

Curriculum Units by  
Fellows of the  
Yale-New Haven Teachers Institute  
2005  
Guide

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## *Preface*

In March 2005, fifty-four teachers from twenty-six 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 New Haven school teachers join in a collegial relationship. The Institute is also an interschool and interdisciplinary forum for teachers to work together on new curricula.

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

Teachers had primary responsibility for identifying the subjects the Institute would address. Between October and December 2004, Institute Representatives canvassed teachers in each New Haven elementary, middle, and high school to determine the subjects they would like the Institute to treat. The Institute then circulated descriptions of seminars that encompassed teachers' interests. In applying to the Institute, teachers described unit topics on which they proposed to work and the relationship of these topics to Institute seminars and to courses they would teach in the coming school year. Five seminars were organized, corresponding to the principal themes of the Fellows' proposals. Between March and August, Fellows participated in seminar meetings, researched their topics, and attended a series of lectures by Yale faculty members.

The curriculum units Fellows wrote are their own; they are presented in five volumes, one for each seminar. A list of the 170 volumes of Institute units published between 1978 and 2005 appears on the following pages. The units contain four elements: objectives, teaching strategies, sample lessons and classroom activities, and lists of resources for teachers and students. They are intended primarily for the use of Institute Fellows and their colleagues who teach in New Haven. Teachers who use these units may submit comments on them at <http://teachers.yale.edu>.

This Guide to the 2005 units contains introductions by the Yale faculty members who led the seminars, together with synopses written by the authors of the individual units. The Fellows indicate the courses and grade levels for which they developed their units; many of the units will also be useful at other places in the school curriculum. Copies of the units are deposited in all New Haven school libraries. Guides to the units written in earlier years, a topical index of all 1536 units written between 1978 and 2005, and reference lists showing the relationship of the units to school curricula and academic standards are available from the Institute. An electronic version of these curricular resources is available on the Institute's Web site at [www.yale.edu/ynhti/](http://www.yale.edu/ynhti/).

The Yale-New Haven Teachers Institute is a permanently endowed unit of Yale University. The 2005 Institute was supported also in part by grants from the Sherman Fairchild Foundation, the Jessie Ball duPont Fund, and the Howard Hughes Medical Institute. The New Haven Public Schools, Yale's partner in the Institute, has supported the program annually since its inception. The materials presented here do not necessarily reflect the views of the funding agencies.

James R. Vivian

New Haven

August 2005

## *I. Stories around the World in Film and Literature*

### **Introduction**

The general public is right to be skeptical of much of the research in the Humanities, since it can often seem arcane or at least forced. In our hyper-specialized society research and teaching at the university level seldom links up with primary and secondary education. Whenever topics are discovered to interest teachers of all levels, we need to foster them. One topic that catches everyone's attention from the kindergarten class to the doctoral seminar is stories and storytelling. Indeed studies in this domain have increased in both depth and breadth in recent years, and their relevance to younger students, indeed to the general public, continues to grow. In addition to literary scholars, today one can find professors in sub-fields of religion, medicine, law, history, and anthropology examining the mechanism and potential of narrative, since all these disciplines concern human activities that depend on stories. For this reason I proposed a Yale-New Haven Institute seminar to bring teachers together to look into "Stories around the World in Film and Literature."

We all love stories because they promise an involving experience in which we enter and learn about a world different from our own. At the primary level, our seminar behaved like any good book club or film society: we talked excitedly about our reactions to what we had just read or seen, following up on the consequences implied by all the stories we encountered, most of them concerning children. Although we indulged this natural attitude, we also wanted to gain some systematic understanding of the functioning and role of stories. For we wanted to be able to assess each story's relevance by relating its rhetoric to its purpose or topic, insofar as that can be determined. And so we made certain to learn the terms needed for the rhetorical analysis of stories, before tackling the relation of various stories to the issues they thematize. It turns out that most of the vocabulary that applies to prose fiction makes equal sense for feature films. Indeed "point of view," "subplot," and "omniscience," for example, may be easier to grasp with the movies in mind. Every film and story that we took up provided an opportunity to refine this vocabulary, to see it at work, and to discuss the value of bringing this to the attention of students. Certain films and stories seem designed as primers in "the theory of narrative." By studying films like "An Occurrence at Owl Creek Bridge," while carefully going through one of the many good textbooks on the subject, we learned to demystify to a degree the process by which a story grabs and controls the attention of an audience.

Beyond all the stories we delved into, and beyond their mechanism, we were most interested in the cultural role of storytelling itself. Our plan was to leave the seminar with a far better command of what constitutes a story and how to discuss every story in a way that would take us past impressions, taste, and relevance. As someone who works in both Comparative Literature and in Film Studies I have encountered innumerable forms of storytelling and it has been a pleasure to introduce some of these to the teachers of children from six years old to eighteen. A variety of forms (short stories, comic books, films, TV shows, and so on) conveys the greater variety of stories (genres, we term them) that in turn respond to a plethora of cultural needs (entertainment, moral development, historical memory, identity, artistic experiment). By sampling films from around the world and sharing favorite short stories, we were certain to encounter enough material to be able to grow in our understanding of this crucial human activity.

Learning often occurs best when we defamiliarize something we take for granted. Hence our inquiry began in Africa as we compared some of their most distinctive films with the more familiar types of stories we know about in the United States. African stories often maintain a connection to the griot, or official storyteller in indigenous societies. We learned about Griots, read some of their tales, and then saw them at work in the openings of several films. Other African films that do not contain griots still derive power from the griot's meandering manner of narration. Later on we listened for "oral narratives" in films we encountered from Ireland and Japan. One of our discoveries was the potential link between the most primary mode of narration (orality) and the most technologically sophisticated one (cinema). Between these two forms is the published novel or short story where the teller can hide. We were at pains to try to expose storytellers and their purposes wherever we could.

All of the teaching units that developed within the ambience of the seminar promote the use of fiction film in the classroom — primarily foreign film. Several units deploy movies to vivify or strengthen lessons that are hard to convey. Ekaterina Barkhatova uses film to develop moral reflection in fourth graders by alerting them to the responsibility entailed by choices characters make. Mary Lou Narowski will let movie versions of *Romeo and Juliet* bring Shakespeare into the lives of students who are close to the age of those famous lovers. William Garraty wants to get at the complexity of the Civil War by having his students to watch three relevant films very closely. Other units use film to highlight storytelling methods or to throw light on issues of cultural universals and cultural diversity. Mnikesa Whitaker and Judith Katz both deploy films to bring out hidden dimensions of writing — "the writer's voice" in one case, and "the elements of fiction" in the other. In this way their students will have more control over options in their own verbal expression. Joanne Pompano, despite the fact that she teaches the visually impaired, has found certain African films that highlight the power of oral storytelling, which is a crucial topic for her students. As for cultural diversity, this is precisely what Kathleen Rende wants to expose her kindergarteners to, but in a non-threatening manner, and using images of little children and family life from around the globe. On the other hand, Sandra Friday and Matthew Bachand exploit student fascination with distinctly uncomfortable emotions. Is anxiety universal, Friday asks, and how do children in other places face up to it? What about the supernatural, Bachand, asks? How is it evoked and what does it serve in Japan, a culture steeped in representations of ghosts and similar phenomena? A teacher of French, Crecia Swaim takes two great films about children by Francois Truffaut to encourage her students to gain and synthesize information about a foreign culture so that they can discuss and write about it with verve, expanding their verbal skills. Expanding skills is what each of these units will surely deliver, and the skills in turn enable improved thinking and articulation about a range of issues in the humanities.

While these units do many other things beyond employing films, I am struck by how lively the classroom seems in the projected light of cinema. This is the light of attention, of focus; it is a beam thrown out to unfamiliar geographies and issues; it is within this light that stories stand out in vivid silhouette and through them we make sense of our vibrantly multi-colored world.

Dudley Andrew

## **Synopses of the Curriculum Units**

### **05.01.01**

#### **Teaching Responsibility to Children in Different Cultures through Film and Literature Stories, by Ekaterina Barkhatova**

In designing this unit on teaching responsibility to children I pursue two separate major goals: I want this unit to teach some important moral principles such as to be responsible for one's deeds and relationships with others, and I want the unit to be academically rich in developing pertinent content knowledge and skills applicable to understanding a story. I find that along with the lack of moral training, students need academic understanding of the tools necessary for their success: language, rhetoric, imaginative storytelling. Before they can portray their own situations as stories, they need to understand the elements involved: characters, themes, motives, settings, conflicts, solutions, etc.

Although this unit may be taught with some modifications in any classroom, I developed it for the fourth grade bilingual students. It offers two written stories as well as two films, which can be presented and taught as traditional stories: when we look at a film with students we will identify all characteristic elements of a story, describe main characters, and analyze the central theme or important message the film carries.

(Developed for English as a Second Language, grade 4; recommended for Elementary School ESL, grade 4)

### **05.01.02**

#### **Cultural Distinctions of the Central Themes in Romeo and Juliet, by Mary Lou L. Narowski**

This unit is designed for the urban youth who needs a multiple skill and intelligence approach to the teaching of Shakespeare. It can, of course, be used in any classroom, including ESL, if modifications are made.

Using an interdisciplinary approach to investigate the "drama" of warring families and love, the students are asked to consider their own culturally diverse backgrounds as a backdrop to this play. Review of basic elements of literature in tandem with film language sets the foundation of the unit. Students are asked to hone computer skills in a creative and cooperative way so as to learn about the "real" Shakespeare. Building the Globe Theatre will conclude this section of the unit. They are asked to read scenes of the play both in "the language of Shakespeare" as well as a side-by-side version with a modern translation so that they will learn to enjoy Shakespeare for all that it is. Different film versions of the play are viewed to provide the visual representation that my students so desperately need. Using graphic organizers will help students to actively isolate, process, and reorganize key information at the same time allowing them to approach the themes cognitively. They will be able to see relationships as well contrasts as they apply to various activities. Finally, students are asked to write an original scene complete with stage direction and costumes, to help develop cooperation, communication, and perseverance.

(Developed for English, grades 10-12; recommended for High School English, grades 10-12, and Middle School English, grade 8)

### **05.01.03**

#### **From Slaves to Soldiers: African Americans in the Civil War, by William J. Garraty**

This unit uses film to help students connect with the Civil War. I have written it with the idea that urban students may find it interesting to learn three important areas of the Civil War. In addition to the films I have included a film viewing strategy. Asking students to watch a film and retain what they see is not always an easy task for all students. The viewing strategy is a modification of the KWL pre-reading strategy and the use of film note sheets. The concept engages students' interest by asking them what they already know about African Americans and the Civil War. It follows by allowing students to share what they would like to learn regarding the role of African Americans and the war. Then after viewing the sections of the films, students identify what they have learned.

Three films are used in this unit. Peter Batty's *The Divided Union* provides a broad but solid background for the development, engagement, and conclusion of the war. Harriet Beecher Stowe's story *Uncle Tom's Cabin* as directed in film by Stan Latham provides students with several examples of slavery in the Antebellum South. Edward Zwick's *Glory* is an excellent film about the Massachusetts 54th regiment. Students will learn about African American heroes who fought in the American Civil War. This unit is an effort to create an understanding of the role of African Americans in the Civil War and motivations of others involved as well.

(Developed for U. S. History and Social Studies, grade 10; recommended for U. S. History and Social Studies, grade 10)

### **05.01.04**

#### **Whose Voice Is It Anyway? Using Film to Teach Voice, by Mnikesa F. Whitaker**

As teachers we strive daily to push young minds to their fullest academic potential. This is indeed a challenge in today's classroom that is an eclectic mix of diverse learners. Our job is that much more challenging as we seek ways to get students to think critically so that they are not just prepared to meet state standards, but so they are prepared for the life that awaits them beyond their school days. In English curriculum for middle and high school students, a major goal is improving student writing by developing their awareness of voice and its power to impact their writing. I believe that we can use the engaging power of film to authentically awaken students' awareness of voice and its function.

Since we cannot deny the connection of reading and writing, this unit trains students to listen to the voice of film (visual text), but it will also prepare them for dealing with written text. We will strengthen their ability to apply strategies that will aid in comprehension and critical thinking skills. As students progress through this unit, they will reinforce their knowledge of the elements of fiction; this vocabulary is a foundation for what they will use throughout their academic careers. They will analyze two films paying particular attention to the voice of each film with opportunities for guided and independent practice. Ultimately, students will be able to demonstrate an awareness of voice in written text through a culminating assessment. We can use the creative power of film to captivate students' attention while helping them develop this crucial trait.

(Developed for English, grade 7; recommended for English, grades 7-9)

### **05.01.05**

#### **Watching, Writing, and Learning, by Judith J. Katz**

This unit uses film to teach students the basic elements of story including plot, character development, and causal logic. Students will have the opportunity to produce a wide range of process writing including: quick-writes, film journal entries, and reflections on them. Students will also have the opportunity to write a fully realized product piece, the formal film essay, using their own film journal entries as research.

This unit comes complete with an author's note that explains how to break the unit into smaller segments in case the teacher does not have time for the full unit. This unit also comes complete with three self-assessment rubrics that can be used by the student-writer, a peer editor, and the teacher.

The four films used in this unit are: *Wallace and Gromit, The Wrong Trousers, Mr. Smith Goes to Washington, Smoke Signals*, and *Finding Nemo*.

(Developed for Creative Writing, grades 9 and 11, and Screenwriting, grade 12; recommended for Language arts and Creative Writing, grades 9-12)

### **05.01.06**

#### **Using Oral Traditions to Improve Verbal and Listening Skills, by Joanne R. Pompano**

This curriculum unit was developed to assist students who are blind or visually impaired in their efforts to improve oral and listening skills. It will attempt to help them understand the importance of words and how words are used to convey information and to influence society. Students will learn to appreciate stories, understand how the stories are constructed, and understand the role storytelling and storytellers played in African and African American culture. The curriculum unit will provide students with opportunities to learn about oral traditions by studying storytelling in West African countries whose cultures are primarily oral. They also will study the role oral traditions played in aiding African Americans during their long history of enslavement.

This curriculum will be taught to students who are visually impaired or blind but also should be of interest to their sighted peers. This curriculum will allow students to practice listening, memorizing, organization, researching and oral speaking skills. All of these areas present problems for visually impaired students.

(Developed for Resource for Visually Impaired, Literature, and Speech, grades 9-12; recommended for Reading and Writing for Blind and Visually Impaired, Writing, Reading, Speaking, grades 9-12)

### **05.01.07**

#### **Family Finding: Exploring Multicultural Families Using Film, by Kathleen C. Rende**

During the first few weeks of school, many kindergartners experience anxiety when leaving their families for the first time. *Family Finding: Exploring Multicultural Families Using Film* is designed to help ease the transition between home and school, while instilling an understanding for multiculturalism within the classroom and beyond. The children will view

foreign films featuring families and compare those traditions to their own. This unit is designed for a kindergarten classroom, but can easily be adapted to older grades, especially English as a Second Language classrooms. This unit is designed to be taught during the first six weeks of school.

(Recommended for Kindergarten)

### **05.01.08**

#### **Through Film and Literature, in Cultures around the World, Children Grow up on Anxiety, by Sandra K. Friday**

This unit focuses on what I call the essential questions that are not only found on the Language Arts CAPT but are some of the best questions to challenge students who need to sharpen their skills in learning about and responding to short stories in both literature and film. Once students have practiced responding to these questions and learned to identify what makes stories effective, as a final project, they will explore writing and actually putting together their own stories based on the theme of this unit. Through viewing stories in film and reading stories that *produce, use, and resolve* anxiety in children in diverse cultures around the world, students will discover that children all over the world grow up as they experience anxiety, sometimes layers of it, simultaneously. They will be encouraged to make connections between anxiety that they experience or that their friends experience and the anxieties that the children in the stories experience.

The stories selected to exemplify anxiety begin with the autobiography of Geoffrey Canada, *Fist Stick Knife Gun*, in which he recalls his childhood where, at the age of five, he experienced the anxiety of learning that he had to fight his best friend to establish himself in the pecking order on the street in the Bronx.

The final story takes place in a distant continent with three half-caste, (as they were labeled) aboriginal girls in the film *Rabbit-Proof Fence*, escaping from a racist internment camp and walking 1,200 miles along a fence to their home, anxious all the while that the police and a tracker pursuing them will catch them and return them to the camp/prison. All the stories selected, which also include children in Iran and in China, stretch the students' empathy beyond themselves and test the universality of emotion.

(Developed for Short Stories in Literature and Film, English, grades 9-12; recommended for Short Stories in Literature and Film, English, grades 9-12)

### **05.01.09**

#### **Japanese Ghosts, Demons, and Haunted Spaces, by Matthew P. Bachand**

Japan is cool. Students love its animated cartoons, are intrigued by its stark differences from American culture, are curious about its history, zealously seek Japanese electronics, and have even fallen in love with their card games (Yu-Gi- Oh). However, students know very little else about this island country that has been, at different times, the victim of our gunboat diplomacy, our most enthusiastic fan, our enemy, our outpost, number two trading partner, our ally, and our competitor. Now, Japanese popular culture has more entrée with American audiences than at any time in its history. In fact, this author believes that Japan may be the one nation with which

American youth culture has a pop culture trade deficit: Japan seems to have little need for our television and children's literature, while we are voraciously consuming theirs. All of these elements provide a "teachable moment" for prospective teachers of world literature.

This unit explores three Japanese films and six texts that incorporate the super- natural. Students will be guided through an exploration of Japanese cultural beliefs about the supernatural and the ways in which Japanese authors and film- makers convey the supernatural world to their audience, resulting in a critical analysis of the artists' craft.

### **05.01.10**

#### **Explorastories: CMTs, the Cinema and the 5Cs of Foreign Language Learning, by Crecia C. Swaim**

I teach French at Betsy Ross Arts Magnet School, a New Haven middle school. It is a wonderful, creative environment in which students truly learn, grow, and thrive, utilizing and expanding on their strengths as they stretch and strengthen all their capabilities. I find that at times this enriching environment can be unwittingly compromised by the necessity to fulfill all of the city- and state- mandated testing requirements, which now include pre-testing, pilot-testing, practice-testing, and post-testing. As a French teacher I act as a support to the test preparation process; in that role I am afforded the opportunity to choose alternate sources for analysis that illustrate places where French is spoken and bring to life sounds of the Francophone world.

In this unit, I hope to demonstrate how a foreign language teacher can expose students to authentic representations of the studied culture while supporting necessary standardized test preparation. Students will view two films by François Truffaut, *Small Change* and *The Wild Child*, and will respond to these films just as they would to written texts. In particular, they will practice two Reading Comprehension skills assessed by the Connecticut Mastery Test, *Forming an Initial Understanding* and *Developing a Critical Stance*. Film is a familiar mechanism for reflecting and disseminating culture, imparting and exploring cultural values and norms in an aesthetically rich way. With it, students will come to understand the concept of film as visual text, which will open up new learning possibilities for them.

(Developed for French, grade 8; recommended for Middle School French, grades 6-8)

## ***II. The Challenge of Intersecting Identities in American Society: Race/Ethnicity, Gender and Nation***

### **Introduction**

With an emphasis on identity and American society, this seminar featured a challenging set of readings and discussions. By beginning with an exercise discussed by Beverly Tatum in her book, *Why Are All the Black Kids Sitting Together in the Cafeteria?*, each seminar Fellow confronted her own identities — who "I am." We also built on that exercise with a dispelling of stereotypes each Fellow had confronted in their personal and professional lives, listing many false assumptions about themselves, entitled, "I am not." All of the members of the seminar — Fellows and the seminar leader — were pushed to think about difficult topics confronting each other, ourselves and, most importantly, our students.

What is identity, and how can identities, "intersect?" This seminar explored the politics of identity from an intersectional perspective, which acknowledges that each of us has a list of who "I am" and that list is not limited to one specific group or category. In this way the seminar builds on an approach that has emerged in many disciplines over the past 20 years to dissect and examine the organizing structures of society. In the United States, there are seven politically relevant categories of difference that have an impact upon individuals, groups, and public policy, many of which are listed in the title. Each of the units defines identity in age-appropriate ways and examines different intersecting identity groups. Many of the units acknowledge and examine how people identify simultaneously with specific race, gender, national origin, or class groups in American society, and how those allegiances to different groups can conflict with each other in a single person's life (e.g. to be African American and female) or among groups (e.g. the combining of Mexicans, Puerto Ricans, Cubans and many others as "Hispanic" or "Latino"). Allegiances to different groups can promote intolerance and prevent coalitions or cross-group solidarity.

Historically, the work of social movements in the United States such as the modern civil rights movement, Brown Power, the American Indian Movement as well as the first and second waves of the women's movement have in many ways forced America to "live up to what it wrote on paper," to use the words of Martin Luther King. Previous political efforts have focused more on intergroup relations — that is, forbidding discrimination against a group or providing group-specific political and economic benefits — certainly one important component of ensuring equality and justice for all. However, one unexpected, disturbing outcome of these movements has been what Elizabeth Martinez terms the "Oppression Olympics," where various marginalized groups compete with each other for the title of "most oppressed," in order to obtain political or economic resources. Given the perception that resources are scarce, groups strategically argue for specific benefits on behalf of the entire group, even though the entire group may not ultimately benefit from the request, and, more problematically, ignoring requests that may serve these minorities within minorities.

Who has the authority to define who counts as Black, Latino, or Native American? Can a person opt out of these identities? How do the sweeping generalizations made regarding the political and economic interests of "Blacks," "Latinos," "Asian Americans" or "Native Americans" mask a wide variety of socioeconomic positions within these groups based on the role of gender, class, national origin, or citizenship status? How can we ensure that *all*

members of a group can gain remedies to the injustices they have suffered?

As a new seminar leader, it was enlightening to learn about the role of teacher identity and student identity and the interaction that occurs in the daily classroom. I learned from two magnet school teachers that the self-segregation process many learning disabled or physically disabled students engage in is markedly similar to the self-segregation process many racial minority students engage in when they find themselves in a majority context (see Tatum 1997). Several teachers also told of experiences with students who are members of the same "umbrella category," such as Latino/as, and the separation within such a broad group; for example, the chasms often existing between students who identify as Puerto Rican and those who identify as Mexican.

Beyond examining the multiple identities of students and teachers, seminar participants were treated to a visit from Dr. Charles R. Hancock, Associate Dean of Curriculum and Instruction at the Ohio State University and Mrs. Theresa Hancock, a recently retired reading specialist and elementary school teacher specializing in children's literature. Their presentation was based on Howard Gardner's theory of multiple intelligences. Dean Hancock's 35 years of experience in conducting workshops with educators led to a very engaging, activity-filled session for everyone. Based on the Fellows' appreciation of and engagement with the workshop, most of the units in this volume include attention to students' varying learning styles and academic strengths well beyond the traditional limit of early elementary years. Fellows have attempted in as many ways as possible to develop units that can educate an entire child regardless of the subject matter or grade level. Moreover, most of the units mention specific nation-, state- or district-wide standards for curriculum and/or strategies that they have found useful for working with a very diverse population of students.

The 10 members of the seminar included seven first-time fellows and six teachers with five or fewer years of teaching experience. The Fellows teach students in a wide variety of grade levels (K-12), skill levels (honors to special education), and subject areas (English, History/Social Studies, Art, Spanish). The units in this volume are organized according to grade level, with high school, middle and elementary school units grouped together. The only exception is a relatively unique pair of units for teachers of Spanish, who may need units for any age but a variety of language proficiency levels. These two units are grouped together.

The high school units are from all four subject areas — English, History, Art and Spanish. As well, they combine specific skill-based learning goals with content areas that touch on a variety of intersecting identities. For example, Dana Altshuler's "Anatomy of Your Enemy" draws comparisons between discriminatory treatment of gays and lesbians during Nazi Germany to post-September 11th policies affecting gays and lesbians in the United States. Dana Buckmir encourages critical thinking about gender norms and their impact on teenage girls in her Basic English unit, "Female Adolescent Identity: Am I Powerful or Powerless?" Kristen Grandfield, also a high school English teacher, uses the biographies and literature of four women of color — Julia Alvarez, Sandra Cisneros, Nikki Giovanni and Ntozake Shange — to develop a unit that teaches students about the role of "voice" in literary analysis. Sara Thomas, a teacher of art, developed many creative ideas for activities to teach her students to abandon their stereotypes about themselves, each other and about what is "successful art" in her unit, "Teaching Art Through Identity."

The last high school teacher, Maria Cardalliaguet Gómez-Málaga, is a Spanish citizen

who teaches Spanish at the high school level. Her unit, "The Americas in America: Un Mar de Identidades" is designed for advanced (Spanish IV) language students and uses multiple media to reflect upon the intersecting identities and histories of Hispanic [sic] peoples throughout the Americas. In particular, Gómez-Málaga confronts the concept of *mestizaje*, or racial/ethnic mixture, that is a part of all Spanish-speaking cultures in the western hemisphere.

Both Spanish units acknowledge the politics of whether the appropriate term should be "Hispanic," or "Latino," a debate that continues among Latin American populations within the United States. Alexandra Reyes' unit, "Hispanic Heritage Month: What Are We Celebrating, Anyway?" also acknowledges the varying cultures contained within the label "Hispanic." In developing a unit that is appropriate for beginning Spanish speakers (middle school), Reyes takes advantage of her own Bolivian heritage in selecting the countries of focus for her students. It is both a strategic content choice and part of an effective teaching strategy: as she explains in her unit, it helps to humanize her to her students and they are more attentive to the lesson in general.

The next two units were created by teachers who are among a team of colleagues at East Rock Global Magnet School. Seminar coordinator Jacqueline Porter-Clinton and Institute Fellow Judith Dixon both sought ways to teach the stories of voluntary and involuntary immigration to the United States in a way that addresses the truly global student population at this K-8 magnet school. Porter-Clinton's unit, "Who Am I and Why Must I Be Called Anything?" is designed to go beyond bringing together learning-disabled and mainstream students to learn the eighth grade social studies curriculum concerning immigration. An experienced special education and disabilities teacher, Porter-Clinton's activities target the tendency toward self-segregation many students enact during a developmental stage where fitting in is so very important. Dixon's "Why is Ethnicity Valued, or Is It?" is designed for a fifth grade classroom and brings students into a special conversation with their parents, guardians, grand- parents and other relatives across the generations to discover through oral history the cultural treasures (music, fashion, values) each race or ethnicity possesses. In addition to the separate units each author created, the team will engage in joint efforts during the school's "Diversity Day" to bring the content of their units and their students' projects to the entire learning community.

The final two units are written by elementary school teachers. Stephanie Sheehan's unit, "Defining Cultural Identity: Thinking Outside the Box" is perhaps the most ambitious unit in its attempt to create a unit that can encompass the entire first grade New Haven Public Schools social studies curriculum. She covers all four themes students are expected to learn in her unit, encouraging them to engage in critical thinking and avoid stereotyping through her diverse selection of children's literature showing different story protagonists and families of different races and economic classes. Jean Sutherland's unit, on the other hand, focuses on the multiple of identities of African American women such as Harriet Tubman and Faith Ringgold to present a unit targeted for third grade students.

It has been both an honor and privilege to lead a seminar with such a wealth of diverse experiences, unit topics, and approaches. Readers of all the units in the volume will see a consistency of content and flexibility of organization across grade levels and subject area. In addition to definitions of terms like "identity," or "ethnicity," the majority of units reveal a wealth of strategies that teachers bring to the classroom — some with evocative names like "flushing" or others with self-explanatory purposes such as "do now." I hope all of the Fellows

are proud of their hard work. Their successful implementation of the units in the New Haven Public Schools and the wide dissemination of such up-to-date research on identity will hopefully inspire many more teachers around the world to take up the challenge of intersecting identities in their classrooms explicitly.

Ange-Marie Hancock

## Synopses of the Curriculum Units

### 05.02.01

#### **Anatomy of Your Enemy, by Dana S. Altshuler**

This unit explores the cross-cultural connections between two occurrences of discriminatory government policies implemented during times of war: the Holocaust in Nazi Germany and anti-gay policy throughout American society in the Post September 11th years. This unit fulfills several of the requirements for the World History course taught in the freshman year. The unit was written for honors-level students, but can be modified for various levels. The essential question that students will be called upon to consider is: How does identity contribute to instances of conflict? Within the context of this question students will analyze factors that go into creating conflict in order to spark awareness to current issues facing our society. Among these factors are: nationalism, propaganda and fear tactics, an ongoing history of discrimination in our society and world, the impact of the media, and the resulting violence that targets marginalized people in society.

A variety of resources are used during the unit, such as: readings, film, art, and music. Films include *Prelude to War*, *The Music Man*, and *Before Stonewall*. Reading materials include: a selected excerpt from Leslie Feinberg's, *Stone Butch Blues*; an article from *Teaching Tolerance* magazine titled, "American Gothic;" and the political writings of President George W. Bush (2001) and Martin Luther (1543). Additionally, this unit uses a variety of visuals to demonstrate Nazi use of propaganda. The name of the unit, *Anatomy of Your Enemy* is based on the title of a song by Anti-Flag. Students will use song lyrics to make analogies to topics discussed during the unit.

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

### 05.02.02

#### **Female Adolescent Identity Formation: Am I Powerful or Powerless?, by Dana M. Buckmir**

The purpose of this unit is to utilize the literature in order to model voice, inspire the reader through perseverance, and encourage the student to make a connection outside himself, in other words to view the larger picture as an attempt to gain perspective. This unit will explore the "coming of age" process experienced by adolescent girls on their journey from children to adulthood. It will focus on the middle years or limbo period in which girls decide who they want to become as women or rather, society decides who they have to become because they are women. I will present the idea that during adolescence when girls mature into women they experience an identity crisis which inevitably alters their sense of self; that is it empowers or diminishes the way they view themselves and the world around them. I chose a topic concerning gender because as a woman I am affected by gender in my daily interactions, as an English teacher there are many themes related to gender present in the literature, and as an educator there are numerous lessons that the students can learn from the female experience that are in turn applicable to the human experience.

(Developed for English 4, grade 12; recommended for Language Arts, grades 7-12)

### **05.02.03**

#### **Teaching Voice through Latina and African American Literature, by Kristen J. Grandfield**

This curriculum unit is designed for high school students to read, write and discuss voice by reading Latina and female African American literature. Voice is a literary device used by authors to convey a particular mood or tone in his/her writing. The tone and mood are created by word choice and fluency; elements that make writing such a deliberate and precise act.

This unit uses the writing of Sandra Cisneros, Julia Alvarez, Nikki Giovanni and Ntozake Shange and asks students to identify elements of voice in each of the writer's work. Students will also write personal vignettes, poems and responses using the selected pieces as models. The goal of the unit is to have students recognize voice and the techniques writers use to create their voice and message.

Students will produce a portfolio of their best work based on their understanding of voice and the writers.

(Developed for Junior English III, grade 11; recommended for Junior and Senior English and Language Arts, grades 11-12)

### **05.02.04**

#### **Teaching Art through Identity, by Sara E. Thomas**

Through deconstructing stereotypes and exploration of identity I would like students to gain a greater sense of self and what makes them unique. I would like them to be able to express a piece of themselves in every piece of artwork they do. Art is the perfect catalyst for this because, "Art has no race or gender.

Art...was for me a realm where every imposed boundary could be transgressed" (Hooks). I would like to start inspiring students to create artwork which has meaning for them personally. It is easy to give students an assignment like a still life where they are simply recreating objects from observation; however, how are they invested in the outcome of a still life? The challenge is to find lessons where students can make personal choices about their artwork while also learning the fundamentals of drawing, painting and sculpture. When speaking about Lois Mailou Jones and Romare Bearden, Hooks says, "when they no longer focused exclusively on European traditions and drew upon the cultural legacy of the African-American diasporic experience — that they fully discovered their artistic identity." Once Bearden and Jones had learned aesthetics and traditional art they made their artwork their own. They infused it with their own culture, race and personal history. This is what I would like my students to learn. I propose to do this by teaching through a series of lessons, each with a different focus on an aspect of life that influences identity. These aspects will include but are not limited to, each student's ethnicity, culture, traditions, family, experiences, physical appearance, fear, dreams and aspirations.

(Developed for Introduction to Art, grades 9-10; recommended for Art, grades 8-12)

### **05.02.05**

#### **The Americas in America: Un Mar de Identidades, by Maria Cardalliaguet Gómez-Málaga**

The objective of the unit is to enable students to understand and recognize the importance of cultural identity in order to identify who they are. The unit focuses on study of the Hispanic/Latino umbrella group, and its roots: culture, traditions, history, art, and politics. Students will learn the influence of different ethnicities and backgrounds on the development of the Americas. The unit contains direct references to, for example, Mexico, Guatemala, Colombia, Cuba and Puerto Rico.

The unit is recommended for Spanish students with at least an intermediate level of fluency (Spanish 3 and 4) since most of it is going to be conducted in Spanish.

(Developed for Spanish 4, grades 11-12; recommended for Spanish 4, grades 11-12)

### **05.02.06**

#### **Hispanic Heritage Month: What Are We Celebrating Anyway?, by Alexandra Reyes**

This unit is designed to that will explore identity and culture through the context of National Hispanic Heritage Month. This unit is not only a means to investigate Hispanic Heritage Month, but also a means to introduce students to the vast world of Spanish while developing a sense of what 'identity' is. In this unit, I aim to use the concept of identity to explore the diverse world of Spanish-speaking peoples. Helping students develop ideas about their own identities will encourage self-confidence, inside and outside the classroom. This confidence will promote learning and acceptance of other people, cultures, and languages. It is important that all students' cultures and heritages be recognized, appreciated, and celebrated.

(Developed for Spanish I, grades 7-8; recommended for Spanish, Middle School grades)

### **05.02.07**

#### **Why Is Ethnicity Valued, or Is It?, by Judith D. Dixon**

This unit focuses on ethnicity. I will explore the cultural values of the majority of the populations I teach. This will include African American and Latino students, who will consider the similarities and differences between the two groups.

Students in grade five must study the History of New Haven. They will learn how immigration began in America, connecting the two ethnic groups as to when they migrated to New Haven. The students will make connections to their own families.

This unit can be taught to students from grades four through six. For the fourth and fifth grade students, the novels I have chosen can be read by both grade levels. The sixth grade students will need their reading materials adjusted to fit their reading levels. Some students could possibly be on an fourth or fifth grade reading level.

(Developed for Social Studies, grade 5; recommended for Middle and Elementary Curriculum, grades 4-6)

### **05.02.08**

#### **Who Am I and Why Must I Be Called Anything?, by Jacqueline E. Porter-Clinton**

This unit is designed for Social Studies. In Social Studies we teach about the arrival of America's immigrant population, whose members passed through Ellis Island on the east coast and Angel Island on the west coast, with and without documents, by land from Canada and Mexico, at various times throughout history. Society's way of categorizing or identifying us creates isolation of one group from another—in turn, creating the need for tolerance. I will venture to ask the question: "Why can't we be individuals with many qualities?"

I will be teaching this unit in an eighth grade Social Studies class that consist of students on grade level, special education students who are academically below grade level, Hearing Impaired students as well as English as Second Language (ESL) students. The unit will be taught over the period of one marking period. Because of the diversity of the class this unit could be applicable for fifth through eighth grade.

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

### **05.02.09**

#### **Defining Cultural Identity: Thinking Outside the Box, by Stephanie J. Sheehan**

The purpose of this first grade curriculum unit is to enable young students to identify themselves and others with regard to many complex factors, including race, ethnicity, physical appearance and ability, gender, and family structure. The students will understand themselves better, become better prepared to accept people who are different from them, and learn to refrain from making assumptions about people by way of external examination. The secondary goal is to create a tone of harmony among classmates and multicultural appreciation.

I will provide opportunities for children to observe people with families and identities different from their own, as well as positive role models from within their racial groups, by utilizing engaging multicultural literature. Though many cultures will be studied within this unit, the most emphasis will be on African American people, with some emphasis on Latino, White, and Biracial people, in order to reflect the racial backgrounds of my students. In addition to teaching about people from other places and ethnicities, I will encourage open communication in class and assign individual and group projects, in order to allow the students to discover similarities and differences among themselves, such as family structures, traditions, and hobbies. By discussing many types of identities and comparing themselves characters in books and to one another, they will learn new ways of identifying themselves and develop a sense of self-pride.

This year-long curriculum unit consists of four ten-week mini-units: one for each marking period. It is to be implemented at least two to three times a week, for approximately 30-60 minutes per lesson. Due to great emphasis placed on reading and writing in first grade, I have integrated the social studies themes with the required literacy activities. Each section of the unit corresponds to one of four social studies themes. The four themes are: Family and Me, Community and Traditions, African American History, and Celebrating Diversity.

Although the unit is designed for first grade students, the content could easily be adapted for students from second through fifth grade by supplementing the reading with longer, more challenging texts.

(Developed for Social Studies, grade 1; recommended for Elementary School Social Studies, grade 1)

#### **05.02.10**

#### **Investigating the Multiple Identities of African American Women Fictional and Real, by Jean E. Sutherland**

This integrated unit focuses on two groups of African American women, one group living during and immediately after the period of enslavement, and the other representing women who influenced or could have influenced the Civil Rights Movement. Some lived in the years leading up to the movement and one was an actual participant. Some of these women are creations of fiction, while others are actual people. They include Harriet Tubman, Faith Ringgold, and characters from the writings of Mildred Taylor, Connie Porter and others.

With each group, students examine the various identities assumed by each individual, learn of the conflicting and/or supporting pressures that these identities had upon each other, and speculate regarding how students would have reacted to some of these influences. Activities are integrated, with emphasis on Social Studies, Social Development, and Language Arts: listening, speaking, reading, and writing. Several detailed art activities are included. The unit is aimed at third graders, but could easily be adapted to a fourth or fifth grade class and some middle school groups.

(Developed for Essentials of Literacy, grade 3; recommended for Reading, Language Arts, Social Studies, Social Development, and Art, grades 3-6)

### ***III. History in the American Landscape: Place, Memory, Poetry***

#### **Introduction**

This seminar introduced the history of ordinary landscapes as a resource for creative teaching. In addition to urban and architectural history, we explored processes of public and private remembrance, approaches to constructing historic narratives in the public landscape, mapping as a part of history and memory, and strategies for the representation of places. It included eight teachers of all levels from K to 12, including several involved with history and creative writing. All were interested in extending their students' investigations of place.

In our first meeting I posed several questions. What do we mean by sense of place? What are some of the reasons to preserve places? How do societies remember as opposed to individuals? What are the aural, spatial, and visual triggers of memory? How do writers, artists, and designers use them? By the second meeting we were examining the city as the creation of all its residents, that is, women, children, and men of all ethnic and racial backgrounds, all ages. How can citizens be encouraged to claim and protect places important to their lives and work?

Our first field trip explored the memories contained in public space on the Yale campus in New Haven. We then moved on to discuss ordinary neighborhoods and their distinct histories. The urban landscape is not a museum, yet activities involving remembrance go on all around us. What are the many ways a place-based narrative can be constructed? What are the possible places certain kinds of stories can be told? What is a "trail"? How do walks and driving itineraries differ from guided tours?

We then looked at the stories that artists, architects, and poets tell. For example, Houston Conwill's *The New Charleston*, a history of African Americans in Charleston from the time of slavery, is presented as a dance floor in a community building, while the Biddy Mason project in Los Angeles tells the story of an African American midwife, her walk across the continent, and her life in the city, through both a wall and an artist's book. Architects (such as guest speaker Amy Lelyveld) have also told stories about old buildings and new additions. She discussed an early 19th century house and the contemporary addition she designed in terms of the physical elements in the two designs and the changes in family life that also occurred.

Sense of place is often conveyed by poets as part of lyric or narrative poems. For example, James Dickey's "Cherrylog Road" portrays teen romance with a hint of violence in a used car graveyard, where the history of particular junked and wrecked automobiles is part of the narrative. Is this sequence like a history trail? Do traditional poetic forms help to frame local places in ways that make them more accessible?

Finally we addressed eminent domain and the disruption of sense of place. The United States Supreme Court decided *Kelo v. New London* in favor of the city. This is a very controversial case about eminent domain and the right of government to take property — in this case, the homes of working-class people — for public use. In New London, the definition of "public use" was a town plan calling for upscale projects by private developers in order to increase the tax base of the city.

The curriculum units from this seminar which the teachers present here include Joan

Malerba-Foran's exploration of the architectural and social significance of the front porch as a liminal space between the public and private realms of American life, Judith Goodrich's look at building historical understanding through landscape, and Ralph Russo's walking tour of American history before 1877 on the New Haven Green. Sean Griffin pairs fiction and poetry in a unit about understanding literary settings and sense of place. Justin Boucher asks "What is Home?" in a unit designed to introduce world civilizations for high school students. Alison Kennedy looks at mapping as a route to exploring the neighborhood with kindergarten and first grade students. Yolanda Trapp presents Native American shelters to middle school students and Robert Echter looks at sense of place as part of special education.

Dolores Hayden

## Synopses of the Curriculum Units

### 05.03.01

#### **The Architectural and Social Space of the American Front Porch, by Joan A. Malerba-Foran**

The front porch is one of the most powerful symbols of American cultural values. Our reverence for community and country, for home and harmony, are idealized and realized in the architecture and art created for the front porch. From ostentatious plantations to humble cabins, this unit details the origins, stylistic evolution, technological influences, and cultural pressures that shaped the porch.

Industrialization in the 1840's gave Americans a leisure class, while simultaneously creating a fear that mechanization would overwhelm nature. The front porch was the link—the perfect liminal space—between civilization and raw nature, between public and private space. With the mass publication of architectural plans in pattern books, the front porch became one of the first "keeping up with the Joneses" necessities.

This unit is designed to make the history of the American porch a living history. The porch—then and now—reflects all the political, social, and economic needs of "We the people." The unit includes a neighborhood field trip to map porches, films, songs, theater productions, a novel, and poems that highlight American voices that sound like bells—sometimes lovely, sometimes lonely—gently swinging from the loose ropes that bind home to community.

(Developed for Ethno-Literature Honors, grade 10; recommended for College and Honors English, Creative Writing, Drama, Sociology, History, Psychology, Design, and Art, High School grades 10-12)

### 05.03.02

#### **Building Historical Understanding by Exploring American Landscapes, by Judith S. Goodrich**

The unit focuses on the study of historic landscapes to learn about the American past, paying attention to material culture, social history and 'sense of place' as revealed in primary sources. The unit will urge students to become careful observers of their own environment, to reflect on the meaning of the space they occupy, and to translate that understanding to their research on topics in American history.

Students will begin the unit by considering the meaning that a personal space and place holds and creates for each of them. Students will then examine some of the landscapes that have shaped the memory and the history of Americans in the past. Through research in primary documents and images, students will discover that 'sense of place' grows from memory as well as function. Students will explore the landscapes of Puritans and colonists, homesteaders or gold miners, factory workers or mill girls as they explore the growth of America through

themes of exploration, conflict, governance and invention.

Paralleling the historical research, students will investigate the meaning of place through the lens of poetry. Students will explore the language used by poets to capture 'sense of place' and will create poems that express an understanding of 'sense of place' in their own lives.

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

### **05.03.03**

#### **Knowing Our Neighborhood, by Alison B. Kennedy**

For most of my students Kindergarten is the first time their community is broadened beyond their families. They come to school having experienced a very insular world, sometimes one that consists only of family and home. School is often their first exposure to people of different cultures and family dynamics. It is also where they have the opportunity to learn about a new place and claim that place as some- where important to their lives. Through this unit I hope to give my students a variety of experiences that help them express how they feel about the places they care about. I also hope to broaden their view of what their neighborhood is and give them a sense of belonging and responsibility within that community.

This unit is meant to help early childhood students develop a sense of place. Through poetry and mapping the unit will teach the students about their community. They will learn to express how they feel about it through writing, and navigate their way through it by exploring and creating maps. They will also share what they create during the unit with other members of their community. The unit will allow them to help others in their community see how they view it, and give them a chance to have their voices heard in the neighborhood they live in.

(Developed for Literacy and Social Studies, grades K-1; recommended for Literacy and Social Studies, grades K-2)

### **05.03.04**

#### **Memory and Place on the New Haven Green, 1638-1876, by Ralph E. Russo**

This unit will utilize New Haven's most historic site to provide students with an interdisciplinary and experiential learning experience. As Fellows in Dolores Hayden's seminar, my colleagues and I broadened our understanding of the importance of place memory, public history, and public art in the built urban environment. The New Haven Green is an excellent subject of focus because it has more or less retained its status as a center of spiritual, economic, and social activity in New Haven over a considerable period of time. In 1638, the founders of the New Haven Colony planned a community based on a grid of nine squares. The planners set aside the central square of nine squares as common lands.

Unlike most other colonial and federal period greens, which have disappeared or have been significantly altered, the Green has developed over time as New Haven has evolved. Yet, while the architecture around the Green reflects the eras of change that have washed over New Haven in the last three centuries, the function and character of the Green has changed little since the early 19th century.

Today, the Green serves as a place for public gatherings, for entertainment, worship, and

recreation. In the past, it has also served as the town market place, burial ground, and the location for the town's first government. The Green survived urban development, including a plan to build a parking garage beneath it. Today it remains the central landmark in downtown New Haven. The Green's survival has something to say about the communal sense of place in New Haven.

Everyone who has visited downtown has a memory of the Green.

(Developed for United States History I, grade 10; recommended for Honors, College, and Basic United States History I, grade 10)

### **05.03.05**

#### **Architecture and Setting in the Shaping of Fictional Characters, by Sean T. Griffin**

This unit is designed as a way to help students make a bridge from literature to real life through the examination of architecture and place in the development of fictional characters and plot. I will ask students to look at several short stories, which I have paired up with poems. This is literature that my eighth graders would be reading normally, but the difference is that I am trying to emphasize techniques authors use to create a sense of place. Journal writing will be emphasized as we look closely at how fictional characters are influenced by the architecture and setting in which they live. In a final project students create their own "life maps" in order to see how different settings or places have influenced their own lives.

(Developed for English, grade 8; recommended for Middle School English, grades 7-8)

### **05.03.06**

#### **What is Home?: Place as a Factor in Culture, History and Perspective, by Justin M. Boucher**

This unit is designed as an introduction to a World Civilizations course. It deals with the concept of place, home, culture, and human origins in East Africa. The unit explores the concept of place by asking students to take a critical look at their home, and how it influences their own culture. The unit then measures this understanding by asking students to apply it to the foreign environment of ancient East Africa.

The unit is also largely diagnostic, in that I work in a magnet school where, when dealing with freshmen, it is not always easy to tell what they understand and what they do not. The unit deals heavily with writing, and seeks to give me a greater understanding of what it is the students understand, and what they are capable of doing in terms of writing.

(Developed for Honors World Civilizations, grade 9; recommended for World Civilizations, English, and History, High School grades)

### **05.03.07**

#### **Spaces and Places of the Native Americans, by Yolanda U. Trapp**

In this unit children will be learning some basic knowledge of the Native American tribes, ranging from the Seminole of Florida to the Chilkat of Alaska, learning about their period of

life and studying different kinds of uses of Indian shelters. Students will learn to understand architecture as an artistic mode that deals with forms of interior and exterior space. They will also begin to recognize its relationship to the environment, cultural influences and needs of different tribes. The unit is part of a four-week program (with extension if needed) to introduce students to the history and culture of the first Americans.

I prepared three different lesson plans for grades five and six. The first is designed as a thinking process. The second and third are developed with the District Content Standards included. All the lessons plans can also be modified for the need of each child having a Differentiated Instruction Method in mind.

(Developed for Language Arts, Social Studies, History, and Math, grades 5-6; recommended for Elementary Curriculum Areas, grades 5-6, and Middle High School)

### **05.03.08**

#### **"Sense of Place," Special Education and Environment, by Robert P. Echter**

This unit aims to challenge the concept of environmental study and emphasize its relationship with the sense of place. Rather than start with a field of study that preempts the psychology, self-education and purpose of childhood, in this case, I prefer to start with those features as we find them in the world. David Sobel is among the people who are giving some attention to this. If relationships are all important in our work, more attention could be paid to the quality, number and duration of relationships we develop in the course of our studies. The feeling of safety, comfort and defining one's own space-place, almost a "secret" hide-away can be placed in this study for example. The point is that students and their teachers could bring things in to define their space.

The rules are that the 'grammar' ("a systematic treatment of the elementary principles of a subject and their interrelationships") of *the place* are influenced by the students and their teachers much more so than is typically a reflection of the school system these days. The environment of one place, for example the village in which I live, may be feature rich, with lots of access to nature and environmental community; whereas it is less so the product of school and some other places, with some exceptions such as the *communication* with the content of children's lives they bring to school. These actions are natural and pedagogically important to our students. Yards are important places for kids. We could give them more attention at schools in their education.

(Developed for Mathematics, Social Studies, Science, and Literacy, grades 2-4; recommended for grades K-4)

#### *IV. The Sun and Its Effects on Earth*

##### **Introduction**

The Sun holds a unique place for life on Earth. Without light and warmth from the Sun, life on earth as we know it would not exist. Our increasing dependence on technology also makes us more vulnerable to some of the extreme phenomena that occur in the Sun.

The solar magnetic cycle (also called the solar activity cycle, or simply the solar cycle) causes the properties of the Sun to vary over an eleven year cycle. The most dramatic results of this variation are giant solar flares that occur around maximum activity. These flares can cause magnetic storms which can overload power-lines and disrupt communication satellites. There are most subtle effects too which are equally important, if less dramatic, such as the change in the amount of solar energy received on earth and how this affects climatic conditions.

In this seminar we examined the Sun, and the Sun-Earth connection. We looked at the astronomy of the Sun — the structure of the current Sun and how it will evolve and die. We looked at our place in the solar system and the constituents of the solar system. And we spent considerable time examining the Sun-Earth connection, such as the Sun as a driver of weather on Earth. We also dealt with topics related to global warming.

The curriculum units developed as a result of this seminar reflect the range of subjects dealt with at the seminar. The units are arranged roughly according to subject. The first unit, that by Michael Harris, deals with the birth, evolution and death of the Sun. It introduces students to the concept of a changing Sun, which in about five billion years will die, and in the process of dying engulf many of the planets of the solar system.

The next three units deal with the Sun and the solar system. Diane Huot's unit introduces elementary school students to the solar system and the position of the Earth in it, while Waltrina Kirkland-Mullins has developed a detailed introduction to the astronomy of the Sun for elementary school students in a delightful question-and-answer format. Both these units utilize stories and folklore to get children interested in the subject. Many interesting projects are described than can be used not just in elementary school students, but at higher grades, too. And because hands-on activities interest students of all ages, Raymond Brooks has developed a unit that deals exclusively with projects middle school students can do for Science Fairs.

The next three units in this volume, those by Roberta Mazzucco, Marissa Ferrarese and Michele Murzak, deal with Sun as well as the effects of Sun on Earth. They discuss the Sun-Earth connection in terms that students can understand.

The last set of three units deal with concepts of weather and climate. There are two units that deal with the concept of global warming. Crystal Lavoie writes about the greenhouse effect that is believed to be one of the main reasons for global warming. The unit describes experiments that can help students understand the concepts involved. Carolyn Kinder approaches this topic from a different point of view and discusses evidence for and against a human cause for global warming. The last unit, by Chris Willems, describes the drivers of weather and among other factors, how uneven heating due to the Sun determines our climate.

Sarbani Basu

## **Synopses of the Curriculum Units**

### **05.04.01**

#### **Stellar Evolution and the Fate of Earth, by Michael A. Harris**

Life on Earth would not have been possible if it were not for the process of star formation that has been continuously occurring since the Universe began to expand some 13-15 billion years ago. Each star evolves in a slightly different way depending on the initial mass of the star. Stars begin their life as a vast cloud of dust and gas (mostly hydrogen gas). Gravitational forces bring these particles and gases together until the conversion of gravitational potential energy to heat causes the temperature to raise enough to allow hydrogen fusion. Once hydrogen starts fusing into helium, a star is born. While all stars form in similar ways, the path a star takes to its eventual death is dependent on its initial mass. Low mass stars (about five times the mass of the Sun or less) will evolve and end their life as a white dwarf. Intermediate mass stars (five to ten times the mass of the Sun) will evolve and end their life as a neutron star while the most massive stars become black holes. Life on Earth is related to this process of star formation, and it is this process that will some day be the demise of the Earth and all life on it. Current measurements suggest that the Sun is halfway through its ten billion year life cycle.

In addition to addressing the concerns and questions that my eighth-grade students have about stars, how they form, how they die, and what that means for life here on Earth, this curriculum unit reflects the New Haven Public School scientific inquiry performance standards and New Haven's Earth Science performance standards. Using those standards as a guide, I will focus on, and develop the following topics related to stellar evolution for the classroom: 1) The sequence of events as stars form, "burn" their fuel, and then end their life, and 2) The fate of our Earth as our own sun progresses through its evolution.

(Developed for Earth Science, grade 8; recommended for Earth Science, grade 8)

### **05.04.02**

#### **Our Place in Space, by Diane M. Huot**

What do scientists and children have in common? They both feel excitement when new discoveries are made. For children, this excitement can capture their imagination and introduce them to the fundamentals of math and science. My goal in this unit is to help this generation of students grow up feeling more at home in this vast, awesome, and exciting universe.

This unit is designed for students in grades two through four. I find that at the beginning of third grade many of my students do not even know their addresses and telephone numbers. How can I help these students understand that they are not only part of their family, neighborhood, and city but also part of the Universe? My job as a teacher is to make them feel at home with the information. To begin at home, our Earth is a member of the family of planets and moons known as the solar system. Orbiting our star, the Sun, are nine planets, and assorted satellites with their own special characteristics. Our solar system is also shared with assorted debris in the form of asteroids and meteoroids.

Many teachers would love to include astronomy in their classroom but they are often held back because their own background and training in the subject is weak or outdated. This unit is

designed to build background knowledge of the Solar System as well as provide resources to obtain current information to teach this content area. It is also designed to instill in students a curiosity and concern for their natural world and create critical thinkers and problem-solvers. Students need to see connections among the various disciplines of science, mathematics, and the humanities, as well as between what they learn at school and beyond.

(Developed for Science, grade 3; recommended for Elementary Science, grades 2-4)

#### **05.04.03**

#### **Our Intriguing Star...The Sun!, by Waltrina D. Kirkland-Mullins**

If we were to travel far beyond our solar system's boundaries and look back, we would see billions of scintillating points of light that comprise our Milky Way galaxy—among them our star, the Sun. Our star has a story all its own, one that reveals it is much more than a simple source of heat and light. What then is this celestial sphere? My curriculum unit explores these concepts and more.

Developed for grade two space explorers (and modifiable for grades two through five), this unit is presented in an easy-to-use question and answer format. It zeroes in on the fascinating characteristics of the Sun and its overall impact on planet Earth. Through interactive activities, related films, select readings and corresponding writing exercises aligned with Connecticut Mastery Test (CMT) response-to-text writing strands, students grasp that the Sun impacts our planet in many ways—several often taken for granted. The unit, to be implemented within an eight to ten week period, is interdisciplinary, incorporating Scientific Inquiry, Earth Science, Social Studies, and Language Arts from a whole language/multi-cultural perspective.

(Developed for Science, Language Arts, and Social Studies, grade 2; recommended for Science, Language Arts, and Social Studies, grades 2-5)

#### **05.04.04**

#### **Sun and Earth, by Raymond W. Brooks**

The focus of this unit is on activities for Sun/Earth Science Fair Projects. A teacher wishing to help guide students to complete a meaningful project can use the basic information found in this unit to provide direction for the student.

The unit tries to use ideas that have already proven successful. The topics with related activities are:

- How big is the Sun?
- How Far Away is the Sun?
- What is the Structure of the Sun?
- Sunlight and Earth
- Sun-Earth Movements
- Solar Energy and Weather
- Solar Energy Past and Present

By doing these activities, the student must research information and gather data to write a

research paper about the Sun. Various Web sites are mentioned throughout the unit where a person can locate relevant information. If one wishes to use an interdisciplinary approach, the unit can satisfy Performance Standards for Science, Math, Social Studies and Language Arts.

(Developed for Science Fair, grades 6-8; recommended for Earth Science and Astronomy, grades 6-8)

#### **05.04.05**

##### **The Sun: Earth's Friend and Foe, by Marisa A. Ferrarese**

The goal of this unit is for students to use scientific inquiry methods to identify and explain the positive and negative effects the sun has on the Earth. While many curriculums have Earth Science as a required topic, most textbooks focus on the nine planets and the night sky. This unit includes background information, scientific experiments, technology links, and mathematical connections for both students and teachers about the sun and its effects on Earth. This unit meets multiple science and mathematical standards for fifth grade, but can easily be modified for other levels.

The unit is divided into two complete sections. The first describes the sun's formation, properties, and structure. The second section focuses on the relationship between the Earth and the sun. Topics such as the Earth's rotation, seasons, tides, life cycles, heat, weather, and the solar effects on human health are discussed.

(Developed for Science, grade 5; recommended for Science, grade 5)

#### **05.04.06**

##### **The Sun in Our Lives, by Roberta A. Mazzucco**

This unit was written to be used in a third grade classroom, but can easily be adapted for use in a second, fourth, or fifth grade. The unit deals with the sun and how it affects life on earth. The unit does not include any serious discussion of the individual nine planets. Its focus is the sun and the development of our solar system and the universe. It is organized around a set of questions, from: where did the sun and planets come from?, and what is the anatomy of the sun?, to: how does the sun affect our weather?, and how do we have night and day and the seasons?

The unit offers a set of hands-on experiments and demonstrations. There is also an experiment on the absorption of light, and how it is affected by color, and a demonstration of the colors contained in sunlight. There is also a demonstration of how the universe is expanding, and the effect it has on the galaxies using a balloon and beads, as well as raisin cake. The unit also provides an annotated bibliography of teacher and children's books, as well as a list of some of the many astronomy sites available on the Web. There is also an appendix listing the specific science standards covered by the unit.

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

#### **05.04.07**

#### **The Sun-Earth Connection, by Michele L. Murzak**

This unit is designed for third and fourth grade students. The purpose of this unit is to show students the relationship between the Sun and Earth. The unit will touch upon many key concepts such as rotation and revolution. Students will learn about the solar system, more importantly the Sun and Earth and how it relates to our lives. Students will understand how important the Sun is and be able to relate this knowledge to the science unit on plant growth and development. Students will also learn about weather, climate, and seasons. They will have the opportunity to do hands-on projects that relate to district—wide goals.

(Developed for Science and Mathematics, grade 3; recommended for Science and Mathematics, grades 3-4)

#### **05.04.08**

#### **Solar Effects on Global Warming, by Carolyn N. Kinder**

This unit will be used to introduce children to the Sun and its effects on global warming. The intent of this unit is to ignite their interest so that they will study this subject further on their own. The unit is designed for children in grades 5-8 and will be taught for approximately ten days. Because students are limited in their knowledge about the Sun, greenhouse effect, climate and global warming, this topic can be explored only to a somewhat limited extent. What I have tried to do is to incorporate four main ideas: 1) to study the Sun; 2) to examine the greenhouse effect to see if it is affecting Earth's climate; 3) to examine temperatures over time to see if global temperatures have any effects on weather patterns and 4) to examine whether a brighter Sun is also responsible for rising temperatures.

Several strategies are used in this unit. Learning packages are used with specific goals and objectives with guided instructions from the teacher. Whole group and small group discussions and individual activities are used with each lesson. Each lesson has a specific stated goal and is guided by one of the main ideas of this unit. The lessons have been constructed to have students 1) Discuss prior knowledge; 2) Explore by doing an activity; 3) Reflect by looking back at activity, analyze and discuss and 4) to come to some conclusions, communicate to others, identify next steps that lead to the next topic.

The design of this unit has been guided by New Haven Public School Curriculum Science Standards grades 5-8. Specifically, Content Standard 4.0 Earth Science will be addressed. This standard states that students will develop an understanding of the structures, properties and dynamic processes of the earth, the solar system, the universe and the galaxy; they will be familiar with the origins, evolution, movements and interactions of these systems.

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

#### **05.04.09**

#### **The Greenhouse Effect and Me: How Do We Affect Each Other?, by Crystal P. LaVoie**

I developed this unit to help students learn to understand the phenomenon of global warming

and to think critically about their role in this environmental issue. The unit requires students to construct their own meaning about "the green-house effect" by building a body of empirical evidence from conducting modeling activities in the lab. The unit focuses on the human-caused factors that influence global warming and what if anything humans can do to slow this phenomenon. Students will review the meaning of energy, heat, and thermodynamics; they will have the opportunity to make their own greenhouses; students will think about how heat is transferred and what factors affect the heating of the environment; students will research, digest and react to their gathered information by choosing a debate topic and presenting evidence to support their standpoint. Students will also demonstrate their knowledge by writing essays to demonstrate what they are thinking and what they have learned.

In general, this curriculum unit is written to meet the expectations for a BEST science portfolio. It is written with the requirements for inquiry and Science Technology and Society (STS) activities in mind. Due to length restrictions, there is a significant resource packet available for interested teachers that is not included here. Activities of the unit are also planned to address New Haven Science Curriculum expectations, content strands, standards and science skills.

(Developed for Integrated Science, grade 9; recommended for Integrated Science and Earth Science, High School grades)

#### **05.04.10**

#### **Sun and Weather, by Chris Willems**

This unit uses the popular topic of meteorology to include physical science and meteorology in the middle school science classroom. The unit explores the source of weather energy (the sun), energy transformations and distribution, temperature, pressure, the role of water in weather, and geographic location.

The curriculum unit contains activities for six days of classroom lessons in support of the physical science concepts addressed. Weather investigations present dynamic, locally based, easily observed phenomena which all students have experience with. The physical science activities are a fantastic starting point for students seeking a science fair project.

(Recommended for General Science, grade 8)

## *V. Ecology and Biodiversity Conservation*

### **Introduction**

We live in a world in which humankind's footprint on the environment, and thereby on the diversity of life, is ever increasing in both its degree and spatial scale. It is becoming impossible to talk about humans' relationship with Nature without referring to ecological impacts. And so, understanding ecological science is becoming increasingly foundational to any endeavor to understand the basis of and to solve environmental problems. This seminar was designed to provide such insight to New Haven Public School teachers in order that they may increase their students' awareness and understanding of the role society plays in shaping its surrounding environment. One of the seminar participants stated that he and his students often thought that the "environment" was something that belonged exclusively to the natural surroundings of the urban realm. Through seminar discussions, he and the other participants came to learn that the "environment" is everywhere. It is merely the complexion and the species composition of the environment that changed with setting. This underscored the point that the environment becomes what we humans literally choose to make of it. The crux of good conservation, then, is to make choices that are informed by rigorous scientific insights about the relationship between humans and the diversity of life.

This seminar thus presented founding principles of ecological science as they related to the latest ideas and insights about the conservation of the rich diversity of life — biodiversity — on earth. It covered topics ranging from fundamental definitions of ecology and evolution, the viability of threatened species, the impacts of global climate change and habitat fragmentation and destruction, to the economics of resource exploitation and the environmental services that biodiversity provides to human health and well-being, and finally modern measures to conserve and protect biodiversity. The under-girding theme of the seminar was the ethical point that humans should recognize that they are part of ecosystems and that they are connected to other species through myriad lines of dependency. Disrupting those lines may jeopardize human existence. So any economic development aimed at improving human health and well-being must be undertaken with careful thought about the environmental impacts that may ensue. The effects of development (such as global climate change arising from greenhouse gas emissions) can manifest themselves over large spatial scales and take decades to play themselves out. Thinking about environmental impacts means thinking about the legacy current society will leave its grandchildren.

The seminar was comprised of teachers working at all levels of public school education. The challenge was to help teachers create units that make environmental issues understandable and relevant to students ranging from first grade to advanced placement high school environmental science. The seminar participants rose to the challenge and developed a rich and creative set of units. The common theme, however, was to develop units in which students would hone their powers of scientific observation, description and communication (both oral and written) and thereby inculcate a comfort with ecological vocabulary and ideas. Ultimately, the hope is that these units will [re]kindle an abiding, life-long interest in Nature.

Christine Elmore developed her unit around a semi biographical examination of the life and work of the famous primatologist and conservationist Jane Goodall. Her unit will, through the use of video recordings, teach young elementary school children to make behavioral observations of wild chimpanzees using the same techniques used by Dr. Goodall in her pioneering work. The students will learn to record their observations using the journal writing style developed by Dr. Goodall and thereby gain a deep appreciation for the ecology and behavior of chimpanzees. Kristen Borsari embedded ecology into a year-long social studies curriculum that examines the geographical regions of the continental United States. Her unit will encourage young elementary students to compare the species that exist within each geographic region and develop an appreciation of their role in the regional food chains. Her unit will also give students an awareness of the way habitat fragmentation alters a species' livelihood by creating barriers to movement. She will teach students to empathize with non-human species through structured games. Students on a playground will be increasingly prevented from accessing favored apparatus such as swings or slides by erecting barriers that prevent access to that apparatus. Julianne Kaphar's unit aims to teach middle elementary students to control waste and pollution. She will teach students how ecological systems cycle materials such as organic debris and water and how humans can emulate this through waste recycling. Her unit involves demonstration experiments on the water cycle. She will also build com- posters (miniature landfills) and conduct experiments that teach students the fate of organic debris (kitchen scraps) vs. inorganic debris (bottles and cans) after they have been disposed.

The aim is to get students to think more deliberately about the kind of waste they produce and its fate whenever they buy different goods. Pedro Mendia-Landa is a passionate gardener and will use urban gardening as metaphor to teach young elementary students the seasonal cycles of life of both plants and animals. He will also create experimental butterfly gardens in which he will alter the diversity of plant species. He will then relate this to the diversity of butterfly species that visit the different garden types.

Anthony Pellegrino primarily teaches history to high school students, in particular the saga of colonial expansion of the European west. His unit will compare Native American and European use of land and natural resources. The unit will explore how religious, ethical and moral differences between societies led to particular patterns of land alteration and abundance of natural resources. The unit will teach students how peoples' beliefs and attitudes create the sometimes irreversible legacies of exploitation and land alteration that modern society — 10 generations since that era — is now forced to deal with. Continuing on this theme, Matthew Cacopardo's unit explores how decades of industrial pollution in the Quinnipiac River and the New Haven harbor can alter patterns of diversity in bottom-dwelling marine creatures including mussels and oysters. His unit will teach students how to undertake quantitative, systematic chemical analysis of water quality along a gradient of pollution levels and relate those measures of water quality to quantitative measures of the diversity of sea life along the gradient. Abie Benítez's unit aims to teach students that urban ecosystems are rich in diversity of plant and animal life. Through comparisons of New Haven residential and commercial neighborhoods she will explore how the degree and nature of urban development influences the kinds of species that reside in those areas. Students will develop facility with natural history through species identification and descriptions of species' forms, habits and habitats. Tim Coleman, who teaches an AP environmental science class, will teach students basic principles of plant and animal taxonomy and apply those skills to species identification within the urban

New Haven setting. Students will also learn the major structures of plants and animals and understand their life cycles. Through comparisons of those structures, students will begin to appreciate how body form contributes toward defining the diversity of life. Finally students will learn to associate different plant and animal species through detailed field observations in order to appreciate the lines of dependency among species in urban food chains. Steve Broker, who also teaches AP environmental science, focuses his unit on understanding patterns of vertebrate diversity within Connecticut. He aims to teach students the meaning and value of biodiversity through field examinations of vertebrate species within different habitats in Connecticut. Students will also learn how environmental factors such as resource availability and predation (or lack thereof) influences the dynamics and abundance of species.

Through systematic examinations, students will also learn how environmental factors such as climate and habitat determine the extent and nature of biodiversity on local, regional, national, and global scales. Finally, his unit will explore how humans can have profound impacts on biodiversity through habitat degradation and destruction, introduction of exotic, invasive species and global warming.

Collectively, the units provide as rich an array of ideas and teaching methodology as the diversity of life they will explore. Moreover, all the units reveal that one may teach important scientific principles in ways that are meaningful and relevant to the day-to-day lives of the students. These units thus represent a fresh new way of introducing the principles and relevance of science to all levels of education.

Oswald Schmitz

## **Synopses of the Curriculum Units**

### **05.05.01**

#### **The Impacts of Human Activities on Biodiversity in New Haven County, by Abie L. Benítez**

This unit introduces such concepts as ecology, biodiversity, and fragmentation. As the population increases and the demand for goods increases, there may be a growing conflict between further economic development and the maintenance of unspoiled ecosystems large enough to sustain viable wildlife populations. I want my students to be aware of how human activity can impact their environment.

Utilizing hands-on and center activities, observations, and demonstrations this unit explores the relationship among living things present in urban habitats. The use of journal writing establishes a medium through which the students can expand their language expression, specifically writing in the content area of science. As an assistant principal I will implement this curriculum as part of my modeling and coaching for teachers in the classroom. A final project will include a written collection of scientific and historical observations.

(Developed Science Issues and Science, grades 9-12; recommended for Biology, Science Issues, Science, and Environmental Science, grades 9-12)

### **05.05.02**

#### **Regions and Habitats, by Kristen A. Borsari**

This unit is a curriculum is designed specifically for the fourth grade social studies curriculum Regions of the United States of America. The unit can be used in pieces or in more or less detail to fit nicely into the curriculum of younger or older children. It combines the social studies aspect with the science aspect, learning about the habitats and the food chains that exist within each region. The driving question of the unit: The world is made up of many interconnected habitats, and each habitat has its own food chain. How have these food chains affected the way humans live and how have humans affected the food chains of the habitats in which they live?

The unit gives background knowledge and lesson formats that can be used for each region studied over the year. The unit also addresses the need in fourth grade to introduce to the students expository writing by using the essential question as a writing prompt. The essential question leads children to synthesize their knowledge of science and social studies in written form to think about the world in which they live. The unit also encourages in children a connectedness to the world around them and a sense of responsibility to this world.

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

### **05.05.03**

#### **Connecticut Wildlife: Biodiversity and Conservation Status of Our Vertebrate Populations, by Stephen P. Broker**

Biodiversity is broadly defined as the "full array of life on Earth" and is considered to include genetic, species, ecological, and landscape components. Biodiversity thus includes concepts of species richness, ecosystem complexity, and genetic variation (Allaby 1994), and it addresses "both the variety of these things and the variability found within and among them" (The Nature Conservancy and Association for Biodiversity Information 2000). This curriculum unit addresses contemporary issues of biodiversity and conservation biology. It develops ecological concepts relating to the meaning and value of biodiversity, the extent of biodiversity (local, regional, national, and global), present and past threats to biodiversity, and efforts to maintain or restore biodiversity to habitats or communities at regional, national, or global scales. I refer to the vertebrate wildlife of Connecticut for the examples or case studies that are developed, including our herpetofauna (amphibians and reptiles), avifauna (birds), and mammalian fauna. I do not discuss the freshwater and salt water fishes of the state, instead giving emphasis to the tetrapods or quadrupeds of Connecticut.

The unit is intended for students in Advanced Placement Environmental Science (APES) a course that I have been teaching for the past five years. This is an upper level science elective which is a part of the College Board/AP Program course offerings at Wilbur Cross High School in New Haven. Future development of the unit will provide some applications for the Macy Honors Anatomy & Physiology course that I teach, as well as college and general physiology courses. While the target student population is advanced high school science students, there are a number of aspects of the unit, including subject matter and laboratory and field activities, which can be applied to middle school and elementary science education.

(Developed for Science, AP Environmental Science, and Honors Anatomy and Physiology, grades 11-12 and Biology, grades 10-12; recommended for AP and General Environmental Science, and Human Physiology, grades 11-12, and Biology, grades 10-12)

### **05.05.04**

#### **Historical Harbor Habitats, by Matthew D. Cacopardo**

This is a complete 10th grade biology or environmental science unit. It begins with food webs of a natural coastal marine environment. An initial trip to Outer Island (located in the Thimble Islands) introduces students to typical organisms in their community. Teachers will use this information to introduce the characteristics of living things, heterotrophs and autotrophs, photosynthesis, cellular respiration and microscopes. It then looks at how the Industrial Revolution has impacted the water quality of New Haven harbor. Students will determine how the bioaccumulation of pollutants may affect a food web. The scientific method will be taught by conducting an ecological experiment. By accessing local research on the harbor the students will determine sediment toxicity throughout the area. With this information students will generate a hypothesis about the environmental quality throughout the harbor. The unit will be concluded by determining an ecological profile of New Haven harbor by sampling the biological, chemical, and geological environments of four parks located along the coastline of the harbor. Students will generate conclusions on the overall health of New Haven harbor after the study.

(Developed for Biology, grade 10; recommended for Biology, grade 10, and Environmental Science, High School grades)

### **05.05.05**

#### **Flora and Fauna of the Hill Neighborhood, by Timothy F. Coleman**

This unit provides students with a methodology for how to measure and appreciate biodiversity through the study of taxonomy. Biodiversity is an important issue for today's society with government review of the Endangered Species Act and debate over Kyoto Protocol. Biodiversity affects us on many different levels. On the local level reduced biodiversity increases our risk to vector-borne diseases such as Lyme Disease, while increased biodiversity leads to ecosystem stability

Students will be introduced to common plant and animal phyla and the roles they play in an ecosystem. Students will also collect and quantify species from the local neighborhood in order to document the overall biodiversity of the local ecosystem. This unit is primarily designed for the teachers of AP Biology, although teachers at other levels are encouraged to modify this unit for their own purposes. It requires minimal equipment and the chance to go outside to hunt the wild exotica of your school backyard.

(Developed for AP Biology, grade 12; recommended for High School, grades 10-12)

### **05.05.06**

#### **Jane Goodall, Renowned Naturalist and Champion of Chimpanzees, by Christine A. Elmore**

How can the teacher of young children help them to understand the crucial role each person must come to play in repairing the health of our natural environment? Fostering such thinking at an early age will help children to become responsible inhabitants of the earth. This curriculum unit will begin with my students learning about the fascinating life and work of Jane Goodall, a tireless advocate of chimpanzees. Her life, her love of animals from a very early age, her patient techniques of studying chimpanzees in the wild, and her groundbreaking discoveries about them will effectively engage the children's interest and, so, serve as a stimulating topic for them to read and to write about. They will learn about how this lover of animals became a great scientist. Her philosophy is really quite simple: As we learn to care about all species, we better appreciate the inter-connections among all living beings.

Our focus in third grade is on literacy, helping students develop and strengthen their reading skills as well as their writing skills. My focus in this unit is on reading and writing informational texts. Indeed, this genre of nonfiction presents its own unique set of challenges which students must learn to master. We as teachers must provide them with the strategies that will help them to 'unlock' the knowledge found in such texts. This unit will be interdisciplinary in scope, incorporating reading, writing, science, poetry and art, and will, I believe, provide topics of high interest that will motivate even the most reluctant reader and writer.

Part of the third-grade reading curriculum involves immersing students in nonfiction reading and helping them appreciate and use the many features inherent in these texts. There is a

natural progression from the teaching of reading nonfiction to that of writing it. I plan to focus on three types of writing in this unit: journal writing, writing descriptive observations and writing an informational text. I have used an excellent and very teacher-friendly resource book entitled *Nonfiction Writing: Procedures and Reports* by Lucy Calkins and Laurie Pessah to help structure my lessons on teaching young students to write informational texts or as they refer to them, 'all-about' books.

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

### **05.05.07**

#### **Species Diversity with Different Land Management Techniques, by Jennifer B. Esty**

This curriculum unit will explore species diversity in a number of different ecosystems. The ecosystems will be differentiated according to the amount of land management being practiced on them by humans. So, for example, a city park with swings, paved paths, and a soccer field would be considered one ecosystem while a state park in the same area with unpaved walking trails and open meadows would be considered a different ecosystem.

In this unit ecosystems are used as a way to study many related topics. Classification and taxonomy are essential for identification of organisms found in any ecosystem. Statistics and other mathematical tools also fit well into this curriculum unit as it is impossible to count every organism within the large areas we will study. Reading for content will be necessary to obtain information about the different ecosystems we will study in this unit. Strictly speaking, statistics and reading skills are not the purview of most science departments, but without the math and language backgrounds provided by these two activities, the observations made by the students are useless. So, there will be scientific topics covered in this unit as well as many topics typically covered in other classes.

(Developed for Biology, grade 10; recommended for Ecology, Biology, and Integrated Science, High School grades)

### **05.05.08**

#### **After the Garbage Can: Where Does Our Waste Go?, by Julianne K. Kaphar**

This unit, which is geared toward fourth and fifth grade English language learners (ELLs), focuses on exposing students to the social and environmental issues of waste management. In this four-to-six week unit, I have integrated language arts, science, math and social studies to allow students multiple opportunities to be exposed to the content. Because the unit is targeted toward language learners, it is designed in a way to repeat key vocabulary and concepts through poetry, chants, stories, and projects. Students will keep track of their own waste for a week, thus increasing their awareness of how much waste one person can be responsible for. Students will have hands-on opportunities to observe and experience the effects of waste through field trips to the landfill and recycling plants, as well as through observing their own compost pits. Students will learn about cycles in nature, such as the water cycle and the cycle of decomposition, and how humans have affected these cycles through waste and pollution. My goal is that by the end of the unit, students will be impacted by the magnitude of the issues of

waste management, and that they would begin to make positive personal choices to reduce their own waste and attempt to 'emulate nature' through recycling.

(Developed for Bilingual, ESL, and Science, grades 4-5; recommended for Science, ESL, and Language Arts, grades 4-5)

### **05.05.09**

#### **Cycles of Life in an Urban Habitat: Changes in Biodiversity, by Pedro Mendia-Landa**

This unit is anchored in the science vision statement of the New Haven Public School curriculum standards and frameworks. This unit will provide the elementary school teacher in a dual language program with a framework that closely matches district—wide goals of literacy and numeracy to the study of biodiversity focusing on science standards. The list includes standards in the areas of scientific inquiry, life science, technological science, ecology, and historical perspectives in science.

This unit focuses on biodiversity by allowing children to explore and become familiar with food sources, producers, chains and webs, different habitats, the importance of diversity to a habitat, and how biodiversity affects our ecosystem and our lives. Through the use of concrete examples that contextualize and make meaningful a few ecological principles and processes involved in their day-to-day living, students are able to understand how biodiversity is an essential and integral part to our lives. Therefore, as we uncover and discover the surrounding backyard habitats in school and homes, we explain the reasons as to how and why the diversity of life affects our lives. A glossary of the most important terms, a list of student, teacher and electronic resources, evaluation rubrics, extension activities and standards are provided for the implementation of the unit.

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

### **05.05.10**

#### **Harvesting the New World: Changing Land Uses and Contact between Cultures in Colonial Times, by Anthony Pellegrino**

Teaching the history of Colonialism usually centers on the political, social, and economic effects of the era. Often, the environmental effects of Colonialism are glossed over, as time constraints make covering every aspect of this era impossible. This is unfortunate as we are just beginning to realize the long-lasting consequences of the environmental destruction caused during the colonial era. This unit is designed to help social studies teachers give students a more complete understanding of what happened to the North American continent and its inhabitants during this time period. In addition, the goal of the unit is to make our students more aware of the adverse effects environmental degradation can have upon us all by having them research modern land uses and judge these land uses as either just or unjust.

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