Curriculum Units by

Fellows of the

Yale-New Haven Teachers Institute

Guide

1999

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Yale University, New Haven, Connecticut 06520

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Preface

In March 1999, seventy-four teachers from the 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 undertook a national initiative to demonstrate that the approach the Institute has taken for twenty years in New Haven can 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 1998, 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. Seven seminars were organized, corresponding to the principal themes of the Fellows' proposals. The seminar entitled *Women's Voices in Fiction* was led by Laura M. Green, Assistant Professor of English. 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 seven volumes, one for each seminar. A list of the 136 volumes of Institute units published between 1978 and 1999 appears on the following pages. Guides to each year's units, a topical Index of all 1236 units written between 1978 and 1999, and reference lists showing the relationship of the units to school curricula and content standards are available from the Institute. An electronic version of many of these curricular resources is accessible by connecting to the Institute's web site (http://teachersinstitute.yale.edu).

The units that follow 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.

The DeWitt Wallace-Reader's Digest Fund and the National Endowment for the Humanities have provided the Yale-New Haven Teachers Institute major grants in the form of both endowment and program support. In addition, a number of individuals and foundations, notably the William Randolph Hearst Foundation, the Zimmerman Foundation and the Horace W. Goldsmith Foundation, have made gifts and grants toward the Endowment Fund for the Teachers Institute. The 1999 Institute was supported also by grants from the Sherman Fairchild Foundation and the Camille and Henry Dreyfus Foundation. The materials presented here do not necessarily reflect the views of the funding agencies.

James R. Vivian

New Haven
August 1999

I. Women's Voices in Fiction

Introduction

In this seminar, we read short fiction and novels by nineteenth- and twentieth-century English and American women authors. Essays by Virginia Woolf (A Room of One's Own), Tillie Olsen (Silences), and Alice Walker (In Search of Our Mothers' Gardens) framed our discussion of the fiction, directing our attention to the ways in which women's literary voices have been silenced on account not only of their gender, but also of their race or class: through lack of access to education; by the simultaneous demands of raising children and earning a living; by the historically low value set on the words and experiences of women in general, and in particular of working-class women, women of color, and others excluded from the cultural élite.

Yet throughout difficulties and discouragements, women of all kinds have written, and the major contribution of women to the history of the novel has, in the past several decades, been rediscovered. The novels we read emerged from vastly different life experiences and spoke in a cacophony of voices: Charlotte Brontë's Jane Eyre is narrated by a middle-class, nineteenth-century, rural English woman; Jamaica Kincaid's Lucy by a West Indian au pair girl discovering Manhattan; Sandra Cisneros's The House on Mango Street by a young Latina in the Chicago barrio. Gwendolyn Brooks's Maud Martha also takes place in Chicago, in a pre-Civil Rights culture of racial segregation; Kate Chopin's The Awakening introduces readers to the stifling comfort of upper-class life in turn-of-the century New Orleans; Fae Ng's Bone to the close-knit community of San Francisco's contemporary Chinatown.

Despite this variety, some common styles and themes emerged from our reading. Several of the novels, notably Maud Martha and The House on Mango Street, are composed of vignettes, or brief scenes (making them particularly useful for the classroom). Madness (Jane Eyre, Charlotte Perkins Gilman's "The Yellow Wallpaper") and suicide (The Awakening; Bone) express characters' frustration with cultural limitations. Romantic and sexual longing is a constant; maternal love, however, is often disconcertingly absent (The Awakening) or ineffective (Tillie Olsen's "I Stand Here Ironing"). Despite these commonalties, the seminar was-appropriately, I think-unable to reach conclusion about what the defining characteristic of a "women's voice" might be, or even whether such a phenomenon exists.

Not surprisingly, then, the curriculum units in this volume take a variety of approaches to the literature of female experience. Units by Francine Coss, Geraldine Martin, and Jean Sutherland explore the family-as it appears to Kindergarten-age children, in the context of Chinese culture, and through the words of African-American women writers, respectively. Sandra Friday and Dianne Marlowe focus more specifically on mothers and

daughters in novels, films, and short stories. Several units place a single work in its historical context, including Sophie Bell's unit on Toni Morrison's Beloved and Lisa Galullo's on "The Yellow Wallpaper"; in its contemporary cultural context, as does Angela Beasley-Murray's unit on The House on Mango Street; or in its biographical context, as does Jean Gallogly's unit on Louisa May Alcott's Little Women. Leslie Abbatiello pairs Black and white authors to illuminate the "ongoing conversation" among American women writers, and Douglas von Hollen turns to contemporary short stories by women to engage students' interest in the aesthetic and formal aspects of literature.

These units share one important feature: they convey the excitement and variety of the literature of female experience. I hope the texts and techniques laid out in this volume, suitable for students from Kindergarten through twelfth grade, will encourage many teachers to introduce women's literary voices into their own classrooms.

Laura M. Green

Synopses of the Curriculum Units

99.01.01
Sister Outsiders: Black and White Women Writing in America, by Leslie A. Abbatiello

One of the challenges of teaching English to high school students is to convince them that literature is not only living, but is actually an ongoing conversation about all of us. Giving students the means to participate in this conversation is essential to their development as readers, thinkers, and citizens as well.

This unit, designed primarily for the honors level American literature classroom, asks students to consider pairs of works of American literature by white/western European women writers and black/African-American women writers. By doing so, students will get a sense of the ongoing conversation between and among women who have written, and who are writing, in America today, as well as the importance of understanding one's own history and of participating in this conversation.

Students will read short stories, poems, novels and essays by Kate Chopin, Ani DiFranco, Charlotte Perkins Gilman, Lauryn Hill, Zora Neale Hurston, Audre Lorde, Tillie Olsen, Adrienne Rich, and Alice Walker. They will become experts on reading a text not only for its aesthetic, but also for its cultural, value. They will engage in class discussion, write extensively in many modes, and conduct research about their own histories.

While the major thrust of this unit is to have students read and compare these pairs of texts by black and white American women writers, a secondary, intent is to see that, as Alice Walker contends, there is only one story being told, but with many voices. If we can encourage students to add their voices to the story, we will have done a lot.

(Recommended for Honors American Literature, grade 11)

99.01.02
The Politics of Gender in *The House on Mango Street*, by Angela Beasley-Murray

Examining *The House on Mango Street* for the politics of gender provides mystery and suspense. The discovery of secret and underhanded schemes that cause friction within families is at the center of this unit. Are there principles and opinions that prevent communication among individuals in families, particularly across gender? Do the principles and opinions result in covert maneuvers by men or women to get their way?

"The Politics of Gender in the House on Mango Street" is designed to engage students who are in the 10th and 11th grades who have weak reading skills. The unit includes social, moral, and ethical concerns that anyone should and can be concerned about.

Students can actively search their own community for information about these issues. The fact that students can have and hold their own unique opinions and express them will contribute to the success of the unit and empower the student.

The House on Mango Street describes experiences in a young girl's life in an urban setting. She begins to understand the world she finds herself in, which includes little financial stability or control over her life. She describes vividly having moved numerous times and the challenges of living on Mango Street.

Reading comprehension skills are the main focus of the unit. There are may topics for oral discussion. The phonetic reading technique of thinking of words in segments is also included in the unit. Encouragement to see words as they break down into root words, prefixes and suffixes slows the reader down to see each syllable. (Students often wrongly associate speed with good reading skills.) This unit will provide students with an opportunity to read with expression, vision, and comprehension.

(Recommended for English and Reading, grades 10-11)

99.01.03
"This is Not a Story to Pass On": Teaching Toni Morrison's *Beloved,* by Sophie R. Bell

This curriculum unit aims to solve two problems I have encountered in my linked tenth grade Early American Literature and Early United States History classes this year — finding texts about American history that interest teenagers, and expanding the course's curriculum to include more women.

The unit will introduce students to Toni Morrison, a Nobel prize-winning author, through *Beloved,* her historical novel of the psychic trauma of slavery on its survivors. The unit approaches *Beloved* both as historical fiction and as literature. The unit also devotes a substantial amount of energy to comprehension, as the text is a challenging one for high school students.

Toni Morrison's *Beloved* is so gripping and phenomenally told that students will be motivated to work through the difficulties of the text. Briefly summarized, it is the story of an escaped slave living on the border between Ohio and Kentucky just at the end of the Civil War. She is haunted by the grown-up ghost of her baby girl, whom she killed in order to save the child from returning to slavery.

The unit includes suggestions for connection of *Beloved* to two documents from the time of the historical novel — Sojourner Truth's *Ain't I a Woman?* speech and *The Narrative of the Life of Frederick Douglass, an American Slave.* The unit also provides historical background useful to readers of the novel and ideas for how to share this information

with students. Three strategies for working through the text are provided — a journal, a word log, and a plot chart. The culminating activity is a mock trial of the main character, with other characters serving as witnesses.

(Recommended for English and History, grades 10-12)

99.01.04
My Family: Gender Differences and Similarities, by Francine C. Conelli-Coss

The focus for this unit is gender differences and similarities. The gender similarities and differences are defined through the discussion of family members, their interests and habits.

The first mini-unit, All About Me, includes physical and emotional differences between boys and girls. Once the physical and psychological differences are discussed, we will clarify our personal likes and dislikes. Songs will be shared and even rewritten for our own needs.

The mini-unit that follows is Family Time. Family Time is a unit that extends the *me* of All About Me to the immediate relatives that affect the lives of the children in the class. More songs are sung, booklets are made and math lessons graphing the number of people in each student's family are recorded.

Parents, grandparents, siblings, aunts, uncle, etc. take an active role in the implementation of the curriculum unit by assisting in the publication of a literary magazine containing student writing and writing by family members.

(Recommended for Language Arts, grades K-5)

99.01.05
Mothers Represented in Short Stories by Women, by Sandra K. Friday

The unit, *Mothers Represented in Short Stories by Women*, is designed for at-risk high school students. I have found that short stories, by nature of their brevity, are not intimidating to the students that I teach in a program for students who have had little success in a large urban high school.

Many engaging stories about women who are mothers have been written by women. The unit examines, through short stories, the lives of six women who all have daughters. These women come from different cultural backgrounds, and the life issues with which they are confronted differ as well. It is the aim of this unit to raise the consciousness of my students about how mothers differ from one culture to another, and how issues confronting mothers vary; and yet how much mothers, the world over, have in common.

Ultimately, this unit invites students to take a close look at the lives of their own mothers and the women (or fathers for that matter) who have raised them, and even to think about their own present or future parenthood.

The lesson plans that I have developed have the CAPT (Connecticut Academic Performance Test) in mind, with two lessons focusing on the types of questions asked in the Language Arts section of the test, following the reading of the short story. Another lesson plan offers a strategy for guiding students through the five-paragraph essay process.

My unit focusing on mothers can be taught in conjunction with the unit by Dianne Marlowe that focuses on daughters titled *Daughters Come of Age in Women's Fiction.*

(Recommended for English Literature and Writing, grades 9-12)

99.01.06
Louisa May Alcott: Her Life, Her Times And Her Literature, by Jean C. Gallogly

The subject of this unit is Louisa May Alcott — with an emphasis on showing how her background shaped her writing and the similarities between her life and her best known novel: *Little Women*. Louisa May Alcott came from an interesting family and her tendency was to write books that borrowed their characters from her own relatives. She led a fairly colorful life for a woman born in 1832. She was a prolific writer, but also served as a nurse, teacher and suffragette.

The classics are sometimes forgotten and this unit attempts to provide some strategies and ideas for bringing this author and her book alive to twentieth century students.

Several biographies are suggested that provide the necessary background on the author's life. The reading level varies, as do most of the books in this unit, allowing for use by several grade levels.

In addition, several adaptations are suggested for use with reluctant readers. There are also series that are based on the characters in Little Women. Other books that are suggested provide ideas for activities or lend themselves to creative use in the classroom.

(Recommended for Literature and Social Studies, grades 3 – 5)

99.01.07
Gothic and the Female Voice: Examining Charlotte Perkins Gilman's "The Yellow Wallpaper," by Lisa M. Galullo

As urban schools attempt to expand the list of multicultural readings assigned to high school students, women writers are often still excluded from the curriculum. The unit, "Gothic and the Female Voice: Examining Charlotte Perkins Gilman's *The Yellow Wallpaper*" is intended for a college preparatory English class that focuses on American Literature in its historical context. The unit will follow one on Edgar Allan Poe's stories and poetry. While I plan to use the unit with a class of sophomores, it is easily adaptable to any secondary level English class.

The New Haven school system has proclaimed a district-wide literacy focus. I teach at an inner-city magnet high school for students interested in careers in science or business. Often, the students in sophomore English do not read at grade level and have great difficulty with writing. In Connecticut, high school sophomores also take a standardized response to literature test which focuses on reading comprehension and writing skills. This unit is intended to address both high-achieving and lower-level English students with opportunities for reading aloud, guided note taking if necessary, small group activities, extensive writing practice and intense literary analysis.

Charlotte Perkins Gilman's short story "The Yellow Wallpaper" is already included in my school's sophomore English textbook, *McDougal-Littell Language of Literature*. The text provides vocabulary exercises, comprehension questions and suggested writing activities. The mere fact that "The Yellow Wallpaper" has become so frequently anthologized is monumental. After all, Gilman had difficulty getting the melancholy story published at all. This unit aims to provide teachers and students with entry points for analyzing "The Yellow Wallpaper" within two thematic contexts. Background narrative and lessons are provided for analyzing the story within the context of narrative and female voice and within the context of gothic genre. Lastly, a story like "The Yellow Wallpaper," which raises questions more than provides answers is a teacher's favorite for any literature class. The story provides a literature class with endless issues for discussion, areas for debate and topics for writing practice.

(Recommended for English, grades 9-12)

99.01.08
Daughters Come of Age in Women's Fiction, by Dianne C. Marlowe

This curriculum was designed for at-risk students enrolled in an alternative high school program at Wilbur Cross Annex because they have met with little success in the environment of a large, urban, comprehensive high school. Accustomed to poor academic performance, these students lack self-confidence and motivation. It is

important to engage and motivate them by providing opportunities to learn and demonstrate knowledge through several modalities. Therefore, art and film are used throughout the unit to enhance instruction. A story quilt art project, used with the film, *How to Make an American Quilt*, will introduce the unit. The story quilt is a collective work in progress that will be completed at the end of the course (A lesson plan for the project is provided.) The literature used for the unit is multicultural, representing cultures in the student population: Alice Walker's "Everyday Use,"; Nicholasa Mohr's "An Awakening...Summer, 1956,"; Joyce Carol Oates' "Where Are You Going, Where Have You Been?"; and Yashiko Uchida's *Picture Bride*.

Finally, this curriculum may be adapted in several ways. Teachers may extend activities using several resources, as suggested in the unit. In addition, they may teach the curriculum as part of an interdisciplinary team-taught class. Finally, it can be easily merged with Sandra Friday's unit, "Mothers Represented in Short Stories by Women."

(Recommended for English Literature and Writing, grades 9-12)

99.01.09
Wednesday and Friends: Looking at the Chinese Family Through the Eyes of Women Authors, by Geraldine M. Martin

In my unit I describe ways in which children can use literature as a means for gathering information and appreciating a culture vastly different from their own, and at the same time enhance their own reading skills at the first grade level.

Through the eyes of women authors and their written works and pictures, we get a glimpse of China and its people, and learn from their roots and traditions.
Women play an important role in the family; children haven't always had a chance to hear their voices. When looking at the family, we concentrate on these voices of women.

Wednesday Delight (a puppet) assists the children in gathering information about the values and traditions found in the Chinese family. Literacy plays an important role in every facet of the unit. Books such as *Two of Everything* by Lily Toy Hong, Amy Tan's books, *The Moon Lady* and *The Chinese Siamese Cat* are just a few stories found in the unit.

The unit is part of a team effort in which a kindergarten teacher, first grade teacher, third grade teacher and a library media specialist from L. W. Beecher School help students become knowledgeable about families of different cultures, using children's literature written by women authors.

(Recommended for Reading and Language Arts, grade 1)

99.01.10
Examining the African American Family through the Eyes of Women Authors, by Jean E. Sutherland

Designed primarily for third grade students, this unit was written for the seminar "Women's Voices in Literature." It presents students with a variety of literature by women authors who focus on some aspect of the African American family as it has survived its experience in the United States. In choosing the family as my focus, I gain the opportunity to show the strength and sustaining force which this institution has exerted and continues to exert upon African American life. Though the authors are all women and the subject matter revolves around fiction whose primary characters are African Americans and concentrates on the related events of African American history, children of any race or ethnic background can relate to the activities I present. They all have families of some type and all need additional exposure to the history of African Americans in the United States. Since traditionally the literature and educational materials available for use in the elementary classroom have under-represented and distorted the lives, history, and contributions of African Americans, it is essential that this gap be closed for all students.

Regarding my use of only women authors, the role of women, all women, and their contribution, generally and specifically, have, likewise, been under-represented and often distorted in elementary classroom books and materials. Third grade is not too early to begin making children aware of this failing and to begin informing them of the role women have played in our society.

This unit can easily be adapted for use in a fourth or fifth grade and in some middle school classrooms. The unit also is part of a school team focusing on the family through the use of women authors. These other units are found in this volume. They are written by Francine Coss, Jean Gallogly, and Geraldine Martin.

(Recommended for Language Arts and Social Studies, grades 3-5)

99.01.11
Women Writers and the Contemporary Short Story, by Douglas F. von Hollen

This unit offers teachers an approach to teaching the components of the short story that narrows the selections of material to literature which is both written by women authors and contemporary. There are numerous advantages to using this specific combination of material.

First, the short story is advantageous, because it is a form of literature by which our students are the least intimidated. It is not overwhelming in size, and it is often more easily understood than poetry.

The benefit to using contemporary literature is that it offers our students subject matter which is more closely related to their life experiences. With contemporary literature students are more likely to develop an interest in and not an aversion to literature.

Writing by women is important for two reasons. First, students need to be shown more examples of successful writing by women. The selections most anthologies offer do not reflect the fact that half of the world's population are women. Second, the writers themselves, and often their characters, are positive role models for the young women in our schools.

This unit contains numerous strategies to use. It offers suggestions on how to approach teaching the components of the short story such as plot, setting, and characters, and it offers approaches to ongoing assessment.

(Recommended for Language Arts and English, grades 6-10)

II. Art and Identity in Mexico from the Olmec to Modern Times

Introduction

The history of the Americas in modern times is history that begins in several places. For most classrooms in the United States, that history begins with Massachusetts in 1620 or in Jamestown a few years earlier. In the Yale New Haven Teachers Institute seminar, Art and Identity in Mexico, from the Olmec to Modern Times, fellows worked together to see alternative strands in American history, and to understand how the question of identity in the past in Mexico relates to identity in the United States today. In particular we looked at other points of departure for the way we understand the history of the Americas: one can also begin with the rise of high civilization in North America, with the Olmec, c. 1200 BC, or with the invasion of the North American mainland by the Spanish in 1519.

Over a three-month period, fellows worked to gain specific understandings of the Mesoamerican past, the Spanish Colonial era, and of modern Mexico. Together, we worked on topics ranging from the development of works we call art from the earliest periods through the rise of numerous high civilizations during the first millennium, especially the Maya and Teotihuacanos, and on to the complexity of thought and art among the Aztec on the eve of the Spanish invasion. We looked at the new imagery that took root in New Spain, particularly of the Virgin Mary in her manifestation as Guadalupe, but also at the preoccupation with race and class that was reflected in the so-called Castas paintings. Finally, we turned to the remarkable artistic production of the twentieth century in Mexico, both among the Muralists and artists who turned to smaller-scale works.

At every point, fellows worked together and cooperatively. First, we worked to enhance the direct reading works of art, here in New Haven at the Yale University Art Gallery and Peabody Museum and to develop skills to use with students of various ages. Second, throughout the course, fellows presented small lesson plans, forcing seminar members to participate as if in a second grade, or perhaps a high school social studies class. Through these endeavors, fellows developed curriculum units that not only apply to a given class but also can easily be adapted to different situations and levels and used in English, Spanish, or ESL classrooms. In every case, the units have been developed to respond to state mandates regarding reading, writing, and mathematics curriculum: what these units show is that such mandates can be met using fresh and imaginative classroom projects.

The resulting units that appear here range from focussed investigations of Maya and Aztec art and culture to new understandings of the works of Frida Kahlo. In every unit,

hands-on projects play a key role: students can learn to make a work of modern Mexican folk art or play the rudiments of Mesoamerican music.

Others offer preparation for tackling long-term projects, such as extensive mural-making. Most also incorporate ways of using local resources particularly in terms of museums and WPA mural programs that can easily be adapted to other regions of the U.S. Fellows have provided key step-by-step guides to using compasses and learning the concepts of mapping, and they have made it possible to prepare a steaming platter of fresh tamales. In at least two units, fellows have written scripts of short plays that can be produced in the classroom. In short, these units provide the grounding for any investigation in school classroom of art and identity in Mexico.

Mary E. Miller

Synopses of the Curriculum Units

99.02.01
The Aztecs: A Pre-Columbian History, by Silverio A. Barroquiero

This synopsis outlines the curriculum unit contents that will provide a series of lessons for a High School World Ancient Cultures course or for Spanish Level I, II, III and IV courses. It is my intention to provide a short history of the Aztecs prior to the Spanish conquest, an insight into their culture and religion, and a graphic interpretation of the "calendar stone" (La Piedra del Sol) as a final class project.

The Aztecs of ancient Mexico are generally the most widely known of all pre-Columbian peoples of the Americas. The dramatic and heroic story of their conquest and eventual destruction at the hands of the Spanish *Conquistadores* and the rediscovery in 1790 of the *Piedra del Sol*, the Sun Stone or Aztec Calendar, are known throughout the world. In 1978, when municipal workers laying underground electrical cable near the Cathedral in the center of Mexico City discovered the ruins of the *Templo Mayor*, the Great Temple, the recovery of a huge stone portrait of *Coyolxauhqui*, the rebellious sister of *Huitzilopochtli*, ignited a serious interest in Mexican archeology and the study of Mesoamerica history. Hidden under the soft soil of the capital city was a prodigious record of the sophisticated Aztec culture written in the blood-soaked stones.

Let us use the H.G.Wells Time Machine to visit Tenochtitlán, the Place of the Cactus, once the capital city of the Aztecs, now the heart of Mexico City. It was in its time one of the largest urban areas in the world. The end result of a long migration of the Mexica tribe, as the Aztecs were called then, the city was founded on a marshy island in Lake Texcoco in 1325. Eventually the entire area was to become known as the Valley of the Mexica, or Mexico. From here on, let us agree that Mexica will refer to the ruling tribe in Tenochtitlán, and the Aztec will be the generic term for the period and population under their rule. The Aztecs and the Mexica also spoke closely related languages. The students in this curriculum unit will be introduced to certain rules of pronunciation related to the Aztec language, Nahuatl, in order not to offend the gods and any living Aztec.

Of religion, one can say that the Mexica implanted firmly their war deity as the chief god of their trading empire, but also honored the various gods and goddesses of the subject cities and temples to many deities were raised in Tenochtitlán.

The Aztec Calendar (Piedra del Sol) is a massive disk of carved basalt, three feet thick and 12 feet in diameter, weighing some 24 metric tons. A veritable monument to art and science, the monolith is the depiction of the great and venerable cosmology of the Aztec universe. Students will produce a model of the *Piedra del Sol* as a final class project to be displayed inside the classrooms or on their school's interior walls.

(Recommended for World Cultures and Spanish I-IV, grades 9-12)

99.02.02
Popular Mexican Arts, by Val-Jean Belton

I have designed this unit for visual arts students who are enrolled in advance art courses. The students who participate in these classes should have had some previous knowledge of Mexican arts and crafts from other art classes.

Through a brief historical investigation, this unit will introduce students to the history of Mexican art, and how the arts of today link to that of the Pre-Columbian cultures of Mesoamerica. As active problem solvers in art, students will complete their own research on the Pre-Columbian art using the Internet.

One of the issues students will address in their research is the history of Pre-Columbian art. Students will also research and develop an understanding of Pre-Columbian art and its relationship of Mexican art today. They will also gather understanding about the relationship of themes in Pre-Columbian art and today's popular Mexican art.

Students will have the opportunity to experiment with different techniques and develop arts that are a part of the Mexican culture. These crafts consist of yarn paintings, amate paper cutouts and paintings, and gourd designs.

The Yale Art Gallery will be utilized as a foundational resource where students will visit and learn to analyze and interpret Mesoamerican art in order to develop a one-page critique.

(Recommended for Advanced Art, grades 10-12)

99.02.03
Mexicans: Mythology, Movement and Masterpiece, by Mary E. Brayton

Fifth graders study the Maya and Aztec (*Living in Our Country*, Chapter 9, "The First Americans") as part of their Social Studies curriculum. In Theatre classes, they are introduced to storytelling as represented in folk tales and mythology, which in turn reflect the cultures in which such stories came to be. Since nowadays, great focus is placed on interdisciplinary curricula, some of the early history of the Mexican people will be introduced through the vernacular of art and those voices, hands, and imaginations that helped to tell it. Students will gain a flavor of early Mexican civilization in visualizing a journey through the ancient city of Teotihuacan, visiting the Feathered Serpent, Quetzalcoatl, and learning to play a ball game with Hunter and Jaguar Deer, the twin brothers of the *Popol Vuh*, the Maya creation myth.

Approximately twelve and one half million Mexican Americans make up the second largest minority in the United States. Students will explore aspects of the early ancestral history of this group from the Paleo-Indians who crossed the Bering land-bridge some 30,000 years ago to Aztec merchants establishing trade (circa 1300). Artwork and photography, as well as stories, children's poetry and mythology will serve as background for the students' exploration into this culture.

Creative dramatics for the unit include: oral reading, discussion and analysis; characterization plotting; bio writing; story mapping; improvisation; tableaux vivants; storytelling; inventing a game; script writing; poetry recitation.

(Recommended for Theatre and Social Studies, grades 5-8)

99.02.04
Artistic Traditions of the Maya People, by Kenneth B. Hilliard

The purpose of this unit is to explore the rich and varied artistic traditions of the Maya people through music, dance, drama, and visual art. Special emphasis is given to the musical traditions of the Maya through the years.

The major focus of this unit is the musical traditions of the Maya people. This includes an explication about the traditional music used by the Maya, a brief overview of how music instruments might have been constructed by the Maya and what music is like for the Maya today.

Maya music groups were usually small ensembles. These groups used a few primary basic instruments that were members of either the percussion family or the woodwind/brass family. The percussion instruments used were a large stationary drum and a smaller slit gong drum. The woodwind instruments used were primarily the flute with a trumpet like instrument representing the brass family.

The Maya regarded musicians as someone who was born with God given talent. This was a position held in high esteem by the Maya.

Other elements of this unit include a brief history of the Maya and an overview of some of the significant periods in the history of the Maya.

This unit also refers to some of the art practices of the Maya. This includes body painting, body tattoos, orthodontia, skull deformation and other ritual practices. The color of the paint, the type of decorative clothing and the amount or type of other body ornaments often was related to the status that a Maya person held in their society.

This unit is adaptable for use in social studies, art, dramatic art, or other related arts areas. This is in addition to its intended purpose of use within a music class. This unit is adaptable for students in grades K-8.

(Recommended for Music and Social Studies, grades K-8)

99.02.05
The Maya Culture of Mesoamerica: Art Works in Time and Space, by Pedro Mendia

What are some of the ways that a culture records its history? What messages do we leave to future generations? Where are these messages inscribed or depicted? Who are the ones that pass this generational knowledge and in what ways is the passing of these messages accomplished? How is that knowledge different from previous cultures in time?
In an attempt to integrate the subject of visual arts into the district curricular standards through the use of an integrated performance-based learning / assessment tasks this unit explores the topic of the Maya. These tasks are specific to the second grade curriculum but can be adapted to meet the needs of younger and especially older students through modification.

The curriculum unit is divided into two sections. The first one provides the reader with some background knowledge on the subject matter. In the second section, the reader can see a series of lessons based on performance tasks that the students need to accomplish to master the content area based on the Mayas.

A list of student and teacher electronic and other resources is provided for the implementation of the unit.

(Recommended for Integrated Social Studies Language Arts, Mathematics through the Visual arts with the aid of Media Library and Technology resources, grades 2-4)

99.02.06
Diego Rivera: a Man and His Murals, by Susan L. Norwood

The curriculum unit Diego Rivera: a Man and His Murals was written for fourth grade students. The unit will enhance the Social Studies curriculum as well as the Art curriculum. In this unit students will learn about the artist Diego Rivera, the Mexican Mural movement and New deal Programs. Moreover students will learn about the murals in New Haven, Connecticut created during the Works Progress Administration and how they relate to the Mexican mural movement.

The students will learn how mural art can teach a wide audience. The students will demonstrate what they learned by creating a mural in their school. This is an

interdisciplinary unit that will be taught by the fourth grade teacher, the art teacher and the media specialist. Computer and research skills will be developed and the reading of biographies will be sued as a research tool. The length of the unit will be one month. Several field trips will be planned in order to view some local murals in neighborhood schools.

(Recommended for Social Studies, grade 4)

99.02.07
Broken Shields/Enduring Culture, by Dora J. Odarenko

Abstract: "Broken Shields/Enduring Culture" is a six week unit in language arts, social studies, and art for sixth graders that will provide an appropriate curriculum for Hispanic Heritage Month. The unit can be adjusted to younger grades. Multidisciplinary hands-on projects will be combined with writing assignments throughout. Maps and graphics included.

Part One is Picturing the World. Students will work with compasses and then label the walls of the classroom with the four directions of the compass written in a number of languages. To strengthen their sense of time and place, students will work with maps, marking their own trip to Mesoamerica with Maya and Aztec glyphs. They will also make screenfold books in which, like the Maya and the Aztec, they can record important information. They will study several versions of the European Contact that dramatically changed Mesoamerica and will also create collage maps of the ways in which the Maya have continued to picture their world.

Part Two is Living in the World. Now students will construct a small Maya village, exploring its ecology. Teams will begin research projects on Aztec as well as Maya topics, culminating in a fiesta for families or other classes in which they present their work and serve chocolate caliente Mexicano. Finally they will study, through an NEH video, the sacred book of the Quiche Maya, the Popol Vuh, regarded as the masterpiece of Native American literature. Characters and themes will be familiar to students from work already done in the unit.

(Recommended for Language Arts, Social Studies, Arts and Science, grades 3-6)

99.02.08
Learning to Appreciate Art: The Influence of Mesoamerica on Mexican Art, by Genoveva T. Palmieri

For a high school course Latin America Art and Culture this curriculum will given an opportunity to teach encourage and support students who may become future artists.

Art appreciation is a special learning experience. Artists and their work represent the creativity that human beings are capable of; and, for those of us who were not given that gift, understanding and appreciating beauty and its uniqueness can be a joy. For students, especially those involved in the arts, is important to recognize the importance of art not just in their lives, but the importance that art plays in their cultures.

The curriculum introduces students to native cultures of Mesoamerica; the influence of native cultures on art, especially Mexican cultures.

The unit covers the Mexican artist Frida Kahlo and how she used the ancient civilizations of Mexico in her artistic creation. She was able to blend most effectively those native artistic roots with a very modern European art development, surrealism.

This unit can serve also as an introduction to Mexican and interesting aspects of Maya art. For young women artists Frida Kahlo can serve as a role model because of her unique experiences during her life.

(Recommended for Art and Social Studies, grades 11-12)

99.02.09
Popul Vuh, by Norine A. Polio

The Popol Vuh, a sacred narrative of the Quiché Maya of Guatemala, survived the book-burning by Spanish missionaries in the 1500's. It was hidden and found in 1701 by a Spanish friar, Padre Francisco Ximénez, who recognized its value, copied the text, and translated it into Spanish.

The Maya story of the creation is contained in the Popol Vuh. According to this account, the god of the sky, Heart of Sky, and the god of the sea, Plumed Serpent, created the earth, mountains, and forests. They were pleased with their work, but wished to be thanked, praised, and honored for their accomplishments. Plumed Serpent and Heart of Sky then proceeded to create animals and men of mud and of wood, none of whom could communicate. It was not until the gods fashioned men of corn that the wonders of creation could be sung to the other gods for posterity.

This curriculum unit contains a dramatization of the Popol Vuh and technical suggestions for a simple reading or full-scale performance. It ends with a recipe for sweet tamales, a symbolic creation of people of corn shaped with cornmeal dough and wrapped in corn husks.

(Recommended for ESOL, Language Arts and Social Studies, grades 4-8)

99.02.10
Art Images of Tenochtitlan — Past and Present: the Case of the Virgin of Guadalupe, by Luis A. Recalde

In the past I have worked on some curriculum units about the history of Tenochtitlan as a city and as a center of power in the Mexico of the sixteenth century, before and during the conquest. In these units my interest rested on the opportunities to create an atmosphere of learning and exploration with my students. The wealth of the cultures involved and the theme itself presented for students of the fifth grade level ample resources to apply a complex array of skills in any particular task. Building a model of a city was one of those tasks. At present it is my intention to create a curriculum unit in which students will apply their previous knowledge to expand the possibilities for further learning in a multidisciplinary context. Icons and objects of power created by artists of Tenochtitlan were and are created and recreated in the past and in the present. The Spanish cleverly realized the power of the Aztec icons and devised methods to incorporate them into the new culture emerging from the original encounter. Such seems to be the case of the Virgin of Guadalupe. I would like to give emphasis to the transitional period when the colony was established to throw some light on the mechanisms of communication, control and power. This would make us understand Mexico at the present time better.

(Recommended for Art, Math, Social Studies, and History, grades 6-12)

99.02.11
Reflections in the Mirror: A Visual Journal and Mural Inspired by Frida Kahlo Diego Rivera, by Martha Savage

Reflections in the Mirror examines identity through the creation of two contrasting forms of visual expression- visual journal and mural. The unit was written for middle school students, but is adaptable for younger or older students. It is designed to take place in an art studio, but a variety of educational settings are appropriate. The catalyst for this exploration is two twentieth century artists of Mexico, Frida Kahlo and Diego Rivera. Kahlo and Rivera offer contrasting approaches to the expression of identity. Their work provides a glimpse into individual identity in relation to society as well as the forming of the modern Mexican identity. Kahlo and Rivera guide and inform this unit in two ways- through mode of art production and art work. Student art activities follow the form and content of Kahlo's diary and the making of a mural. One key work by Kahlo and Rivera is examined in depth. By looking at the art of Kahlo and Rivera and experiencing their mode of expression, students will visually investigate topics of Kahlo's and Rivera's identity and their own. The activities provide a means for reflecting upon and expressing the private side of self identity as well as the public persona.

(Recommended for Art, Language Arts and English, grades K-12)

III. Immigration and American Life

Introduction

Most Americans like to think of their country as a "nation of immigrants," and indeed no other country has received so many immigrants in the last two hundred years. Moreover, as a result of changing world conditions and more generous immigration laws after 1965, the U.S. has experienced its fourth "great wave" of immigration during the last third of the twentieth century. That wave is likely to continue well into the next few decades, affecting every phase of American life.

Yet even today, immigration does not form so large a share of the U.S. population as it does in other nations, including Canada, Argentina, and Australia. American history also displays important and often successful movements to exclude or discriminate against immigrants, as well as to welcome them. The most extensive and effective historical discriminations have been on the basis of race, followed by class and political ideology. Hence the relationship of the U.S. to immigrants, past and present, is more complex than the "nation of immigrants" slogan suggests. Currently, important controversies related to immigrants include calls for restrictions on entry and access to public health, education, welfare services, and jobs; disputes over bilingualism, multiculturalism, and affirmative action; and conflicts between various groups of new immigrants and native populations, especially blacks, as well as with each other.

The seminar on *Immigration and American Life* chiefly examined primary sources on political debates over immigration from the founding era to the present, along with secondary sources detailing the major legislative developments in U.S. immigration history. The first half examined historical immigration debates, including those between the Jeffersonians and the Federalists, the Know-Nothings and their opponents, champions of Chinese exclusion and the literacy test, the adoption of the National Origins Quota system in the 1920s, and its repeal in 1965. Later sessions explored current immigration policies and controversies, including the relationships of immigrants to the U.S. economy, disputes over bilingualism and multiculturalism, and the impact of immigrants on U.S. politics. Discussions centered on why Americans historically had favored or opposed various sorts of immigrants and what current policies should be. Those discussions revealed that, today as in the past, issues of appropriate immigration policies are genuinely challenging and complex. Though popular discussions of immigration issues are often beset by gross misconceptions, accurate information is hard to obtain. Even the best information available still leaves us with many hard choices that reveal much about our basic political values and commitments.

In their curriculum units the teachers who participated in the seminar have adapted these themes for students in a wide variety of courses at a wide range of levels, with originality

and diversity appropriate to the subject matter. One unit comprehensively documents U.S. immigration history while deriving from it a range of mathematical exercises; another similarly uses immigration statistics to teach graphing techniques. Others focus in revealing ways on more particular aspects of U.S. immigration history. Several feature particular groups of immigrants. These include the Italians, emblematic of the great immigration from southern and eastern Europe during the late 19th and early 20th century; Africans, involuntary immigrants to antebellum America who are only becoming a significant voluntary immigration stream today; and Puerto Ricans, not truly immigrants, yet not clearly fully equal U.S. citizens either. One uses representative figures from New Haven's past to tell the history of immigration in this city, a microcosm of immigration to America's northeast. Another focuses on the Irish in New Haven and how the St. Patrick's Day parade has always been a fascinating window on their experiences. Still another reverses perspectives, tracing how European immigrants affected the first migrants to this continent, the Native American tribes. One concentrates on one of the most controversial yet important issues related to current immigration, bilingual education. Another, recognizing that the great drama involved in immigration has long inspired great American novels, plays, and films, uses student research on immigration as preparation for training in acting and dramatic presentations.

It is a measure of how rich the topic of immigration and American life is that even these diverse and fascinating units only touch on a small number of the groups, themes and issues that could be pursued under this general heading. Yet the manner in which these units generate illuminating insights into politics, economics, and cultural and social life within and between so many groups seems quite significant. In terms of one enduring educational goal, achieving a deeper understanding of the human condition, we can give a profoundly affirmative answer to questions about the importance and value of immigration in America's past, present, and future.

Rogers M. Smith

Synopses of the Curriculum Units

99.03.01
Immigration in the United States, by Joyce Bryant

In this unit the focus is on math and social studies through team teaching. Through math one will be able to deal with word problems, statistics, economics and population which are related to math and social studies.

Immigration is the act of coming to a foreign country to live. Leaving one's country to settle in another is called immigration. Immigrants flee their countries because of persecution, war, disasters, famines, and epidemics. Some forsake their homeland seeking adventure, avoiding unbearable family situations and to reunite with loved ones. They also seeks better jobs, better economic security and to get away from religious persecution. Professional people emigrate because of better opportunities.

Most people find it difficult to move from their native land to a strange country, but throughout history millions have done so. The heaviest immigration worldwide took place from the early 1800's to the Great Depression. Most come from Europe and more than half emigrated to the United States.

The constitution of the United States begins: We the people of the United States. We know that the United States is not made up of a single people. People from all continents came to America, and they forged this nation and then made it their own. America has been called the melting pot. It is not merely a nation, but a teeming nation of nations.

(Recommended for History and Math, grade 8)

99.03.02
Those Who Built New Haven, by David J. Coss

This unit entitled "Those Who Built New Haven" will allow students to obtain detailed knowledge of their city's history through the story of those who immigrated and worked here. Using primary and secondary sources, students will explore the struggles and triumphs of some of the diverse groups who have contributed to New Haven over the past three hundred and fifty years.

Immigration is a topic suitable for all grades who study aspects of American History. Therefore this unit will provide background, age appropriate resources, suggested lessons, and goals and objectives which can be applied to students at the primary, middle, and senior high school levels.

“Those Who Built New Haven" will focus upon the unique nature of the immigration experience for individuals and ethnic groups within New Haven. From John Davenport, to Frank Pepe, each immigrant's story will be compelling to the diverse student body of this city as they encounter those that paved the way in New Haven.

(Recommended for Social Studies and U.S. History, grades 4-12)

99.03.03
Native Americans and the Clash of Cultures, by Peter N. Herndon

My teaching unit, “Native Americans and the Clash of Cultures” is intended for high school U.S. history or World Cultures students. Also a course on civil law could benefit from the Lesson Plan section which gives attention to the recent legal battles the Native Americans have been fighting. I had several content goals in mind while preparing this material. First, that students would learn more about the conditions that forced the first Americans to arrive on this continent. Second, that they would learn more about the spread and development of early cultures in America. Third, students would become more aware of the reasons for the misunderstandings between the earliest Americans and the European immigrants, many of which continue to the present day. A fourth content goal is for students to discover what Indians are doing to preserve and promote their culture in a country that has traditionally excluded them from political and social participation. What kinds of issues and conditions are creating a renaissance in Native American life that are causing the rest of us to take notice? Another goal is for my students to use individual and group research methods that would enable them to make a classroom presentation to other students on an issue of contemporary interest to Native Americans. Finally, I want students to try to understand the cultural contributions and misunderstandings about Indians that have been perpetuated over the centuries and what we can do today to help dispel the old myths and misconceptions.

(Recommended for U.S. History, World History and Law, grades 9-12)

99.03.04
Immigration and American Life – Graphing Immigration Data, by Mary E. Jones

The purpose of this unit is to use immigration data to teach graphing skills, Since this unit is being written to be taught to an inner-city class of minority students, I have chosen immigration data that represents their minority groups plus some other minority groups. My school’s population is made up of approximately 50% Black and 50% Hispanic (45%+ Puerto Rican).

I have chosen to use these minority groups in the unit: African, Caribbean, Puerto Rican, Chinese and Japanese. The narrative includes a brief history of each group’s sojourn to

America. The Caribbean section will only include countries that have a predominately Black population.

In addition to the narrative, the unit contains a large amount of data that can be used for graphing. Step by step methods for completing bar, circle and line graphs are included.

Even though this unit was written primarily to teach graphing techniques, the unit is also designed to encourage students to use the Internet for research. Computers can also be used to construct graphs.

Since more than one discipline is included in this unit, it can easily be adapted to be taught as an integrated unit. (i.e. Social Studies, Math and a self-contained Special Education class; or a team of Bilingual self-contained classes).

(Recommended for Math, grades 6-8)

99.03.05
New Beginnings, by Michele E. Massa

When I was a child, my grandparents would frequently tell the story of their parents' departure from Italy, and arrival in America. What gave them the drive to overcome any obstacle and follow through with this endeavor?

For a person born in America, rights granted under the Constitution, such as freedom to work in any field, freedom to love whomever they choose, and the freedom to worship whomever and however they choose, are among the everyday issues which may be taken for granted. "America land of the free". However, for those people born elsewhere who desire to obtain American citizenship, whether coming from a heavily restricted country, or one of less opportunity, these freedoms might be found to be a treasure, overwhelming, or maybe even frightening. Yet the immigration process continues daily.

A vehicle for immersing students into the incredible process entailed in coming to America will be to put them in a first person scenario. Students will enjoy exploring the creative process by choosing and creating a character from an origin other than America, and other than their own cultural background. Through research and character work, the students may come to a greater understanding of the desire to come to America, incorporated with the wondrous different cultures that make up this "Melting Pot".

New Beginnings is a drama unit that can be applied, in a greater or lesser extent, to any age group of students. The unit can be listed in the index under such headings and sub-headings as: "Acting" "How to develop a character", "Immigration" "Acting toward America" "Drama" "Multicultural Improvisation".

Very often student actors consider building a character for a role to be more complicated than is necessary. The tendency is to rely upon the words of a script and create a persona around those words without a foundation. The goal of this unit will be to use the immigration process as a specific point of reference for the student actor to Fuso on in order to develop an in-depth, connected, and interesting character.

(Recommended for Drama and Speech, grades 9-12)

99.03.06
The Italian Immigrant Experience in America (1870-1920), by Joan A. Rapczynski

The curriculum unit presented, The Italian Immigrant Experience in America (1870-1920) is to be incorporated into the U.S. History II survey course required of all eleventh graders. The unit will focus on the Italian immigrant experience between the years 1870 and 1920. The unit is divided into five main categories; reasons for leaving their birthland, experiences during the crossing, treatment and procedures followed while at Ellis Island, immediate settlement, and examples of prejudice and discrimination. As the general school population of certain high schools in New Haven is rather diverse, it is imperative that teachers embrace as many ethnic and racial groups as possible. I believe that by studying the various groups students will learn not only about the differences in their cultures and backgrounds, but shared experiences as well. America has become a nation of immigrants; person's of many nationalities, languages, customs, and religions. To tell their story is also to tell the story of the United States. Oscar Handlin in *The Uprooted* begins his introduction, "Once I thought to write a history of the immigrants in America. Then I discovered that the immigrants were American history."

(Recommended for U.S. History, grade 11)

99.03.07
The Non-Immigrant Immigrants: Puerto Ricans, by Elizabeth A. Scheffler

Although high school students in Connecticut are required to take a United States history class that may have a few pages devoted to the Spanish-American Ware, there is little opportunity to learn more about Puerto Rico, the original people of that island the four hundred years of Spanish rule, and the hundred years as a colony of the United States. This seems an unfortunate omission, particularly in schools with increasing numbers of Puerto Rican students and in cities with large Puerto Rican populations.

The purpose of this unit is to present some of the ingredients that have gone into making the rich culture of Puerto Rico, the forces that have caused Puerto Ricans both to leave the island and to return to it, and the resiliency that Puerto Ricans must have to preserve their identity as a people. It is important for all of us, as U.S. citizens, to be aware that our nation still owns a large colony at a time when the United Nations has pressured other

countries to give autonomy to their scattered colonies. We should know what it means when Puerto Rico hold a plebiscite to determine its future status, when even the Puerto Ricans themselves are unsure how they will be affected by th3e vote. Whether Puerto Rico becomes the fifty-first state, remains as some form of commonwealth, or opts for independence, we should be able to identify the forces exerted by the United States that have created the situation and the need for decision.

(Recommended for History, grades 11-12)

99.03.08
St. Patrick – Symbol of Irishness, by Michelle E. Sepulveda

The United States is made up of many people from different lands who came searching for a better life of religious freedom in one way or another. Most of these were ethnic groups immigrating in masses who strove to become blended into the American melting pot but also held onto traditions that ultimately set them apart from others.

The catholic Irish Americans embraced the celebration of St. Patrick's day. It is a partly festive, partly religious holiday celebrated annually on March 17th. Each year church services are followed by parades and parties commemorating the life of their patron saint and his gift of Catholicism to Ireland. Most Americans know of the festive part and can identify the wearing of the green with Irish pride, music, dancing, songs, and heroes represented in the parades.

The public celebration of St. Patrick began in New Haven 157 years ago, although it is believed that many Irish immigrants celebrated amongst themselves well before that. As J. F. Watts has noted, "The public celebrations of the day, which began in 1842 have always been more than just marching, singing, and dancing. They have been in reality a chronicle of the lives and times of New Haven's Irish people, a history of their causes and concerns, their hopes and fears, their triumphs and failures."

The aim of this unit is to introduce students to the story of St. Patrick and the history of the Irish in America by exploring the history of New Haven's St. Patrick's Day parade.

(Recommended for History, grades 5-8)

99.03.09
African-Americans in Immigration and American Life, by Joseph A. Wickliffe

The focus of this unit will be the teaching of immigration, explaining how human migration started in Africa. Students would be able to understand the migration, or movement, from one region or country to the U.S.

The unit is going to be taught to students of various backgrounds and color, in other words students of diverse population. The grade level would be 9 and10. The unit will cover a little on slave trade to the sixteenth and seventeenth centuries. The idea of the unit is to allow the students to understand:

- What kind of immigration policy exists?
- Who are the major power brokers?
- How policies were shifted?
- What constituted protections are in place for African immigrants?
- Why African-Americans failed to make headway?
- What happened after the initial immigrant niche was put into place?
- How the immigration system works?

This unit is being written to be taught all year round. The unit will open with a lesson on how to read a map of Africa, Asia, and the western hemisphere and how people migrated to America. Lesson two will entail writing an essay on Africa and America, while lesson three will require a hands-on teaching method.

(Recommended for History, grades 11-12)

99.03.10
America's Future Culture, by Carolyn S. Williams

Think of this study as a skill-based unit aimed at the art of debating. Think of it, if you will, as a course in language appreciation that was designed for students who are interested in oral speaking, in the passion of persuasion, in the logic of the law; or as a course for those who are interested in free-thinking and learning. If you prefer, you can think of this study simply as an idea/plan for some part of the year's curriculum. For myself, along with my seventh grade students, who have been identified for New Haven's TAG Program, this study is a combination of all of the above. The overall objectives of this six-week study is to invite students and teachers to investigate America's past immigration practices, analyze its present policies toward bilingual education for minority immigrants and forecast a possible future America with its ever-increasing immigrant population and their different languages.

Based on the changing and varied ethnic populations of New Haven's classrooms, the need for early language intervention is clearly drawn. Early language training will benefit all young children regardless of their native tongues and open worlds of communication among them. As teacher in a resource room program for gifted children, I am exposed to students of various ethnic backgrounds and skill abilities, many of whom would likely be affected by immigration policies that relate to bilingual education and

civil rights issues. My interest in exploring this topic of "America's Future Culture" is directly related to the changing needs of the educational system as it is affected by immigration policies.

(Recommended for Social Studies, grade 7)

IV. Detective Fiction: Its Use as Literature and as History

Introduction

Mystery and detective fiction is the most widely read body of literature in the United States and Great Britain, and yet it is little read and even less studies in our classrooms. One hears that students read far less today, less skillfully, with shorter attention spans, than a decade or more ago. One might think that mystery, detective, and spy fiction, with their plot-driven narrations, their often realistic descriptions of life in the streets, and their frequently short and direct sentence structure would be used in schools to attract students to reading. But this does not appear to be the case.

The best of this fiction is well-written, clear, descriptive, and engaging. Perhaps eighty percent of the books published in the genre are little more than entertainments - not to be dismissed, as Graham Greene well demonstrated when he called some of his best books by this somewhat denigrating work - but twenty per cent is surely as demanding as any modern novel. Often the fiction reflects reality; equally often it reveals our most basic fears. The structure of the traditional mystery is ideal for teaching how to read closely, how to ask good questions, and how to interrogate a text which deliberately privileges a narrative voice and thus misleads. The classic questions of the reporter and the historian - when, where, what, who, how and why - are set out in most mystery novels. Surely in reading one's way across the landscape described by these questions, even quite young readers can come to understand the continuum from cause to effect to responsibility. "Whodunit" is about accepting responsibility, or having responsibility placed upon a protagonist's shoulders by the processes of investigation, enquiry, and logic. This is what the classroom is about, and a reluctant reader can stalk these issues while (dare we say it?) enjoying a text.

There are problems with such fiction, of course. Often detective novels lend credibility to language which is not permitted in the classroom (though the coin of the street). Often descriptions of violence, drug use, sexual relations are raw in a way more "serious" literature blunts. Yet the gains from reading what one experiences outside the classroom will, for many young people, outweigh the problems. This seminar is based on the assumption that it is better to be reading than not to have read at all.

The units that follow offer material adaptable to a variety of age levels, from the early grades to advance readers in high school. They reflect the four broad categories within the literature: the puzzle novel, or English "cozy" so well represented by Agatha Christie; the private eye novel associated with Raymond Chandler, which closely resembles the "Western" or cowboy novel of an earlier time, in which a single individual operating outside a public bureaucracy make a difference (and, at times, resorts to a form of vigilante justice); the story of steady interrogation of evidence and of people, of testing

the irrelevant clue against the environment, as in the police procedural, so nicely represented by the work of Ed McBain (who is Evan Hunter and who knows his classrooms); and the classic novel of espionage, of the exercise of power over others through the finding and possession of information and the spread of disinformation. We are all detectives in our daily lives and this fiction mirrors the tasks we often set ourselves. These units reflect this mirror and will provide useful points of entry into this vast body of popular literature, the novel of crime in all its forms.

Robin W. Winks

Synopses of the Curriculum Units

99.04.01
Learning English Through Detective Fiction, by Daisy S. Catalan

This curriculum unit is designed for high school students who are English language learners or students who take English to Speakers of other Language (ESOL) classes and whose proficiency in English is in the intermediate level (levels indicate Beginner, Intermediate, Advanced). The class will read their first detective novel during the fourth and last marking period of the school year as a culminating project after reading the different types of literature in their required textbook. The students will read Carolina Garcia-Aguilera's novel *Bloody Shame* her second 0published book (she has published three so far). This book is an investigation of a murder that involved the death of her childhood best friend. Garcia-Aguilera is a Cuban-American private investigator for ten years living in Miami, Florida. The characters in her novel reflect her first hand experiences as a detective. She created Lupe Solano, a twenty-six years old Cuban born private eye who is Miami smart, considered one of the best in her profession, charming and sexy. Aguilera writes directly and clearly which makes her book accessible to students who are English language learners. Her sentences and paragraphs are usually short and straightforward and her vocabulary is simple and easy to understand.

Before the students will start reading the book they will learn some terms used in detective stories. They will make their own dictionary of words in a separate notebook, find the meanings in their native language using their bilingual dictionaries; write similar words if they find any and then use the words in complete sentences. They will continue to write new words in their dictionary as they progress in their reading. They will also recognize some literary terms that appear in the novel such as point of view, imagery, characterization to name a few. The students and teacher will keep an interactive journal concerning their thoughts and reactions to the passages in the novel. The students will learn some grammatical points and do grammar exercises using sentences and paragraphs from the book. They will develop their writing skills effectively and try to eliminate the anxiety whenever a writing activity is involved by learning different pre-writing techniques like brainstorming, listing, clustering and webbing. Likewise, the students will engage in the different stages of the writing process closely monitored by the teacher. Finally they will watch detective/spy films at the beginning and at the end of the unit to make the detective novel a reality and to understand better the genre.

(Recommended for English as a Second Language, grades 9-12)

99.04.02
Teaching Reading Comprehension and Writing Skills with "Whodunits", by Christine A. Elmore

Because the detective story possesses satisfying resolutions as well as fast-moving plots, it holds great appeal for readers of all ages. It challenges the reader to sort out clues, make judgments and arrive at conclusions in order to solve the mystery. Such high-interest stories have particular appeal for young readers and writers and, I believe, can serve to motivate even the most reluctant ones. Indeed, the mystery story is an ideal vehicle to encourage wide reading and to develop writing skills.

In this curriculum unit we will read books from four popular children's mystery series: Nate the Great, Meg Mackintosh, Sebastian Super-Sleuth and The Bloodhound Gang. As we explore the story elements we will note how well they follow the classic blueprint of the detective story. Our emphasis will be on improving reading comprehension skills and we will use a variety of oral and written retelling strategies to arrive at that end.

After immersing ourselves in these mystery stories, we will move on to writing a mystery story of our own, going through the writing workshop process of brainstorming, mapping out ideas, writing numerous drafts and conferencing regularly with the teacher. The final product will be a classroom-published mystery book.

Although designed for third-graders, this unit can easily be adapted to other grade levels.

(Recommended for Reading, Writing, Language Arts, Grade 3)

99.04.03
Wrapped in Mystery, by Sandra L. Nash

"Wrapped in Mystery" is a curriculum unit designed to implement the mystery genre into a sixth grade reading program. It focuses on reading comprehension and strategies to improve student performance. It also has a third part which outlines literature circles to foster independent reading. The goal is to teach reading skills through a venue that students enjoy. Hopefully, students will look at other mysteries-be it mathematics, puzzles, or life situations, and apply problem-solving skills learned through this unit.

The materials selected vary. Two classic pieces of literature are used, "The Invisible Man" and "Murders in the Rue Morgue." My purpose is to introduce students to a classic piece and to appreciate its significance in this genre of literature. Two contemporary pieces were also used, "The Chicken-Coop Monster" and "The Case of the Stolen Ring." Some students may like the old, some the new, but either way they'll be wrapped in mystery.

(Recommended for Reading and Language Arts, grades 5-8)

99.04.04
Reading Clues Closely, by John M. Oliver

The following Curriculum unit is intended for high school writing and English classes. Reading detective fiction and writing analytical responses is the primary goal. Since detective fiction, in order to be a tool for learning, must be put into a critical context, students will consider the elements of genre and topoi associated with it, various figures of speech, the historical setting of the book, the role of the narrator and so forth. Rather than stick just to detective fiction, this unit includes a discussion of T.S. Eliot's poetry and its use of allusions (where the reader who would uncover the secrets of a poem must be in many ways a detective), and an essay making comparisons between the formulaic nature of the poetry of Homer and the fiction of Raymond Chandler. It is my hope that my suggestive approach will prove both informative and entertaining to any teachers that open it, and especially applicable to a language arts and literature curriculum.

(Recommended for Writing, Creative Writing and English, grades 9-12)

99.04.05
Chocolate and Ice Cream Across the Curriculum, by Donnamarie Pantaleo

Learning across the curriculum is an interactive way to allow students to construct meaning through a variety of problem solving experiences. The use of literature and other resources such as hands on projects and experiments provide students the opportunity to both construct meaning and knowledge by building connections between subjects. Literature provides educational value for content area learning. The literature selection that will be used in my unit is *The Chocolate Ice Cream Sundae Mystery* by Gertrude Chandler Warner. This story is part of Warner's *Box Car Children* series. The characters of the series are four orphaned children, Henry, Jessie, Violet and Benny Alden who live in an abandoned boxcar. In the *Chocolate Ice Cream Sundae Mystery*, the children are working in the oldest ice cream parlor in the town of Greenfield. There's a new owner and things are going well until chocolate ice cream, sundae glasses and whipping cream begin to disappear. It's up to the Alden children to find out who is trying to ruin the ice cream parlor.

This unit divided into five sections. In the first section a synopsis of the story is provided. Also, biographical information about the Gertrude Chandler Warner is presented. Warner's popular series is a reflection of her childhood and love of teaching. This information will provide both teachers and students insight as to how her wonderful stories came about. The second section tells the story of chocolate. Chocolate is pleasure food that is nearly desired by all. Chocolate is not just a desired food but a craved one. It is important to explore the historical, social and scientific aspects of chocolate in order to

realize the significance this incredible food in our culture. The third section looks at the story of ice cream. Though ice cream's history is not as rich as that of chocolate, however, this food shares the same irresistible qualities, especially for Americans. Incorporated into the unit is trivia on both chocolate and ice cream that will provide teachers and students a tasty look of these two delicious treats. The fourth section provides the objectives for the unit in each content area. Lastly, lesson plans for language arts, math, science, social studies are presented. Activity sheets are included in this section.

This unit incorporates several approaches that will take this delicious theme across the curriculum. First, a whole language approach will be used to involve students in all forms of communication. Communication skills such as reading, writing, observing, listening, speaking and illustration will be a part of each lesson. Communication skills will be integrated into each lesson. This approach allows language skills to grow when stimulated by interest in the topic.

(Recommended for Special Education, grade 6)

99.04.06
Arousing a Child's Curiosity – What Is It?, by Gwendolyn Robinson

The purpose of this unit is to familiarize third through fifth graders with the key elements in detective fiction stories and to solve an unsolved mystery song. Most detectives are looking and readers wondering What Is It?

In this unit you will use story mapping, semantic mapping, make a relief map, have fun with coordinate geometry (made easy), and discover or create What is in the Wooden Box.

The song goes like this:

> As I was walking by the beach on one bright, sunny day
> I saw a great big, wooden box a floating in the bay
> I picked it up and opened it up and what to my surprise
> Oh I discovered a (clap* clap* clap*) right before my eyes.
> Oh I discovered a (clap* clap* clap*) right before my eyes.
>
> I picked it up and ran to town as happy as a king
> I took it to a man I knew who'd buy most anything
> And this is what he said to me as I walked in his shop
> Oh get out of here with that (clap* clap* clap*) before I call the cop.
> Oh get out of here with that (clap* clap* clap*) before I call the cop.

I picked it up and turned around a running for my life.
And then I went to take it home to give it to my wife.
But this is what she said to me as I walked in the door
Oh get out of here with that (clap* clap* clap*) and don't come back no more.
Oh get out of here with that (clap* clap* clap*) and don't come back no more.

The moral of this story is if you are on the beach
And you should see a wooden box and it's within you reach
Don't ever try to pick it up is my advice to you
Cause you'll never get rid of that (clap* clap* clap*) no matter what you do.
Oh you'll never get rid of that (clap* clap* clap*) no matter what you do.

Students and teachers alike will enjoy coming up with possible contents of the box. The lessons this unit teaches will help you come to your conclusion. CMT helpful. A teacher friendly unit.

(Recommended for Reading, Phonics, Comprehension, Coordinate Geometry, and Geography, grades 3-5)

99.04.07
Lessons in Drama: Detective Fiction and the Interactive Audience, by Paul E. Turtola

My curriculum unit concentrates on two primary areas:

A: Creating drama lessons based on detective fiction where interaction as an audience member is a part of the educational experience.

B. An in depth study of the audience and how our aesthetic sense of culture has changed throughout our existence.

This unit deals with improving young people's audience skills, and particular emphasis is placed on interactivity, proper conduct and accountability. By looking into the characteristics of theatrical audiences of the ages, perhaps a clearer picture of our modern viewers can be formed.

Part 1: Detective Fiction Lessons

Some of the lesson plan strategies deal with using creative ideas to gather data, review the information and make a final statement. Most of the materials provided are art supplies and library reference tools, but theatrical activities also play a vital part with

creativity. The need to act out certain cases will help the "junior detectives" work out their theories and perhaps even solve the crime.

From Lesson Plans to Research:

Why Study Interactivity and a History of the Audience?

To properly understand the concept of interactivity it becomes important to study historical aspects of groups of people (not just theatergoers) who attend artistic events.

Part 2: Studying the History of Audiences

By researching the characteristics of audiences through the ages, a picture of what attracts our audience may help determine the types of drama that work well in today's theaters.

Part 3: Interactivity

An accurate view of culture must come from people sharing their views about events with each other, by experiencing events together, and interacting to a certain degree with what they experienced.

(Recommended for English and Drama, grades 6-8)

99.04.08
Who Did Steal the Cookie From the Cookie Jar?, by Kathleen Ware

The New Haven Public School system has made literacy its top priority. Through the use of the balanced literacy approach, the system plans to increase the reading competency of all its students.

Detective fiction, mysteries, and suspense stories lend themselves as an excellent source of literary work through which to capture the attention of children and adults alike. Through the use of detective fiction this unit will attempt to motivate the students to read and listen for detail, for pleasure, and will develop the skills necessary to become critical thinkers and analyzers.

Children and adults alike love to participate in the singing of the song, “Who stole the cookie from the Cookie Jar?” the mystery of the missing cookie when sung by children and adults is most times left unanswered. The final person in the round of singing usually ends the quest for the answer by passing the blame back to the originator of the song. I’ve chosen this favorite song as the plot for the mystery to be developed and solved by the kindergarten children in my class. Though this unit is being prepared for

children of kindergarten age, it can be easily adapted to meet the needs and interest of children of a variety of ages and abilities.

(Recommended for Reading and Language Arts, grades K-2)

99.04.09
Using Detective Fiction to Raise Interest in High School Readers, by Barbara W. Winters

Detective fiction can ignite interest in reading among teenagers. Finding the "right" materials for students who are reading far below grade level is a major task for a teacher. The theory behind this unit is that the works of Walter Mosley, a contemporary African American novelist and Easy Rawlins, a central character in a series of Mosley's books in particular, will prove both familiar and attractive. It is Easy's voice that tells about everyday life on the streets of Los Angeles. It is Easy who finds personal troubles with the cops as he attempts to solve a murder, or two. Mosley has written about this character in an environment of rich, but easily read language. Several of the works are available on audiotape and others, like *Devil in the Blue Dress,* can be found on the shelves of the local video stores. I offer Mosley's written work as a mechanism for reading instruction, whether it is the elementary skills such as word decoding or the higher level skill of increasing speed. In fact, I believe that young people will find that their families and friends will also want to read *A Little Yellow Dog* along with them.

(Recommended for English (Repeat), Basic English, and Comprehensive English, grade 9)

V. How Do You Know? The Experimental Basis for Chemical Knowledge

Introduction

When our son John was 3, he incessantly asked, "How do you know?" At the time this seemed tiresome, at best, but in time my wife and I came to appreciate that this is THE key question in much of life, and certainly in science, and that encouraging students to ask it of authorities could be a teacher's most enduring accomplishment. The goal of this seminar was to develop materials that would encourage students to ask "How do you know?" and to provide some answers. It was hoped that these materials would foster delight in mastering the logic of inference from experimental evidence, rather than grudging submission to the authority of a text or teacher.

Discussions during the seminar meetings focused on molecular structure, bonding, and reactivity. First we discussed how the most powerful present methods for observing atoms and molecules work. These included scanning probe microscopy, which allows feeling individual particles, and x-ray diffraction and how it revealed the double-helix structure of DNA. After a discussion of how quantum mechanics provides a theory for atomic and molecular structure, we addressed the amazing fact that, in the absence of sophisticated experimental instruments and theories, 19th Century chemists were able to develop a detailed understanding of molecular architecture - an understanding so accurate that no one was surprised when, in the 20th century, molecular structure was revealed in atomic detail by x-ray diffraction. Most attention was focussed on experiments from 1780 through the first half of the 19th Century, which through analytical chemistry and quantitative observation of gases established the atomic nature of matter. In all cases we stayed as close as possible to experimental observation by working with the original reports of 18th and 19th Century chemists and physicists.

Fellows came to the seminar from varied backgrounds and with needs for curricular materials ranging from college-level second year chemistry to kindergarten-level special education. They surveyed, and incorporated in their units, experimental resources from text books, the primary chemical literature, and the world wide web. In a number of cases they developed valuable original experiments. They developed activities that would engage the students' enthusiasm and their minds - including Socratic seminars on the atomic philosophy of the ancient Greeks, use of playground swings to discover harmonic motion, close observation of familiar materials, putting the discovery of molecular genetics in a cultural human context, and graphing important scientific data that was collected nearly 200 years ago.

Some of the most imaginative, and evocative, activities are those developed for learning disabled students at both the elementary and high school levels. These have been carefully worked out, and complemented with insightful discussions of teaching goals

and strategy, to be accessible to the students for whom they were designed. But they also raise fundamental scientific questions that would make them equally appropriate, in slightly modified form, for all levels of science instruction.

Thus I would encourage a science teacher at any level to survey all of these units with the goal incorporating materials and ideas in her own teaching. Often this will require only modest adjustment of presentation, because the fundamental phenomena of science are a delight and stimulus for inquisitive minds of all ages.

J. Michael McBride

Synopses of the Curriculum Units

99.05.01
Discovery Through Experimentation — Past and Present, by Sherry M. Burgess

Vast amounts of information pertaining to the make up of the world around us came from men using experiments to make investigations. As stated in Professor McBride's seminar description of "How Do You Know? the Experimental Basis for Chemical Knowledge", it is much more beneficial for science students to "understand the logic of inference from experimental evidence" than to just accept information on the basis of being told. The goal of this unit is to allow students to gain an understanding through personal experience and a historical look at certain scientific discoveries of how research works. The target audience would be high school students who have very limited science backgrounds regardless of what grade level they are in.

During the first week or following the review, students will perform various activities and experiments. The purpose of this is to give the students practical and personal experience in obtaining information about something through experimentation.

The second week will involve the students studying a few experiments that were done in the past. Two of the experiments of Lavoisier will be studied. Following Lavoisier, the unit will end with the students researching the 1909 experiment by Ernest Rutherford that led to the discovery of the atomic nucleus.

(Recommended for Integrated Science, Chemistry, Physical Science and General Science, grades 9-11)

99.05.02
Amazing DNA Molecule: Its History, Structure and Function, by Monique Y. Gisser

This curriculum unit is intended for high school [college level or higher] biology students yet it can be modified to accommodate all learning backgrounds. Detailed lesson plans, which adhere to the CCI (Connecticut Competency Instrument) and state standards, will be included in this unit. It is intended that this unit be presented after both basic chemistry and the macromolecules of life have been thoroughly described and discussed since an understanding of these topics is essential for this unit to proceed as it is designed.

The purpose of this unit is to reveal the rich history in the race to discover the double helix, to exemplify the relationship between structure and function, to integrate the use of modern technology and to include a discussion of ethics into these topics. I have taken an interdisciplinary approach, and integrated science with history, mathematics, ethics

and technology in an attempt to make the unit more exciting and learning more meaningful. Terms that need defining are bolded (usually just once) and can be found in Appendix A- the glossary.

Most of my students are familiar with the name DNA (deoxyribonucleic acid), yet many don't grasp the concept of what DNA actually is and what is does in the cells of our bodies. The ultimate goal of this unit is to bring forth marvel and respect and for this amazing DNA molecule as well as an understanding of its structure and function. Molecular biology is a branch of science that focuses on the pathway from DNA to the protein it codes for. The Central Dogma of molecular biology is that pathway: DNA -> messenger RNA -> protein. With this foundation, students will be better equipped to make sense of the modern technological advances in molecular biology and the implications they have on medicine and society. In addition, students will be empowered with the skills of critical and logical thinking which will be a tool they will use both inside and outside of the classroom.

The learning objectives of this unit are that students will be able to: relate and cite history as it applies to scientific discovery; develop an understanding of the structure and function of DNA; examine and respond to the relationship of structure and function; manage and apply learning when examining technology and ethics; and to develop marvel and respect for this amazing DNA molecule.

(Recommended for Biology, grades 9-12)

99.05.03
The Rediscovery of Matter: A Historical Trek Through Classical Chemistry, by Theodore L. Johnson

The technological development that launched the modern society into the space and computer age has relied heavily on a number of basic scientific principles. For example, our electron manipulation makes it possible for computers to functions properly or electricity to power our homes. Despite these types of contributions, the average citizen, regrettably, has little true appreciation for science; what one cannot see, feel, or touch becomes magical, beyond his/her ability to comprehend. This may explain why students often have difficult grasping scientific concepts. As teachers we must reincarnate science by explaining the tricks behind the magic. Through discussions, experimentation, and review and analysis of the classic experiments, we can rediscover those basic laws, theories and principles and thereby guide students toward a better understanding of science.

This unit explores that historical development of the modern atomic theory through the study of matter and the analysis of several classic experiments. It begins by asking the question "What is matter?". Students will collectively develop a definition though

discussions and debates of several ancient philosophical theories by individuals like Plato, Anaxinander, Aristotle, etc. By first developing an independent picture of matter students will be able to recognize any flaws in their definition as new facts, concepts, and/or laws regarding matter are presented. To monitor the progress at constructing a well-formulated definition students will keep a journal.

Once a working definition of matter is developed, the unit will proceed with of the study of classic experiments by scientist like Dalton, Faraday, Thomson, Millikan, and Rutherford. As major theme throughout the unit is *rediscovering of matter* students become the scientists and, presented with experimental data, must interpret and make conclusions. This method will allow students to seek a clear understanding of why and how the established conclusions were made.

With the review of classic experiments completed, students will establish connections between their findings through debate and discussion, and formulate a hypothetical atomic theory. Students can than review the actual atomic theory as it exist today and compare and contrast this theory with their hypothetical theory.

(Recommended for Chemistry, grades 9-12)

99.05.04
Chemistry For Everyday Living, by Judith A. Puglisi

This unit is written for self-contained high school special education students, but would also be appropriate for mainstream middle school students. The content material covered will be very basic information one would need to begin to develop a very simple understanding of everyday occurrences. After a brief historical overview, the properties of matter, the periodic table, and atomic structure will be introduced. Three-dimensional models will be made to help students develop an understanding of abstract concepts. The students will be required to make observations, collect data, and engage in simple experimentation. Students will also be asked to explain changes in matter using scientific vocabulary learned during the unit. The three main objectives of this unit are:

To develop language skills needed to engage in scientific investigation.
To develop the social skills necessary to engage in collaborative problem solving.
To develop an understanding of the role chemicals play in our everyday lives.

(Recommended for Special Education Science, grades 9-12)

99.05.05
Introduction to Chemistry, by Lucia Rafala

INTRODUCTION TO CHEMISTRY is a multisensory thematic unit which will introduce basic concepts in Chemistry to students with moderate mental retardation between the ages of nine and thirteen. While this unit is intended for students with special needs, regular education teachers at the primary level may find this information appropriate for their classes. INTRODUCTION TO CHEMISTRY integrates many curriculum areas around the common theme of basic chemistry. This unit incorporates math, reading, science, and lab work into an appropriate thematic unit for students with special needs or early primary classes. INTRODUCTION TO CHEMISTRY addresses varies learning styles by utilizing graphing, KWL's, and hands one lessons and experiments. In addition, alternative methods of assessments are addressed. For example, this unit utilizes journal writing and portfolios to chart progress and mastery of objectives. Also, a section on vocabulary and language is included to address the need for a common vocabulary in Chemistry. This unit provides background information necessary to the planning of varied lessons. In addition, this unit provides the teacher with teaching methodology and strategies, sample lesson plans, and an annotated bibliography of teacher and student resources along with internet sites appropriate for students in the area of chemistry.

(Recommended for Special Education Science and Math, grades K-5)

99.05.06
How Do You Know? Let's Try With Math, by Eddie B. Rose

How Do You Know? Let's Try With Math can be used as a main text for preparatory courses or as a supplement to a core textbook in survey and general chemistry courses. Many students needing help apart from the classroom in chemistry may find How Do You Know? Let's Try With Math, useful as a self-paced learning guide. How Do You Know? Let's Try With Math, take a look at chemistry and mathematics. Its purpose is to teach students the basic concepts of chemistry and problem solving techniques. Teachers and Students need not have a science background or extensive math skills to use this curriculum. Most calculations in chemistry involve only simply algebra. There are two basic approaches for solving these equations. The first is the use of the factor-label method to convert information from one set of units into another. Second is the use of a memorized equation or law into which data for all variables except one are inserted

How Do You Know? Let's Try With Math, has basic algebra, graphing calculator, statistics activities

(Recommended for Algebra and Statistics, grades 9-12)

99.05.07
Infrared Spectroscopy: A Key to Organic Structure, by Michele M. Sherban-Kline

Molecular structure is a major theme in chemistry, and is especially important in organic chemistry. Have you ever wondered how chemists determine the molecular structures of new reaction products or new materials isolated from natural sources? This curriculum unit will focus on infrared spectroscopy as one way of knowing or determining the structure of organic compounds. The unit is designed to be used in a second year high school chemistry class during the study of organic chemistry. The students should have previously studied atomic structure and bonding.

(Recommended for Advanced Chemistry, grades 11-12)

VI. Human-Environment Relations: International Perspectives from History, Science, Politics, and Ethics

Introduction

For most of the century, research on environmental quality has been separated from the study of human health. Health is normally studied in parts of universities other than those that study the environment, and even primary and secondary curricula demonstrate this distinction.

The field of environmental health has emerged gradually over the past two decades recognizing the environmental basis of some diseases or health threats. Malaria - a parasitic infection - provides one important example. Nearly 250 million people have died of malaria during the 20th century, and 80% of these have been children beneath the age of 5. Malaria is transmitted by mosquitoes that carry a parasite among humans, especially in tropical and semi-tropical parts of the world. Malaria incidence is surging today, especially in Africa, Latin America and Southeast Asia. Any land use practice that increases surface water in malarious parts of the world will promote incidence of the disease, simply by providing suitable habitat for mosquitoes to breed. Thus agriculture, irrigation, deforestation, dams, sewage, and storm water may all contribute to its incidence. Lyme disease in the U.S. provides another example of the relation between deer habitat, the deer tick which carries the virus, and patterns of disease incidence.

Asthma incidence and air contamination provides another example of the relation between human health and the environment. Asthma is a complex disease that may have many causes: genetic, viral, behavioral and air pollution. The EPA believes that asthma incidence is epidemic among poor urban children. Incidence formerly estimated to be 7-9%--averaged nationally-is instead 17-25% in some urban school districts. Emergency hospital admissions for asthma attacks increase on high air pollution days, as does mortality from pulmonary distress. For children, asthma is debilitating in many ways beyond the physical distress associated with difficulty in breathing. It may prevent participation in sports, an important source of self-esteem among elementary and secondary school children; and it clearly leads to increased school absenteeism, with mounting evidence of poorer academic performance, and associated depression.

A third example is that of pesticide mismanagement. In 1962 Rachel Carson sounded the warning bell in her book *Silent Spring* , by stating her belief that the risks from pesticides exceeded the threat of radioactive fallout from atomic weapons testing. During the 20th century, pesticide management has dominated other pollution issues within government and the media, simply because of the scale of their use. Nearly 250 billion pounds of pesticides have been released to the world during the 20th century. We learned that nearly 75,000 pesticide products are marketed in the world, and that many have not been

tested for their adverse health effects before reaching the market. The intensity of current use in the U.S. - several billion pounds per year-lead to patterns of exposure that especially threaten children. Poorer children are more exposed than wealthier, again raising questions of environmental justice.

The curriculum units presented in the pages that follow reflect on similar issues. The units are each unique, ambitious, and well-conceived. They demonstrate the potential to integrate across disciplines, and the need to think historically, spatially, and ethically about environmental management. Her is a quick summary of the work that follows.

Stephen Broker designed a unit that explores human-environment relations in the Do‘ana National Park in Andalucia, Spain. The park includes what many experts believe to be the most important wetland in Europe. In 1998, a billion gallons of heavy metals and other contaminants spilled into the system. Stephen is using the case to explore the interplay among cultural, ecological, environmental and human health issues. Land use, contamination, and human error combined to threaten biological diversity at a scale of global significance. Students will be exposed to relevant concepts in ecology, human health risk, law, biogeography and economics in this unique and intellectually stimulating unit. Stephen's students will be exposed to interdisciplinary thinking at a very sophisticated level. Given his teaching capacity, the lessons they learn about environmental mismanagement in Spain will seem immediately relevant to New Haven.

Maureen Taylor-French designed a unit that examines how plants respond to pollutants that also affect human health. Students will create and conduct an experiment to learn how heat, water, air, nutrients, light and space affect plant growth and health. Students will also explore how land pollution, soil degradation, and air pollution influence plant growth and biological diversity. A case study on radioactive fallout that eventually circled the globe following the Chernobyl nuclear reactor explosion will clearly demonstrate how vulnerable we are to environmental mismanagement by others - even those residing on the other side of the world. Maureen's reliance on plants to teach us principles of ecology and human health is exceptional and innovative.

Richard MacMahon recognized that asthma is taking and increasing toll on the health, academic performance and social life of his students. He decided to explore the relations between asthma incidence and environmental quality in his own school, by designing a survey he administered to the students. This is an extraordinary unit that will teach students the meaning of "research." Asthma incidence has increased dramatically in the U.S. during the past several decades with little expert explanation for the rise. Genetic, viral, environmental and behavior factors contribute to asthma, and understanding their relative influence has confounded research scientists. It is known that certain airborne pollutants such as ozone can trigger attacks or exacerbate their severity. Richard's contribution is not only his finding that incidence in his school may be as high as 25%, it

is also the sensitivity of his research methods, and the policy implications of his findings. This is an exceptional unit, one that will engage students directly in scientific research on a topic that is of crucial significance.

Creola Smith will integrate science and mathematics to interpret effects of air pollution on human health. Creola's students will study the Clean Air Act and associated regulations to understand what level of contamination is permitted in New Haven. Her students will also analyze data on air pollution emissions available from the EPA and Connecticut DEP. Students will learn to summarize statistics, to graph information, and will interpret information on the proximity of releases to schools. Students will explore mathematical associations among land use, air pollution, and human health. This is an excellent method to teach students to judge the importance of air quality in their own environments, and to teach them mathematics in a manner that will be of obvious relevance to their lives and health.

Mary Stewart chose a park near her school - Edgewood Park - as the foundation of her unit designed to address the question: What is an honorable relation with nature? By tracing the history of park ecology, use and management, Mary will explore how and why the park was created, and key management problems associated with its use. She will have her students create a time line that reveals important turning points in the Park's history, using primary documents available at the New Haven historical society. Her students will also study a law suit brought by residents of New haven to prevent the river from being straightened to facilitate international rowing tournaments. Finally, they will study the geology, hydrology and ecology of the river that runs through the heart of the park. This is an exceptionally thoughtful and original piece of work, combining archival with field research.

Yolanda Trapp created a curriculum unit to help students in K-4th grade understand basic concepts of ecology. Yolanda's unit is interdisciplinary and problem-directed. It is based on the concept of balance … between humans and the environment we all depend upon for survival. Yolanda has created lesson plans on problems of reforestation, organic farming, wildlife and recycling of solid wastes. Her passion for understanding and protecting the environment will energize her students, as will her obvious joy in discovery.

Connie Florio Welton prepared a very thoughtful and innovative unit to examine vector borne disease-especially the transmission of parasites from other species to humans. She will especially focus on the role that water and sewage management has played in the disease transfer and its control. Tens of millions of children die in the world each year from preventable parasitic infections. By examining the causes behind these figures, Connie will teach students that poverty, waste and water management are intricately associated with disease. Students play the role of health managers within the World

Health Organization, and face the problem of eradicating malaria in the world. To tackle the problem, students will analyze date in poverty, health, environmental quality, health infrastructure and other characteristics of those nations where malaria is now present. Students will undoubtedly gain an appreciation for the relations between improved economic conditions, sustainable development, and capacity to manage malaria.

This course was a delight for me to teach. Each week, as we met through the spring and early summer, I was continually struck by the creativity they all were bringing to their charge. They were thinking "out of the box", so to speak, crossing disciplinary boundaries, focusing on problems that they deeply care about. We all share the same sense that curriculum reform is desperately needed to create a new level of environmental literacy. I think we all left the course with a sense of urgency; belief in the need to reconstruct the way that "environment" is conceived and taught in current educational practice. The next generation of environmental stewards is now in our classrooms, and these units will help them to more accurately comprehend human-environmental relations, and perhaps to better manage environmental quality and human health.

John P. Wargo

Synopses of the Curriculum Units

99.06.01
Human-Environment Relations: A Case Study of Donana National Park, Andalucia, Spain and the Los Frailes Mine Toxic Spill of 1998, by Stephen P. Broker

Abstract: This curriculum unit on contemporary human-environment relations focuses on the interplay of cultural, ecological, environmental, and human health issues. It is a case study of an environmental disaster near Doñana National Park, Andalucia, Spain. Doñana is considered the most important wetland in Europe. Its marshes, mobile dunes, and forests are unique. In April 1998, a sudden burst in a zinc mine waste reservoir released a billion gallons of heavy metal contaminants into the Guadiamar River, a tributary of the Guadalquivir River, which forms the eastern boundary of Doñana National Park. The toxic spill quickly was regarded as a national disaster in Spain, and it received extensive coverage in the press and in science journals. The highly acidic sludge, zinc, cadmium, arsenic, and lead pollutants that were released into the environment continue to threaten the ecology and the biota of this internationally significant wetland.

The unit is intended for high school juniors and seniors in a year-long environmental science elective, and for juniors and seniors in an honors anatomy and physiology elective. For the environmental science students, I intend the unit to raise topics relating to groundwater contamination, the threatened loss of biological diversity, land management, and risks to human health. For the anatomy and physiology students, the unit will introduce subjects that lead to further study of environment/human health problems. My primary purpose in developing the unit, however, is to show all my students how they might undertake a broad-based investigation into a contemporary environmental issue.

The classroom activities which are presented in the unit follow from the development of an historical narrative about Coto Doñana, the name for this long time nature preserve, and they include cultural, ecological, environmental, and land management components. Students' research skills are developed in an attempt to develop an understanding of a complex set of issues. The unit considers the geography of Spain, the historical and cultural heritage of Andalucia Province, the biogeographical province in which Doñana is found, and the legal protections that are afforded Doñana by national governance and international designation.

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

99.06.02
Asthma and the Environment, by Richard R. MacMahon

This unit is designed to acquaint the student with the causes, symptoms, treatment and environmental relationship of asthma; and to help the student to better understand how to deal with this problem at school and at home as a day-to-day phenomenon. The students will learn what causes asthma, how asthma may affect growth and development, why asthma has such a negative affect on school work, and how their environment is the most significant factor in this disease. The students will also learn what may be done at home to limit the environmental components which cause this disease.

The unit has sections which discuss why asthma is increasing at the present time, what are the basics one needs to know about this disease, what the actual immune system mechanism is, the effects of asthma on the psychology of the adolescent , the effects on academic performance, a classification of the stages of the disease, the results of a survey of one school, the relationship to the environment including asthma triggers, treatments in brief, and home solutions to the problems of environmental triggers. The emphasis is on understanding asthma and knowing what each person may do on their own to limit environmental triggering of an asthma attack. There are laboratory exercises included to explore some aspects of air-borne asthmatic triggers.

(Developed for General and Honors Biology, grades 9-10, and Advanced Biology, grades 11-12; recommended for General Biology, grades 9-10, Advanced Biology, grades 11-12, and Health, grades 9-12)

99.06.03
Making Wise Environmental Decisions, by Kenneth P. Rogers

Curriculum unit's purpose is to familiarize the middle grade student with the environmental concerns with the modern world. This is a survey course on solving ecological problems. It introduces the student to basic ecological terminology and explores the difficulties when making decisions about the environment

The unit carefully examines the three main areas of pollution; land, air and water. Each area is analyzed extensively by looking at actual examples of problems that exist.

The strength of the curriculum is when the students are presented with case studies and asked to make decisions concerning what to do about a specific problem and decide where the monies will come from and how much will be spent to correct the problem. They also look at what may happen if they decide to do nothing about the problem.

There is a vast array of interdisciplinary activities that can be adopted in the use of this curriculum. Heavy stress is placed on Social Studies and the art of compromise and

working with others. However, there is a lot involved in the areas of math, science, geography, language arts, and reading. A lot of the activity utilizes cooperative and small group learning situations.

(Developed for Environmental Science and Science, grade 5; recommended for Environmental Science and Science, grades 5-8)

99.06.04
Problem Solving Using Mathematics Spatially to Interpret Environmental Issues, by Creola Smith

The environmental issue to be addressed is Air. From this topic the student will be exposed to the idea of environment and how mankind interacts with land, air and water. All these items combine to form the environment. The environment is inter- and intra-dependent on the four elements listed above. The issues that this unit addresses are air its components, air quality, legislation, deregulation and pollution.

This is achieved through integration of the content areas math, science and language arts. Critical thinking skills are emphasizes, while tuning or developing prior knowledge and new knowledge, which are the foundation of problem solving. The student will develop self confidence in this area.

Environmental conditions have a direct correlation on public health issues and the economy. Student will begin to dialogue the affect of clean air verses contaminated air. Clean Air Act is an example of government's response to public health issues in the environment. Air is studied from the molecule to the compounds it forms in the atmosphere and its reaction to other gases found in the environment. The Clean Air Act, deregulation of power plants, integrated lesson, and alternative assessments as a guide for student understanding are the essence of this unit.

(Developed for Pre-Algebra and Mathematics, grade 7; recommended for Mathematics and Science, Middle and High School grades)

99.06.05
Edgewood Speaks: Politically, Historically, Scientifically and Ethically, by Mary E. Stewart

Edgewood Speaks is a 10 week study posed with a single question: *What is an honorable relationship with nature?* It has been written to use in middle school general science courses. My 8th students' task will be to present an answer , in the form of an exhibit, that includes evidence of scientific and historical research as well as a basic knowledge of currents, erosion and land sculpting of the West River located in Edgewood Park in New Haven, CT. My objective is to assist students as they achieve a greater

understanding and appreciation for the intrinsic connection between humans and the environment. This unit will also directly address the New Haven 8th grade science content standards (3) numbers 4.0 in regard to local geology, erosion and water systems and weather; 6.0 in regard to the impact of technology and its use to understand characteristics of changing populations, natural resources and the consequences of human behavior.

The students will explore historical, political, scientific and ethical aspects of Edgewood Park through hands on activities, labs, integrated arts and research. These sessions will help students apply scientific concepts to on-going dialogs in our class to promote language development and scientific literacy. Communicating historical, political, scientific and ethical perspectives in such a manner naturally creates literate individuals. Literacy is often associated solely with reading and written communication. Readings and writing are tools to achieve literacy, but true life long literacy depends upon the acquisition and application of historical, political, scientific and ethical concepts and experiences.

When the students have investigated change over time, open space in urban areas, political terminology, effects of change in respect to Edgewood Park, and have reproduced the West River in the science lab, they will conduct independent work and curate their own exhibit. Once the exhibit ends the audience will gather for a debriefing session with the researchers. This will allow *Edgewood Speaks* to end with meaningful dialog just as it began. The students are now the facilitators and I will be another member of the audience.

(Developed for General Science, grade 8; recommended for Science, grades 6-9)

99.06.06
Abiotic Factors and Plants: A Local Pollution Study With Global Implications, by Maureen E. Taylor-French

Plant study is among the easiest and most cost effective units which may be employed by Integrated/Life/Earth Science educators. From a simple study of plants and interactions with their environment, students can examine how plants respond to pollutants which also affect us. Given information presented in this unit, Science, Math and Social Studies students can observe impacts of pollution on different plant types, describe how they contribute to local pollution, debate local land use issues, and describe how local actions affect and are affected by global changes.

This four-week unit is written for Grade 7/8/9 integrated science curriculum. It is inquiry-based. Lessons and activities accommodate the City of New Haven's performance standards, many of which are National Science Association standards. The

lab experiments are presented in CAPT format, requiring critical thinking, data analysis and reporting, and assessment.

In this unit, students will:

- Complete Controlled Lab Experiments employing the Scientific Method
- Classify living organisms
- Describe plant functioning
- Investigate the sun as an energy source
- Describe and illustrate Cycles in Nature
- Describe pollutants and examine their impacts in lab activities
- Assume personal responsibility for the environment
- Plot and illustrate how global winds carry pollutants
- Debate impact of societal demands and technology on the environment

(Developed for Integrated/Earth Science, grade 8; recommended for Integrated/Life Science, grade 7, and Integrated/Earth Science, grade 8)

99.06.07
Are You Balanced With Your Environment?, by Yolanda U. Trapp

There is a whole world out there to be seen. Yet human being are the one species that can decide the fate of so many others. Our children will inherit a legacy that is both sweet and bitter. Acid rain, rainwater polluted by the chemicals that factories spew into the air, has made hundred of lakes in the US and thousands in Canada unlivable for fish. Over hunting has made the gray whale scarce in waters off California and Oregon's Coast. Habitat destruction and over fishing have devastated the populations of the Ozark big-eared bat and the Northwest's sockeye salmon.

Can students make a difference while they are still young, so that the planet they inherit is healthier because of them? Yes! And it is up to us to help children make responsible choices to save our Earth.

Protecting the environment is a key part of this unit. There is always more to learn. Opening children's eyes to the interrelationship between the natural world and the human-made one while fostering a sense of the difference a caring and informed person can make to keep the world safe for all creatures. That's the viewpoint of Sharon Goldstein, Education Coordinator of the Rachel Carson Homestead in Springsdale, Pennsylvania.

This Unit is designed to assist teachers in developing among their students an awareness of ecological principles and basic concepts of environmental science. The use of critical

thinking skills is encouraged as students are guided to analyze problems and suggest solutions.

The unit also provides suggestions for discussion questions to initiate class participation in the study of environmental issues with simple activities divided according to student's level, integrates environmental science with other subjects.

(Developed for Language Arts, Social Studies, Science, and ESL, grades K-4; recommended for Environmental Awareness, Language Arts, Social Studies, Science, and ESL, grades K-4)

99.06.08
The Impact of Poverty, Waste Management, and Ethics in the Control of Parasitic Infections, by Concetta F. Welton

Am I my brothers' keeper? As part of an interdependent web of all living creatures we all need to answer this question for ourselves. This unit is designed to give a face and a story to a variety of peoples that presently exist in our lives only through the media.

This curriculum unit is designed to be used over a two-week period, although it can easily be expanded in many ways. It is both an introduction to parasite biology and a look at the widespread devastation caused by them. Through the use of supportive data students will examine a variety of factors that either foster or inhibit the spread of theses diseases.

Students will be encouraged to look past the obvious cause and effect of transmission, and instead to investigate some of the less obvious, though more often controlling issues involved.

Students will gather data, construct graphs and charts, and draw conclusions as to the relative effects that poverty, waste management and ethics have in combating parasitic diseases.

It is hoped that this investigation will give students a greater appreciation of the benefits of living in an industrialized society. It is also hoped that it will foster a better understanding of our individual roles in the stewardship of this planet and awaken them to the desire to look beyond their current borders, whether they be neighborhood, city, state, country or larger.

Through a combination of role-playing, discussion, debate, and hands on activities the students will drive much of this unit. Included in this unit is a performance based learning and assessment activity that will lead them to try some higher order thinking skills.

By controlling the data sets used, this unit can be adapted for a wide range of educational abilities from middle school through high school.

(Recommended for General Science/Ecology, Life Science/Health, and Biology)

VII. Electronics in the 20th Century: Nature, Technology, People, Companies, and the Marketplace

Introduction

Electronics has played a part in the lives of all Americans in the 20th century. At the beginning of the century the news was of point to point wireless telegraphy. During this final decade the news is of e-commerce.

In the first of these units Gail Hall has used the event of the Titanic catastrophe to teach on the methods of finding informational source materials. Derived from primary sources, her description of the accident and the role of the then new wireless technology in the hours before and after the collision illustrates how one is able to use the vast reservoir of information available from the World Wide Web (www.dot). As with all information, evaluation of its quality and accuracy is essential. The unit addresses these concerns with a thorough and reasoned discussion.

Wireless, radio, and all of electronics, are based upon the Physics of Force at a Distance. In the three units by Rebecca Blood, Roberta Mazzucco and Jacqueline Porter, this notion is explored in ways designed for primary level students. Some of the experiments described were performed for the seminar by these fellows. We all had fun as I anticipate all students of any age will with these hands on learning experiences. To the user of these units I add parenthetically, be sure to perform the experiments as outlined first in the privacy of your home or office. During my forty years of doing demonstrations for students of all ages, I found there was nothing more debilitating to my ego than not being able have nature perform for me when there was an audience of more than one.

Electronic devices and techniques, so cleverly designed by large numbers of our citizens, have impacted the practice of medicine. Bonnie Osborne reviews for her students some of the diagnostic instruments, which have become available in the last two decades. She will be teaching to students whose situation may necessitate the use of such apparatus. Her subject is of general interest since sooner or later we all find ourselves needing medical attention.

As seen in the first unit, the World Wide Web (www.dot) is an indispensable tool for teachers, students, and rapidly so becoming for all Americans. Joanne Pompano shows how the computer has been adapted for use by the visually handicapped, yet the design of web-sites and web pages can either enable or frustrate these individuals. The unit outlines a set of standards that web site creators should consider implementing. The number of physically challenged individuals in our society is significant, significant enough that if e-commerce is to be successful, which means available to all, web site design must be

improved. This unit proposes a set of assessment exercises for pairs of compatible students. I look forward to hearing of the progress made by Joanne's class.

The penultimate unit contrasts modern computer technology as a revolutionary event with the Industrial Revolution. Students are challenged to draw upon their experiences to determine how their lives are being changed by this technology and how to adapt to take advantage of these new ways of thinking. Sheldon Ayers is leading his students to think about future developments in this dynamic arena, and thence to develop life strategies incorporating their thoughts and conclusions.

The last unit appropriately addresses the future but in a novel way. June Gold will be having her students create new stories, new perspectives by writing science fiction based upon their speculations on future science. I urge both students and teachers to write fiction based upon rational but imaginative extrapolation of our current understanding of nature. I am reminded of the trip to the moon as written by Jules Verne in 1865. He did get the basic science correct; the necessary escape speed is 12,000 yards per second and he did site the great COLUMBIAD in Florida so that the rotation of the earth assisted the launch of his space vehicle. He was a masterful writer whose many speculations have been matched by accomplishments in our century.

I believe the fellows in the seminar have detected my belief that this technology in the 20th century has created many marvels, which have changed the culture of our society. But you have not seen anything as yet, watch the 21st!!

Robert G. Wheeler

Synopses of the Curriculum Units

99.07.01
From Dusty to Digital: Using Primary Sources in the Information Age — Researching Titanic, by Gail G. Hall

This unit, "From Dusty to Digital: Using Primary Sources in the Information Age — Researching Titanic", will introduce students to primary sources: what they are, why they are important, how to identify them, how to access them, and how to evaluate them. It is important for students to work with primary sources so that they can understand history as an interpretive science rather than as a body of facts. Students need to "examine the historical record for themselves; to consult documents, journals, diaries, artifacts, historic sites, and other evidence from the past, and to do so imaginatively — taking into account the historical context in which these records were created and comparing the multiple points of view of those on the scene at the time" (National History Standards). Through online catalogs and web sites such as the Library of Congress's "American Memory", digitization has made identifying and accessing such materials much easier. The context for this unit is the sinking of Titanic in April 1912 and the role of wireless telegraphy. However, the lessons in this unit have been designed so that they can be adapted to any rich historical content.

(Recommended for History, Social Studies, and Library Media, grades 9-12)

99.07.02
Introduction to Magnetism and Electronics, by Rebecca E. Blood

This unit on magnetism and basic electronics is designed for Elementary school students in Kindergarten and first grade. It will help provide children with a basis for understanding some modern electronic equipment. The initial focus will be on magnetic properties and static electricity. Children will participate in a wide variety of interesting experiments to learn about magnetism and the properties of static electricity. Once the class has a firm handle on those concepts, the focus will then move to electronics. To culminate their study, students will work with a simple tape recorder. First sounds will be recorded, played, erased and re-recorded on a tape in a functioning tape player. Then using real tools, students will have the opportunity to disassemble a nonfunctioning tape recorder. Once disassembled, children will continue exploration, experimentation and assessment of the tape player’s parts and mechanisms.

This unit will provide eager students with an opportunity to explore, experiment and learn using a wide variety of materials and media. As students are encouraged to formulate and test their own ideas, they will be developing the problem solving skills, vocabulary and literacy skills necessary to take their knowledge to the next level.

(Recommended for Science and Literacy, grades K-1)

99.07.03
Modern Electronic Inventions: Changing the Way People Live, by Roberta A. Mazzucco

The unit entitled *Modern Electronic Inventions: Changing the Way People Live*, is a unit that was written for third grade students. However, all or parts of it can be appropriately used with second to fifth graders. The unit is interdisciplinary since it touches on science, social studies and includes art, and language arts. Students are encouraged to do a lot of hands on exploration in the science center. The historical development of our knowledge of electricity beginning with magnetism and static electricity is explored up to and through the making of the first battery, the generator, and modern technology and our reliance on transistors and chips. Whatever students are working on during lab time is mirrored in the classroom timeline, which visually shows the gradual development of this branch of science. All students are familiarized with the scientific method as utilized in the local science fair. Like real scientists, students keep a journal of the experiments and/or demonstrations they do. Students will work with magnets, static electricity, build an electromagnet, make a battery, and construct a dynamo. Students are required to prepare a final project, which can be a demonstration, experiment, poster, diorama, etc. A list of books for students and teachers is included.

(Recommended for Science and Social Studies, grades 2-5)

99.07.04
Technology at Home: An Increase in the Quality of Living Due to Electronic Inventions, by Jacqueline E. Porter

I teach 6th, 7th and 8th grade self - contained education at East Rock Global Magnet. I often run into the problem of finding something on a level that my students can understand yet interesting enough to entice them to learn. Electricity is something that they should definitely learn about, given that it is essential for how they are accustomed to living. By relating electricity to their everyday life, I believe it will spark enough interest in them to willingly participate and gain some knowledge in the process.

In this unit I plan to explore electronic inventions that are directly related to the evolving of Technology At Home throughout the 20th century. I will look at household gadgets that use electricity, that students feel that they can't live without, such as: the telephone, refrigerator, television, stove, microwave, stereo, tape recorder, radio, vacuum cleaner, washer and dryer.

All of these products exist because of the discovery of electricity. Exploring the basic fundamentals of electricity, I plan to give middle school students a good understanding of

how electricity works. We will examine life before electricity. List some possible motivation that pushed for its discovery. Once discovered, what people made electric inventions that led to the contributions that enhanced people living condition and their continued improvement through technology?

(Recommended for Science, grades 5-8)

99.07.05
Medical Technology Related to Childbirth and Pregnancy, by Bonnie M. Osborne

This curriculum unit was developed to be used with special education students, grades seven though twelve, in an alternative inner city public school servicing pregnant teens and young mothers. Although the unit was designed for a special education program, it is also suitable for use in parenting classes, or as an alternative topic in a general science class (with some modifications). The entire unit should take approximately three weeks, depending on the frequency and length of classes.

The main focus of the unit is to promote a simple, general understanding of basic scientific concepts and processes involved in developing the medical equipment used in pregnancy and childbirth. The unit provides background science information on the topics of energy, light, sound, electricity, and magnetism. The core unit topics include the study of X-rays, CT scans, ultrasound, and fetal monitoring devices.

(Recommended for Special Education Science and Parenting, grades 9-12)

99.07.06
Designing Accessible Websites for Blind and Visually-Impaired, by Joanne R. Pompano

Computer technology allows blind and visually impaired individuals the opportunity to access the vast array of information on the Internet. This is an important step for a population that traditionally was restricted in accessing information. In the past, a blind person could not access current journals unless they were read aloud or translated into braille for the individual. Today, a blind person is able to independently and instantaneously locate current journal articles on-line with the aid of a relatively inexpensive screen reader or braille translator connected to a computer.

Developed for students in grades 6-12, this unit will help students understand how the design or format of a webpage determines whether this resource can be conveniently accessed by a blind person or be an exercise in frustration.

This curriculum will allow students to explore the many challenges technology posses for a person with visual handicaps. The lessons provided will allow students to investigate

websites that are accessible and those that are difficult or impossible to access. The information gained from these exercises will be used by the students to write their own accessible website.

(Recommended for Blind and Visually Impaired, grades 7-12)

99.07.07
The Cultural Impact of Computer Technology, by Sheldon A. Ayers

a. This curriculum unit delves into the effect computer technology is having on contemporary American culture. The unit examines this subject from both a historical viewpoint and a sociological perspective. The content in this unit will challenge students to:
b. understand the connection of the past to conditions today
c. examine the relationship between innovation and the American living standard
d. explore how the "information marketplace" has sparked changes
e. assess how the job market has evolved and will continue to evolve
f. speculate regarding future trends and inventions in the twenty first century

Throughout human history technological innovation has been the catalyst for changes in the way people live, work and relate to one another. But just how does technological advancement, such as the computer, spur social change? What are some of the changes taking place due to the proliferation of computer technology? As we approach a new millennium these are relevant questions worth exploring.

The unit is organized into three broad categories. The first section, Industrial Revolution (1750-1850), gives students some historical context of just how revolutionary technological advancements can be. During the Industrial Revolution, the development of factories, the introduction of mass production methods, etc. ushered in dynamic changes which rippled throughout English society and ultimately throughout the world.

The Information Age is the second section of this unit. This section borrows ideas from a provocative book written by Michael Dertouzos, head of the Laboratory for Computer Science at the Massachusetts Institute of Technology, entitled *What Will Be*. Because the information marketplace is still relatively new, many questions about the technology and its implications are raised in this section.

The unit concludes with a section on the future of information technology entitled, The Future. Scientist and engineers are feverishly working on systems that will allow more fluid communication between machines and people. Many computer experts believe that the ability to speak directly to our computers will be the interface we will end up with. It is clear that developing a system that enables computers to understand speech will

dramatically expand technologies role in our daily lives. The application for a language recognition system would be astronomical.

(Recommended for Sociology, Current Events, and World History, grades 9-12)

99.07.08
From Science Fact to Science Fiction: Using Scientific Research to Drive the Creative Writing Process, by June M. Gold

This unit is designed and intended for use in the seventh and eighth grade classroom, as a vehicle for the teaching of both fiction writing and independent research skills. It uses the impact of rapid technological change as the context for teaching these lessons. Because of its heavy dependence on student research skills, this unit would probably not be appropriate for a younger audience, the exception being a very sophisticated learner with a love for the intellectual. Teachers of ninth and tenth grade writing, however, might find this unit useful and engaging, altering the lesson content slightly for their older learners.

(Recommended for English, grades 7-9)