, but pointed forward to female activism in the suffragette cause. Throughout the seminar, we tried to keep the dates straight, so that the historical context of these varied works could be, if not fully investigated, seriously invoked. One of the Fellows intended to ask his students from time to time throughout his unit the thousand dollar question, "Is America a democracy today?" Another fastened with delight on Langston Hughes' poem, *Let America be America again*, since she thought its broad canvas would be therapeutic in a classroom where the focus usually was on the hardships of African Americans.

Now, what did the Fellows make of this material? The Spanish teacher created a unit on democracy or its absence in Cuba. The history/politics teacher created a unit that stressed political thought (he added Hobbes) and made use of the *Federalist Papers* and Whitman. Of the English teachers, one chose to focus on dissent, what is a democracy and what is a citizen, adding Thoreau's *Civil Disobedience*, the 1848 feminist manifesto, Martin Luther King's speech "I have a dream" and Barack Obama's address on racism. Another chose to focus on the plays of August Wilson, connecting him with Arthur Miller, by whom he was deeply influenced. Another made the center of her unit *The Grapes of Wrath*, but framed in the issue of rights as raised by Paine's *The Rights of Man*. Another very experienced teacher made an eclectic syllabus that ran pretty close to mine. All of my Fellows but one taught high school. The one Fellow who teaches middle school came up with a wonderful unit on the Civil War, combining Lincoln's speeches, Mathew Brady's photographs, and Walt Whitman — simple and powerful, not least because Whitman wrote poems on Lincoln and knew Brady personally. I was very happy with the results.

Annabel Patterson

Synopses of the Curriculum Units

08.04.01

Dissent in Democracy: Subverting the Dominant Paradigm, by Jonathan Aubin

This unit takes the form of a five-week intensive survey of those individuals who, over the course of the United States' history as a free country, have advocated social and political reform by exercising the right to free speech. Due to the timeless quality of the readings chosen to illustrate these lessons, I believe this unit will work well not only with my own ninth-grade English classes, but with almost any high school American literature or history class. This course is not comprehensive, that is to say some significant American reformers and activists are left out. Therefore, it is my hope that teachers intending to integrate this unit into their own curriculum do not follow it to the letter, but take from it what they believe will pique the curiosities of their respective learners, and add their own choices for readings and viewings based on their own personal interests and areas of knowledge. The challenge in teaching this unit is making students who would be otherwise reluctant or apathetic become interested and invested in our nation's political process. By combating the twin evils of apathy and ignorance, teachers can help defeat those who wish to subvert the spirit of popular sovereignty. As Jimmy Carter once said, "[We] ought to remember the oath that Thomas Jefferson and others took when they practically signed their own death warrant, writing the *Declaration of Independence* — to preserve justice and equity and freedom and fairness, they pledged their lives, their fortunes and their sacred honor." It is just this sort of sentiment that this unit hopes to instill in students.

(Developed for English I, grade 9; recommended for American History and American Literature, grades 9-12)

08.04.02

An Introduction to America's Culture of Democracy, by Justin Boucher

This unit approaches the legend of American democracy and uses it to critically evaluate students' understanding of American government. It presents a concise perspective on the history and culture of democracy in the United States. In this way the students will have the tools to begin to understand the roots of their perspectives on democracy. The ultimate goal of this unit is to give the students a much deeper understanding of the idea of democracy in America.

This unit focuses on two essential questions "What is democracy?" and "Is America a democracy?" Answering these questions will require us to look at the various foundational documents in American history, as well as various depictions of American government and politics. Additionally, we will look at various moments in American history when that democracy was expanded or extended to cover a greater portion of the population. This study will allow us to fully discuss the essential question, answering further questions like: is democracy a cultural ideal as well as a governmental system? If we are a democracy, when did we become one? And if we are not, what stands in our way? Furthermore, is democracy something we should aspire to as a nation at all? Or is it merely a term we apply to our existing system, regardless of its truth? Each of these questions not only requires a strong understanding

of the history and culture underlying American democracy, but also allows for the demonstration of that understanding.

(Developed for AP U. S. Government and Politics, grades 11-12; recommended for U. S. History, grades 10-11, Civics, grades 9-12, and AP Government, grades 11-12)

08.04.03

Representations of Cuba, by María Cardalliaguet Gómez-Málaga

The purpose of the unit is to help my students to learn about democracy (and the lack of it) and other forms of government using film, literature and music. I will be using various materials and resources, including numerous cultural representations of the two political opposite ends: the *fidelistas*, those who support the revolution, and those hostile to Fidel Castro (*anticastristas*, in Spanish) and the communist state — expatriates dispersed around the world. This unit will allow me to introduce different representations such as film, literature mainly, but also art and music in the classroom as instruments to teach history and to start developing something many high school students lack which are vital to their intellectual growth: critical thinking skills.

The unit is recommended for Spanish students with a basic to intermediate level of the language and fluency.

(Developed for Spanish, grades 9-12; recommended for Spanish 2, grades 9-12)

08.04.04

Whitman, Lincoln, and Brady: Three Perspectives on a Nation Divided, by Sean Griffin

In this language arts unit designed to complement an eighth-grade American history study of the Civil War, students will be asked to explore three separate perspectives of the War Between the States through the eyes of three contemporaries with three distinct views. Examining the Civil War poetry of Walt Whitman, three rhetorical masterpieces by Abraham Lincoln, and the photography of Civil War photographer Matthew Brady and others, will give students a unique look at the war, deepening their understandings of the enormity of the conflict. Students will be asked to respond to the text and images through persuasive writing, journal writing, discussion, creation of artwork and in a culminating activity that utilizes the use of primary source documents, through use of technology in creation of power point presentations.

(Developed for English Language Arts, grade 8; recommended for English Language Arts and American History, grade 8)

08.04.05

Toward a Democratic Literature: The Study of Miller’s *Death of a Salesman* and Wilson’s Twentieth-Century Cycle in the Twenty-first Century, by Matthew S. Monahan

This unit explores the history of American dramatic arts. Students participating in its implementation will be able to do the following: work individually and cooperatively in defining democracy and related terms, understand and appreciate the development of the institution of theatre in the United States of America, read and appreciate multiple works by playwright August Wilson (i.e. *Fences*, *The Piano Lesson* and *King Hedley II*) as well as Arthur Miller’s *Death of a Salesman*, analyze both literary elements contained in and the historical significance of these works and develop theories that relate these dramas to their own lives and to the current American sociopolitical landscape.

Extending the theme of democracy to democracy in the classroom there will be a limited number of choices for students regarding their culminating activity. Each final project will include a written component, either an essay or a one-act play. The culminating project will also include at least one other medium to be presented in class. Other media include visual art, performance, oral presentation/public speaking, etc.

(Developed for English, grade 11; recommended for English, grades 10-11)

08.04.06

Historical Representations of American Democracy through Literature and Film, by Shannon Ortiz

This unit was created for Honors Junior English and Advanced Placement English Language courses. It is designed to teach students different ways of understanding and interpreting democracy. Students will begin by analyzing excerpts of early American ideology of democracy written by Thomas Paine and Alexis de Tocqueville. Then they will move to the major text of the unit, *The Grapes of Wrath* by John Steinbeck. Students will then view Henry Ford’s cinematic version of the novel and compare the similarities and differences between the two. The last section of the unit will be the poem, “Let America be American Again,” by Langston Hughes, where students will judge Hughes’ beliefs about the possibilities of America’s future.

This unit will bridge a connection between early political theory of American democracy and John Steinbeck’s message of democracy in *The Grapes of Wrath*. Students will first identify Paine’s and Tocqueville’s beliefs about what American democracy is. Then they will examine how these ideals change over the course of the country’s history. As students read *The Grapes of Wrath* they will continue connecting the three authors’ beliefs and how they are, or are not, evident in Steinbeck’s novel.

The unit will end with the students evaluating the possible direction of the country based on all the readings and their own experiences. Students will produce various works to demonstrate comprehension of the material, with guidance included in this unit.

(Developed for Honors II English and AP English Language and Composition, grade 11; recommended for AP English Language and Composition, and Honors II and College 12 English, grades 11-12)

08.04.07

Democracy: the Rule of the People by the People, by Marialuisa Sapienza

This unit is primarily focused on the understanding and interpretation of democracy and its related imperfections — corruption and/or manipulation — through a series of different literary and visual documents from Aristotle up to now. It will start with the following essential questions: What is your interpretation of democracy? What is the most important aspect of democracy? The students will study the concept of “democracy” and will be authentic researchers whose goal is to become independent thinkers aware of their own environment. The unit will include: *An Agent, a Green Card, and a Demand for Sex* by Nina Bernstein, excerpts from Aristotle’s *Politics* and *Julius Caesar* by W. Shakespeare, George Caleb Bingham’s election paintings, *America* and *Let America Be America Again* by Langston Hughes, *Waiting for Lefty* by Clifford Odets, one excerpt from *The Grapes of Wrath* by Steinbeck, and *Mr. Smith Goes to Washington* by Frank Capra. The unit will also require various writing activities — quick writes, class discussions, analytical essays, written responses, revisions by peers and editing activities — and a final project that will be in the form of a documented essay and a presentation, or a simple documented visual for those students who have special needs.

(Developed for College English and AP English Literature, grades 11-12; recommended for College English and AP English Literature and Language, grades 11-12)

V. Forces of Nature: Using Earth and Planetary Science for Teaching Physical Science

Introduction

One of the problems of teaching physical science is the need to cover fundamental concepts, tools and language before getting into applications. But scientific concepts without applications can be disengaging. Therefore, the aim of this seminar was to explore ways of teaching concepts and real-world applications at the same time; we considered examples – and demonstrations – at the same time that concepts were presented. This seminar was intended for professional educators from the full range of grade levels. Fellows' proposed curriculum units helped to shape the ultimate areas of focus in the seminar, which included some mathematics.

Below is a list of major physical science fields, with physics themes to use and corresponding possible examples.

Forces, movement, gravity

- Physics themes to use: movement, velocity, acceleration; forces including gravity, friction, elastic response (springs).
- Examples: Falling meteorites, landslides (gravity and friction), earthquake mechanism (friction and elasticity), earthquake waves (elastic waves).

Energy and power

- Physics themes to use: work, kinetic energy, potential (stored) energy, sensible heat, latent heat (changes in phase); nuclear energy.
- Examples: Energy in the origin of the solar system (gravitational collapse), fusion inside stars and making the elements. Energy in collisions of planets/asteroids. Heat release from inside planets. Solar heating and surface energy cycles (water, greenhouse effect, photosynthesis). Energy released in earthquakes. Power source for hurricanes (vaporization and condensation of water).

Fluid flow

- Physics themes to use: States of matter (gas, liquid, solid) vs. how things deform (fluid, elastic, plastic). Pressure and pressure differences (which makes fluids move). Viscosity. Buoyancy and convection.
- Examples: Flow of rivers; floods. Slow, viscous flow such as glaciers. High pressure and low pressure zones and winds. Waves in the ocean; tsunami. Convection inside the Earth (mantle and core), in the atmosphere (winds) and oceans (gulf stream), and stars (solar granulation).

Effects of rotation

- Physics themes to use: Rotating frames. Angular motion (angular velocity, momentum and the "ice skater" effect). Centrifugal and centripetal "forces." The Coriolis effect.
- Examples: Orbits of planets. The Moon and Earth. Tides: ocean tides and solid tides of Jovian/Galilean satellites. The spin and shape of planets and

stars. Coriolis effect and atmospheric circulation (prevailing winds) and giant storms (hurricanes, Nor'easters).

Electricity and magnetism

- Physics themes to use: Electrical charges and electric fields. Magnetic substances and magnetization. Electrical currents and magnetic fields. Moving charges (or electrical conductors) in a magnetic field and electromotive force.
- Examples: Thunderstorm electrification (charge build-up) and lightning. Earth's magnetic field. Electrical motors and generators ("dynamos") and the cause for the magnetic fields of Earth, some planets and the Sun. Solar wind, magnetic storms and aurora borealis and australis.

Each Fellow in the end chose from some section of these themes and applied it to his or her particular subject and class needs. The eight units ranged from subjects geared toward teaching math to upper-level high-school students, to teaching basic early elementary-school subjects or in dual-language settings. Two units used either waves (sound and seismic waves for one, or the many types of ocean waves in the other) for teaching high-school algebra, geometry and calculus. Another unit discussed gravity and planetary motion and tides for teaching high-school geometry as well. Five of the units were geared toward elementary-school students. Two units focused on properties of matter to explain how things break or move in nature; for example why failure of rocks leads to earthquakes or landslides, or changes in states of matter (such as gas to liquid) are important for powering hurricanes and storms. Another unit focused on using the solar system and planets to teach students about length and time (e.g., the relative sizes and distances between planets, or the length of days and years on other planets), while in a dual-language (Spanish and English) environment. Another unit used volcanoes to teach students about the inside of the Earth, plate tectonics as well as geography and history. Finally, one unit used convection in the Earth's atmosphere to explain climate and food production in Ghana.

Together the units represent a full spectrum of applying natural science to teaching basic concepts, in contrast to teaching basic concepts first and then using natural examples to illustrate the concepts.

David Bercovici

Synopses of the Curriculum Units

08.05.01

Matter in Motion, by Erica Mentone

This curriculum unit is designed for second-graders but can be adapted for use in grades one through three. It is intended to help teachers gain content understanding and pedagogical methods to effectively teach students about matter and motion, as a means of building the background knowledge necessary to understand occurrences in nature. The unit focuses on presenting students with inquiry-based science activities and experiments that build schema. The knowledge that the children will gain from these activities will directly support students in understanding the natural disasters and weather occurrences that they find so interesting.

This unit contains subject knowledge for teachers, a scope and sequence for the unit and a resource list for students and teachers. The lesson plans included in this unit contain inquiry-based lessons, experiments, as well as non-fiction reading lessons to bridge to literacy.

(Developed for Science and Reading, grade 2; recommended for Science, grades 2-3)

08.05.02

When Earth Fails: How Earth's Physical Changes Cause Natural Disasters, by Roberta Mazzucco

This unit was written for use in a third-grade classroom but can be easily extended to grades two through five. The purpose of the unit was to use natural disasters like landslides, avalanches, earthquakes and volcanoes as a way to talk about some basic concepts of physical science. Specifically, the unit tries to deal with Newton's second and third laws which state that an object will not move unless a force greater than its mass pushes it and that for every action there is an equal reaction which means that when an object pushes another object it will be pushed back with equal force. The unit begins with an explanation of the internal structure of the earth and how that and plate tectonics are responsible for the continuous movement of the earth. This movement of the plates leads to the basic pushing and pulling movements which are the genesis of many of earth's natural disasters. The unit contains a number of demonstrations for students to do, as well as connecting activities in the areas of reading and writing. There is a bibliography of books for students and teachers.

(Developed for Science, grade 3; recommended for Science, grades 2-5)

08.05.03

Natural Disaster: Ring of Fire, by Barbara Natale

This unit will provide students in grade three and higher, with modifications and adjustments, an exciting opportunity to explore a natural disaster, in particular, the eruptions of volcanoes. During the lessons, students will come to the realization that volcanoes and the impact they have on Earth is an interesting subject. I have planned the lessons to embrace content material with several hands-on activities. One, students will read, research and publish their own book on

various types of volcanoes. Two, students will participate in an exciting vocabulary puzzle-making activity. This activity, called “Volcabulary” (Volcano and vocabulary together!) will allow students a better sense of the meaning of the words utilized in their report and in the lessons. This activity will be fun. The class hands-on science experiments will allow the students with the opportunity to understand plate tectonics and how volcanoes erupt. These lessons allow teachers and students the opportunity to work together to better understand the mysteries of our Earth and disasters. Third-graders are at a very impressionable age, and maybe one of the lessons in this unit will inspire them to become a seismologist and travel deep into the Earth crust and core.

(Developed for Science, grade 3; recommended for Science, grade 3)

08.05.04

The Science of Ghana, by Stephanie Sheehan

As part of a year-long country study of Ghana, students will learn scientific thinking skills and concepts related to people’s lives in Ghana. The study will allow students to discover the real-life applications of the science curriculum as they compare and contrast the climate and foods of Northeast America and Ghana. The students will understand different states of matter and the effects of global wind cycles, as well. They will learn how these concepts relate to the climate, and therefore the nutritional resources of Ghana. The integration of science with social studies and language arts will also activate the various learning styles and academic strengths of the students.

This unit is designed for second grade at Davis Street Interdistrict Magnet School, where every class participates in a school-wide initiative of International Study by studying a particular country intensively throughout the year. There is a great need to provide interesting lessons that engage the attention of the students while they are in school. The lessons and content of this unit could easily be adapted to suit children in grades two through five. The unit could also be modified to teach the science of another country in a tropical location.

(Developed for Science and Social Studies, grade 2; recommended for Elementary School Science, grades 2-3)

08.05.05

Earth in the Solar System: La Tierra en el Sistema Solar, by Christine Jones

This unit is a study of the solar system and our place within that system. Students will first explore the structure of the solar system as a whole, as they learn about the relative distances of the planets from the sun, as well as their relative sizes. Students will also learn about the orbit and rotation of planets. In the second part of the unit, students will learn facts and characteristics about each planet of the solar system, including Earth. It is through this teacher-directed study that they will obtain an overview of all the planets. In the final part of the unit, students will work independently or in pairs and complete a study on one planet. They will work towards writing a paragraph that compares this planet to Earth. It is through this more in-depth study that

students will begin to have an understanding of our place in the solar system and how our planet compares with others.

This unit was developed for students at a first-grade level but may be adapted for a second- or third-grade classroom. It is specifically designed with second language learners in mind, focusing on vocabulary building and implementation of sheltered content strategies.

(Developed for Science and Integrated Language Arts, grades 1-2; recommended for Science, grades 1-2)

08.05.06

Wave Math, by Kenneth William Spinka

This unit introduces and integrates surface waves and the sport of surfing as a study subject relative to the math curriculum for high-school grade levels within the New Haven Public School system. Specific goals and objectives are cited that will enable students to respond to a series of sequential assignments, culminating and terminating in one or more definitions of surface waves and the mathematical dynamics implicit to those forces of nature. The Algebra, Calculus, Geometry, and Trigonometry processes of ocean waves are the subject of this presentation of math curriculum.

The curriculum unit assists in teaching about ocean surface waves: mechanical waves that propagate along the interface between water and air; the restoring force is provided by gravity, and so they are often referred to as surface gravity waves. As the wind blows, pressure and friction forces perturb the equilibrium of the ocean surface. These forces transfer energy from the air to the water, forming waves. In the case of monochromatic linear plane waves in deep water, particles near the surface move in circular paths, making ocean surface waves a combination of longitudinal, or back and forth, and transverse, or up and down, wave motions. The force of waves and the math that defines those forces will assist in teaching about this seminar subject in my classroom. Lesson plans assist teaching wave mathematics in the classroom, referencing common equations consistent with math curriculum: the circle equation; the ellipse equation; conic sections; etc. The unit identifies goals, objectives, vocabulary, and assessments.

(Developed for Mathematics and Physics, grades 9-12; recommended for Mathematics, grades 9-12)

08.05.07

Seeing Mathematics in the Forces of Nature, by Hermine Smikle

Mathematics is used to explain and to generate the models that are used to understand many physical phenomena. This unit discusses some of the mathematical concepts that are used to explain selected topics from the “Forces of Nature” seminar. The major topics of the seminar included forces, movement, gravity, energy and power and fluid flow. From these topics the unit was developed. The concepts covered in the unit are: waves and sound waves, earthquakes, the Doppler Effect, and sonic boom.

The unit was written to accomplish the following objectives:

- a. To provide a series of lessons that can be used to enhance mathematics application using topics from the physical sciences.
- b. To provide research ideas for students enrolled in A.P. calculus.
- c. To provide connections of mathematics and the physical sciences.

The unit is written in three sections. Section I explains the concepts of waves and the mathematics of waves. Section II covers sound waves, earthquakes, the Doppler Effect and sonic boom. Section III provides samples of lesson plans. The unit will be taught over a period of two to three weeks. The purpose is to provide background information to situations that occur when teaching problem solving. In cases where students are faced with a problem situation, for example in logarithms, the section of the Richter scale will be discussed. The unit can be taught in its entirety or in parts as the need arises. It is recommended that the problems be supplemented by similar problems that can be found in mathematics textbooks.

(Developed for Mathematics, grades 11-12; recommended for Mathematics, grades 11-12)

08.05.08

Gravity: A Relatively Heavy Subject, by Sam H. Jones

Gravity affects us all, yet our understanding of this universal force is largely limited to our mathematical descriptions of its effects. For example, we can calculate the position and velocity of a falling object with great precision. We can also predict ocean tides with all their complexities. The underlying causes for these phenomena are much more difficult for us to articulate.

This unit will demonstrate the use of data collection and mathematical models as powerful tools in understanding the world around us. In order to do this discovery will be put into an historical context. The hope is to put a human face on what is ultimately a very human endeavor.

The unit will specifically look at the development of tide theory, from the earliest speculations to universal gravitation. Students will be directed to develop and interpret mathematical models using trigonometric functions.

(Developed for Pre-Calculus, grades 11-12; recommended for Pre-calculus, grades 11-12, and Calculus, grade 12)

VI. Depicting and Analyzing Data: Enriching Science and Math Curricula through Graphical Displays and Mapping

Introduction

A graph or map, like a picture, may be worth 10,000 words. Graphic or pictorial display of data can reveal relationships that are not evident by the examination of numerical data. Graphs are an integral component of both the analysis and display of scientific data, but beyond this, daily reading of the newspaper shows that interpretation of graphs is a requirement of general literacy as well. The overall aim of this seminar was to encourage the Fellows to incorporate easy-to-understand graphical displays into as much of the curriculum as possible and to lead their students both to appreciate graphical material as they encounter it and to use it to express themselves.

This seminar was intended for teachers of science, math, social studies and business at all grade levels, as well as teachers of the graphic arts. The sophistication of the math was geared to grade level. The approaches ranged from simple arithmetic to algebraic to statistical. Spatial mapping methods were also discussed.

There is great variety in the units, reflecting the diversity of the background of the Fellows. Marisa Asarisi employs graphical displays to depict the health trends of her middle-school students. Karen Beitler uses jellybeans and strips of colored paper to build population pyramids. Jennifer Esty teaches her anatomy students the principles of mechanical drawing to help them interpret two-dimensional drawings of three-dimensional objects. Heidi Everett-Cacopardo uses a graphing unit to illustrate the extent of the HIV/AIDS epidemic. She also introduces a mapping exercise to trace the spread of a fictional disease through the classrooms of her high school. Larissa Giordano uses graphing exercises to help her second-grade students understand the links among healthy behavior, mood and performance. Beth Klingher introduces middle-school students to the power of graphical displays to justify a point or mislead the reader. Jon Knickerbocker has his high-school students use graphical displays to understand economic and environmental data. Sheila Martin-Corbin uses graphical analysis of heart and pulse rates in a high school unit on the cardiovascular system. Nicholas Perrone involves elementary- and middle-school students in graphing activities that display the physical activity of the entire school. Nancy Schmitt uses the stock market to teach about graphing and the risks of predictions based on those graphs.

William B. Stewart

Synopses of the Curriculum Units

08.06.01

Using Graphical Displays to Depict Health Trends of America's Youth, by Marisa Ann Asarisi

Middle-school students thrive on the opportunity to discuss topics relevant to them and compare themselves to their peers. This unit allows students to track, organize, and depict personal and peer health information based on their interests. Topics such as time spent using media, hours of sleep, and foods consumed are just a few of the topics that students will use to create graphical depictions.

Students will create tables of values and frequency tables to track health topics of their interests, create a mathematics dictionary for key terms, and participate in numerous class and group discussions. The examination and creation of bar graphs, double bar graphs, pictographs, pie charts, line graphs, stem-and-leaf plots, and scatter plots makes the purpose and use of graphing come alive, while also teaching basic health and graphing skills. Upon completion of class discussions, student discourse, and practice creating graphs, the students will put together a graphing portfolio to document their learning. Finally the students will present their findings to the class and share all that they have learned.

(Developed for Mathematics and Science, grade 5; recommended for Mathematics, grades 5-7)

08.06.02

Displaying Populations: Jellybeans, Paper, and People, by Karen A. Beitler

At the turn of century, six billion humans hovering around a 1% increase per year since 1990, have graced the planet. The human population is expected to reach nine billion by 2050. (TakingItGlobal, 2008). These figures are staggering to imagine, informative in a table and best represented pictorially in a graph. Students who are knowledgeable about their environment are more likely to make intelligent choices that contribute to world health (Guthrie, 2005). The New Haven Biology curriculum-embedded tasks are formative assessments designed to determine if students have grasped and can apply curricular materials. In the last unit just before the CAPT exam, Population Dynamics, students examine data displays of populations and are asked to present interpretations. The task is to complete and deliver a presentation that compares population pyramids of a developing country and a developed one. The focus of this unit is to provide the teacher with methods and activities that will help the student establish connections to this curriculum and enhance both learning and application of the task on human population dynamics. This unit is designed to show students the many ways in which data can be displayed. The unit will emphasize importance and simplicity in graphic displays. References to some pertinent information on how charts and graphs explain data will be provided. Students will learn how experts have used charts, tables and graphs to portray their data to make a point and look at careers involving data display. All lessons will be adaptable for any ability level.

(Developed for Biology, grade 10; recommended for Biology, grade 10)

08.06.03

Seeing in 3D: Interpreting Two-Dimensional Diagrams of Three-Dimensional Objects, by Jennifer B. Esty

This curriculum unit is written for a high-school anatomy and physiology class. It comes out of a need that I have seen in my anatomy and physiology class. I have noticed that my students have quite a bit of trouble understanding the three-dimensionality of the human body when they learn about it from a two-dimensional drawing in their textbooks. Essentially, they have trouble interpreting the two-dimensional diagrams as three-dimensional realities. So, the primary objective of this unit is to teach students how to see three-dimensional objects when they look at a two-dimensional diagram. Secondly, this unit will be used to teach about differing intelligences and how they relate to student learning. Specifically, I want my students to understand that what they have been previously taught as “proper note taking techniques” are merely guides that work well for some people but that there may be other ways to take notes which work better for their type of learning. Finally, I also hope to teach my students some basic drawing skills for two reasons. First, much of anatomy requires that students know how body parts relate to each other, and the easiest way to show this is to draw it. So a basic understanding of drawing should make the process of recording information less frustrating for my students who choose to take notes this way. Second, my hope is that if students are taught how to draw objects, they will observe them more closely and more carefully. Anatomy and physiology, and science, in general, contain many important details that students frequently overlook.

(Developed for Anatomy and Physiology, grades 11-12; recommended for Anatomy and Physiology, High School grades)

08.06.04

Monitoring an Epidemic: Analyzing through Graphical Displays Factors Relating to the Spread of HIV/AIDS, by Heidi A. Everett-Cacopardo

This unit provides the framework for investigating the appropriate construction and use of graphs and generating graphical displays using data sets on HIV/AIDS cases from countries around the world. This unit is divided into two parts that may either be taught consecutively or at different times in the school year. The first section on creating graphs and determining the appropriate graph type for a data set is intended for the beginning of the school. Part two of the unit will be an extension of an established unit on comparing and contrasting population pyramids of developed and underdeveloped countries. The students will first be introduced to epidemiology, and then will learn to use HIV/AIDS databases to extract data in order to develop an appropriate graph using spreadsheet software programs. Students will use their graphing skills to determine the appropriate graphical display to use in depicting data on HIV/AIDS cases in developed and underdeveloped countries. The students will use the graphs to evaluate the relationship they have to the population pyramids of the selected countries. The students will present their graphs and findings in a multimedia presentation.

(Developed for AP Biology, grade 12, and Biology, grade 10; recommended for AP Biology and Biology, grades 9-10 and 12)

08.06.05

The Mind-Body Connection, by Larissa Giordano

This unit uses graphing and diagrams to help students piece together the fundamental elements of the human body and unleash the mysterious aspect of the brain as our body's navigator. Learning, thought, creativity and intelligence are not the sole process of the mind alone, but of the entire body. Human qualities that we often associate with our mind can not exist separate from our body. Our body plays an integral part in our body's intellectual processes through our senses which feed our brain information. We then can draw a better understanding of our world furthermore creating infinite possibilities. Our ability to facilitate greater cognitive function is connected to the body's movements and functions.

This unit examines the relationship between mind and body using graphical displays to chart elements of daily life such as food intake, sleep, exercise and mood. Students will also examine the skeletal, digestive, nervous and respiratory systems. Through a series of inquiry-based investigations students will comprehend that everything we do affects our mental, physical and emotional well being. Students will develop a nutritional awareness which will help them realize how positive lifestyle changes can lead to strong bodies and emotionally stable minds. By the end of the unit students are expected to explain and discuss the body systems and their connection with the brain and understand the greater importance of proper nutrition and its application to their daily lives.

(Developed for Science and Mathematics, grade 2; recommended for Science and Mathematics, grade 2)

08.06.06

The Power of Graphical Display: How to Use Graphs to Justify a Position, Prove a Point, or Mislead the Viewer, by Beth Klingher

In this curriculum unit, students will be introduced to different methods of manipulating data and graphical presentations to prove a point or mislead the viewer. Students will learn to analyze existing graphs to determine whether or not they show a bias. They will learn to question data collection methods and learn how surveys can be designed to promote a specific position or cause. Students will review the calculations behind various "averages" to better understand how different data distributions may alter these averages. They will identify the various graphical techniques often used to prove a point, deceive the viewer or to exaggerate a position. Finally, students will be asked to create a series of their own graphs to prove a point using a variety of data manipulation techniques.

(Developed for Pre-Algebra, grade 7; recommended for Statistics and Graphing, grades 7-9)

08.06.07

Graphics Creation and Statistical Interpretation: Relating Local Economics and the Global Environment, by Jonathan Knickerbocker

This unit is designed for New Haven high-school mathematics students in grades 9-12. The unit addresses the main concepts of the New Haven Public Schools' Probability and Statistics curriculum, and portions of it may be applied to an Advanced Placement curriculum. The mathematical content of study includes descriptive statistics, data representation and graphical interpretation.

Study of the mathematical content is presented in the context of economics and the environment, both at the local scale and the larger scale. Economics is a reality for any citizen, and environmentalism is becoming a part of mainstream American life. Incorporation of economics and environmental study is achieved through focusing student inquiry into the relevant area of economics, such as household budgets, energy and food costs, and the necessary area of the environment, such as climate, weather and food production. All data sets used rely on some aspect of resource or service that affects daily life in one way or another. By studying these phenomena through applying statistics, students should gain a better appreciation for their standard of living, and be provoked to make informed decisions as consumers.

(Developed for Probability and Statistics, grade 10; recommended for Probability and Statistics, grades 9-12)

08.06.08

Exploring the Rhythm of Your Pulse, by Sheila Martin-Corbin

My unit focuses on the effect of physical exercise on heart and respiratory rates and maintaining a healthy lifestyle. The students at my school are immersed in the Arts. Much diversity is evident regarding ethnicity, and socio-economic status. Students are chosen on a lottery basis, from the inner city and suburban towns. Many students in my Human Anatomy class have failed Chemistry 1 and the science section on the standardized CAPT test. My goal is to spark their interest in science by engaging students in inquiry-based activities, relevant to their lives. Those students who failed the CAPT test must receive a B or better in the class in order to graduate. Many of those students regard science as "boring" and find it difficult to make the connections to technology and real-life situations. My goal is to make the connections by doing interdisciplinary hands-on activities, relating to health issues.

My objectives include that students will become motivated to do hands-on-activities and to make the connections with real-world situations. Students will not only make informed decisions about their health, but receive an excellent grade for the course and meet graduation requirements.

(Developed for Human Anatomy and Physiology, and Science, grade 12; recommended for Human Anatomy and Physiology, and Science, grades 11-12)

08.06.09

Are We Couch Potatoes or Busy Bees? Data Analysis of Physical Activity in School, by Nicholas R. Perrone

This unit reaches mathematics curriculum goals for intermediate elementary-grade level students. The unit is an interdisciplinary approach that connects graphical analysis with other curriculum areas including health, science, and educational technology. It should take at least one month so that students are afforded enough time to collect, graph, and properly analyze their own sets of data.

In the unit, students will take a proactive role in collecting data, entering the data into a computer spreadsheet program, creating pictorial representations, and analyzing the data based on the various representations made by the class. The students will create appropriate graphs and/or charts to show the school-wide data over the course of the unit. Since the data will be collected on physical activity, the goal is to encourage the participating classes to compete with one another. This competition will determine which class completes the most amount of physical activity during the unit. The participating students will display the data on a bulletin board where the rest of the school may view it. If portable, this board will be sufficient for a science fair or other science-related activity.

(Developed for Mathematics and Technology, grade 3; recommended for Mathematics, grade 3)

08.06.10

When Will We Ever Use This? Predicting Using Graphs, by Nancy J. Schmitt

High-school students are forever asking, “When will we ever use this?” To a math teacher the critical importance of math skills appears clear. The students’ inexperience makes it difficult for them to envision how they might some day use some of the skills required in the math curriculum. Finding activities that are “fun,” and appropriate to the skill levels of the students, is a challenge for a math teacher anywhere.

This unit will be organized linearly where each lesson builds on itself. Graphing may be done by hand, with computer graphing software, or graphing calculators, depending on the availability of technology to the classroom teacher and the technical ability of the students. Because I teach at a magnet school with a business focus, these lessons will emphasize business decisions. A student’s ability to perform data analysis and present the analysis in a clear format is crucial to good business foundations. It is the intent of this unit to provide the mathematical background to enable the student to produce an appropriate graphical display based on the data analysis. However, the materials and topics will be appealing to the teenager, so that any student will be able to connect with the lessons and see their application to some aspect of their current lives or future careers. The math skills and ideas that are included in this unit are based on learning to read and create scatter plots and line graphs, fit a line to a scatter plot and make simple predictions from data within the scope of the data (interpolation and extrapolation). The skill level is geared to an Algebra I class, but may be adapted to middle school or intensified for Algebra II, where regression analysis of the data by the student may be included.

(Developed for Algebra I, grade 9; recommended for Algebra I, grade 9)