

Curriculum Units by
Fellows of the
Yale-New Haven Teachers Institute
Guide
2003

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Preface

In March 2003, fifty-five teachers from twenty-two 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 and successful model of university-school collaboration that integrates curriculum development with intellectual renewal for teachers. In 1998 it launched a national initiative to demonstrate 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.

Teachers had primary responsibility for identifying the subjects the Institute would address. Between October and December 2002, Institute Representatives canvassed teachers in each New Haven elementary, middle, and high 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 five volumes, one for each seminar. A list of the 160 volumes of Institute units published between 1978 and 2003 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.

This Guide to the 2003 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 1438 units written between 1978 and 2003, and reference lists showing the relationship of the 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 (www.yale.edu/ynhti/).

The Yale-New Haven Teachers Institute is a permanently endowed unit of Yale University. The 2003 Institute was supported also by grants from the Sherman Fairchild Foundation, the Jessie Ball duPont Fund and 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. Geography through Film and Literature

Introduction

Geography is one of the most venerable subjects in the curriculum, hundreds of years old. Film studies is among the newest, introduced widely in universities only in the 1970s and still offered only in certain high schools and junior highs. Not long ago, geography was thought to have seen better days, replaced by "social studies" or by one of the more specific disciplines that thrived after World War II: psychology, sociology, economics, anthropology. Film studies has been suspect for quite the opposite reason: too young, too unproven, of uncertain consequence, it has been deemed a hobby.

Largely because of the effect on education of "globalization," these two subject areas have begun to intersect and, in the process, they have secured a mutual future which our seminar walked boldly into. Geography relates the historical human dimensions of sociology and anthropology to the more timeless conditions studied in geology, meteorology, and economics. The catchword "glocal" (global-local) has recently returned educators at all levels to geography's constant concern not only with the distinctive character of places (local) but to its concern with the (global) relation among places brought about by various types of movement: movement of people, goods, capital, ideas, images. Students from kindergarten through graduate school need to understand facts about other places in the world; but before learning such specific things, they need to understand two primary principles: first, the relation of people to place, and second the interdependence among places. In a way, the return of geography came about in tandem with the tremendous popular interest in ecology, a scientific word that would not have been understood by lay people until 1970 or so. Ecology taught us that all "individuals" (entire species too) depend on each other systematically and that the system, operating in a constantly self-regulating flux, can be altered, skewed, and upset when "individuals" get out of position, when they migrate to new areas or somehow turn up in new places.

The participants in our seminar routinely deal with students (from second grade through twelfth) who need to see themselves in a larger world and who need to understand that their health as "individuals" or as members of a group they identify with depends on the health of the system. Geography today is as much a study of migration, adjustment, and interdependence as it is of distinctive difference. From my perspective, films can be an instrument to bring the "geographical" to life, while the cinema in toto constitutes a model of what geography is all about.

Let me explain this latter claim. The availability of films from around the world has allowed the past two generations to thoroughly scan the world, catching glimpses of other places and noting processes of movement between places. Thus cinema has actively contributed to the renewed interest in geographical issues (more than TV, which is

usually national in its institutional structure and socio-cultural concerns). While the movies were international before being national (the Lumière brothers who invented cinema in the late 19th century immediately commissioned camera crews to capture images in one location and project them in another), the exploitation of cinema's worldliness changed dramatically after 1975. In that year Hollywood successfully experimented with new strategies of global marketing (Jaws, then Star Wars). World distribution was theirs for the taking, the European art cinema having lost its influence after 1968. As an antidote to this Hollywood hegemony, international festivals began to feature films from places previously cinematically invisible. Cannes widened its tiny aperture first to include "le quinzaine des réalisateurs (1969) " and then "un certain regard (1978)" in search of visions and voices beyond the "selection officiel." Specialized festivals sprouted as well, opening screen space to vigorous and spawning yet scarcely known film traditions. FESPACO--devoted solely to African work--was inaugurated in 1969 in Ouagadougou and has increased in size ever since. Montreal's "Festival des films du Monde" began in 1977. It annually screens over 400 films from 75 countries, including Kyrgistan, Myanmar, Kurdistan, and Iceland, while less than 10% of films shown there originate in the USA. Of course festivals like these reach a minuscule audience; and the films shown in these special venues could scarcely inflect box office figures, or the discourse of critics and teachers until the videotape revolution of the 1980s made them potentially available on a wider basis. And so it wasn't until the 1990s that "world cinema" could genuinely become a subject of study - when outlying films could make their way into a new market that included the AV holdings on college campuses and in certain school districts.

And so, while several dynamic cinemas date from the late 70s and early 80s (e.g., Ireland, West Africa, China), *world cinema* as a pedagogical idea and as a research agenda distinct from "foreign films," is really but a decade old. It appeals to teachers fascinated by what lies beyond the usual visual surround of their students, and to those who may have become suspicious of the reach and the narcissism of American popular culture. World cinema is the art cinema of our day; it banks on festivals and criticism, is handled by specialty distributors and has a particular section reserved for it at the video store. Studying films from odd corners of the world quickly shows how they are at once distinct from each other and interdependent on a mobile economy of images. Questions of indigenous source and style, on the one hand, and of "image migration," on the other, arise in ways comparable to geographical questions about populations.

But how exactly should World Cinema be studied? Who is prepared to take it on, and what does it encompass? Encompass, indeed! We need a compass and a map to negotiate the worlds of World Cinema. Film festivals long ago came up with the most basic map as they sought top products to be put in competition each year as in a Miss Universe contest. For a long while the cognoscenti did little more than push colored pins onto a map to locate the national origin of masterpieces. This appreciation of cut flowers adorned film study in its first years but required a more systematic account (call it ecological) of the

vitality of privileged examples. What political atmosphere and cultural soil nourished these films and their makers? Today's impulse--more ambitious because more dynamic and comparative--would track a process of cross-pollination that by-passes national directives and affects the way that films are made and seen everywhere. Might not a dynamic mapping strategy describe the changes in films as they have evolved differentially around the globe? An historical atlas of world film would seem a sensible first step before approaching a territory as confusing as this "field" of study.

These were the considerations behind our seminar. Yet we did not set out to build a gazetteer or an encyclopedia, futilely trying to do justice to cinematic life everywhere. Instead of comprehensive information about any particular place and its films, we were interested in becoming acquainted with a set of *approaches* to world cinema and with the different perspectives one can take. Take an atlas of maps as an analogy. An atlas opens up a continent to successive views figured by very different types of maps: political, topographical, meteorological, relief, marine, demographic, historical. In the seminar we recognized how each approach--each type of map--might tell us something different about films from abroad. Let's sample a couple of these.

A political map. From grade school on students pour over successive shapes of world power: the Greeks, the Roman empire, various barbarian kingdoms, Islam's arms reaching through Africa and girdling Europe. What would a map of cinematic power show? To indicate filmmaking hotspots, imagine a gray-scale of production density that would be keyed to Hollywood figured as a dark constant of about 300-400 strong movies each year. Competitors would be variably less dark: since 1930 France has put out well over 100 features a year except during the German occupation. Japan, more like 300. And India, at least since the 1950s has increased from 300 to its current 890, by far the most productive industry going. The surprise would be Egypt, Turkey and Greece, all making hundreds of films each year until television undercut them. Were one to graph world output at ten year intervals, significant pulsations would appear: Brazilian production, for instance, phases in and out with shifts in government, Hong Kong emerges in the 50s, then dominates East Asia from the 70s; and today there is the powerhouse of Iran. Like Burkina Faso in West Africa, Iran in the 1980s surges ahead of surrounding nations.

Iran and Burkina Faso remind us, however, that national power and prestige in cinema comes more by way of critical assessment and festival performance than by sheer quantity of titles. It was genius filmmakers like Abbas Kiarostami and Idrissa Ouedraogo who put these nations on the map at Cannes. Similarly Edward Yang and Hao Hsiou Hsien raised Taiwan to a par with Hong Kong (they receive equal space in World Cinema encyclopedias) despite Taiwan's modest overall output. Nor can we forget Denmark, which this past decade has become a European colossus compared to Germany despite being outproduced 60 to 16. The political map may be for specialized film teachers like myself, but we learned that it is always useful to try to determine the "scale" of a film culture when assessing the impact of an individual film. Knowing that Myra Nair's

Salaam Bombay was just one of 875 films made in India in 1989 makes a difference. So too does knowing that it was immediately recognized there as something daring and dangerous: a film about the genuine (and genuinely terrifying) conditions of hundreds of thousands of children in South Asia.

A demographic map. Apportioning the world's 3000 feature films per year by place of origin makes the globe appear to spin more smoothly than it really does. For Hollywood's lopsided economic mass (bags of box office receipts returning to it from nearly everywhere but India) pulls it out of true. Such domination of distribution includes both theatrical exhibition and video dissemination (except for the black market economy rampant particularly in Africa and Asia). To represent not the production, but the availability of images region by region, the grayscale no longer suffices. It is too simple. These displays must be chromatic; imagine a map of Spain or Poland or Cambodia with red daubs for Hollywood films playing in theaters and taking up space on video shelves, blue for indigenous images. Speckles of yellow and green would suggest diversity - yellow for images imported from neighboring countries, green for those coming from afar. Take Ireland, the European country with the highest per capita attendance. Lately Hollywood has colonized some 86% of its screen space and time; local productions (up to 30 films a year) garner 3-4%. The remaining 10% come mainly from other common market countries, Britain above all. Now in France, this year Hollywood dipped below 50% for the first time in two decades. The French have a taste for Italian and Asian films, but mainly their own products prevail, set up by intensive promotions and economic incentives. Since the real film wars have been waged less over production than competition for audiences, demographic studies look like military maps, suitable for strategy sessions in the boardrooms of CEOs and cultural ministers. Nation-states have frequently protected their workforce and the minds of their citizens from foreign invasion. Unlike literary production where native product is secure behind the Great Wall of the native language, films from the outset invaded foreign screens.

It is important for American students to understand the power of American images opening up markets in other places. They should also be able to understand the rise of local resentment and self-defense strategies that may appear anti-Americanism. Some of those strategies aggressively try to fight back with images that look very different from the Hollywood norm, images responding to traditional stories, traditional graphic arts, and a distinctive rhythm and style of looking at the world and understanding it. This is what one tastes in looking at good films from abroad.

But this celebration of "distinction" can go too far. When university scholars first began to study foreign films after WWII, they mainly did so inside language departments, assuming that great films were individual creations or else came out of an isolated and self-generating national tradition. To use Franco Moretti's analogy (1), national cinema studies have by and large been genealogical trees, one tree per country. Their elaborate root and branch structures seldom interfere with one another. A world systems approach,

on the other hand, demands a different analogy, that of "waves," which roll through adjacent cultures whose proximity to one another promotes propagation that not even triangulation can adequately measure. Moretti's term attracts one of world cinema's best examples: for the "New Wave" that buoyed French film in 1959 rolled around the world, affecting in different ways and under dissimilar circumstances the cinema lives of Britain, Japan, Cuba, Brazil, Argentina, Czechoslovakia, Yugoslavia and Hungary. Its original undulation in Paris owed much to the Hollywood films that came ashore behind the Normandy invasion of 1944, literally re-juvenating a tired French culture. The New Wave passed first through youth fads in fashion, design and the novel before cresting at Cannes in 1959 where its effects were patently international. In short, you can't study a single film, nor even a national cinema, without understanding the interdependence of images, entertainment, and people all of which move with increasing regularity around the world. The movies are a model for "the glocal."

A cognitive map. Fredric Jameson has adapted the phrase "cognitive mapping" to characterize the ways people in different places make sense of a world so complex that they can't readily visualize the power structures that impinge on them (2). Movies are privileged cognitive maps, since they are made to challenge and assist people in their effort to put the world together, which is precisely what one must do to process a film. "Cognitive mapping" derives from social science; in Jameson's hands it has an explicitly pedagogical, indeed outright political aim: to orient human beings who are literally aimless in the increasingly spatial and cultural alienation of our times. Our seminar deployed this concept to measure the internal experience of any fictional universe: how does a film from another part of the world orient its viewers to the conditions that surround them? How do they literally put the pieces of their world together? One must notice particularities of scope, dimension, pace, focus and detail within the aesthetic center of films. How do different films or different national cinemas orient their spectators to the world? And how do these spectators orient themselves to the "global" films made in Hollywood that are putatively designed with everyone's pleasure in mind? Can American students, even in early grades, imagine what the world looks like through the eyes of an Iranian child? It's worth making the attempt, and the plethora of movies from Iran that feature children as main characters makes this an enjoyable challenge.

Our weekly seminar discussions focused on the films we saw together from a given region (West Africa, Ireland, China, Iran, Australia); we spread out from the film's cues to learn about the social and geographical features of a chosen part of the world; information about the national cinema—the image life-of the populace was disseminated. But mainly we sought to elaborate the kind of concerns, features, values, and resources the films brought up, comparing these to parallel aspects of American life and Hollywood films. The literary heritage of some of the regions made the distinctiveness of the films easier to comprehend (Yeats' poems celebrating the landscape and the sprites of the west of Ireland form a terrific background to films like *Into the West* and *The Secret of Roan Inish*).

Participants launched their own examination of various aspects of film as it relates to geography and history, building the impressive set of teaching units collected here. Some of these examined features of social life in a given region. Kristin Carolla used the movies mentioned just above, and several additional titles, to help students understand Irish culture. A large percentage of Connecticut's population claim Irish ancestry. And since English is spoken in Ireland, one might expect this small island (not much more than twice the size and population of Connecticut) to feel familiar. Yet Carolla finds that a very different relation of people to tradition obtains there. She shows how attentive Irish films are to the features of landscape, suggesting that tradition can be embedded in the land. The abundant stories and legends the Irish are famous for link history and myth to the land and to the sea. Her unit attunes students to exactly this living aspect of geography, challenging them to find stories in their own culture that bring the land to life. David DeNaples broke the continent of Africa, often taken as a single block, into a group of regions with quite distinct climates, economies, and social organizations. Yet all places in Africa underwent the terribly difficult experience of colonization and liberation. DeNaples' unit examines how this dramatic and painful scenario played out in different ways region by region. Many of the troubles currently associated with Africa can be understood as an interplay of history and geography. Films from each region immediately immerse students in the social, historical, and geographical issues that should be known by all Americans, since our own country is comprised of a large percentage of people whose heritage goes back to Africa. Sean Griffin has developed a genuinely exploratory adventure for his students: a study of the places along the Trans-Siberian railway. This legendary railway connects places crucial to Asian civilization; it is also the link between Asia and Europe, starting as it does in St. Petersburg and forking off to places like Vladivostok and Beijing. Griffin has made ample use of the spate of wonderful films from China and the republics of the former USSR. His "stops" along the way allow students to acquaint themselves with the history, literary classics and famous architecture of key cities. Students learn how to prepare for a journey and how to learn from touring - even touring by means of the movies. Crecia Cipriano sampled countries linked not contiguously by a railroad, but linked by a common language: French. Her unit emphasizes the breadth of francophone cultures from West Africa, to Madagascar, to the Caribbean to Quebec. She alludes to Southeast Asia as well, but because it is difficult to find Francophone films from Cambodia, for instance, this part of the "franco" world is not represented. On the other hand, excellent films from her other sites will give her students a sampling of the way French sounds in different places. More important, these films open up the differences and commonalities of life in these amazingly rich cultures. Waltrina Kirkland-Mullins, working with early-grades, has emphasized the narrative traditions in several distinct places: West Africa, France, East Europe. Her students will be exposed to vivid stories from these places, since excellent short films have been made of these. Branching out from the films of the stories, she has prepared materials and planned activities to immerse students in the world and world view of far-away children who are at once very like them and yet whose daily lives are different. This builds the

qualities of curiosity and respect; it also provides a wealth of knowledge about the world to students who might otherwise not look far beyond their neighborhoods.

All of the units produced by the Fellows took advantage of the opportunities afforded by the subject matter of world films and geography to introduce sophisticated notions of diversity and commonality in the human experience. This was a constant concern for teachers working in the richly diverse school district of New Haven. A couple of the units, besides that of Kirkland-Mullins made diversity the focus of their units. Sandra Friday, looking for ways to introduce a broader world to her students, a world more diverse than they had imagined, came upon one of the seminar's crucial theoretical distinctions: that between space and place. Her students will be asked to move concentrically out from their homes and neighborhoods, to the city of New Haven, to the New York City orbit, and then to the wide world (represented by films shot in South America and Australia). She has located films that clearly trace the transformation of a character's understanding of the surrounding world from that of mere place to that of personal space. Her own students will find themselves more comfortable in a larger world if they carefully watch the films she has chosen. In each film, chief characters are confronted with people and places disturbingly different from what they have known.

Yet as the films prove, diversity is something to be approached with excitement, a learning and expanding experience, just as mere places can, through "investment," be transformed into familiar, or at least habitable spaces. Because of her teaching assignment (recently arrived children from non-Anglophone countries) Giovanna Cucciniello's unit is unusually well-tailored to the seminar topic. She goes directly after the goal that all the Fellows shared, that of making the students in her class comfortable with themselves, intrigued by their heritage, and prepared to treat other children with these same feelings of comfort, intrigue, and pride. The films she came to focus on were largely the ones chosen for group consideration, films from other lands seen through the eyes of children-protagonists. Her lesson-plans suggest, as do those of many other Fellows, how the enthusiasm shared by all of us in discussing these films and the peoples and places they concerned, could bubble into the minds of children who have had neither the time nor the opportunity to explore much more than their own experiences. Faced with the same mission, Evelyn Lawhorn will use films as one of several devices to shock her fifth-grade students into recognition of their place in the universe. Her catchword is "scale," the manipulation of which allows her to bring together science, mathematics, geology, anthropology, history, and of course geography. There may not be many films that deal with the origin of life on earth and with the development of homo sapiens, but she has found several; using these together with inventive lesson plans her students will face themselves in a very different mirror, one that reveals their place in a very large schema of time and space. From here she leaps forward eons to the discovery and colonization of the New World by Europeans. Many films are available to her for this portion of her unit. The trick, which she has mastered, is to keep in front of the students' minds the sheer size of the historical enterprise that has resulted in what may all too

easily seem like a small comfortable world of New Haven in the year 2003. Lawhorn's unit should usefully unsettle her students, provoking them to discover a world that her films display as vast and full of possibilities.

Two other units situate cinema and geography within what is a more properly historical framework. Nehemia Levin grabs the undeniable impetus of the Academy Award-winning films *Schindler's List* and *The Pianist* to initiate an inquiry into the origins of anti-Semitism, beginning as far back as Russia in the late 18th century. Keeping a European focus, his unit will let students understand the way Jews in the last century were confined to certain areas of Europe, and were then confined in camps. The story of their persistence as a nation, one that was able to successfully make a claim on a traditional homeland, may serve as an inspiration to other persecuted groups who sense themselves literally pushed around or dispersed. The search for identity can take one into geographies that may be hostile or friendly, but that in any case contain history. The films mentioned, plus many others dealing with anti-Semitism in Europe, "contain" history in just this way. Students are encouraged to locate films relating to the identity of groups they belong to, films through which they can interrogate a personally felt history. James Brochin's unit deploys several notable films to make students palpably aware of the importance and fragility of their freedoms, specifically the freedom from aggressive interrogation that has terrorized peoples in the past. Glancing at the ordeal Joan of Arc was made to undergo, which can be seen as related to the mentality and practice of the Inquisitions of the late Middle Ages, he then turns to America's own history, specifically to the Salem witch trials and to the inquests of the House Un-American Activities Committee of the postwar years. Given the traumatic events of the past few years, students should easily relate such history to concerns for national security on the one hand and the abrogation of personal rights on the other. Geography, history, law, and philosophy come together around what in our country is known as the "Fifth Amendment," something that the arts (drama and cinema above all) make unforgettably present.

Let me close this preview with Angelo Pompano's inventive plan to have his students produce a filmed geography of their own environment, the school where he teaches and where they spend so much of their lives. After studying an important genre of artistic documentary films known as "City Symphonies" (the most notable examples of which date from the 1920s and early 30s), the students will plan and execute their own film. The goal here is the appreciation of film as an artform as it intersects a complex local geography. Just as the cities of Berlin, Paris, and Moscow were viewed through the cinematic prisms of the filmed "symphonies" made about them, why not encourage students to break down the complexity of their own environment in the same way? Let them identify the myriad interdependent aspects of their institution, aspects that go into action from early morning till into the evening. Their own place in the institution will come into focus only as part of the "system" that their film should both identify and model. This film, if properly brought off, will display the "ecology" of a public school

environment through a "symphonic structure" that foregrounds a knowledge of the way a film works as a system, too.

Geography and Cinema are equally systems in which human characters play the most significant but not the only roles. Altogether, in our weekly seminar sessions and in the eleven units developed by the fellows, "Geography through Film and Literature" monitored the relation of the personal to what is beyond the personal. Just as films show that interdependence of the protagonist on other characters, on the setting, and on scarcely visible forces, so students in New Haven must be shown that their lives depend on understanding the network of cultures that surround the globe, understanding the history of those cultures and the way they interact with the features of the earth. A deep understanding of such systematic interdependence is possible in the cinema; it is possible as well in the school situation. If such understanding may ever be possible in global society, it must come through the minds of new generations sitting expectantly in front of screens or in classrooms, absorbing, thinking, then discussing *Life on Earth*, which, by no coincidence, was the first film we watched.

Dudley Andrew

1. Franco Moretti, *An Atlas of the European Novel* (New York: Verso, 1999).
2. Fredric Jameson, *The Geo-Political Aesthetic* (London: BFI, 1992).

Synopses of the Curriculum Units

03.01.01

Teaching Cultural Diversity through Irish Film and Folklore, by Kristin Carolla

Cinema is an integral part in almost every child's understanding of the surrounding environment; the cinema is a means by which students may form an understanding and appreciation for cultural diversity. Cinema can entrance and expose students to a world that is beyond their own limited personal experiences. It is a common thread that connects individuals from varying regions of the world. By having the opportunity to expose students to both film and literature of a different geographical location, one will be able to expose them to a culture that has both similarities and differences in relation to their own. Students will explore the geography, economy, and culture of Ireland through the films, *Into the West*, *The Secret of Roan Inish*, and *The Field*. They will study the physical environment of Ireland and contemplate the ramifications of living on an island exemplified by lowlands, pastures and bogs, as well as understanding the correlation between the geography of Ireland and its influence on both Irish culture and economy. In addition, students will discuss the differences between the Irish folktales that have survived for generations and the American legends that have influenced American children for centuries. It is my hope that if children are exposed to cultural diversity in a pleasurable and educational manner, they will develop greater understanding and compassion for the differences that may exist.

(Developed for Reading and Social Studies, grades 5-6; recommended for Reading and Social Studies, grades 5-6)

03.01.02

Africa, Africans, and Film, by David DeNaples

This unit seeks to understand what impact the Atlantic slave trade had on Africa and the African people, through the analysis of literature and film. At one point in recent history, almost the entire continent of Africa was dominated by the continent to the north. Now there are over fifty unique and independent nations in Africa. The processes by which Africa was first controlled by Europe and then by which it liberated itself was a long and complex struggle of forces historical and geographical, external and internal. It is the goal of this unit to examine the conditions of Africa and African society before this period of domination and the effect this domination had on the African people. Also, this unit will examine how Africa and Africans are portrayed in film.

Many elements and countries of Africa can be addressed in the unit. More specifically, the history of any region of Africa can be taught using this unit. The vast, rich nature of African geography and history insists that the student of history examine each region separately. There can be one consistent theme found in the histories of all regions, however, and that is the history of contact with Europeans and their domination and exploitation of the Africans.

This unit will address those historical themes, using film and literature, as they apply to different regions at different times. On another level, the unit will analyze Africa in film. The students will compare the treatment of the geography and history of Africa in African film versus that in Hollywood's films.

(Developed for World History, grade 9; recommended for History and Geography, grades 9-12)

03.01.03

From Beijing to St. Petersburg: Riding the Rail through Asia via Film and Literature, by Sean Griffin

This unit invites students to join me on a journey that has always been my dream to take. To travel from China through Mongolia and Russia to the edge of Europe would be a fascinating and eye-opening experience. Since it is unlikely that my students or I will ever make the journey, studying this unit is the next best thing. The Trans-Siberian railroad is our main vehicle as we go on a trip that invites the exploration of cultures and landscapes so unlike our own. Students will discover other worlds through the viewing of film and the study of literature. The students are also encouraged to creatively make their own discoveries about these other worlds through the making of their own maps and the keeping of their own travelogues. One of the strong points of the unit is its adaptability.

Teachers have the chance to employ their own materials from film to literature to journeys, and then to focus on areas of interest. I enjoyed creating the unit and hope others will enjoy using it.

(Developed for Language Arts, grade 8; recommended for Language Arts, grade 8)

03.01.04

Cultural Snapshots: Reflections and Illuminations of Francophone Cultures, by Crecia Cipriano

Everybody knows that French is spoken in France, even if some well-meaning but confused students mistake the adjective for the proper noun (as in, "*Have you ever been to French?*") Views of France, especially of Paris, are readily available. But Americans

know less about other French-speaking cultures. This unit will give students a sense of familiarity with the unfamiliar, to push beyond France to those French-speaking countries that often get little more than a surface treatment during middle school French classes.

This unit will serve as an invitation for cultural exploration, as we will use authentic films from French-speaking countries as the foundation for our shared cultural knowledge. In particular, this unit introduces Burkina Faso, Quebec, Martinique, and Madagascar. Initiated by basic information about each country, and augmented by samples of popular music, works of art, selections of poetry, and traditional recipes showcasing dominant crops, these films will illustrate key characteristics of each culture. Our goal is to acknowledge the qualities of each culture as distinguished from each other, as well as from what we know of our own culture. While students are recognizing the differences between cultures, it is my hope that they will also attain an understanding of universal human needs and emotions.

(Developed for French, grades 7-8; recommended for French, grades 7-8)

03.01.05

A Story, a Story: Embracing Geography, Culture, and Diversity through Film, by Waltrina Kirkland-Mullins

If we canvass America's population, we find that for many of us, our ancestries are rooted in Europe, Africa, Asia, South America, and beyond. Imagine taking a journey through cinema and research to explore those countries of origin, experience the terrain, the people, and their adaptation to their surroundings. Perhaps despite recognizing the obvious diversity among cultures, we would make a fascinating discovery: we're not so different after all. We are in fact connected.

This is the primary objective of my curriculum unit.

Targeted at students in Grade 3, the unit introduces young learners to the geographic features of Africa, Asia, and Europe, providing a regional overview of diverse terrain found therein. Students take a closer look at these areas via "cinema excursions" to select locales: Cote d'Ivoire, Senegal, Burkina Faso, China, Southern France, Poland, and areas surrounding the Czech Republic city of Prague. Film selections by locale respectively include *The Beggar of Soutile*, *The Greedy Boy*, *One Drop of Milk*, *Not One Less*, *Le Ballon Rouge/The Red Balloon*, and *Zlateh The Goat*.

Through this exciting blend of geography and realistic fiction and folklore through film, students will (1) view and compare geographic aspects of each country, (2) be immersed in rich language arts experiences, and (3) zero in on common-thread life experiences

found across cultures. Interdisciplinary in content, this unit is written in alignment with New Haven Public School Social Studies and Language Arts standards.

(Developed for Geography and Language Arts, grades 3-5; recommended for Geography and Language Arts, grade 3)

03.01.06

The Geography of Learning: Creating the World through Film and Literature, by Sandra K. Friday

Through various mediums -- film, television, literature, maps, and of course through actual physical contact -- we all "create" our own geography of the world, by the extent of our exposure to it and our ability to imagine it. Largely through the element of "visual literacy," I plan to facilitate my students' learning in both content and skills. The unit will ask students to discuss and formulate opinions about the people who live in the geography of the films and literature we will study, and ultimately, because I am an English teacher, to write about them in a five-paragraph essay.

In this unit, I have divided geography into two categories: that of *place* and that of *space*. The geography of *place* is simply an objective naming of things with which we have no personal relationship: rivers, streets, buildings, countries, and the like. The geography of *space* is defining one's relationship to these objective things when they become part of our lives; it is a subjective consciousness of how people adapt to and live in these places. This eight-week unit will give students the opportunity to develop their geographical literacy, commencing with the exploration of their own neighborhoods as both *place* and *space*, and then widening the circle to take in all of New Haven, and then, through film and literature, expanding the circle to include New York City, Brazil and, finally, Australia.

(Developed for Seeing the World through Film, English and Social Studies team, grades 9-12; recommended for grades 9-12)

03.01.07

Experiences of Diverse Populations via Film, by Giovanna M. Cucciniello

This unit will examine and introduce diverse populations through a variety of films allowing students to develop a sense of the social value of diversity, respect for and interest in its various expressions. The ultimate goal of the unit is to create socially conscientious students who are able to see via film that rich expressions can come out of restricted material circumstances. As future adults, these students are capable of desires for a better society. Through film, we will interpret the experiences of diverse populations

that have suffered as a result of migration patterns. Many of the films concentrate on children and their movement from a rural environment to an urban setting, in search of work and family. They are often portrayed as victims of society's ills yet many survive this bitter episode in their life. An auxiliary aim of this course is to teach students to become more "visually literate"; to learn to see the world in a new way. Through the analysis of how visual and verbal meanings are culturally constructed, students should become better able to "read" and critically evaluate both film representations and written accounts of human behavior.

(Developed for ESL Intermediate, grades 9-12; recommended for ESL Intermediate, grades 9-12)

03.01.08

Geography through Film: The Scale of Things, by Evelyn Lawhorn

You could take a picture, look at a painting, or read a book, but it still wouldn't capture what you will get out of film. Feature and non-feature films are awe-inspiring, especially with their geography. Geography through film is three-dimensional: scenes have length, width, and height, and you are taken there. Ah! the places and locations you can go are: distant lands, open seas, the top of the highest mountain, the coldest black depths of the oceans, the eye of a storm, beyond earthly boundaries, soaring skies, and plains of unimaginable realms.

You can travel not interacting, but reacting. Geography through film stimulates your senses and keeps your attention. The color, animation, excitement, and dramatization can hold audiences captive. Visually geography plays a big part in film, from breathtaking, unparalleled, panoramic vantage points, to roaring, thunderous, deafening waterfalls, or tumultuous, sinister, overcast skies. Geography through film can show how enormous and boundless regions, locations or places are. Geography through film can also show human ideas, economy, social structures and environment. Through film and geography, I plan to use scale as my underlying theme. Scale in geographical terms means the size of one thing compared to the actual area. Scale is different from map to map depending on the information. In films objects can be scaled down to seem smaller or scaled up to create something larger. Non-feature and feature films alike play with scale.

Come with me on a journey taking your students from the universe to their backyard using scale.

(Developed for Social Studies and Science, grade 5; recommended for Social Studies, grade 5)

03.01.09

Anti-Semitism: Origins and Background, by Nehemia Levin

In the earlier part of the twentieth century producers like the Warner Brothers realized the fascination that both young and old have with films. The impact on high school students today is no different.

To balance students' frequent lack of knowledge about other minorities and cultures, this writer believes that it would be beneficial for high school students to have a curriculum concerning anti-Semitism in modern history. A curriculum with three lesson plans concerning this subject would be unique in comparison to the average history or civics class. It would be an attention-grabber, a requirement when working with students who are not academically motivated.

This curriculum study encompasses the Jewish experience in Europe and the emergence of modern anti-Semitism in the 1880's. It includes *The Protocols of the Elders of Zion*, the Dreyfus Affair, Babi Yar, and the Holocaust, seen through the camera lenses of five films: *Long is the Road*, *Schindler's List*, *The Pianist*, *Mr. Klein*, and *The Homicide*.

The Jewish response to anti-Semitism includes such noted writers and poets as: Chaim Nachman Bialik, Leon Pinsker, Yevgeni Yevtushenko, and others. Finally, three high school lesson plans are included for students.

(Developed for History and Social Sciences, High School grades 10-12; recommended for History and Social Studies, High School grades 10-12)

03.01.10

How Fear Threatens Freedom, a Thematic Approach: From the Inquisition to the McCarthy Era, by James P. Brochin

This unit evaluates the effects of fear on civil liberties: fear of heretics, witches, anarchists, and even of our fellow citizens. We will study the Medieval Inquisition and its persecution of heretics, the English Libertarians, the Salem Witch Trials, the Cold War, and the McCarthy Era. Our constitutional protections have been endangered numerous times since the Bill of Rights was passed. The McCarthy Era presented a dangerous, and perhaps unique, challenge to American liberty. It was becoming risky to have political opinions if these opinions varied from the strict anti-Communist line. We will study the blacklists, the House Un-American Activities Committee, the Army-McCarthy hearings, and the courage of many. The students will evaluate the effects of the events of September 11 and the wars in Afghanistan and Iraq on Americans' views on civil

liberties, particularly the civil liberties of non-citizens. We will make extensive use of primary source documents, literature, documentary, and feature films.

Some of the films will be *The Crucible*, *The Invasion of the Body Snatchers*, *Point of Order*, and *Saint Joan*.

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

03.01.11

The City Symphony: The Original Reality Show, by Angelo J. Pompano

The City Symphony, whose roots go back to the everyday images recorded by Auguste and Louis Lumière in the 1890's, came into being with *Manhatta* in 1921. City Symphonies are motion pictures that capture the spirit and uniqueness of a city by assembling images of everyday life in that city. The genre comprises silent, black and white, avant-garde films that took the documentary film a step further by putting it in the realm of the art form. As in a symphony, they have movements that vary in pace and intensity. These movies bombard our sight with images of a city (images that often are quite surrealistic) in order to capture its heartbeat and expose its soul. This genre of film, usually made by experimental filmmakers such as Dziga Vertov and Walter Ruttmann, was a perfect marriage of the medium of filmmaking and the subject matter of cities, since both were products of a 19th century modernity that peaked in the 1920s.

This unit allows students to create a video documentary of their school in the style of the City Symphonies. As with the original City Symphonies which were as much about artistic creation as they were about documenting urban society, this unit is as much about creating art as it is about comparing the intricate social system of a school to that of a city.

The students will record the many "behind the scenes" activities that go on between the time that their breakfasts are delivered in the wee hours of the morning and the late night PTO meetings that go on long after they have gone home. They will see that these activities come together as do the movements in a symphony, to give them a quality education.

(Developed for Video Production, grades 7-8; recommended for Video Production, Social Studies, Art, and Music, grades 7-8)

II. Everyday Life in Early America

Introduction

The seminar was designed to present, and explore, a variety of themes related to ordinary 'everyday' experience in the premodern period of American History. For practical purposes, 'premodern' was taken to mean before the Industrial Revolution of the early 19th century. The sequence of topics---arranged on a week-by-week basis---moved from the general to the particular, and the structural to the personal.

After an introductory session in which we considered questions of 'evidence and inference' in historical work, we began our substantive agenda by considering the environment encountered by the first European 'settlers' of North America, and their developing interaction with it. At the same time, we contrasted European patterns with prevalent Native practice in this respect. Our next session took up issues of demographic history, including the catastrophic experience of Native groups in the face of 'foreign' disease pathogens, and the growth of an increasingly diverse---indeed multiethnic and multiracial---population throughout the British colonies.

From this we turned to questions of politics and society, broadly understood: the characteristically premodern 'consensus' approach to governance (so different from our own), the extent and use of the suffrage, the role and responsibilities of leadership, the widespread acceptance of class-based hierarchies, the development nonetheless of social mobility, and the tensions confronting traditional community models when situated in a 'new' context. This led directly to our next topic--the 'moral economy' of premodern times, and attendant factors of labor scarcity, subsistence as well as cash-crop production, and the faint, first stirrings of capitalism. We concluded the more 'structural' part of our agenda by investigating the prevalent cultural system, including literacy and print communication, information networks, education, and the centrality of face-to-face encounters.

Our remaining sessions were devoted to more 'personal' aspects of premodern history-- to individuals' experiences within the structure of society. Thus, for example, we examined the circular dimension of work and family (geared, as virtually all of it was, to the daily cycle, the seasonal cycle, and the life cycle). We then turned in a direct way to questions of race and gender. We considered, in particular, the forced introduction of African-American laborers (and their subsequent enslavement), and the step-by-step accommodation of Native groups to British (and European) dominance. We also explored the experience of early American women within an everyday regime of 'flexible patriarchy.' Our concluding topic was cosmology---all the ways in which early Americans sought to make sense of their world (including religion and magic, witchcraft and Providence, and various forms of practical knowledge).

We traveled this route through shared readings and discussions. We sampled both secondary and primary sources, insofar as possible; the latter included material artifacts brought both by the seminar leader and by the Fellows. The leader did some lecturing of an informal kind, but there was ample time as well for discussion.

Of course, too, the Fellows were at work from the beginning on their individual curriculum units. And, as the seminar proceeded, these were shared with the entire group. The final array, assembled in this volume, was impressive. Topics addressed in these units include death and dying, early childhood, Native American women, cultural practices of the Plains Indians, and the early history of New Haven.

John P. Demos

Synopses of the Curriculum Units

03.02.01

Death and Dying in Puritan New England: A Study Based on Early Gravestones, Vital Records, and other Primary Sources Relating to Cape Cod, Massachusetts, by Stephen P. Broker

This curriculum unit uses several types of primary and secondary source material concerning the colonial period of New England to teach high school students about everyday life in early America. It describes a research program to investigate Puritan worldviews and beliefs about death and dying. The research program includes a study of New England gravestone carving and the use of imagery on the early gravestones found in Cape Cod, Massachusetts burying grounds. Using vital records of the colonial period for Cape Cod towns, connections are made between the information available from gravestones and human demographic trends in seventeenth century and eighteenth century Cape Cod.

The source material used consists of:

1. Five hundred gravestones from seventeen of the earliest burying grounds at Cape Cod, Massachusetts, and a set of eight hundred color photographs of these gravestones;
2. An extensive database of vital statistics on Cape Cod colonists assembled from the gravestone texts;
3. A collection of published monographs on gravestone iconography that includes numerous photographs of gravestones from throughout New England;
4. Published vital records for each Cape Cod town, compiled by the towns and by the Society of Mayflower Descendants;
5. The sermons of Increase Mather, Cotton Mather, and Jonathan Edwards, three prominent religious and spiritual leaders of the New England colonial period.

(Developed for Honors Anatomy and Physiology, and AP Environmental Science, grades 11-12; recommended for Anatomy and Physiology courses, and AP Environmental Science, High School grades)

03.02.02

Our Side of the Story: African Americans Share Their Experiences of Slavery, by Lorna Edwards

African American history is more than slavery, emancipation, and the civil rights movement. In this interdisciplinary unit, students will visit the story of the African Diaspora and find out what people of African descent did for themselves despite the hardships they endured during slavery. As students conduct research, they will focus on

examining autobiographical accounts of slaves in order to learn what it was like to be a slave in North America. A portion of the research will focus on the African American subculture in eighteenth century New England.

The unit will begin with exploring the use of oral tradition of folktales in order to gain a better understanding of how slaves maintained their pride even though there was much pain. Students will embark on an imaginary journey through role-play so that they will be able to empathize with the slaves' experiences. As students demonstrate literary skills required to identify and analyze visual, oral, and written sources related to slavery in the North America, they will also enhance their listening and note-taking skills. It is my intention that upon completion of this unit, students will learn how point-of-view influences our understanding of history. Hopefully, they will also gain a new perspective and greater appreciation for people living in a world different from theirs.

(Developed for English Language Arts, grades 7-8; recommended for Reading, Language Arts, and Social Studies, grades 6-8)

03.02.03

Plains Indians: An Interdisciplinary Unit of Study, by Erica Forti

This unit is designed for first grade; however, it could be adjusted to meet the needs of students in kindergarten or second grade. The unit focuses on Plains Indians and the aspects of their lives that many of us find interesting and are fascinated with. The unit allows children to connect to Plains Indian culture through various activities that relate to writing and sources of communication, transportation and the introduction of the horse, food sources such as the buffalo, beading, and the importance of corn. The unit is designed to give students the opportunity to learn about the Plains Indian culture through various learning experiences and is designed to give the students the opportunity to go home with a product representing the material covered in the lesson. The unit is rich with children's literature, and each lesson involves a book that relates directly to the subject being taught.

(Developed for grade 1; recommended for grades K-2)

03.02.04

History of Early New Haven: A Connection to Our Past, by Thomas O'Connor

This unit of study is designed to give an overview of the early history of New Haven. The unit focuses on particular social, economic, and other historical events that helped transform New Haven from a colonial Puritan settlement to a diverse and growing city. The intention of this unit of study is to provide a skeletal structure whereby teachers are able to incorporate local history into the existing United States history curriculum.

The unit provides an overview of New Haven history in four parts: 1) the settlement of New Haven, with a focus on Puritans and their relationship with the local Native Americans; 2) the development of Puritan society, Puritan values and characteristics that shaped a new town; 3) colonial New Haven during the American Revolution, with an emphasis on the invasion of New Haven; 4) post- revolutionary New Haven, with a focus on the evolution of New Haven from a rural seaport town to a city.

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

03.02.05

Native Americans of the East Coast: With Special Reference to Iroquois, Pequot and Powhatan Women, by Malini Prabakar

The purpose of the unit is to introduce fifth-grade students to a proper understanding of Native American women on the East Coast with special reference to the Iroquois, Pequot, and Powhatan -- and to dispel stereotypes. Judgements on Native American women were based on Anglo-Saxon and European attitudes, customs and standards. In reality, Native American women shared power with men; they owned property and household goods and houses; they participated in social and cultural history. Many tribes were matrilineal, with the line of descent traced through the mother.

Students will differentiate between primary and secondary sources. They will develop their research skills via books and the Web. They will be inspired to think of Native American women today, some living in isolation to maintain their cultural identity (reservations) and others living in the outer world to enjoy the social and economic benefits of "acceptance" (assimilation). Students will also realize that all women, whether they are Native Americans or British colonists, have roles as daughters, sisters, aunts, mothers and grandmothers.

(Developed for Social Studies, grade 5; recommended for Middle School Language Arts, Social Studies, and Social Development, grade 5)

03.02.06

Child Life in the New England Colonies, by Jameka K. Sayles

This is an interdisciplinary unit designed to give students an understanding of the lives of children in colonial New England. The unit can be best used to help fifth-grade teachers because it is directly in line with the early American history teaching requirements.

Students will be actively engaged in using primary and secondary sources to form questions and opinions of what they read. Students will use their lives and experiences to make comparisons to the lives of colonial children. Through these comparisons, students will gain a better understanding of both similarities and differences across time.

(Developed for Social Studies, grade 5; recommended for Social Studies, grade 5)

03.02.07

Home Skills of Early America, by Barbara K. Smith

This curriculum unit, which addresses everyday life in Early America, is intended as an integrated Family and Consumer Sciences (Home Economics) and Social Studies unit for grade five. My specialized knowledge of home skills, combined with the historical research generated from the Yale-New Haven Teachers Institute, will create synergy in classroom instruction. It is my hope that this synergy will create a living representation of colonial children and bring their practical pastimes into the lives of our New Haven students during their studies of American colonial history, enriching their learning experiences.

This unit is planned to have students learn about the foods and preparation methods of the past, and also to allow them to taste the foods and use some colonial utensils for representative recipes. This unit will show them the kinds of clothing that were worn, but also will allow them to feel the fabrics and try on some reproduction garments. Hopefully they will learn how to do some of the stitching that the colonial children had to learn. Students should be shown and be able to handle varieties of natural items which were used to create games and crafts.

They will then be able to play some games and make some crafts. Each lesson will include activities, demonstrations, projects and a take-home packet.

(Developed for Social Studies, grade 5; recommended for Social Studies, grade 5, and Family and Consumer Sciences, grades 5 and 8)

03.02.08

Leaving England and Coming to New Haven with John Davenport, by Sheila Wade

This unit attempts to clarify the motivation of the settlers in New England. A brief description of the rise of Puritanism and the political climate of England is included. It is designed for a fifth-grade curriculum. However, I believe the back-ground information will be useful for anyone teaching early colonial settlements. The concepts of covenant and charters are discussed. The motivation for the settlements in New England were driven by the exodus of the Protestants from England. The early settlements and the

government of those settlements had much to do with the Puritans' belief in the Covenant with God. The journey and arrival of John Davenport is described. The contract that John Davenport made with the Indians is an important part of the lessons. I believe the annotated bibliography is especially helpful.

(Developed for Social Studies, grade 5; recommended for Social Studies, grades 5-9)

III. Representations of American Culture, 1760-1960: Art and Literature

Introduction

Our 2003 Seminar was entitled "Poems on Pictures, Places, and People." We studied poems on those topics in roughly that sequence, supplemented by poems suggested by the Fellows. After introductory sections on the definition, overall history, and technical aspects of poetry, we devoted one meeting entirely to children's poetry from the eighteenth to early twentieth centuries chiefly selected from *The Oxford Book of Children's Verse*. We continued with three weeks each devoted to traditional and contemporary poems on pictures and other art objects (ecphrastic poems), on places (or the sense of place), and on people (and animals or other things or ideas speaking or addressed as people). These categories allowed us to consider the following broad themes, respectively: the orientation of poetry to other modes of expression; the orientation of poetry to the surrounding world; the orientation of poetry, as voiced utterance, to its audience and to social themes. As occasion arose, we discussed the genres and forms of poetry. During the last two sessions, we discussed additional poems brought in by Fellows and returned to a list of technical terms that had been distributed at the outset by the seminar leader.

Apart from a few of the technical terms such as metaphor, alliteration, and personification, however, this was not a subject matter that was likely to find its way by any direct means into the teaching plans of public school teachers—with the exception of one Fellow who was preparing twelfth graders for their Advanced Placement exams. We can naturally hope that our discussions exerted an indirect influence on the curriculum units that follow, and on their authors' way of reading of poetry; but their main concern from the beginning, quite understandably, was the practical business of preparing material that would be suitable for their students and their State-mandated teaching objectives. Indeed, from the time the first drafts were submitted, we set aside much of our time to the presentation by each Fellow in turn of their unit material. During these discussions, the degree of cooperation, mutual interest, and constructive suggestion among the Fellows was truly remarkable.

From these discussions alone (and from the units that follow), one can arrive at certain useful generalizations about the practical benefits of teaching and learning poetry at the successive grade levels. In early primary grades, the strong rhythms, recurrence of sound, vividness of imagery, and memorability of verse enhance and accelerate the language learning process, especially that part of the process that builds up clusters of kindred words. Cognitive and moral development through poetry is also brought in at this stage (e. g., music, science, geography, thoughtful behavior), but the emphasis remains the medium of language. The energetic and memorable qualities of verse

continue to make poetry useful for teachers in the later grades, but the emphasis changes to content. In the fifth through middle school grades, reading and writing poetry would appear to be useful mainly as a memorable means of teaching "across the curriculum" and modeling social roles. This emphasis continues through the high school grades except, again, where the emphasis is on college preparation. At this level, something like a balanced understanding of poetry as a unique medium of communication featuring the complete interdependence of form and content can begin to be conveyed.

Teaching Poetry in the Primary and Secondary Schools

To acknowledge the practical emphasis of all our participants, then, I have arranged the units that follow quite simply in order of grade level. As will be seen, this arrangement results at the same time in a grouping by theme. We begin, then, with the reunion of the "Beecher School Team" that participated in this seminar when I led it ten years ago. (The end-of-the-year performance at the Beecher School that built on work done in that seminar was written up the following year by Jean Sutherland and me in the Teachers Institute newsletter, *On Common Ground*.) Using her celebrated voice puppets to animate the material, Geraldine Martin presents a unit for first graders and up on the poems of Jack Prelutsky, one that touches on broadly related activities (such as dance) even beyond those mentioned above. Beecher music teacher Thomas Sullivan uses a sequence of Mother Goose rhymes to introduce the rudiments of musical understanding to third graders. Interested teachers will wish to read his initial remarks on the differences and similarities between music and poetry in the history of education. Jean Sutherland, who completes the Beecher Team, offers a unit on Shel Silverstein for slightly older students, emphasizing not only the poetry but the books of prose and illustration. Her sequence of lesson plans shows how one poem can be adapted to a variety of teaching purposes. Next, Christine Elmore offers a unit on three women who write children's poetry: Karla Kuskin, Valerie Worth, and Patricia Hubbell. Teachers will find her references to the secondary literature on teaching the reading and writing of children's poetry especially helpful. Zoila Brown teaches fifth grade in an environment that emphasizes "across the curriculum" teaching, and accordingly offers a unit on "making connections" through poetry with science, history, social studies, performance---and with other people. Amber Stolz teaches in a small high school that emphasizes character development, and she accordingly chose to present the work of Maya Angelou, whose many autobiographies and high profile make her an interestingly complex role model. Amber uses a sequence of poems to develop a sense of Maya Angelou as a person. Mindi Englart presents a carefully-researched unit on teaching rap music to grades 9-12. She emphasizes positive, socially constructive lyrics by Nas and others, but does not overlook the socially aggressive side of rap (giving advice on how to approach the raw

language and violence), and connects this form with other traditions of dissonant poetry. Susan Santovasi has devised a unit for grades 11-12 concerning poems of protest and political commentary, focusing especially on reactions to war, from the Revolutionary War to Vietnam and the Gulf Wars. Like Englart, she moves into music lyrics in exploring modern protest, but also devotes much of her time to traditional poems. Dina Secchiaroli finally is the teacher above-mentioned who is preparing her students for the Advanced Placement exams, and offers a unit modeling how this might be done, offering a wide variety of poems and genres (traditional and recent), keeping in mind actual questions asked on recent exams, and giving examples of "close reading" techniques.

Together, these units truly reflect what it might be like to teach poetry from grades K-12, and memorialize an enjoyable and interesting seminar. We do hope to have offered something of interest for all poetry teachers.

Paul H. Fry

Synopses of the Curriculum Units

03.03.01

Willie Sunday Takes Us on a Journey of Reading and Writing with Humorous Poems by Jack Prelutsky, by Geraldine Martin

In my unit I use strategies in which poetry and the art of puppetry can be integrated into a unit that will provide students with sample poems by Jack Prelutsky, plus writing tips, strategies, and challenges to help them create their own poetry. In other words, students will learn how to shape their ideas and words into creative, descriptive, and silly poems by using Prelutsky's poems as models for their writing. In addition, the poems will generate themes that the children will use for writing expository essays in class.

Willie Sunday, a classroom puppet, will encourage the children while reading Prelutsky's poetry to see themselves, their surroundings, community, and family in his writings. It is my intent for the children to capture these same feelings in their own writings.

The unit will include activities suitable for children in kindergarten through third grades with an emphasis on literacy and writing for the first-grade child. Along with reading and the language arts, the lesson plans will cover curriculum areas such as social studies, science, drama, and art.

(Developed for Reading and Language Arts, grade 1; recommended for Reading and Language Arts, grade 1)

03.03.02

Music and Poetry, by Thomas Sullivan

This unit combines ideas from music composition with poetry learning in an effort to help students write poetry. Nursery rhymes will be used to model the concepts and to incite the class to write their own work. The students will learn the nursery rhymes and then accompany the recitation of the rhymes in at least three broad methods. The first method will be to clap the syllables of the rhyme while one part of the class recites the verse. The second will be to accompany the nursery rhyme in a more traditional way, using our voices to inflect rising and lowering sounds, or clapping at certain actions, while the verse is being recited aloud. The third concept will be to highlight whatever actions of the nursery rhyme we can by imitating the sound of that action (while the poem is being read). In each case we are not only reciting the nursery

rhyme, we are performing it. The goal is that this process will help the students to write their own poems so that we can perform them in the manner described.

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

03.03.03

Using the Poetry of Shel Silverstein to Further Develop the Narrative, Expository, and Poetic Writing Skills of Elementary Students, by Jean Sutherland

This curriculum unit has been developed to use the poetry of Shel Silverstein to motivate students to write poems, create narrative pieces, and develop expository essays. Along with his works of prose, which are praised by many, Silverstein has written a number of books containing his poetry. These books include *Where the Sidewalk Ends*, *A Light in the Attic*, and *Falling Up*. His collections are quite popular with young readers. He creates his own illustrations to accompany most poems. These intriguing sketches serve to attract and delight the reader while giving additional insight into the poem's content and message.

The unit is designed for fourth through sixth grade, with the possibility of modifying it for older students. Its primary objectives aim at developing language arts skills, but they also focus on social development topics. Although the unit stands independently, it will be taught as part of a team involving two other teachers who have taken the same seminar.

(Developed for Reading, Writing, and Speaking, grade 3; recommended for Reading, Writing, and Speaking, grades 3-6)

03.03.04

Presenting Poetry to Children: Poems That Delight and Excite To Write, by Christine A. Elmore

In this unit I plan to engage my young students in both the reading and writing of poetry. I have found that children are very open to poetry and naturally like it. They don't require encouragement to read, consider and reflect on well-selected poems read to them, or to enjoy those they themselves read. I see poetry as an effective vehicle for teaching my third-graders to develop skills in oral language, reading and writing

Within my curriculum unit I will include poems written by three popular children's poets: Karla Kuskin, Valerie Worth and Patricia Hubbell. Their poetry has great appeal for children, I think, because of the simple, everyday subjects they write about and the

beautiful pictures that they paint with words. This unit will be interdisciplinary in scope, incorporating the teaching of reading, listening, writing, speaking, creative movement, music, and art skills into its design

Although I have designed this unit with my third-graders in mind, I am confident that it could easily be adapted by teachers to suit the K-2 grades, and possibly grade 4 as well.

(Developed for Reading, Writing, and Language Arts, grade 3; recommended for Reading, Writing, and Language Arts, grades K-4)

03.03.05

Making Connections Across the Curriculum through Poetry, by Zoila M. Brown

This unit is designed to provide English language arts teachers with strategies and activities that use ballads, narratives, and free verse to make connections with themes across the curriculum. The unit is specifically designed to fit the content standards and objectives of the fifth grade curriculum; however, the creative teacher may make modifications for other grade levels or incorporate particular aspects in other disciplines. Also, a group of teachers of various disciplines may use this unit as a collaborative effort.

The approach includes a mixture of analyses and syntheses that teachers may use to stimulate high-order thinking. The analytic approach focuses on the identification of some types of rhymes and rhythm and a distinction between similes and metaphors. Further analyses that include dissecting will not be the focus at this grade level. Nevertheless, the unit encourages oral discussion and written responses based on the three broad objectives of the Connecticut Mastery Test (CMT). These objectives are initial understanding, developing an interpretation, and demonstrating a critical stance. The syntheses will be done after the students carry out research on various themes relating to poems on pictures, places, and people. The teacher will guide the students toward combining the facts and ideas to compose their own poems during poetry writing workshops. The unit is also intended to provide activities that teachers can use to help students appreciate and enjoy poetry.

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

03.03.06

Analyzing Maya Angelou's Poems as a Window into Her Character, by Amber Stolz

Faced with a school philosophy of 'character development' and students that have low reading levels, I had to come up with a way to provide poetry in a form they would be interested in. I chose Maya Angelou as a focus. Her life story is interesting and not without incidents. Her poems can be explicit, but are written on a level that is easily understood. Her content is such that students will be able to use prior knowledge to build from.

This curriculum was written for students in high school. The focus is on the analysis of character traits that Angelou suggests in her poems and on using techniques shown in her poems to create poems. This unit is designed to be a non-threatening entrance into the study of poetry. The curriculum examines six of Maya Angelou's poems and how they could be used in a classroom. This curriculum is easily adaptable to meet many of the state standards.

(Developed for Character, High School grades; recommended for Character and English, High School grades)

03.03.07

Rap as a Modern Poetic Form, by Mindi R. Englart

This unit is designed to make poetry relevant, accessible, and fun for today's high school students. The unit exploits student enthusiasm for rap music and teaches how rap is indeed a modern poetic form. Young people naturally respond to the rhythms and rhymes in rap. They learn, sing, and dance to poetic structures without even knowing it! Lesson plans are designed to help students analyze and write rap songs. In order to do this, students will engage in the understanding of poetic elements (allusions, similes, metaphors, repetition, rhyme, rhythm, meter, etc.). They will learn to write in a variety of poetic forms (skeltonic, narrative poem, elegy, lyric poem, cento, and free verse), all of which have characteristics in common with rap.

But this unit takes students beyond form. Lesson plans show students how common themes in rap are indicative of the problems, as well as the vehicles for empowerment, visible in our urban cultures today. Students will develop critical thinking, reading, and writing skills as they study famous political speeches, poetry, and rap, from such notables as Martin Luther King, Jr., Gil Scott Heron, and Nasir Jones. Students will

play numerous learning games and will read, write and perform poetic works in order to develop confidence and a voice with which to be active and empowered leaders in their communities and in their lives.

(Developed for Poetry and Publishing, grade 12; recommended for English, Creative Writing, Poetry, and Literature, grades 9-12)

03.03.08

Poetry: The Medium of Choice for Political Unrest, by Susan Santovasi

Why do we still produce and value lyric poetry? This unit will explore one way that poetry allows people to express their views regarding a subject that affects everyone: politics. Political poetry has a long-standing tradition in American and world history. As each dynasty and civilization developed and collapsed, poets with political opinions were memorializing the events. As early as the first settlers visited America, poetry became a clear medium for people to express their political views. Colonial poets used political poetry to convey their patriotic pride as well as their uneasiness concerning the impending war with England.

During the First World War era, poets were quite vocal in their views about war and its effects on generations of soldiers. More recently, poets have begun to voice their beliefs far more outspokenly than their predecessors. During the 1950s and 1960s, poets--and songwriters too--did not simply speak their views to listeners and readers; rather, these poets screamed their pride in or disgust with America. At a time when the world seemed overwhelmed with chaos, poetry-- even in song form--became an outlet of choice for those who needed to vent their frustrations and fears. Although this response was not created by the hippie generation, it sparked a new acceptability for these anti-establishment poems.

Our more recent political unrest has prompted a new resurgence of the genre. The Gulf War era has reintroduced political poetry through both poems and songs. The controversy concerning political statements by artists is no less intense today than it was over two hundred years ago. There remain our loyal patriots and our conscientious objectors. The irony is that the patriots and the objectors share a common goal: the safety of their brethren. In the modern age, the fine line between them can mean the difference between an artist's name on an award nominee list and on a black list.

(Developed for AP English, grades 11-12; recommended for English and Creative Writing, grades 9-12, and Language Arts, grades 7-8)

03.03.09

Post-War Poetry in the AP Classroom, by Dina Secchiaroli

This unit is written for the AP English Literature and Composition class, but it can be modified for any English class. There is an explanation of the New Critical Method of literary analysis and examples of explication and close readings. The main text I use in class with the students is Perrine's *Literature: Structure, Sound, and Sense*, as well as *The Norton Anthology of Poetry* and information about poetry from *The New Princeton Encyclopedia of Poetry and Poetics*, a good source of definitions for poetry terms as well as criticism. This unit will be my introduction to poetry, to be taught within the first two months of school. Most poems for this unit will be from the post-World War II era, but I'm including some poetry from past writers who have influenced current writers. I will organize the poems into the following thematic sections: Confessional Poems by Elizabeth Bishop, W.D. Snodgrass, Robert Lowell, Anne Sexton, John Berry, and Sylvia Plath; and Socio-Political poems by William Blake, Gwendolyn Brooks, Adrienne Rich, Philip Larkin. The following formal types are also explored: Free Verse by Walt Whitman, Gwendolyn Brooks, Seamus Heaney, and William Carlos Williams; Villanelles by Elizabeth Bishop, Dylan Thomas; Sonnets by Shakespeare, Jonson, Gwendolyn Brooks, Richard Wilbur; and Dramatic Monologues by Tennyson, Browning, Hollander. Of course, I will help the students acknowledge that many of the poets and poems overlap within these categories. It is important that students recognize this, since poetry does not exist within a vacuum.

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

IV. Energy, Engines, and the Environment

Introduction

Many of our experiences in daily life are with physics. The light and colors we see, the sounds we hear, the bridges and structures we traverse, and the multitude of electronic devices we (sometimes) love all derive from physics.

This seminar has explored the physics of everyday life, and connections to other subject areas. The physics topics are diverse--ranging from the Wright Brothers' first flight to sound and hearing, to advertising of simple machines. Other topics include cell phones, mechanical machines, physics in the 24-hour day, and light. The connections to other subject areas are also very diverse. The experience of a Chinese immigrant kite-maker is explored in the context of the first powered flight. Light (luz) is seen in poetry, accessible to bilingual students. And hearing is explored with the assistance of a student who experiences real hearing impairment.

The units are both fun and instructive, and serve students from first grade through high school. They emphasize inquiry-based learning of science, using fun experiments to engage the students' interest. The units in this seminar meet educational standards that range well beyond traditional boundaries of physics, into literature and social studies. Significant material is also drawn from the World Wide Web, to supplement even further the development of rich classroom experiences of science.

Daniel E. Prober

Synopses of the Curriculum Units

03.04.01

Luz: Poetry and the Physics of Light, by Abie Lane Benítez-Quinones

This unit introduces the physics of light utilizing concrete poetry. Poetry and physics are complex concepts for first-grade students; in an attempt to enhance student performance, I have combined both. The concept of light as an everyday phenomenon makes this very abstract topic easier to understand and relevant.

Utilizing hands-on activities, simple demonstrations and learning centers this unit explores the sources of light, properties of light and human receptors. The use of concrete poetry establishes a visual context for the physics of light. My students include English and Spanish-dominant students participating in a two-way immersion program that promotes scientific inquiry. This physics unit was developed in order to enhance the science curriculum in first grade. As a curriculum and staff developer I will implement this curriculum as part of my modeling and coaching for teachers in the classroom. For three weeks for approximately a one-hour period I will meet with my students at their assigned classrooms. A final project will include a written collection of poems produced by the students.

(Developed for Science, grade 1; recommended for Science, grades K-2)

03.04.02

The Physics of Flight, by Kristen Borsari

This unit was written for fourth and fifth grade but can be adopted to work with any kind of student body. This is an interdisciplinary unit focusing on the physics of flight, using this as a point to raise the students' interest in the history of flight which is explored through history lessons and by reading the novel *Dragonwings* by Laurence Yep.

The unit is designed to appeal to all kinds of learning styles and talents found among students. This unit is ideal to engage students who are normally hesitant in either science or in reading because the wide variety of learning opportunities will provide almost any kind of learner the opportunity to shine in his or her own way.

Included in the unit are many ideas for hands-on activities that can be done for or with the students. There are also three lesson plans written which include the materials needed, the performance objectives, and extension activities. All the background knowledge needed to teach this unit to a class is provided in the unit and additional readings for greater knowledge are listed in the reading list at the end of the unit.

(Developed for Science, Social Studies, Literacy, grade 4; recommended for Science, Social Studies, and Literacy, grades 3-5)

03.04.03

Physics of Sound: How We Hear Sound, by Shannon Cohen

Sound is one of our five senses that we often take for granted. There are different sounds traveling through our ears everyday. This unit will allow students the opportunity to explore sound and gain an understanding of how and why we hear.

This unit is designed for a second grade classroom. Many lessons throughout the unit may be adapted to grades K-3. This unit focuses on four main aspects of sound. How our ear works, hearing impairments, mechanics of sound, and speed and distance of sound are the focus of this unit. Students will explore sound through many inquiry-based activities and experiments. Students will be required to respond to questions in response journals after each activity, allowing them to reflect on each lesson. Students will also get the opportunity to experience life without the sense of hearing, through lessons focusing on the life of Helen Keller.

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

03.04.04

Physics of Sound: How We Produce Sounds, by Tina Diamantini

We are surrounded by sound every day of our life, yet it is often taken for granted. Children produce and hear many different sounds throughout any given day of their life. However, do they ever stop to wonder how these sounds are being produced? Young children are often fascinated with the how and why things work. This curiosity will allow children to question and explore how sounds are produced.

This unit was written for first-grade students from various racial, ethnic, and economic backgrounds. This unit was designed with the State of Connecticut Performance Standards in Science and Language Arts for grades K-4 in mind.

While this unit was written specifically for first grade, all of the lessons could be modified for grades K-2. This interdisciplinary unit is designed as an introduction to the physics of sound, focusing on how sounds are produced.

This unit includes eight structured lesson plans, which allow children to explore the production of sound through hands-on activities. In order to implement this curriculum it is necessary to understand the physics concepts, which are explored throughout the unit. Therefore all the background knowledge needed to implement this curriculum is included

in the unit. In addition, included in the unit is a teacher reading list, student reading list, and bibliography.

(Developed for Science, grade 1; recommended for Science, grade 1)

03.04.05

Allowing Students to Explore Simple Physics and Marketing in English Class, by Jennifer Drury

The unit combines science, writing, speaking, and marketing in a way to prepare students for the real world. The students are asked to research how something works, design the object or reproduce it on paper, create an ad campaign and present it to the class. This allows them an opportunity to utilize hands-on experience to increase their knowledge of an area of their choosing. This also allows them the opportunity to practice expository writing on how something works.

Also, the students are asked to create an advertising campaign, which will increase their knowledge of advertising techniques and to learn how other people perceive things. They will then be asked to present their entire project to the class, which allows them the opportunity to practice speaking and marketing skills. This unit brings together a wide variety of areas that allow students to develop and grow around a scientific concept outside of a science classroom while encompassing the basic tenets of three of the Connecticut State Standards for Science and Language Arts.

(Developed for English, grade 9; recommended for English, grades 8-10, and Beginning Physics, grades 9-12)

03.04.06

Physics and Me, by Mary Elizabeth Jones

This unit is designed for 6th grade science students. The unit will focus on Newton's Three Laws of Motion. The purpose of the unit is to introduce physics as it relates to everyday life. Each law is explained in detail. Hands-on activities will be used to demonstrate and help students understand each law. Hands-on activities and demonstrations will relate to everyday things in the lives of the students. Most experiments will be conducted using everyday items that can be found in the home.

The unit focuses on three areas: motion, gravity and measuring motion. The theme of the unit is "scale." Some activities are designed to allow students to show their creativity. Students will demonstrate objective by making such things as roller coasters, airplanes and cars.

This unit is easily adaptable for a math class. Teachers who team teach or teach math and science will find many examples of science activities that require knowledge of math. This is especially true where measurements are required.

(Developed for Science, grade 6; recommended for Science, grade 6)

03.04.07

The Physics of Cell Phones, by Carolyn N. Kinder

The purpose of this unit is to provide students in grades 5-8 the opportunity to explore and to solve problems about the physics of how cell phones work. This unit is divided into four sections. The first section of the unit establishes a definition of cell phones; the second section gives the history and some background information on how the cell phone evolved; the third section talks about how the cell phones work; the fourth section discusses turning speech into electrical impulses, and the fifth and final section of this unit talks about the pros and cons of cell phones.

Lesson plans are structured, so that students can become highly engaged in hands-on assignments to learn concepts taught. The use of technology by way of the online resource "How Stuff Works" (www.howstuffworks.com) is used to help explain and to assimilate concepts taught. The concepts are strongly linked to the scientific method and goals and objectives which are framed around standards in science. Curriculum standards are introduced in this unit with lesson plans. In addition, the unit consists of a teacher reading list, a student reading list and a bibliography.

(Developed for General Science, grade 7; recommended for General Science and Physical Science, grades 5-8)

03.04.08

Physics Around the School: Simple Machines in and out of the Classroom, by Pedro Mendia-Landa

This unit focuses on the area of mechanics by allowing children to explore and become familiar with the laws of motion and simple machines. Through the use of concrete examples that contextualize and make meaningful physics principles and processes involved in day-to-day living, students will be able to understand how physics principles are an essential part of many important objects and processes around us. Throughout the unit, students uncover and rediscover the surrounding world, as we explain the reasons why things work the way they do and how they affect our everyday life.

A historical perspective is offered in order to contextualize the reasons and importance of why some objects are in existence. Thus, the following questions are posed and answered. What is the importance of the lever? Why do we need the inclined plane? What was life before the wedge, the pulley? Which are the physical principles involved in the function, use, design of the given object?

What are some of the most important inventions, utensils that originate in the basic principles, and uses of these objects?

This is an integrated science unit that meets the New Haven Public Schools' curricular frameworks, and specifically performance standards on science, language arts, and mathematics. This unit is geared toward elementary school children in the first to fourth grade. The ability to integrate this unit with language arts provides many opportunities for extensions into other curricular areas. A list of student, teacher, and electronic resources is provided for the implementation and extensions of the unit.

(Developed for Integrated Language Arts and Science, grades 1-2; recommended for Integrated Science, Mathematics, and Language Arts, grades 1-4)

03.04.09

Physics-24, by Gwendolyn Robinson

As the title suggests this unit is about physics during a twenty-four hour period of any given day. The students this curriculum unit is presented to will discover and identify the many areas of physics and science they experience in an average day. This unit will be developed for middle school students but could easily be modified to be presented to all students of ages and grades. It should take an entire marking period to fully develop. Each part of the 24-hour day will be given to a group of students to investigate and explore, hypothesize and predict, test and retest. Other areas of science such as earth, and life, will be integrated in as well as other areas of the curriculum like reading, math, and art.

I got the idea for this unit from the hit TV series "24" in which an entire season of shows actually occurs in exactly 24 hours. Each show is exactly one hour long and it's full of action, excitement, questions, mystery, and suspense.

You see, in the television series "24" everything that could possibly go wrong, shock you, have you on the edge of your seat with your mouth gaping, happened and much more. Your attempts to guess what's going to logically happen next, usually fail. It will be the same way with this adventure on which you will take your students on.

(Developed for Science, grades 7-8; recommended for Science, grades 5-8)

V. Water in the 21st Century

Introduction

This seminar explored the history of water availability and quality, and the laws and policies that govern access to water, and acceptable levels of pollution. Water is necessary to sustain life on earth, yet it is increasingly scarce, and highly vulnerable to pollution. Nearly 70% of the planet's surface is comprised of water, yet nowhere on earth is water now considered safe to drink unless treated. The availability and quality of water will become increasingly important during the 21st century, as population grows, especially in arid regions.

Pollution, waste, and other contaminants increasingly threaten water quality and human health. The World Health Organization estimates that nearly four million children die each year in poorer nations from preventable water borne diseases alone. Nearly three million others die from vector borne diseases such as malaria caused by a parasite carried by *Anopheles* mosquitoes that thrive in wet environments.

Human use and abuse of land shapes both water availability and quality. Tropical deforestation reduces the forest's sponge effect, allowing more water to remain on the surface, providing breeding grounds for mosquitoes that may carry diseases such as malaria and dengue fever. Agricultural irrigation when combined with the use of fertilizers and pesticides contributes to the contamination of both surface waters and underground aquifers. Dense residential and commercial development create problems with sewage and storm water runoff that normally contain oil, gas, solvents, tire and brake fragments, and other residues emitted or leaking from the hundreds of millions of vehicles. In many coastal communities, heavy rains now carry a toxic cocktail of chemicals and bacteria through storm drains that empty into rivers, estuaries, lakes and marine environments, threatening the health of those live, work or recreate in the area.

Nearly 15 million people now live in Orange County California, south of Los Angeles. The area was formerly a desert until water was redirected through enormous viaducts and tunnels from the Colorado River and Northern California. Early in the 20th century, this imported water nourished thousands of acres of orange groves in the County. Today the groves have been replaced by densely settled residential communities where homes--often lavishly landscaped--demand far more water per acre than orange groves. Southern Californians' access to the imported water supply is now fiercely contested in courts, as those further upstream claim prior rights to support agriculture and development closer to the water's source.

The use of pesticides has contaminated the drinking water of tens of millions of U.S. residents, especially those depending on wells living in close proximity to agricultural lands such as the corn and soybean fields of the Midwestern U.S., and the cotton and rice fields of the Central Valley of California. The costs of cleaning up contaminated ground water is high enough to dissuade most communities from filtration that would completely remove the residues, leaving many wondering about the health effects of long-term exposure to low doses of toxins in their drinking water.

Our seminar considered many histories of water contamination. With hindsight, most seem highly predictable if not obvious. The consistent source of each problem was the absence of a culture that considered the environmental implications of incremental human development. Leaders failed to think ecologically about the effects of development. It is clear that most, especially in the poorest nations, have had other more basic priorities and threats to command their attention. The neglect of the relations between water, development, and human health has proven costly and avoidable, leading to loss of health and loss of future development potential that requires access to clean water.

We also considered an unusual case of water contamination at a former Naval Base on the island of Vieques in Puerto Rico. The U.S. bombed the island for 62 years, dropping hundreds of millions of pounds of bombs, missiles, rockets, artillery, grenades, bullets, depleted uranium shells, chemical weapons such as Napalm, and herbicides such as Agent Orange.

When bombs exploded on the island, plumes of dust carried fragments of lead, mercury, cadmium, aluminum, and arsenic thousands of feet into the air. Trade winds would normally press the clouds toward the island villages where 10,000 people have lived. The Vieques landscape has been badly contaminated. Bomb fragments and residues are washed by heavy seasonal rains toward the beaches, mangrove lagoons and reefs that surround the island.

Seven species of endangered sea turtles nest on Vieques beaches, some only yards from unexploded ordnance. Marine crabs and fish carry higher than normal levels of some metals released to the environment. Many of the islanders are fishermen who regularly consume their catch. Given these factors, it is no surprise that preliminary tests of human tissue samples collected from the population demonstrate a similar matrix of metals as those contained in the bombs. Water has been and continues to be the vehicle that transports the metals across the landscape to the ocean. And water is the solvent that makes these persistent elements available to move up the marine food chain, to the Viequenses' dinner tables, and into their bodies.

Nine teachers participated in this seminar where we considered cases just described, while they designed the curriculum units presented in this volume. A brief review of their contents may help guide other teachers to topics relevant to their interests.

Joanna Ali developed a unit that explores the history of science and policy regarding acid precipitation for students in eleventh and twelfth grade. Her unit, "Acid Rain: Causes, Effects and Possible Solutions," includes a history of the scientific evidence that led to key federal regulations of power plant emissions. She summarizes the science with precision, and includes a series of laboratory exercises that will certainly engage students. She also designed and created a pollution trading rights game, with a board similar to *Monopoly* to allow students to trade sulfur dioxide rights in response to federal regulations. This is an exceptionally creative product and students will certainly enjoy playing the game while learning about one of the more complex areas of air quality science and law.

Ray Brooks teaches independent studies to grades 5-8, and specializes in helping students develop science fair projects. He designed a unit, entitled "Think Before You Drink," that explores the source, movement and fate of New Haven's drinking water. He provides a critical review of well water vulnerability to pollution from surface activities, and also includes a section critical of bottled water standards. His unit includes extraordinary documentation and websites that will benefit anyone hoping to strengthen science curriculum in the area of water resources.

Wendy Hughes teaches seventh grade science, and prepared the unit, "The Journey of New Haven Water." She developed excellent descriptions of the water cycle, an overview of chemical threats to drinking water (microbes, radionuclides and pollution), treatment options, a comparison of point vs. non-point source pollution, and concludes with practical advice to students and teachers regarding what they can do to conserve water and protect its quality.

Students will realize the lengthy journey that water has taken before pouring from their taps, and gain a strong understanding of the problems government faces in its efforts to assure a healthy supply.

Deborah James created a unit entitled, "Water, Water Everywhere, Not a Drop to Drink," for fifth and sixth grade science classes. She has provided a valuable primer on hydrology, and a concise overview of the key threats to water quality. She includes lesson plans covering topics such as scarcity and pollution problems abroad, a description of the water cycle, local watersheds, water usage and purification. This is a very well organized unit that will provide students with a basic foundation of knowledge in the field of water resources.

Sharron Solomon-McCarthy teaches sixth grade students in special education and faces exceptional challenges in teaching science to these students with diverse learning disabilities. Her unit, "Kids Conserve... Water Preserved," is designed to be multi-sensory.

Students will prepare a PowerPoint presentation that describes a specific water management problem. She will also use anagrams to teach important vocabulary in the field of hydrology and water resources. Each student will also conduct a household survey of water consumption, to help them understand waste and the potential of conservation. This is well-organized, articulate and very thoughtful unit that will surely command the students' interests.

Roberta Mazzucco teaches third grade and designed the unit, "Water: Our Most Important Beverage." With superb organization, Roberta uses a question-based method to teach basic science about global water availability and cycling, the source of local drinking water, treatment options, basic problems of pollution, and the strengths and limits of government attempts to manage water quality. Each section includes relevant activities. She also discusses what the students can do to conserve and protect their water quality. The unit is clearly written and the documentation should help others who wish to strengthen their curricula.

Joanne Pompano teaches science to visually impaired high school students. Her unit, "The New Haven Oyster Industry and Water Quality" includes accurate overviews of hydrology and ecology. Oysters are especially sensitive to some types of pollutants, and since they are commonly eaten raw, they may cause serious illness if contaminated with bacteria or viruses. Joanne reviews the key threats posed by toxic substances and wastes associated with agricultural and industrial activity. She also explores the special hazards posed by sewage treatment plant overflows that commonly occur during storms, flushing microbes and toxic substances into estuarine environments threatening both ecological and human health.

Laura Pringleton teaches fourth and fifth grade general science and designed a unit entitled, "Water Will, Water Way." She believes the marine environment provides a scientific laboratory to search for new pharmaceutical agents that could treat serious human illness.

The abuse of oceans, through the dumping of wastes, release of toxic substances, and the spilling of oils and fuels all threaten this diversity. Air pollution that contributes to climatic warming may make some near-shore environments more habitable for algae

that are toxic to humans and marine life. The unit includes a set of very thoughtfully designed games to engage students.

Ralph Russo teaches high school history and international relations. He notes that water normally crosses or forms boundaries of many nations in the world, and that disputes about its availability or quality have been common in human history, especially in arid parts of the world. He cites the United Nations Development Report that notes more than 1,800 international interactions regarding water shared among nations, 21 of which have resulted in military action. In a world where nearly one billion people have no access to clean drinking water, and two billion have insufficient water for basic sanitation, population growth in arid regions will intensify conflict over water resources. This unit includes a water rights game, strategies for conflict resolution and exceptional documentation.

Collectively these units are impressive in their breadth of topical coverage, creativity in strategies to directly engage students in the materials, and their thorough documentation. The seminar was the highlight of my summer and I thank all of the Fellows for their hard work, thoughtful contributions, and excellent products.

John P. Wargo

Synopses of the Curriculum Units

03.05.01

Do We Need to Wear A Rain Hat? Acid Rain: Causes, Effects, and Possible Solutions, by Joanna Maria Ali

This unit allows students to explore the causes and effects of acid precipitation, relate this phenomenon to their own lives, and develop possible solutions to the problem. It is my hope that this unit will empower students to make environmentally sound choices based on information that is relevant to their lives and experiences. The unit is designed for high-level juniors and seniors in an environmental science course, but the lessons can be easily adapted for other grades and ability levels. The progression of the unit is based upon building on layers of knowledge according to Bloom's Taxonomy. The first stage is comprehension and basic understanding of the concept of pH, leading to the final stage, which is the synthesis and evaluation of a complex environmental issue.

This unit closely follows the standards set forth by the New Haven Public Schools' science curriculum. In particular, the unit addresses content standard 1.0 for scientific inquiry and standard 3.0 for life science.

(Developed for Environmental Science, grades 11-12; recommended for High School grades 11-12)

03.05.02

Think Before You Drink, by Raymond Brooks

This unit is intended to supply ideas for a Science Fair project concerning water. It briefly covers four main ideas: the Regional Water Supplies, Wells, Bottled Water and Water Conservation.

Before proceeding with the above water issues, a short quiz is suggested to assess students' present knowledge of water issues. A short segment is then devoted to understanding the importance of water and some of its basic characteristics.

This unit should make students aware of the laws regulating drinking water. They should realize there is no perfect solution to all drinking water problems, but that efforts are being made to ensure a reliable and safe drinking water supply.

A student using this unit to prepare a Science Fair project will realize the extra responsibilities of well water users if he/she does a project on private wells. The

student will learn that standards do not apply to well water users if there are less than fifteen connections.

The unit ends by having students realize that if everyone did a little to conserve water, the results could be significant.

(Developed for Independent Study, grades 5-8; recommended for Science and Life, grades 5-8)

03.05.03

The Journey of New Haven Water, by Wendy Hughes

This curriculum unit is designed specifically for middle school New Haven students. Students will explore the journey of water through the hydrologic cycle to water treatment in New Haven. Clean water is something that is taken for granted in our society, yet for many in the world, clean water is a luxury. Very rarely does one contemplate the process that gets water to our homes clean and safe, even though this process is essential to our daily lifestyles. Often in an urban setting, a student's direct connection to the natural environment is diminished compared with a student in a rural setting. The goal of this unit is for students to become familiar with the water cycle, watershed, water treatment, water contaminants, and water pollution issues. The unit is centered around four questions:

- Where does your water come from?
- What is in your water?
- Where does your water go?
- What can you do to protect your water?

Students will be assigned roles in which they will explore the above questions from a particular perspective. Students work within their role to create a presentation answering the above four questions specific to New Haven.

(Developed for General Science, grade 7; recommended for General Science, Middle School grades)

03.05.04

Water, Water Everywhere and Not a Drop to Drink, by Deborah James

This unit is designed to enable students to be advocates of local waters in an effort to preserve this commodity for future generations, and to teach them how important it is for them to take measures to ensure that water is safe for their life-time and beyond.

The objectives for this curriculum unit will begin with students being made aware of the water cycle and how such a small percent of water is actually usable for consumption. They will become aware of how nature purifies water through filtration, sedimentation, and distillation. They will be introduced to water pollutants. Students will research where pesticides used in agriculture eventually end up, which industries use rivers for dumping toxins or cooling their machines, and discover which organisms are affected by such pollution.

Activities for students include the maintenance of logs, teamwork, and the development and dissemination of public awareness materials. They will collaborate with students from neighboring schools and other communities in an effort to get them involved in preserving waterways. Students will recognize that what happens in our local waters will directly impact those downstream from us and all rivers and tributaries in this area that lead to Long Island Sound.

After completing this unit, students will be able to successfully produce public awareness information, communicate to the public about changing behaviors, and teach other students in neighboring communities about what has been done and what can be done to bring about changes in attitudes toward the precious commodity known as water.

(Developed for Middle School Science, grade 6; recommended for Middle School Science Course, grades 5-6)

03.05.05

Water: Our Most Important Beverage, by Roberta Mazzucco

This curriculum unit was developed for third graders but it can easily be extended to grades two through five. The unit includes both social studies and science at its core. Water is necessary for all human life and the unit seeks to make students aware of the problems plaguing our water supply, and also the need for people to help change things. The water supply of New Haven is considered in light of the history of the state of Connecticut. Students encounter the way the European settlers and their misunderstanding of the environment began the corruption of the waterways in the United States. Later industrialization and scientific advances led to the further polluting of the rivers. A bit of the history of water is considered from the Roman aqueducts, to the discovery that water could carry disease, to the first attempts to regulate our drinking water. Within the unit students chart what they are learning on a classroom kwl chart, develop a word wall and timeline. Hands-on activities are suggested, from building a model aquifer and water treatment system to quantifying

the amount of earth's water. Students also brainstorm ways to conserve and protect the water supply. They make posters illustrating ways to help out. A field trip to the local water treatment plant is also suggested. The unit also includes an appropriate list of books and Web sites.

(Developed for Science and Social studies, grade 3)

03.05.06

The New Haven Oyster Industry and Water Quality, by Joanne R. Pompano

This curriculum unit is designed to help students understand the relationship between the water quality of Long Island Sound and the effect of pollutants on the shellfish living in its waters.

Developed for blind and visually impaired students, this unit offers suggestions for adapting lessons to provide students with the opportunity to learn about science and participate in science labs. It also will be of interest to sighted peers and will provide activities that allow visually impaired students to work together with their sighted peers on water quality projects.

This curriculum allows students to:

- Examine the types, causes, and consequences of pollution in New Haven Harbor and Long Island Sound.
- Inspect water quality.
- Gain experience in using charts, diagrams, graphs, or measurements using recorded, tactile, large print or Braille materials.
- Research using translations of textbooks, videotapes, computers, journal articles, supplementary reading materials, and handouts in Braille, large print, or audiotapes.
- Participate in learning activities that develop scientific knowledge and skill.
- Study the physical aspects of the oyster including: the structure and functioning of this bivalve, the nutrients it requires, how it reproduces, and how it is affected by water quality.
- Gain an understanding of Long Island Sound and New Haven Harbor as well as the watershed that feeds into these bodies of water.
- Learn about specific types and sources of pollutants.
- Understand the tools used to detect, prevent, or correct problems.
- Learn how governmental and environmental groups work to reduce the impacts of pollution on aquatic resources.

(Developed for “Life Skills for Blind and Partially Sighted,” grades 9-12;
recommended for “Life Skills for Blind and Partially Sighted”, grades 9-12)

03.05.07

Water Will, Water Way, by Laura Pringleton

This unit includes an exploration of water, its inhabitants, the oceans, seas, fresh-water (watersheds), and tap water. My students will do research and experiments to calculate what is now being done to maintain the health of the sea and our own watersheds.

Aquaculture (the farming of the sea) depends on the health of the sea. Students will learn to focus on sea animals that will be kept in a tank in the classroom. These hands-on experiments will allow them to do research and draw their own conclusions.

Because of biodiversity, many potential pharmaceutical benefits of the sea may have been lost. Others may someday be found. Students will, through hands-on classroom experience, learn of the pharmaceutical benefits that already exist from these classroom animals, and other sea animals. As students apply their experience and knowledge, future, potentially beneficial pharmaceuticals could possibly be found in today's classrooms.

(Developed for General Science and Elementary Mathematics, grades 4-5;
recommended for Elementary General Science and Elementary Mathematics, grades 4-5)

03.05.08

WHO Wants Clean Water! Do You? Resolving Conflicts Over International Water Rights Issues, by Ralph Russo

This unit examines water rights, conflict over freshwater, and potential for water wars in a context for the high school history or social studies classroom. Activities in the unit include investigating historical examples of conflict over water as well as potential areas of conflict. In addition, the unit contains resources for examining initiatives by United Nations agencies to advocate for clean water as a basic human right and monitor global water quantity and quality. In addition to reading and discussion activities, student outcomes include participating in a water rights simulation game and completing a guided research project (with an exit presentation) on an international water rights case. The scientific, quantitative, and cultural components to freshwater water rights issues allows the unit to be adapted to interdisciplinary work in the core subjects of social studies, science, math, and English.

(Developed for World History and History, grade 9, and International Relations and Social Studies, grades 10-12; recommended for World History, History, International Relations, and Social Studies, grades 9-12)

03.05.09

Kids Conserve... Water Preserved, by Sharron Solomon-McCarthy

This unit has been written as a teaching tool about water conservation and other water issues that relate to the above-referenced topic.

This is an integrated, multi-sensory unit, which will incorporate the two disciplines of science and mathematics. For science the students are required to use and develop a critical understanding of the ecology in relation to natural resources, science and technology through personal and community health as it addresses present day and global challenges. The math curriculum focuses on the students' ability to demonstrate a variety of skills in order to graph data and solve a variety of numerical equations.

This unit has been set up so that mastery learning can take place through various forms and media. The students will design a survey that will allow them to research their family behavior and water use in their homes on a daily basis.

This unit is designed for the population that I work with on a daily basis, which are special education students in sixth grade. My students range in disabilities from learning difficulties to autism. As a result I decided that a multi-sensory approach would be most suitable to meet the goals and objectives in each student's Individual Educational Plan. Therefore, my unit will include various lessons, which will integrate the auditory, visual and kinesthetic methodologies of learning. The lessons will be easy to execute for both the teacher and the students. The lessons will be clear and concise with minimal instructions and materials. Based on the activity, if difficulty does arise, modifications will be made for individual students. I have designed the lessons so that every student can meet the tasks with success while learning and having fun.

(Developed for Science, grade 6; recommended for Science, grade 6 Special Education students)