

Curriculum Units by
Fellows of the
Yale-New Haven Teachers Institute
Guide
2001

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Preface

In March 2001, seventy-one teachers from twenty-three New Haven Public Schools became Fellows of the Yale-New Haven Teachers Institute to prepare new curricular materials for school courses. Established in 1978, the Institute is a partnership of Yale University and the New Haven Public Schools, designed to strengthen teaching and improve learning of the humanities and the sciences in our community's schools. Through the Institute, Yale faculty members and school teachers join in a collegial relationship. The Institute is also an interschool and interdisciplinary forum for teachers to work together on new curricula. The Institute has repeatedly received national recognition as a pioneering and successful model of university-school collaboration that integrates curriculum development with intellectual renewal for teachers. In 1998 it launched a national initiative to demonstrate that the approach the Institute has taken for twenty years in New Haven can be tailored to establish similar university-school partnerships under different circumstances in other cities.

Teachers had primary responsibility for identifying the subjects the Institute would address. Between October and December 2000, 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.

Six seminars were organized, corresponding to the principal themes of the Fellows' proposals. The seminar entitled "Medicine, Ethics and Law" was led by Robert A. Burt, Alexander M. Bickel Professor of Law. Between March and August, Fellows participated in seminar meetings, researched their topics, and attended a series of lectures by Yale faculty members.

The curriculum units Fellows wrote are their own; they are presented in six volumes, one for each seminar. A list of the 149 volumes of Institute units published between 1978 and 2001 appears on the following pages. Guides to each year's units, a topical Index of all 1348 units written between 1978 and 2001, and reference lists showing the relationship of the units to school curricula and academic standards are available from the Institute. An electronic version of many of these curricular resources is accessible on the Institute's Web site (<http://teachersinstitute.yale.edu>).

The units that follow contain four elements: objectives, teaching strategies, sample lessons and classroom activities, and lists of resources for teachers and students. They are intended primarily for the use of Institute Fellows and their colleagues who teach in New Haven.

The DeWitt Wallace-Reader's Digest Fund and the National Endowment for the Humanities have provided the Yale-New Haven Teachers Institute major grants in the form of both endowment and program support. In addition, a number of individuals and foundations, notably the William Randolph Hearst Foundation, the Zimmerman Foundation and the Horace W. Goldsmith Foundation, have made gifts and grants toward the Endowment Fund for the Teachers Institute. The 2001 Institute was supported also by grants from the Sherman Fairchild Foundation, the Jessie Ball duPont Fund, the Arthur Vining Davis Foundations, 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 2001

I. Medicine, Ethics, and Law

Introduction

This seminar considered the ethical implications and different legal regulations of new scientific developments and current conduct in contemporary medical practice. The Curriculum Units prepared by the Fellows grew from these explorations.

We considered the arguments for and against recognition of a “right to die” (either by refusing life-prolonging medical treatment or by directly hastening death through physician-assisted suicide) of mentally competent patients, or by surrogates on behalf of mentally incompetent patients, or by parents on behalf of seriously ill infants. In this exploration, we considered the ethical status of adults and children with physical or mental disabilities, including the existence of a social obligation to provide special protections and services to such individuals. Jacqueline Porter’s Unit on the Right to Die deals with this topic.

We discussed new possibilities for genetic manipulations (such as cloning or gene therapy), for the use of reproductive technologies such as in vitro fertilization (including questions raised by commercial contracts for surrogate mothers) and for organ transplantation (including the scientific developments permitting the use of animals as sources for organs). Jimmy-Lee Moore’s Unit on the Genome, Stephanie Shteirman’s Unit on Science Writing and Grayce Storey’s Unit on Organ and Tissue Donors focus on these issues.

We discussed organizational changes in the delivery of medical care such as the increased prevalence of managed care and increased budgetary pressures for rationing of medical care in ways that are inconsistent with the health needs or wishes of individual patients, and the special risks of such practices for vulnerable individuals such as the elderly and members of minority groups. Carolyn Fiorillo’s Unit addresses many of these questions.

We considered current practices and past abuses in biomedical research, such as the Tuskegee syphilis experiments and, consider the effectiveness of possible remedies (such as requirements for informed consent or regulation by hospital-based Institutional Review Boards) to guard against the repetition of such abuses. Martha Staehili’s Unit focuses on a crucial aspect of this topic—the capacity of individuals to make informed choices to protect their own health—through a specific exploration of tobacco use.

Robert A. Burt

Synopses of the Curriculum Units

01.01.01

How Right Are Patients' Rights? by Carolyn E. Fiorillo

The goal of this unit is to encourage students to think and to focus that thinking on the future of their health and that of their loved ones. It outlines the existing health care system—Medicaid, Medicare and HMO's—and its inherent short-comings, the high price of prescription medications, the shortage of organ transplants for African Americans, the pros and cons of universal health coverage, the deterioration of the doctor/patient relationship, and the special health concerns of seniors, teenagers and women. Students are familiarized with their rights as patients and also the responsibility they have for their own health. There is an emphasis throughout the unit on ethical issues and questions raised as to what improvements could/should be made in our health care system to ensure that each individual receives the best treatment possible.

There is an ongoing activity which involves the students' recording their opinions and feelings in a journal every day, as they are taught the unit and also as they receive individualized cards outlining symptoms of their own supposed illnesses/injuries. This is meant to personalize the information they are assimilating and to help them experience the problems, emotions and decision-making involved, assisting them in examining their own value systems.

(Developed for General Science, grades 9-12; recommended for Health, Biology, and Ethics, grades 9-12)

01.01.02

The Genome: Controversy For All Times, by Jimmy-Lee Moore

One topic that seems to garner visceral reactions from scientists to everyday people is the notion of science being in possession of the ability to understand and manipulate genes. Since humans are deemed fallible creatures, how will knowledge so germane to the crux of our very existence, escape the ravishes of ego, greed, domination, power, control, politics, and corruption.

“The Genome: Controversy for All Times” seeks to tackle some of the debate around gene identification. The discourse is centered in two schools of thought: ethics and morality. During the last twenty years, we have seen a thirty-percent increase in the number of centenarians. Clearly our bio-technical advances are working. We are spawning new scientific fields of study like “proteomics,” the study of the production of proteins. We are correcting past wrongs, freeing those who have been incarcerated unjustly, thanks to our continuing breakthroughs with DNA. We have sequenced 3.1 billion letters of DNA, and proven that humans are made up of 30,000 to 40,000 genes, only two times more than fruit flies. Historical denials, like the Thomas Jefferson

debauchery, once vehemently denied, now pierces the veneer of American piety; courtesy of the genome factor by proving he fathered several of Sally Hemings' children.

(Developed for Thinking Skills, grades 9-12; recommended for Critical Thinking, Science, English, and Debate, grades 8-12)

01.01.03

The Connection Between Medicine, Ethics, and Law: The Right To Die, by Jacqueline Porter

This unit was designed with 7th and 8th grade students in mind. Currently, I teach a unit on the U.S. Constitution concentrating on the Bill of Rights. The students research five basic questions. What is the Constitution? What is the Bill of Rights? What is an amendment? What is a law? Who writes the law and who enforce the law? The final product is a paper and an oral presentation.

The concept of a person's "right to die" has become very visible and a wide-spread social concern. Advanced medicine and its capabilities have grown end-less in recent years. People are able to live longer with the assistance of medical discoveries. Once upon a time, nature alone determined when life would end.

Now, the combination of medicine, doctors, families and sometimes the court makes this important decision. How long a person lives and how they live has been a question that many disagree on, for many reasons. The quality of a person's life is very major. The major problem is not only the right to die, but who has the right to decide?

With this unit I will continue this project focusing on medicine, ethics and law, as it deals with the "right to die" issue. I used the information covered in the seminar to create a packet with a variety of specific issues to introduce to the class. We will review the facts of each issue, while leaving out my personal opinions. This will give the students the opportunity to develop their own views and voice their opinions. The students will choose a specific issue that they will research. They will be required to bring out all the aspects of the issue that relate to medicine, ethics and law. They will choose a case from a list that represents their chosen issue.

(Developed for Social Studies, grades 6-8; recommended for Social Studies and Science, grades 6-8)

01.01.04

Science Writing for the Masses: A Primer, by Stephanie Shteirman

This curriculum unit combines the study of genetics with the workings of science feature writing. The unit is designed to be a collaborative project between a high school science teacher and the library media specialist. The science teacher is responsible for teaching

the content which will focus on genetic testing, focusing on breast cancer. Students will learn how to write science feature stories incorporating what they learned about genetics and information garnered from several personal interviews and some first-hand research.

The unit, which should run about two weeks, gives science teachers a fresh approach to writing across the curriculum. Relying on my lengthy career as a broadcast and print journalist, I have tried to present the structure of a feature story in as simple terms as possible. The goal, of course, is to bring a complex and dramatic issue—genetic diseases and testing and the implications for the future—to the students in real terms by introducing them to the people who are directly affected by them. Students will meet or make contact with breast cancer patients, surgeons, geneticists, genetic counselors, gene test manufacturers and others who are taking part in this genetics drama. They will explore such issues as whether genetic tests should be off limits to insurance companies or whether family members should be tested if they have no symptoms.

Once they have researched the subject fully and spoken to all parties involved and learned the format of the feature story, they should be able to put together a first-class piece of journalism.

(Developed for Science Issues/Elective, grades 9-12; recommended for Journalism, English, Biology, and Science, grades 9-12)

01.01.05

Making Choices About Tobacco Use, by Martha R. Staeheli

In this unit, designed for grades 8-10, we explore the dangers of using cigarettes, the nature of addiction, the role of the media in helping us make decisions, and what all of this means for our children. This unit is designed as the beginning of a comprehensive anti-smoking education course, with concentration on the dangers of smoking, smoking statistics, and the manner in which most children gain knowledge of smoking, through films. We will focus on the questions that arise from placing dangerous products in an easily accessible public art form with wide distribution. Particularly, we will focus on the history of cigarettes in movies, issues of governmental regulations concerning drug placement in movies, artists' responsibilities to the public and public health, artistic considerations in using these products, and examination of public behavior in reaction to film. These questions will be considered through the lens being conscious of what we watch and what we can do to solve the questions and problems we generate as a result of the unit work.

Throughout the work of the unit, we will focus on four unit questions:

- If we understand the dangers of smoking, why do we (as a government/society) allow people the option of smoking if they wish?
- How does the portrayal of smoking in films affect the choices that we make?
- Should art reflect our “best” interests or should it have license to portray anything?
- Should we regulate the use of tobacco? How?
- What is the most effective way to keep kids from smoking?

(Developed for English, grade 9; recommended for Social Studies, English, Health, and Civics, grades 8-10)

01.01.06

Organ and Tissue Donors, by Grayce P. Storey

There have been concerns in the realm of religion as to whether or not to become an organ or tissue donor. The good news is that practically all religions condone organ and tissue donations or they leave it up to conscience to decide. Becoming a donor is a noble endeavor and the possibility of possibly saving a life shows concern for the life of your fellow man. Anyone can become a donor if they meet the specific qualifications.

It was brought to my attention that the low percentage of donors is due to the lack of public education regarding the benefits of becoming an organ and or tissue donor. There are currently over fifty thousand men, women, and children waiting for an organ donation. Unfortunately many of them will die because there aren't enough organs to go around. Livers are in the shortest supply of all the organs. If there were an increase in organ donations among minorities it would benefit the minorities in organ transplants. The reason for this is genetics. There is a greater success rate among donors and recipients of the same ethnic background. These ethnic groups include African Americans, Asians, Pacific Islanders, and Hispanics.

The best way to promote organ donations is to talk about it. There are some organs that can only be donated after death, while others can be donated while alive. There is a list of organs and tissues that can be donated, such as heart, kidney, pancreas, eyes, lungs, liver, intestines, veins, skin, bone, bone marrow, heart valves, and fascia. If an individual is not of age they must get parental consent. In any case all decisions should be discussed with the family. This helps decision making at the time of death to be less painful.

There is no cost involved to being a donor. The recipient pays for all transplant procedures. Organs cannot be bought nor sold (Public Law 98-507) and the National Organ Transplant Act.

Highly qualified physicians make the decision on who receives an organ. Allocations are awarded based on blood type, height, weight, tissue type, length of time on waiting list, medical urgency, and geographical location. The IOM endorses fairness in the nations transplantation system.

During and after the bereavement period a special trained staff is available to assist families who are participants in the organ donor program. The staff is very caring and eighty percent (80%) of my students said that, “maybe I will become an organ donor because I will be dead anyway.” By becoming an organ and tissue donor you are giving a gift of hope and life to others.

(Developed for Earth Science or General Science, grade 8; recommended for Ethics, grades 9-12; Biology and General Science, grade 9; Life Science, grades 7-8; and Health, grades 7-11)

II. Art as Evidence: The Interpretation of Objects

Introduction

Following an initial theoretical orientation session, each meeting of the seminar on “Art as Evidence” took place in front of a single work of art in the Yale University Art Gallery or Center for British Art. The class would analyze a painting closely and systematically for at least an hour, and usually longer. Beginning with a detailed description of the image and its formal elements in order to extract as much factual information as possible from the work itself, free of subjective judgments or external information, we then would proceed to a more analytical, deductive interpretation. Each session concluded with a summary reading of the work and identification of the questions it defined about the time and place in which it was made and, in some cases, about its maker.

All Fellows participated actively in the Socratic dialogue initiated by the seminar leader. They quickly became comfortable with the process and adept at maintaining clear distinctions between description, deduction and speculation, as well as multiple interpretive sub-stages. To gain closer first-hand experience with the steps of the methodology, each Fellow also selected and worked on a particular work of art, usually but not necessarily in the Yale collections, preparing several four-page papers and eventually presenting a twenty-minute oral report. Each project was linked to the Curriculum Unit that was simultaneously in the process of preparation, some more closely than others.

Fellows produced Curriculum Units on a broad range of topics. Although the art analyzed in class meetings was all American or English, the emphasis of the seminar was on a methodology which Fellows could adapt for their own broader teaching needs. For many, it opened up the possibility for adding an art component to their teaching about a particular culture, domestic or foreign, and its language (primarily French this year). Another dimension explored was the transdisciplinary possibilities of art and science through their methodological commonalities. Fellows teaching in elementary schools took a broader approach, finding ways to use object analysis to stimulate art appreciation and student interest in history through images. One specialist teacher addressed the challenge of engaging visually impaired and blind students.

In addition to dealing with art, science and culture as large goals, Fellows in developing their lesson plans found a wide range of opportunities to use object analysis to improve student writing, reasoning, artistic creativity, speaking ability, map making, research, acting, charting and diagramming, photography, group discussion and mutual criticism, debate, poetry, field study, lab experimentation, foreign language vocabulary, etc.

The final Curriculum Units demonstrate a wide range of possibilities for the use of works of art, in particular through close analysis, both for enhancing teacher preparation and skills and for enlarging and deepening students' ability to interpret visual evidence and their understanding of their own and other cultures, of science, and of art itself.

Jules D. Prown

Synopses of the Curriculum Units

01.02.01

Reading the Landscape: Geology and Ecology in the Nineteenth Century American Landscape Paintings of Frederic E. Church, by Stephen P. Broker

This curriculum unit uses nineteenth century American landscape paintings to teach high school students about topics in geography, geology, ecology, and environmental science. The unit blends subject matter from art and science, two strongly interconnected and fully complementary disciplines, to enhance learning about the natural world and the interaction of humans in natural systems. It is for use in The Dynamic Earth (An Introduction to Physical and Historical Geology), Environmental Science, and Advanced Placement Environmental Science, courses I teach currently at Wilbur Cross High School. Each of these courses is an upper level (Level 1 or Level 2) science elective, taken by high school juniors and seniors. Because of heavy emphasis on outdoor field and laboratory activities, each course is limited in enrollment to eighteen students.

The unit has been developed through my participation in the 2001 Yale-New Haven Teachers Institute seminar, “Art as Evidence: The Interpretation of Objects,” seminar leader Jules D. Prown. The “objects” I use in developing unit activities include posters and slides of studio landscape paintings produced by Frederic Church (1826-1900), America’s preeminent landscape painter of the nineteenth century, completed during his highly productive years of the 1840s through the 1860s.

Classroom activities include a close reading of selected Church landscape paintings using a methodology of description, deduction, and speculation; an extensive research program on the artistic and scientific content of the paintings, and laboratory and field activities using collected rock samples, fresh botanical material, and live animals temporarily brought in from the field.

(Developed for The Dynamic Earth, Geology 440, Environmental Science 418, and AP Environmental Science 418A; recommended for Geology, Science, Environmental Science, and AP Environmental Science, grades 11-12)

01.02.02

Impressionism: Reflections of a Culture, by Karen de Fur

Through this curriculum unit students will approach Impressionist paintings with a method of analysis that will open them to French culture and history of the latter half of the nineteenth century. Through the analysis of paintings students will note comparisons and contrasts, similarities and differences between the Realism of Gustave Courbet, the Impressionist style of Claude Monet and Mary Cassatt and the Post-Impressionist work

produced by Vincent Van Gogh. In relation to the paintings reviewed, students will be encouraged to ask what was happening in France at the time this work of art was produced? What evidence of historical events do we see in the artist's work and conversely what lack of evidence of historical events is shown by the artist's work?

This curriculum unit was created to complement the French curriculum in the New Haven Public High Schools. The study of a foreign language however goes beyond language itself. It includes the study and appreciation of a country's culture and history. My aim in writing this unit to use with my students is to increase their awareness and appreciation of art and to make the study of history more interesting and meaningful. My objectives are:

1. Students will have an understanding of Impressionism.
2. Students will know the names of selected Impressionist artists and their paintings.
3. Students will be able to use Prown's method of object analysis to see culture through art.
4. Students will be familiar with the history of the latter half of 19th century France.
5. Students will create their own Impressionist work of art.

The content of this unit also lends itself to an art or history class. The interdisciplinary nature of the unit would work well in a team approach across disciplines. The content could also be revised to work with younger students in a junior high or middle school program. The unit meets the following National Standards for Foreign Language Learning:

Standard 1.1: Students engage in conversations, provide and obtain information, express feelings and emotions, and exchange opinions.

Standard 2.2: Students demonstrate an understanding of the relationship between the products and perspectives of the culture studied.

Standard 3.1: Students reinforce and further their knowledge of other disciplines through the foreign language.

(Developed for French III, grades 10-11, and French IV and V, grades 11-12; recommended for French, History, and Art, grades 9-12)

01.02.03

Look Before You Think: How to Appreciate a Painting, by Christine Elmore

The primary objective of my curriculum unit, entitled “Look Before You Think: How To Appreciate a Painting,” is to facilitate my third-graders’ enjoyment of and response to fine arts specifically, paintings. Every year we make visits to both the Yale Art Gallery and the British Art Center. The students are always so enthusiastic about these museum visits that I see a wonderful opportunity to further stimulate and enhance their art appreciation experiences. To this end I have created a teaching tool that will help my students to become more closely engaged with particular paintings on exhibit at these museums. I have focused on paintings by four well-known artists from the late-nineteenth to early-twentieth centuries: Vincent Van Gogh’s *The Night Café* (1888); Salvador Dali’s *The Persistence of Memory* (1931); Pablo Picasso’s *First Steps* (1943); and Edward Hopper’s *Sunlight in a Cafeteria* (1958). Each painter will offer us the opportunity to more closely “study” a different aspect of art. With Picasso we will look at his expressive use of lines and shapes. We will consider how Hopper is able to create moods and suggest ‘stories’ in his scenes of modern life. We will examine Van Gogh’s distinctive feeling for color and we will explore Dali’s imaginative expression of ideas. My unit begins with a brief and simplified presentation of the history of painting. After that, we explore the craft of painting to give the students an idea of what painters do and the materials they use. Using the four selected paintings, we will learn about basic art elements such as color, perspective and light, and discover how they are employed in these art works. Following this is a section of questions specially designed to help my young students to look at each selected painting and analyze it, moving from first impressions to a more detailed examination. In the final section of the unit I have provided my students with opportunities to explore how artists use color and to experiment with what they learn in creating artworks of their own using various media on paper. The curriculum unit is interdisciplinary with a strong emphasis on literacy, and so I plan to immerse the children in readings about the lives and works of the selected artists whom we are studying. For this purpose I will use biographies by Mike Venezia, who has written (and illustrated) an excellent children’s series entitled, *Getting to Know the World’s Greatest Artists*. I teach third-grade in a self-contained classroom at Lincoln-Bassett Community School. My students are primarily of African-American descent, a heterogeneous group with varying abilities in the 8-10 age range. Although I have designed this unit with them in mind, I am confident that it could easily be adapted by teachers to suit the K-3 grades, if not older.

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

01.02.04

The Christmas Campaign of 1776: Many Voices, by Gail G. Hall

“It is a glorious victory. It will rejoice the hearts everywhere and give new life to our hitherto waning fortunes...If he [General George Washington] does nothing more, he will live in history as a great military commander.” With these words recorded on Dec. 26, 1776, Washington’s aide, Colonel John Fitzgerald, stated the importance of the American success at the Battle of Trenton. This battle, along with the nighttime crossing of the Delaware River and the Battle of Princeton, are widely believed to have changed the course of the American Revolution. “The Christmas Campaign of 1776: Many Voices” is a resource-based, collaboratively planned and team-taught unit in which students are active learners who apply new skills as they do historical research. Students will interpret primary sources such as eyewitness accounts, historical documents, letters, journals, artifacts, historical sites, maps, and other records from the past. They will examine history paintings using a technique called “object analysis.” They will also use a variety of secondary sources to study the many perspectives on the Christmas Campaign. From these “many voices” students will gain a larger understanding of the bold and inspirational leadership of General George Washington and the important events of the winter of 1776.

(Developed for American History I, grade 10; recommended for American History I, High School grades)

01.02.05

An Approach to Chemistry via the Analysis of Art Objects: The Scientific Method, Laboratory Safety, Light and Color Theory, by Patricia A. Morrison

The purpose of this unit is to learn chemistry, its methods, definitions and concepts by way of an in-depth analysis of Joseph Wright of Derby’s painting, *The Blacksmith’s Shop*, in order to emphasize the interrelatedness of science and the arts, to encourage accurate writing and creative thinking, and to discourage compartmentalization of knowledge. The unit aims at capturing the imagination of intelligent students whose first priority focuses on the arts. Chemistry topics such as the scientific method, laboratory safety, the interplay of matter and energy, physical and chemical changes, and the theories of light and color and how they relate to atomic structure flow out of examining Joseph Wright’s painting using Dr. Prown’s method of object analysis. Approaches to topics include a visit to the Yale Center for British Art, brainstorming, demonstrations, lab experiments, lectures, question and answer sessions, interdisciplinary activities with the visual art teacher, videos, numerous short writing opportunities, and a culminating visit to the Yale University Art Gallery Conservation Laboratory. Sometimes the lesson centers around Wright’s painting, and at other times *The Blacksmith’s Shop* primarily serves as a

jumping off point that grounds chemistry facts and concepts in concrete reality. The unit focuses on the approach to various lessons throughout the year rather than on the teaching of one specific topic. The annotated bibliography provides sources for background material on color theory and the causes of color, topics that most chemistry texts do not cover.

(Developed for Honors Chemistry, grade 10; recommended for Chemistry and Honors Chemistry, grades 10-12, and Integrated Science, grade 9)

01.02.06

Rites of Passage: Initiation Masks in French Speaking Black Africa, by Radouane Nasry

This curriculum unit is designed to introduce middle school or high school students to aspects of African cultures through the study of masks in the initiation ceremonies in French-speaking black Africa. The unit can be used in French classes levels 3, 4, or 5, African literature, Art history class, African American literature or World History class. The time needed to teach this unit is between three to five weeks, depending on the constraints of the curriculum.

My objectives are to learn about culture in French-speaking Africa, to learn about initiation rites in black Africa, and to establish parallels between initiation rites in Africa and the stages youngsters go through socially and religiously in the United States. In addition, the students will analyze several African masks (most masks at the Yale Art Gallery are from French-speaking African countries). In their analysis of the African masks the students will follow an adapted version of Professor Prown's object analysis methodology.

The last objective is for the students to create their own masks and imagine a story/myth behind them. The unit requires the use of the school media center, the public library, and the use of the Internet to help the students in their assigned research. It also requires at least one trip to the Yale Art Gallery where the students will have a close encounter with African masks.

(Developed for French 3-5, and African Literature, grades 9-12; recommended for French 3-5, African Literature, Art History, African American Literature, and World History, grades 7-12)

01.02.07

Teaching Art to the Blind/A Study of Chairs, by Joanne R. Pompano

Art is an important but often challenging subject for blind and visually impaired students. However, the absence or restriction of sight should not limit individuals in their study and enjoyment of the arts. Instead students should be provided with a variety of experiences to make art interesting and meaningful. This curriculum will explore the many obstacles visually handicapped individuals encounter as they try to understand and enjoy art and explore ways to circumvent or overcome these impediments.

Developed for students in middle and high school, this unit will assist visually impaired and blind students in their efforts to explore, analyze, and enjoy all types of art. In addition, this curriculum will assist teachers in modifying lessons and providing experiences that will allow visually impaired students to use their remaining senses to gain information about art. It may also be of benefit to art museums aiding handicapped students in their effort to experience art in alternate ways.

This curriculum will:

1. assist blind and visually impaired students in understanding and enjoying art and art museums
2. provide information and suggestions to teachers so they can help blind and visually impaired students enjoy art and art museums
3. compare two periods of American art through Pre-Revolutionary furniture design with Post-Revolutionary pieces, by using the techniques and modifications outlined in the curriculum
4. provide an approach that to art includes more than the visual or physical components of a piece. Instead this curriculum will look at the culture, history, social and political aspects of the artwork

(Developed for Life Skills for the Blind, grades 6-12; recommended for Life Skills for the Blind, History, and Art, grades 6-12)

01.02.08

The Influence of Jazz Music in Twentieth Century Art, by Janna Leigh Ryon

While there are distinct levels of understanding about how music influences society, this unit looks at it as it influences visual art in the Twentieth Century. It attempts to provide students with a concentrated look into music as it affects artists' lives and the art they

produce. As artists related their work to the music they heard and how they felt, the students should learn that there is more to music than what they hear. As music produces strong emotions, the unit's purpose is to heighten student's awareness and give them ideas of how music not only influences themselves, but others as well.

In this unit, the students will listen to various musical selections and gain different perspectives on them. The students should tell the class how it affects them and everyone should listen and take note of each student's comments. They will be asked how they think the music affected each artist emotionally. After listening to each selection, the students will then look at the comparable artwork and they will be asked questions concerning how they think the music influenced the artist in that particular painting.

Using the history of specific musical selections and music's impact on emotions (our emotions and the artists' emotions), this discussion of music and related artwork will provide a unique approach to the study of jazz music and visual art.

(Developed for Music Appreciation, grades 9-12; recommended for Music Appreciation and General Music, grades 7-12)

01.02.09

Documentarians of an Era: A Study of the Paintings of Thomas Eakins and Gustave Caillebotte, by Kristi Shanahan

Different modes of communication make possible the sharing of information, ideas, and feelings that can help us to understand what it is that makes us human. Cultures clash and blend in many differing aspects, particularly in the arts, allowing us to make assumptions about real and profound connections. This unit will explore just such artistic "blends" through an analysis of the works of the American painter, Thomas Eakins, and from France, Gustave Caillebotte and Edgar Degas.

Looking at two key works of Eakins, *The Champion Single Sculls* and *John Biglin in a Single Scull*, two of Caillebotte, *The Floor-Scrapers* and *House Painters*, and one by Degas, *The Ballet Rehearsal*, we examine the interrelationships of these paintings vis à vis their themes, their style and their culture, with attention to what makes their art "real."

In addition, we will look at the poetry of Walt Whitman, with an eye for the comparison of paintings with other art forms, namely the written word, and how Whitman's poetry, too, documents his era and complements the visual art of Thomas Eakins.

It will be important to know from whence these great painters come, and how they were both affected by, and influenced, their respective environments. Thus, we will take a journey to both Philadelphia and Paris in the later nineteenth century, comparing the

similarities of these two cities and how they figured into the visual art of their native sons.

(Developed for Survey of French Art, High School grades; recommended for Art, French Art, and French, High School grades)

01.02.10

Literacy & Art: The Story Behind the Quilt, by Kathleen Ware

This unit is intended to expose second through fourth graders to the many ways quilts were used to chronicle the history and experiences of African-Americans in America. It presents students with a brief synopsis of the rich, cultural background of Africans and tells of the degrading effects of slavery. It tells of the struggles of African-Americans in America and the reasons for the development of a hidden code of communication. It discusses briefly how quilts were used to navigate the Underground Railroad and introduces two African-American artists and quilt makers: Harriet Powers and Faith Ringgold. This unit provides the children with the opportunity to examine their story quilts and finally, to tell their own story through quilting.

The activities found in this unit are integrated across the curriculum but focus mainly on literacy through art. These activities are intended to 1. encourage students to read, 2. increase vocabulary, 3. provide students with a reason to write, and 4. provide an outlet for creative expression.

(Developed for Elementary grade 3; recommended for Elementary Art and Literature, grades 2-4)

III. Reading and Writing Poetry

Introduction

This seminar was mainly a workshop in the reading and writing of poetry. We aimed to enrich and deepen our understanding of many kinds of poems; and we explored ways in which we can express our own experiences, dreams, frustrations, desires, and responses to the world in the languages of poetry. We approached the reading and writing of poetry as aspects of a single process, which may provide an important key to the teaching of poetry and indeed to the teaching of literacy. We asked how poems work, how they marshal their strategies and impress themselves upon us and how we can open a bit wider the gates of our own conscious and unconscious creativity.

For our common reading, we used Robert Pinsky and Maggie Dietz, eds., *Americans' Favorite Poems: The Favorite Poem Project Anthology* ; Pablo Neruda, *Full Woman, Fleshly Apple, Hot Moon: Selected Poems* , translated by Stephen Mitchell; and two books by Kenneth Koch *Wishes, Lies, and Dreams: Teaching Children to Write Poetry* and a book for adults, *Making Your Own Days: The Pleasures of Reading and Writing Poetry* . Some of us also consulted another book by Koch that was recommended: *Rose, Where Did You Get That Red?: Teaching Great Poetry to Children* . In various ways, these books kept us close to the passion and the craft of poetry as readers and writers of any age can discover them. We also brought to the seminar our own favorite poems for discussion and emulation. We began by writing a "New Haven poem" in response to a Senegalese poet's evocation of Dakar. We experimented with the haiku and other forms. We examined love poems, elegies, and poems about nature with an eye always for the distinctive impulse, the fresh emotion, the astonishing expression. And we spent much time thinking and talking about how the students in our classrooms may be led to appreciate the delights of capturing their most intense experience in a word, a line, a poem.

Our reading and writing proceeded variously, in accord with our talents and our previous experience. Some of us, regardless of our age, were novice readers of poetry and were writing poetry for the first time. Others were experienced teachers of both the reading and writing of poetry. All of us had much to learn from our common reading, from our struggles with writing, and from each other. And the curriculum units applied some of our discoveries to a variety of classroom situations.

Geraldine Martin and Jean Sutherland have developed correlated units on African American Poetry, to be taught in the first and fourth grades, focusing on the family and on a history of struggle. Pamela Tonge has written a unit for sixth grade on using poetic expression to enhance reading and writing.

Two teachers have developed units for use in after-school or Saturday programs. Rebecca Hickey has planned a workshop for students from the sixth to eighth grades in which the writing of poetry will provide practice in thinking and learning. And Julie Reinshagen has planned a writing workshop for students from the ninth to the twelfth grades, emphasizing development of the students' social and emotional responses and their literacy skills, and culminating with the reading and writing of poetry. Its resources will be of especial interest to teachers of bilingual courses.

Two teachers have developed units for senior English courses, both focusing to some extent on the links between music and poetry. Susan Santovasi will lead the students in a Women's Literature course from popular songs to more traditional poetry by women. Deborah Hare will incorporate rap music and twentieth-century poetry in a more widely ranging senior course that also includes journals, drama, and film.

Finally, two teachers have developed units for high-school creative writing courses. Judith Katz will immerse her students in the reading and writing of Haiku, as a controlled form that may focus a range of observation and emotion. In a course with a variety of philosophical implications, Yel Hannon Brayton will emphasize the poet's eye, the sense of wonder, and the craft through which vision may be distilled in a variety of forms.

Each unit has its own immediate objectives, but the approaches are often closely related or overlapping. Indeed, as the teachers make clear, each unit contains some strategies or material that might be used at almost any grade-level. All of us in the seminar have sought to bring the resources and the opportunities provided by poetry to bear upon the teaching of literacy in its broadest sense. We have asked: How may the meaning and music of words help us to understand both ourselves and others in our various and changing communities and in the larger community that includes them?

Thomas R. Whitaker

Synopses of the Curriculum Units

01.03.01

African American Poetry: Miss Wednesday and Friends Take Us on a Journey of Feelings and Friendship, by Geraldine Martin

In my unit I use strategies in which poetry and the art of puppetry can be integrated into a unit for helping children capture the beauty and magic of feelings and emotions, instilling those positive experiences within their young lives to help them express love on life's pathway. The unit whose primary emphasis is poetry will also integrate various art forms such as literature (African American), writing, song, drama, and crafts.

Wednesday Delight, and her puppet friends will assist the children in reading poems such as "Honey I Love," by Eloise Greenfield, "The Reason I Like Chocolate," by Nikki Giovanni, and "Hope," by Langston Hughes just to name a few of the poems found in the unit. A culminating activity includes a drama production based on the story "No Mirrors in My Nana's House."

The unit includes activities suitable for children in kindergarten through third grades with an emphasis on literacy for the first grade child.

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

01.03.02

African American Poetry: Family and Traditions, by Stephanie Zogby

Children enjoy words, this making them natural poets. They sense the importance of their words and delight in using them to create, whether it is a story, a rhyme, or a poem. In this unit, "African American Poetry: Family and Traditions" will focus on poetry that relates to the family and traditions. Lessons of this unit will be taught to one class first, and later to other second grade classes. Poems from books such as *Families* by Eloise Greenfield, *Daddy Poems* by John Micklos, Jr., *Poetry from A to Z* by Paul B. Janeczko are a few that will be used in the unit. The unit will contain activities that will assist the students in developing their skills in using the medium of poetry that will be read. This will be done to increase the students' awareness of different styles of poetry and authors. The students will create their own poetry using these formats, which will allow them ownership. They will share the poems with other students, staff, and their families. As the children get more proficient in writing poetry they will publish their poems in book for and also on the web. In addition to reading and writing poetry, this unit will focus on activities that include subject areas such as Social Studies, Art, and Music.

This unit includes poetry and activities suitable for children first through third grades with an emphasis on literacy for the second grade child.

(Developed for Reading and Language Arts, grade 2; recommended for Reading and Language Arts, grade 2)

01.03.03

African American Poetry: Songs of Protest and Pride, by Jean Sutherland

Beginning with the words of Negro spirituals, through the poetry of the Civil Rights Movement and the development of “black pride,” up until the more strident words of today’s African American poets, in this unit, students will integrate poetry they read with the events of African American history. The “songs” they examine will include actual lyrics set to music as well as other forms of conventional poetry. At the same time, lessons will provide opportunities to examine and use the basic elements of poetry. Students will create their own poems, bringing their personal feelings to the material being examined in class. They will also have some opportunity to develop the use of expository writing as they write essays related to the poems they have read.

Besides developing the ability to recognize and use the basic elements of poetry, the unit also attempts to help students develop an understanding and appreciation of the pride and strength African Americans have displayed throughout history. In turn, activities attempt to develop a sense of pride in each student. The unit is part of a school team including Geraldine Martin and Stephanie Zogby, whose units also appears in this volume. Some of the team’s approaches are discussed in my unit.

(Developed for Language Arts, Reading, Writing, Speaking, Social Studies, African American History, and Social Development, grade 4; recommended for Language Arts, Reading, Writing, Speaking, Social Studies, African American History, and Social Development, grades 3-6)

01.03.04

Using Personal Poetic Expression to Enhance Reading and Writing, by Pamela J. Tonge

As a classroom educator, I know that reading and writing levels will vary from child to child and from class to class. Also, as a classroom educator, it is essential for me to allow my students to express themselves to the best of their ability. In this curriculum unit, students will be able to use poetry to express themselves. Learning through poetry will be fun, new and different for most students that I will be teaching. Poetic expression is a form of writing poetry as well as reading poetry. This curriculum unit is intended for students in grade 6. Many of my student’s level of comprehension in reading and writing

will be at least two years below the actual grade they are in. My students will be able to adapt quite easily to this unit. The instructional time for this unit is about 45 minutes, three days a week for six weeks. It goes without writing, but I'll write it anyway.... your instructional time will vary, which is A-O.K. I will use this unit as a writing component in Reading and Language Arts. I will use this curriculum unit in mid-spring, after April vacation. What I have discovered as a seasoned teacher, is that students need something new and fresh to focus on. This unit will be great for my students as we continue to do reading and writing and of course, look forward to the end of the school year.

Aside from guiding you through this curriculum unit, I will also include some samples of poems that I tried with my sixth grade students. They have all given me permission to have their work included in this unit. In fact, my students were overjoyed to know other educators will see their poems and possibly use with their students. I must mention that it is important to me that you and your students have fun with this unit. Why? Because students and educators should be enthusiastic when learning is taking place. No one knows your students and their capabilities better than you do. Each student is an individual and they each progress at his or her own pace. Each teacher has their own particular style of teaching and method in the way that they teach. The bottom line is, when preparing for instruction of this curriculum unit...go with what you know about your students and their level of accomplishments. This curriculum unit is not difficult to modify to meet the needs of your students. I feel confident that you and your students will enjoy the educationally and personally rewarding ways, of how using personal poetic expression enhances reading and writing. I intend to have my student's read, write and comprehend words in a way that is new, different and special to them. Their comprehension of how and what they write will be more retainable for them. They will write about themselves, their thoughts and feelings, their family, their environment and their ideas about the world in which they live.

(Developed for Language Arts, grade 6; recommended for Middle School Reading, grade 6)

01.03.05

Weaving Words: Poetry for Everyday, by Rebecca J. Hickey

Whether as a form of expression, a way to release thoughts and feelings, or a tool for further comprehension, poetry is language we can all learn to speak. The curriculum unit I have prepared on reading and writing poetry is an attempt to teach my students how to solve information problems, regardless of the content area. Poetry, itself, is often a puzzle to be solved. If 6th and 7th graders can learn to understand poetry and derive meaning from a poem, then those skills can be transferred over to other academic areas.

We will be examining several poets and their work including Gwendolyn Brooks, Pablo Neruda, and Lewis Carroll. The students will also be writing their own poetry throughout the course of the workshop. The program is designed to encourage students to begin making connections between what they read on a page and what they know to be true. Drawing conclusions and making educated assumptions are skills that do not come naturally to adolescents. My intention is to use poetry as a vehicle to cultivate and strengthen my student's higher order thinking skills and information problem solving strategies.

(Developed for Language Arts Afterschool Program, grades 6-8; recommended for Language Arts, grades 6-8)

01.03.06

The Poet Within: A Workshop Series, by Julie Reinshagen

This curriculum unit focuses on the reading and writing of poetry, emphasizing the development of the students' social and emotional responses and creativity over technical analysis. It is written for use in an after school and Saturday morning enrichment program open to all students at a comprehensive high school. Hopefully, it will also prove useful to English and writing teachers in middle and elementary schools as well as ESL and bilingual teachers. The strategies and activities, particularly with regard to reading "great poetry," are modeled after Kenneth Koch's work in the New York City Public Schools. Participation is the main assessment criterion, and journaling is employed to develop a daily writing habit. An extensive bibliography includes resources for teachers and collections of poetry in both English and Spanish.

(Developed for After School and Saturday Academy; recommended for Middle School English, grades 7-8, High School English, grades 9-10, and Enrichment/Remediation, grades 7-12)

01.03.07

The Poetry We Sing: A Women's Perspective, by Susan Santovasi

Poetry: the medium of expression that can cause even the strongest students to become tense and back away from participation. Lyrics: the category of poetry that every student can relate to and regurgitate upon demand. Why do so many students fear poetry if they are so deeply invested in it on a daily basis? The answer may be a bit surprising: Most students don't realize that the lyrics to many of their favorite songs are forms of poetry that are just as valid as "high poetry." The many different forms and styles of lyrics that we hear on the radio or on our CD players utilize the very same elements of poetry as the great masterpieces that we read in our literature texts and anthologies. The song lyrics

that many students write are of the same tradition as the cryptic lyrics of Bob Dylan or Lauryn Hill and as the flowing verses of Geoffrey Chaucer or Emily Dickinson.

The curriculum unit offers new ways to make poetry more accessible to the student body. The unit is designed to be taught to a senior Women's Literature English course at an arts and humanities magnet high school. The unit will begin by introducing students to lyrics written by famed, contemporary artists such as Lauryn Hill, Ani DiFranco, and others. The lyrics will be used to demonstrate various elements of poetry in a less overwhelming manner than traditional poetry so that students can easily see and assimilate the devices. Each song's lyrics will be broken down to as fine a point as possible in order to completely illustrate the above mentioned elements in a way that students can understand and employ in their own writing. Students will then apply the terms to more traditional poetry. The last piece of the unit involves a group project that incorporates the students' arts concentrations.

(Developed for High School/Women's Literature, grade 12; recommended for High School English, grades 10-12)

01.03.08

Poems, Prayers, Promises, and Possibilities: The Music of Poetry, by Deborah Hare

This curriculum unit is designed for high school seniors, any level. It is meant to give seniors a tangible and meaningful way to end their high school years. Using rap music and poetry as a basis of study, students will create their own journals filled with original art work and poetry. My objectives with this unit are to give the gift of poetry to students who will be leaving at the end of the year, take the fear out of poetry, memorize some new poems, have a poetry slam with another school, improve public speaking skills, and give students a much needed way to express themselves. The poets we will study include Tupac Shakur, Walt Whitman, Gwendolyn Brooks, Langston Hughes, Robert Frost, John Updike, Allen Ginsberg and the music of rap and rock and roll.

(Developed for English, grade 12; recommended for English, grade 12)

01.03.09

Haiku: An Introduction to Writing and Discussing Poetic Form, by Judith Katz

I believe the core of creative success is based on three factors; learning to navigate between task and process, having the discipline to repeat that navigation progressively until you reach a product that is as complete as you are capable of imagining. In this unit my objective is to teach my students how to navigate progressively through their first experience of poetic form: the Haiku. I intend to teach them the elements of a common vocabulary that will act as a: writing guide, editing checklist, and means of objective,

constructive critique. And I plan to do it in an eight week unit. The elements of a common vocabulary which are described in detail in this unit are: container, content, concept, observation, common language, hosimi, painting a picture, the five senses, detail, the Haiku moment, present tense, observation rather than statement, and editing.

(Developed for Creative Writing, grades 10-12; recommended for Creative Writing, Middle School and High School grades)

01.03.10

The Poet's Eye, by Yel Hannon Brayton

“The Poet’s Eye” is designed for high school creative writing students (meeting daily in 40-minute blocks) to cover a period of one semester, or approximately eighteen weeks. National and state literacy standards have been taken into account in the writing of this unit, which are reflected in its interdisciplinary approach that combines poetry, philosophy, even physics into the mix of writing poetry. And why not? Physics sans mathematics is poetry, or as Gary Zukav reminds us in his 1979 American Science award-winning book, *The Wu Li Dancing Masters*, “Physics, in essence, is simple wonder at the way things are and a divine (some call it compulsive) interest in how that is so. Therefore, the mission of this unit is to instill, activate, and recharge a sense of wonder for our students.

The spine of the unit upon which unit sections are structured (and as indicated by its title) addresses perspective: How we see the world around us; How we can open our minds to different points of view; How we can distill these visions down to essences or essential qualities. “The Poet’s Eye” introduces students to several poetic devices: imagery, metaphor, concrete and abstract terms, oxymoron, stanza, personification, apostrophe, echoes and rhyme. It also covers several poetic forms: acrostic, list poetry, ode, renga, haiku, sonnet, and cento.

As mentioned above, it is the quality of wonder that this unit attempts to address. In this regard, we will look for this quality in our class work. What paradoxes and surprises do our poems reveal? Do we see critical thinking in the work? Is it provocative? Do the poems evoke emotion? And most of all, have we truly used our poet’s eye to look again, and again?

(Developed for Creative Writing and Philosophy-Interdisciplinary, grades 9-12; recommended for Creative Writing, grades 9-12)

IV. Race and Ethnicity in Contemporary Art and Literature

Introduction

This volume contains eleven curriculum units on the topic of “Race and Ethnicity in Contemporary American Art and Literature.” The Units were written as part of a seminar that examined literature, film and painting produced by artists of color in the United States over the past several decades.

Our goal in the seminar was twofold: to acquaint ourselves with writers and artists from a variety of different ethnic and racial traditions, and to consider the relations between film and writing. Though artists of color have been producing art for centuries, their work often has no home in the public school curriculum. It tends to appear either as an addition at the end of a chapter or textbook, or it is taught informally at the instigation of teachers who have conducted their own research with little official help or guidance.

This volume is designed to help teachers integrate art, literature and film into their classroom curriculum. It addresses questions of *difference* : what sorts of issues engage artists of color, how do they express their concerns, how do they attempt to relate their work to that of the “mainstream” culture?

We focused on two theoretical concepts of particular importance in discussing the history of race and ethnicity. The first is “hegemony,” the way that the beliefs and values of the mainstream culture come to be accepted by those outside the mainstream. And the second is the notion of the “borderlands,” a boundary place where peoples of different cultures interact with and affect each other. The model of the “borderlands” replaces an earlier, and now outdated, model of cultural interaction in terms of a center and periphery.

The seminar was organized in topical fashion. The first two sessions served as introductions. We looked at the opening scenes from African American film director John Singleton’s *Boyz N the Hood* in order to understand how films are constructed and how to analyze the film’s narrative, editing and imagery. We also considered the themes of race, crime and patriarchy that concern Singleton. In a related vein, we looked briefly at the history of twentieth century art, focusing on several major movements and artists, all central to the work of contemporary artists of color.

In the weeks that followed, we considered topics like: “The Myth of the West” and “Growing Up Ethnic.” The Westerns we studied ranged from classic films like John Ford’s *The Man Who Shot Liberty Valance* to modern updates like John Sayle’s *Lone Star* . Each film mythologizes the Old West, and each includes a classroom scene where issues of citizenship and education are discussed. In a parallel vein, we also looked at short stories by classic and contemporary Latino/a writers, comparing the ways they

understood the metaphor of the “borderlands” with the approaches we had examined previously in our viewing of Western films.

Under the rubric of “Growing Up Ethnic,” we examined films and fiction from Latino, Asian American and Native American artists. We focused on films about the experience of growing up in an ethnic context (*Snow Falling on Cedars*) and, on films that derived from prior novels (*Smoke Signals* , adapted from Sherman Alexie’s *The Lone Ranger and Tonto Fist Fights in Heaven*). We also compared Toni Morrison’s monumental novel, *Beloved* , with the film adaptation directed by Jonathan Demme. And we spent a week discussing two films by Spike Lee, the most prolific and perhaps the most important of a new general of African American film makers (*Do the Right Thing* and *Bamboozled*).

The Curriculum Units that follow are arranged in alphabetic order by author. They are all strong and provocative pieces, and they range through a variety of issues: film, family, fashion, tragedy, children’s literature, art and graffiti. They provide any teacher interested in questions of race and ethnicity with a rich set of curricular materials.

Val-Jean Belton considers the question of graffiti in her unit on “Racism, Gender, Ethnicity, and Aesthetics in the Art of Graffiti.” Belton teaches art at Hillhouse High School and has designed her unit for students in advanced drawing and painting classes. The unit includes both an historical overview of graffiti artists and a rich set of hands-on exercises that teach her students how to pursue and their own graffiti projects. Belton also addresses the work of artist Jean-Michael Basquiat, who, before his untimely death, was the leading African American practitioner of graffiti-influenced art.

Elsa Calderón integrates literature, film and painting in her ambitious Curriculum Unit, “Using Art, Film and Literature to Explore Hispanic Identity.” Designed for high school Spanish students, the Unit focuses on the three heritages that define Spanish speaking culture, especially in the New World: Spanish/European, African, and Native American. Calderón examines how each artist explores the layered or “buried” heritages that link all Spanish-speaking groups together.

Judith Dixon has created a Unit for her East Rock Magnet School (fifth grade) students, “Utilizing Art, Literature and Film to Teach African American History.” Rather than attempt to tell the whole story of African Americans in the United States, Dixon selects instead two key moments for study: the Underground Railroad in the nineteenth century, and the Civil Rights era in the twentieth century. Dixon uses art and literature to bring African American history to life. Her Unit introduces the students to the story quilts of artists Faith Ringgold and to the paintings of Jacob Lawrence, in particular, his series on Harriet Tubman and on the Great Migration. The class will also read Ruby Bridge’s *Through My Eyes* .

Sandra Friday puts a new twist on an old story. Her Units, “High School Students Research, Read and Write Children’s Literature,” rethinks the idea of introducing high school students to children’s literature by having *them* study the literature in order to teach it *themselves* to younger children. Friday’s Wilbur Cross Annex students will engage in an extensive and challenging (but enjoyable) set of exercises. They will research the benefits of adults reading to children, they will explore children’s books available at the New Haven public library, and they will read stories of their own making to younger students in local grade schools. At the same time, they will work on their own skills of writing, organization and class presentation. The Unit focuses on children’s stories that deal with issues of *difference* , whether racial, gender, etc.

Jon Moscartolo uses a combination of film and painting in his Unit, “Expressions of Anti-Racism through Painting: The Puerto Rican community from *West Side Story* to Connecticut.” Moscartolo begins his wide-ranging Unit by showing his eighth and ninth grade students the film version of Leonard Bernstein’s *West Side Story* . He then introduces them to a history of painting from Surrealism to Abstract Expressionism. The students develop their own graffiti wall and learn to express in non-figurative, visual terms the emotions related to issues first noted in *West Side Story* . They learn about the history of Puerto Ricans in the United States at the same time as they produce art expressive of their own experience.

Dianna Otto teaches Honors and Advanced Placement English to Hill Regional High School seminars. Her Curriculum Units, “The Tragic Genre from Classical to Contemporary: *King Lear* and *A Thousand Acres* ,” supplements the canonical focus of twelfth grade English by looking at Jane Smiley’s *A Thousand Acres* , a novel that rewrites *Lear* as if it were a drama set in contemporary Iowa. Smiley’s text raises a variety of questions about tragedy as a genre, asking its readers to recognize both its similarities to and its differences from Shakespeare’s play. Students will work not only with the two texts that anchor the Unit, but with films that use the conventions of the tragic genre. They will analyze the tragic structure of these materials, at the same time as they consider issues of gender and patriarchy, themes central to Shakespeare’s play and Smiley’s novel.

Angelo Pompano turns to video documentaries to introduce his East Rock Magnet School students to the history of prejudice and the ways it has been overcome in their local communities. Pompano’s Curriculum Unit, “Through Their Eyes: Video Taping Oral History,” divides into two parts. The first part looks at concepts and definitions of race and ethnicity. It provides the students with the conceptual skills necessary to understand racial matters, at the same time as it introduces them to the practice of oral histories. The second part of the Unit then converts each student into an oral history video maker. Students make videos of their grandparents (or other adults) while conducting interviews with them about their lives and experiences.

Abie L. Qui-ones-Benítez seeks to familiarize her students at Fair Haven Middle School with the rich cultural heritage of Puerto Rico. Her Unit, “I Have a Border in My Mind: The Puerto Rican’s Art and Culture as Factors for Self-Esteem,” uses a large range of multidisciplinary materials to help students learn about themselves and their neighbors. The goal of the Unit is not only to teach students the importance of ethnic differences, but to help them explore and value their own individual histories. Qui-ones-Benítez’s students will produce “heritage boxes” that allow them to display objects that represent the traditions and values of their cultural world. They will also create art projects and literary works that help them delve into their identities, discovering how their ethnic heritage intersects with those of *their* friends.

Joan Rapczynski converts a high school United States history class into a forum for exploring the history of Native Americans. In her Curriculum Unit, “Native American Culture in Crisis,” Rapczynski concentrates on the complex history of “Indian and American government interactions.” Though she paints a broad picture of Native/non-Native interactions, Rapczynski focuses on a series of themes that highlight Indian-white encounters. She looks first at the long, sad history of Indians in the United States, focusing on Plains Indian cultures in the second half of the nineteenth century. She then turns to the question of assimilation, noting the legal means by which the government worked to eradicate Indian languages and culture. Rapczynski enriches her Unit by taking a multidisciplinary look at literature, art and film produced by and about Native Americans, including the writings of Leslie Marmon Silko, the poetry of James Welch, and the film, *Dances With Wolves*. The unit concludes with an examination of the American Indian Reform Movement, a contemporary coalition of Native Americans working for justice and equality.

Dina Secchiaroli uses American literature and film to help her Sound School juniors and seniors understand the history of the American West. Secchiaroli’s Curriculum Unit, “Debunking the Myth of the American West,” uses a wide range of materials, from films to art to literature, to explore not only the West as it has been mythologized in popular culture, but the West as it was actually experienced by those who lived and died there. Her goal in the Unit is to sort out history from mythology. Secchiaroli’s Unit acquaints her students with the diverse cultures, peoples and conflicts that together constitute Western history. She shows how the American West was mythologized by Hollywood and mass media and provides her students with the intellectual tools for sorting out fact from fiction.

Toni Tyler takes a very unusual approach to questions of gender and difference. She turns to clothing and fashion in her Curriculum Unit, “A Trip Through Fashion History as Art and Film.” Tyler teaches family and consumer science at Hillhouse High School. Working with a hands-on approach, she introduces her students to the history of fashion in Europe and America over the past five hundred years. She teaches them the ways that clothing design enforces class and gender codes. The Unit also provides each student

with an opportunity to design and then produce her or his own outfit based upon an historical style that the student then updates. Students learn about how to make clothes and how to analyze the social meanings of the clothes they construct.

Bryan J. Wolf

Synopses of the Curriculum Units

01.04.01

Racism, Gender, Ethnicity, and Aesthetics in the Art of Graffiti, by Val-Jean Belton

This unit aims to give a clear understanding of the importance of the quality of relationship to learning writing, especially for students eligible for special education service. Relationships that are friendly and familial are the vehicle for more productive learning. Unfortunately, a lot of what has been done under the name of "inclusion" has not taken this into account with a corresponding impact on learning. It is important to the acquisition of all subject matter. It is the fiber that gives the respective activity body as a human act. Calling attention to the sense of family and community in the learning of all subject matter is amplified in teaching students who are eligible for special education service because of their history of failure, fear and criticism of their attempts to learn. Someone once said it is an opportunity to study learning in slow motion. The quality of relationship impacts the quality of work and all subsequent learning. I refer you to my Institute Unit from 2001, "Working With The Powers of Children, Not Their Handicaps."

(Developed for Advanced Drawing and Painting, grades 10-12; recommended for Art, grades 10-12)

01.04.02

Using Art, Film, and Literature to explore the Hispanic identity, by Elsa M. Calderón

This unit explores the themes of race and ethnicity as portrayed by artists, filmmakers, and authors in Spain and Latin America. What is a Hispanic person and what shapes the Hispanic identity? What races and ethnicities comprise the Hispanic identity? These are key questions that I present to my students. This unit attempts to make sense out of the answers provided by such diverse artists and authors as Fernando Botero, Julia de Burgos, Gabriel García Márquez, Wifredo Lam, and Diego Rivera. (See chart for complete list.) The unit is limited to the Hispanic identity in Spain and in Latin America, and does not include Hispanics in the United States, which is beyond the scope of this unit. Included in the unit are some traditional artists as well as some artists "whose work questions or engages in a dialogue with mainstream traditions", as stated by Yale Professor Bryan J. Wolf. The goal of this unit is to prepare advanced Spanish students for the Advanced Placement Exam in Spanish via carefully sequenced activities that combine art and film to supplement the traditional AP Spanish curricula. The unit is interdisciplinary and may be taught with the art teacher. The unit is divided into two sections: pre-AP and AP. The unit may be introduced in a pre-AP class and continued during the AP class the following year. Pre-AP classes are those Spanish classes which precede or feed into the AP class; in my school Spanish 4 Honors and Native Speakers 2 are pre-AP. The unit is not meant to cover the full two years, but rather is an attempt to infuse art and film into the AP

curriculum. The objectives are to expose students to AP authors, selected artists and filmmakers; to equip students with the strategies needed to analyze works of art and films; to guide students to make connections between the art, the film, and the literature; and to encourage students to be creative by designing culminating activities that show a clear understanding of the themes studied in this unit.

The art component includes visual art and film. Art and film are essential components of this unit and are covered in several ways: using specific artists to introduce literature, using specific artists and films to present the themes covered in literature in a different way, and using art and film to highlight the themes of race and ethnicity. The artists themselves are of diverse racial backgrounds and their works reflect in different ways the Hispanic identity. A schematic chart is provided to enable Spanish teachers to adapt the sequence to the needs of their particular students. The sequence tracks the recommended authors for AP literature, includes background information of the authors' countries and cultures, and connects these authors to artists who reflect the three ethnicities that make up the Hispanic identity: Spanish, African, and Native American.

(Developed for Spanish 4 Honors, Spanish AP, Native Speakers of Spanish II, grades 9-12; recommended for Spanish 4 Honors, Spanish AP, and Native Speakers of Spanish II, grades 9-12)

01.04.03

Utilizing Art, Literature and Film to Teach Black History, by Ms. Judith Dixon

I am a special education teacher at East Rock Global Magnet School. I teach in a fifth grade inclusion classroom. The curriculum is adapted to meet the academic needs required for special needs students. Literacy is the major focus in our school system. Literacy addresses reading, writing and speaking. In my unit the choices of literature will reflect the past and present issues in African American History. The children will read and discuss in creative ways what the author is trying to convey to the audience. Literacy is vital to a child's growth. It opens up a whole new world when they're able to read and be able to understand what they've read. I will center my literature on the Underground Railroad, Civil Rights Era, and the book entitled, *Through My Eyes* by Ruby Bridges

There are discrepancies and a lack of factual information in regard to African American History. I will choose two or three movies, and let the children go beyond what was presented during these movies through reading additional literature and researching various topics presented. In order to better interpret the movie and gain a better understanding of race and ethnicity, my students will compare and contrast the information presented in the movie(s) versus non-fictional literature.

In fifth grade, the students are required to write all the time. They learn how to write expository essays. In order to address the speaking and writing aspects of literacy, I will introduce the students to various pieces of art, which depict African American Historical moments in history. They'll be introduced to Jacob Lawrence's pieces called, "The Migration Series" and "Harriet Tubman Series," along with Faith Ringgold's pieces on the Quilts. They will in turn write to explain what the piece of art means to them, and make an oral presentation to the class on their findings. They will create their own artwork, and try to collectively create a quilt of their own interpretation. The lessons I plan to create will teach them how the artist develops his/her paintings, and chooses textures and materials to be used on various backgrounds. These will include reading and writing lesson plans as well as hands on activities.

I will modify the methods that I learn in this seminar and teach them to my children. It will enable them to be better equipped to critique different forms of art, and to decipher the accuracy of the information presented.

In the past few years, the State and the New Haven School District have implemented standards that measure a student's performance. Teaching methodologies have been challenged. Teachers have had to change their teaching strategies. What once was the ideal method has become none existent. All students must take the Connecticut Mastery Test (CMT). There are standards and objectives that must be covered in fifth grade.

What has occurred most often is that we score below state standards. Students need the exposure to many facets of learning , to a variety of people and places. Knowledge of the world around them will minimize the gaps of learning and application.

The unit will include the following sections:

I. Timeline History

- A. American Revolution
- B. Underground Railroad
- C. Civil rights Movement

II. African American Media

- A. Review of age appropriate videos relating to the Underground Railroad
- B. Civil Rights Era
- C. Present day life in the City - "Finding Forrester" Video

III. Literature

- A. Explore the short stories of Faith Ringgold - Aunt Harriett's Underground Railroad in the Sky; Dinner At Aunt Connie's House
- B. Explore the story - Freedom Crossing
- C. Life story of Ruby Bridges
- D. Present day life in the City - June Bug, Tar Beach

IV. Art

- A. Explore and research works of Faith Ringgold
 - 1. Quilts
- B. Explore the works of Jacob Lawrence
 - 1. Migration Series
 - 2. Harriet Tubman Series

*In collaboration with the Art Teacher - the students will learn about different types of paints and brushes used on various types of canvases or fabrics.

The following CMT objectives are included in this unit, as well as New Haven's District Standards.

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

01.04.04

High School Students Research, Read and Write Children's Literature, by Sandra Friday

This unit is designed for at-risk high school students, some of whom already have a child, and many of whom have young siblings, nieces and nephews. At a time when literacy among school children is of grave concern, it seems crucial to teach teens not only the importance of reading to children but how to do it. It also goes without saying that many at-risk teens were short-changed when it came to being read to and reading storybooks when they were children.

This unit is designed around storybooks whose themes are about being excluded and being different. It uses storybooks that focus on the many issues that arise when a person is or feels that he/she is excluded. It explores why people exclude others. It explores what happens to characters who do not conform to the status quo. Through a children's story it introduces students to different ways of listening and hearing what another person is saying.

The unit is rich with skills such as: using the Internet to research articles that focus on the importance of reading to young children, learning how to use a graphic organizer to make observations and gather evidence that one can turn into the formula five-paragraph essay, learning to use the children's department in the public library, and last but not least, writing and illustrating a children's storybook. There will be myriad opportunities to learn the craft and magic of reading storybooks out loud, and there will be several opportunities actually to read to young children in schools.

There are two hands-on art projects, which are especially important for students who often do not get an opportunity to take art classes, and therefore never discover their own creativity. I have found that hands-on art enhances and enriches almost every unit I teach, even though I am an English teacher.

(Developed for Reading and Creating Children's Storybooks, and English, grades 10-12; recommended for Reading and Creating Children's Storybooks, and English, grades 9-12)

01.04.05

Expressions of Anti-Racism Through Painting: The Puerto Rican Community From West Side Story to Connecticut, by Jon Moscartolo

This art unit introduces students to the Puerto Rican experience from *West Side Story* to present day Connecticut. This is explored through a series of painting lessons beginning with a graffiti wall and progressing through dream narratives that explore Surrealism. These move on to Expressionism in painting and look at the art work of Jackson Pollock who was exhibiting his innovative style in New York City in the 1950s. This connection between Pollock and *West Side Story* in the 1950s is used as a point of reference to understand the growth of the Puerto Rican community in Connecticut.

Dr. Ruth Glasser's *Aqui Me Quedo, Puerto Ricans in Connecticut* provides the historical background for the employment of Puerto Ricans in the shade tobacco farms of Connecticut. The economic and cultural aspects of the Puerto Rican experience are presented through further study of Puerto Rican artists via the Internet. The goal is to examine impressions of racism and seek a deeper understanding through artistic personal expression.

(Developed for Art, grade 8; recommended for Art, grade 8, and Introduction to Art, grade 9)

01.04.06

The Tragic Genre from Classical to Contemporary: King Lear and A Thousand Acres, by Diana Otto

This unit is an introduction to classical, Shakespearean, and modern tragedy. Students will read and contrast Shakespeare's *King Lear* and Jane Smiley's modern retelling in *A Thousand Acres*. Student activities include critical reading, characterization, and a formal comparison/contrast paper of the two works.

(Developed for Advanced Placed English, grade 12; recommended for English, grades 11-12)

01.04.07

Through Their Eyes: Video Taping Oral History, by Angelo J. Pompano

The intent of this unit is to create a video documentary that will show positive gender, race and ethnic images of people with whom students can identify. This unit addresses the needs of the students by giving them a meaningful project on which to work. The result is an end product that will be a source of pride to be viewed by all of the students of the school.

This unit consists of two parts. Part One deals with the subject of race and ethnicity as it relates to stereotyping on television and in movies. It gives a definition of the word stereotype and explains how and why gender, racial, and ethnic stereotypes are used in the media. It also discusses the influence of these stereotypes on children. In this section hegemony is discussed as well as the Metropole and Borderlands Models of viewing culture. This is followed by a discussion of the importance of oral history in preserving the real history of the nation. It is noted here that the story of the Amistad for many years was only preserved in the oral history of New Haven.

Part Two deals with using video in school to combat stereotyping. It explains how video can be used to record oral histories that will combat the negative images of race and ethnicity perpetuated by the broadcast media. The students are first taught how to prepare to give an interview. In the lessons section the students view a movie that deals with prejudice. Here the students learn the definitions of prejudice and stereotyping and begin to recognize the Hollywood stereotypes they see every day. Next the students role play to learn what it is like to be from another culture and misunderstood because of being different. They are given the chance to express how they felt in writing. Here they get experience in conducting a taped interview. Finally, they conduct real life interviews of their grandparents to learn the Borderland contributions to society of people with whom they can identify. By recording these oral histories the students will debunk the Hollywood stereotypes. This unit is aligned with the curriculum of the City of New Haven.

(Developed for Unified Arts-Video Production, grades 7-8; recommended for Unified Arts-Video Production and Social Studies, grades 7-12)

01.04.08

I Have a Border in My Mind: The Puerto Ricans' Arts and Culture as Factors for Self-Esteem, by Abie L. Quiñones-Benitez

My unit is intended to address the gap in quality multicultural curricula with emphasis on Puerto Rico. It is intended to be part of the English, social studies, and/or guidance

curriculum. In addition to impart knowledge on literature, history, art, and culture, this curriculum helps students to develop a sense of identity regardless of their ethnic background. As a guidance counselor I will implement this curriculum as part of my guidance interventions in the classroom in order to impact my students' self-esteem. Once a week for approximately a 40-minute period I will meet with my students at their assigned classrooms. A final project will include a written collection of essays, short stories, and poems produced by the students. The project will include a heritage box, a visual representation of the students' cultural experience. In collaboration with the administration, the art department, and the students an exhibit of the final works will be open to the rest of the school. This exhibit should be housed at the school library. A ceremony of presentation of the work will take place to open the exhibit.

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

01.04.09

Native-American Culture in Crisis, by Joan Rapczynski

This unit may be incorporated into the general United States History survey course that is required of all 10th and 11th graders in the New Haven public schools. The history of Native Americans and their relationship with the federal government is a very complex subject. It has been largely dictated by the growing desire of the United States government for land. This unit attempts to examine the history of the relationship between the government and Native Americans. It studies the policy of assimilation that was in effect for over one hundred years. It looks at Native American culture through film, art, literature, poetry and short stories and finally it examines the emergence of the American Indian Reform Movement.

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

01.04.10

Debunking the Myth of the American West, by Dina Secchiaroli

This unit looks into the myth of the American West as we know it and as it has been portrayed in Hollywood, and uncovers the truth of our nation's history. The history of the West is complicated and messy, and the unit begins to make sense of what really happened. Themes covered in the unit are land boundaries, the complexity of this history, conquest, racial convergence, women of the West, uncovering the truth, coming to terms with the past, and closure. This unit covers literature, art, history, and film. I explore history, *The Lone Ranger* and *Tonto Fistfight in Heaven* and *Smoke Signals* by Sherman Alexie, the movie *Lonestar*, "Woman Hollering Creek" by Sandra Cisneros, "The Hammon and the Beans" by Americo Paredes, along with a variety of artists. Activities

included are a research project, art project, close reading, CAPT practice, and class discussions.

(Developed for American Literature, grade 11, and AP Literature, grade 12; recommended for American Literature, U.S. History, American Studies, and Art, Middle School and High School grades)

01.04.11

A Chronological Look Through Fashion History A Trip Through Fashion History as Art and Film, by Toni Tyler

Clothing is an expression of the moral, social, cultural, and political attitudes of a culture. This unit is about the history of Fashion and how fashion has influenced our lives. In this unit I discuss the power of fashion and the manner of expressing a concept of any given style dating back to the early twelfth century. Taste is the criterion by which we assess the use of clothing, most designers draw upon five basic dress silhouettes to design our clothing but, by changing components within the dress form such as sleeves, necklines, collars and the position of a belt, an unlimited number of dress designs are possible.

Among the other factors that influenced American fashions were women's suffrage, wars, depression, stage and screen personalities, the rise of the cafe society followed by the international jet set, a more affluent society, and the migration to suburbia. The influence of the movies and rock video eased into our fashion, and let us not forget that fashion is a force that is difficult to explain, it motivates people to suffer physical discomfort and to go into debt in its name.

(Developed for Family and Consumer Science Fashion and Fabrics and Clothing, grades 9-12; recommended for Family and Consumer Science, grades 9-12)

V. Bridges: Human Links and Innovations

Introduction

As complex artifacts of society and structure, bridges rise over obstacles and generate human paths to link communities and enhance communication. While focusing on bridges, the seminar offered opportunities for discussing the multiplicity of relationships between their rationale for design, engineering and construction. Communities have given birth to bridges throughout history. The process continues to expand the role of the bridge in developing the infrastructure of landscapes throughout the world. This seminar included a field trip to bridge sites along with a project to design and construct a model bridge. Both experiences enlarged the participants' insights for understanding the impact of design and construction processes. The daily human dependence on bridges is often unnoticed by common users; however, significant bridges mold many lives as the awesome technology blends purpose, directness and beauty.

The creation of a bridge, from inception to utilization, involves a drama of human decision making which impacts the landscape and community, and reshapes their growth and being for decades thereafter. The design becomes symbolic of the bridge's success or failure whether in matters of function or material durability. The reality of community satisfaction unfolds with the daily experiences unfolded during and post construction.

One teacher examined the history of significant New York bridges and their impact on the American Industrial Revolution. Two curriculum units are focused on influences of how bridges shape and serve the adjacent communities. Each of these units concentrate on bridges located near the New Haven schools where their students reside. Although significantly different in specific content, the other curriculum units present some technical aspects of bridges as they focus on simple principles of engineering processes, basic mathematics, applicable mechanics of basic physics, and pure geometries all of which exist in the making and construction of bridges. The majority of curriculum units include hands-on projects which are created to capture the student's interest in designing and making models appropriate for their study. Through the subject of bridges, teachers have sought ways to involve young people in learning very useful principles that impact everyday patterns of each person's life. The discoveries and inspirations students may encounter could be beacons for greater aspirations of learning.

Behind every bridge, recognized as successful, historians find records of significant effort, dedication and commitment of those persons responsible for the creation and construction of it. Together with the people making primary decisions, the design and construction teams are dedicated to the public's benefits, the site and environment, the material and methods of construction, and local resources. A bridge changes the landscape forever and its creation must be designed with a future vision. The curriculum

units created for this volume recognize the importance of the talents and interests of individual students as they learn about principles of life through a focus on bridges.

Martin D. Gehner

Synopses of the Curriculum Units

01.05.01

The East River Bridges of New York: An Expression of American Industrial Expansion, by John Buell

The great challenge of teaching a survey course like U.S. History is to cover the vast amount of material required while still going into enough depth to make the subject meaningful and to engage a wide range of skills beyond simple retention and repetition of information. This unit of study on the design and building of New York City's East River bridges in the late 19th and early 20th Centuries (with particular focus on the Brooklyn Bridge) accomplishes this end by pulling together the numerous threads which run through American history at the peak period of industrial growth. It incorporates the issues of urban growth and the resulting changes in transportation needs that provided the impetus to build more bridges of higher quality. It includes consideration of innovations in industrial processes and the introduction of new materials for building such as the mass production of steel and the introduction of steel cable. The availability of these materials combined with the needs of an urban industrial society led to exciting innovations in design. The issues of immigration, social class and the experience of workers in the new industrial economy are also a critical part of the story. These patterns of innovation, invention, immigration, and social change were repeated throughout American society during this era.

The high point of the unit is a culminating field trip to New York to see the bridges themselves. As a teacher at the Sound School, I have access to the Schooner Quinipiack which provides me with an opportunity to view the bridges from the water. All of the East River Bridges are in fairly close proximity, however, and many can be accessed on foot from the shore so a trip by bus would certainly be practical. These colossal structures are impressive to behold and will give students a powerful connection with the late industrial era.

(Developed for U. S. History II, grade 10, and 20th Century, grades 11-12; recommended for U. S. History, grades 9-12)

01.05.02

Bridging the Math Gap, by Creola Smith

This unit was written with the 4-12th grade student, educator and those with math phobias in mind. Determining time required to implement the unit as written depends on many things. This unit was written for my classes, which are urban students, completely heterogeneous grouped, and 7th graders. Range of math skill diversity, within the class can be astonishing to amazing. Utilization of the unit would be in addition to regular

math lessons. Class time allotted to complete unit is 20-25 hours. Recommendation is to incorporate throughout one marking period of 12-16 weeks.

The focus of this unit is to integrate mathematics with the applied science of engineering, allowing students a different venue to experience math. Through developing a model bridge to a specific scale, students are exposed to the application of math in a real world setting. Mathematical concepts addressed are number sense, scale, geometry; each allows for an easy switch to algebra and other concepts. Technology is also utilized through initial bridge design and test, which are completed using a computer program design. Students then have a working design in theory to begin converting to scale. This unit is limited by the imagination only.

Students learn the decision processes that are required to build a bridge. Lessons include types of bridges, bridge history, math, engineering principles and experiments. They begin to understand that the method and steps of problem solving are applicable in many areas. Thinking skills and cooperative learning is key to being successful in this unit, and life. Students must use multiple skills, some are from prior knowledge and others will be new.

“Bridging the Math Gap” has several approaches for the same idea, several ways of expressing thoughts and observations. Keep in mind learners have different styles. As educators we must try to reach as many as possible. It is also rich in the vocabulary of engineering and math. It displays the integration of subject matter and provides a tangible finished product that will be tested for load to weight ratio. The unit’s success depends on preparation time and classroom management. Student must experience the lessons, which means mobility.

(Developed for Mathematic, Pre-Algebra and Basic, grade 7; recommended for Middle School Mathematics and Science, grades 5-8, and High School Mathematics, grades 9-12)

01.05.03

Bridges: Joining Communities Together, by Roberta Mazzucco

The unit is written for use with elementary-level students in grade three, although it could be used with grades level two to five with some alterations. The unit discusses the beam, arch and suspension bridge as well as the movable bridges. There are hands-on activities for the students to do from building arches, to planning out their own bridge project. Students are familiarized with how bridges are built, what criteria are used in deciding where a bridge can go, and how a bridge can impact a community both positively and negatively. There are bibliographies for the teacher as well as the student along with popular Web sites available.

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

01.05.04

Building Model Bridges Following the Engineering Process, by Joe Lewis

The curriculum unit is designed to introduce students in grades 6 through 8 to the different types of bridges and to some engineering principles. It also assists teachers with the planning of a bridge building contest in their classes. The unit contains meaningful activities to prepare the students to build model bridges. In addition to background information, this unit includes evaluative tool and lesson plans.

Upon completion of this unit, the students will be able to: (1) identify the engineering principles behind bridge building; (2) identify different types of bridges; (3) become aware of a process outlining how bridges are designed and built; (4) understand some of the physics important for designing, building and using bridges (5) understand some of the preliminary events that takes place before construction, and finally (6) draw and build a bridge according to specification using the principles of engineering.

“Bridge Building Following the Engineering Process” is divided into three major sections. The first section will introduce students to the different types of bridges. Secondly, the unit will discuss the engineering process in bridge design. The final part of unit will assist teachers in designing a bridge building contest based on the engineering principles. The evaluation tool included will help to keep students on task during the bridge building process and for grading the final product.

(Developed for CPEP/Engineering, grades 6-8; recommended for Science, grades 5-8)

01.05.05

Fair Haven Community and the Grand Avenue Bridge, by Sandra Stephenson

Mathematics is a continuously difficult subject for so many high school students. Teaching and working with students who have had little success in high school especially in mathematics has been one of my successes. Students bring with them a high level of math anxiety because of the lack of confidence in themselves. Wilbur Cross Annex, where I teach, is designed to give these students a second chance to finish high school. Because of their poor attendance students operate with limited skills. For many students completing anything is a challenge for lack of self-esteem, self-motivation and confidence in themselves. Yet everyone needs to be able to use mathematics in his or her own personal life, in the workplace and the beauty of mathematics. Students need to learn a new set of mathematics basics that enables them to compute fluently and to solve problems creatively and resourcefully.

This curriculum unit will include a research of Fair Haven Community and the Grand Avenue Bridge for which students will use the internet, the library, the Planning and Zoning Office and the Department of Transportation as resources. Objectives that will be discussed in this curriculum will include: increasing students' awareness of the Fair Haven Community, developing students' appreciation and understanding of how a community, its people and buildings evolved over a period of years, understanding of urban development and historic preservation in the Fair Haven Community centered around the Grand Avenue Bridge.

(Developed for Mathematics, History, and Social Studies, grade 9; recommended for Social Studies, and Mathematics, grades 7-9)

01.05.06

The Basic Mathematics of Bridges, by Lewis Spence

This unit intends to provide students of the seventh and eighth grade levels a basic insight into the basic features and structure of bridges. It provides pertinent information regarding four basic forms of bridge types of which some are common in our everyday communities. There are activities that are designed to identify the mathematics associated with the designs and constructions. These activities include measuring of angles, the application of proportionality, practice in linear measurements and a model construct of a bridge.

Due attention is given to the science of stress, the major factor which allows a bridge to function. Hopefully, these activities will awake a consciousness in the students to these massive structures regarding their functions, the efforts employed in the construction, aesthetic effects on the surroundings and intents of those associated with the projects. Two questions that this unit should provoke the students to ask are, what happens to the communities when there is that bridge? And, what happens to the communities when that bridge is absent?

(Developed for Mathematics, grade 8; recommended for Mathematics, grades 7-8)

01.05.07

Bridge: A Hands-On Approach to Learning, by Liza Bowen

subject in the regular math school curriculum at the 9th grade level in The Sound School, a public school in New Haven, CT. Students at the end of the program will create a small model of a bridge as the chief goal of their work and study.

This curriculum unit consists of a series of lessons that will teach students the basics of architecture principles. The project presented in this unit describes my experiences in

organizing, managing, supervising, and testing this program. To explain the development process of this project, I will present it in three phases as follows:

Phase 1: Background and Program Description

This phase describes the implementation of the project and how the students will be selected. It also describes the contents of the architecture program and how it integrated into the math curriculum.

Phase 2: Implementation

This phase will be a general overview and introduction to architecture principles. Students will be introduced basic principles of architecture and engineering, and an overview of the urban history and social issues of the building of some of the bridges of New York City. Some of these issues will be covered along the social studies teacher at The Sound School.

Phase 3: Execution of the Program

The third phase will explain how the project will be executed. The program will be introduced to the students in two parts. In the first part students will visit some of the bridges in New York City. This will be by bus or by boat, as budget permits. The second part will be dedicated to a hands-on approach. Students will collect all their data learned during the program and then, they will create and built a small-scale model of a bridge.

(Developed for Mathematics, grade 9; recommended for Mathematics, grade 9)

01.05.08

The Physics of Bridges, by Theresa Matthews

“The Physics of Bridges” is a curriculum unit that will explain how scientists and engineers utilize physical science concepts when building a bridge. Students will enjoy the many “hands on” activities planned in the unit. One activity is the compression test, which measures the amount of stress different types of wood can sustain. Students can also build trusses utilizing computer software that identifies which members experience tension and compression forces and calculates the amount of force a support gives on a truss when a load is applied. The final projects include building a model bridge and taking a field trip to view bridges in Connecticut and New York.

The concepts that will be explored in this curriculum include Newton’s Third Law of Motion (action-reaction forces), forces acting in tension or compression, stresses a material experiences when equal and opposite tension and/or compression forces are exerted on a structure, stress-strain curves, static equilibrium, vibration, and resonance.

(Developed for Physics, grades 11-12; recommended for Physics, grades 10-12, and General Science, grades 7-12)

01.05.09

Geometry of Bridges, by Michael Golia

As a teacher in the New Haven school system I have come to realize that students need to relate school with something in their life. Many of the students cross many bridges to get to school. The topic of bridges will help me introduce geometry into a real life application. The hands-on approach used in the building of a bridge project will develop student's academic and social skills. As students work on bridge construction in cooperative work groups they will apply not only mathematical principles but also social problem-solving strategies as they discover their "way" may not always be universally embraced. I have seen some students that get hooked on a project take it from its beginning to completion. This combination of geometry, working as a team, and having a project will help the students feel a sense of learning while having fun.

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

01.05.10

Bridges: Built on a Firm Foundation, by Gwendolyn Robinson

The purpose of this unit is to introduce fourth through sixth graders to the basic bridge building. The end product will be the making of a bridge game we will call "Assembly." The three types of bridges that will be assembled in the game are truss, suspension, and arch. Much of the students' time will be spent in experiments, observation, and analysis. Children in this age group know little about the dynamics of bridges, so time will be spent in laying some foundation about lines. Familiarizing them with geometry angles, space figures, plane figures, parallel lines, intersecting lines, perpendicular lines and symmetry is the first order of business.

Next, the students will be given a list of terms, vocabulary words, and expressions that are particular to bridge building, like loads, depth, tension, and span. In this way we can effectively communicate in books, with professionals, and with each other about this highly technical subject. There are plenty of books on the subject, which we will use. Most have wonderful illustrations and photographs.

There will be problem solving involved with this unit. Contrasts and comparisons will be made between foundations, sand, rock, concrete, and water. They will also be made between materials, paper, cardboard, sticks, and metal. The proportion and size of bridge members will be discussed.

The area where the school is located has bridges in walking distance. Field trips will be taken to these structures. Sketches of these bridges will be made by the students. They should be able to label and explain the parts of the bridges by the time this unit ends. Field trips will also be made to see the foundations and formation of major bridges like the Quinnipiac and Grand Avenue Bridges.

Finally, we will attempt to make models of bridges of the truss and arch type. The whole unit should take about a marking period to complete.

(Developed for Reading and Mathematics, grades 4-5; recommended for Reading-Cause and Effect, Reading-Compare and Contrast, and Problem Solving-Mathematics, grades 3-6)

01.05.11

Bridging the Gap: Math to Science, by Mary Elizabeth Jones

This unit is designed to be presented to a sixth grade or Middle School class. The unit will use the building of a bridge to teach math and science concepts. Geometry, measurement ratio proportion and proportional reasoning will be covered in the math class. The physical science class will cover Scientific Method, SI (metric) measurement, Standard unit of measurement and measurement conversion.

The unit is designed to be taught over a marking period. Students will be required to identify types of bridges and list their characteristics. As knowledge is learned, it will be used to complete a bridge in class. As a culminating activity, students will be encouraged to complete their own bridge as an individual project or as part of a group. Completed bridges will be evaluated by the students.

The concepts taught would be concepts that are tested on Connecticut Mastery Test (CMT). The concepts may be adjusted to comply with individual school goals. The unit incorporates technology in teaching. There are two excellent CR-ROMs that are included in the Teacher Resources. The levels of difficulty of these CD's vary. This will allow the teacher to gear the level of the lesson to the ability of individual students.

(Developed for Mathematics, grade 6; recommended for Mathematics and Science, Middle School grades 6-8)

VI. Intelligence: Theories and Developmental Origins

Introduction

The study of intelligence is as old as psychology itself, beginning with studies of mental speed by Sir Francis Galton, a cousin of Charles Darwin. After more than 100 years of investigation, and thousands of empirical studies, there is still not strong agreement on what constitutes the essential elements of a theory of intelligence, and how best to measure it. Conventional definitions of intelligence typically include reference to abstract reasoning ability, capacity to acquire knowledge, and problem solving skill. However, there is continued debate as to whether such definitions are broad enough to capture all that it means to act intelligently. Debate is also provoked by those who take unpopular and controversial stances on the heritability of intelligence, racial differences, and by those who mistakenly imply that a person's worth can somehow be embodied by an IQ score. The traditional view focuses on intelligence as a single entity that can be measured by any number of reliable mental ability tests. Other viewpoints have gained popularity in recent years. Most influential are those that posit multiple independent sources of intelligence. Some of these theories have growing empirical support; others are do not, and are based on anecdotal evidence and common sense approaches to parsing the human ability landscape. The most recent development to gain popularity concerns social and emotional intelligence as distinct from cognitive abilities, but equally important for real life decisions and successful functioning in work, social and family groups.

This seminar provided a historical overview of the development and growth of intelligence testing in the US, and covered the major theoretical models of intelligence. The traditional theory of intelligence posits a general factor of intelligence (g) that can account for a variety of what might appear to specialized skills and talents. The notion of a unitary g factor was discussed in depth, as there is a longer tradition and more research evidence to support its existence and predictive value than competing theories. Sternberg's Triarchic Theory of Intelligence and Gardner's Theory of Multiple Intelligences were each examined in detail. Both of these theories offer attractive features not captured by g theory. Sternberg's theory postulates three rather independent types of intelligence analytic, creative and practical. There is a small but growing body experimental evidence showing that each facet of intelligence is statistically independent, and able to predict important school and real life outcomes. Gardner's theory holds that there are not less than seven different types of intelligence. His theory is especially attractive for he gives weight to a social-emotional intelligence and various types of creative intelligences. His theory has been widely disseminated, especially in the school systems. However, from an objective point of view it is disappointing that there is still no empirical work that validates his ideas. Discussion of these three theories was woven into all aspects of the seminar, including discussion of the brain bases of intelligence, the growth and development of intelligence, and programmatic attempts to foster and enhance intelligence in school and special education settings.

The seminar was attended by Fellows with widely different backgrounds and professional roles within their schools. We had a school social worker, a guidance counselor, four special education teachers, a physical education teacher, a kindergarten teacher, a music teacher, a social studies teacher, a math teacher and a science teacher. Weekly readings covered a wide variety of topics, and discussion was always lively. The group of Fellows was outstanding in the commitment they each demonstrated to changing the lives of their students. The seriousness with which they approach their professional challenges was inspiring. In a very heart felt manner, they grappled with difficult issues, revolving around a center theme: “How can we foster the native skills and intelligence that often remains locked within our students?” Not surprisingly, Fellows were much more attracted to theories of intelligence that suggested that human ability is multifaceted, and tractable to educational interventions. Thus, Fellows were nearly unanimous in their dislike of any notion of a general factor of intelligence, and they gravitated toward Sternberg’s and Gardner’s theories. Both of these theories offered Fellows new ways of looking at the children they teach, and offered insight into how to foster their students’ intellectual and personal growth. The diverse backgrounds of the teachers necessitated a dash of creativity in order to apply the content of the seminar readings and weekly discussion to the development of their individual curriculum units. The result is a collection of units that is broad ranging. However, the units also have shared characteristics that permit clustering into three groupings.

One set of units is tied together by their shared focus on enhancing self-knowledge (intrapersonal intelligence), a critical ingredient to school and life success. This approach is perhaps best exemplified by Ms. Pollock’s unit entitled “Getting to know yourself: Developing and accessing intrapersonal intelligence among early adolescents.” Ms. Pollock describes current theories of emotional intelligence and creates a unit designed to increase self-awareness and intrapersonal intelligence among middle school students. Her approach utilizes experiential techniques in a small group setting. Ms. Wooding’s unit (“Self fulfilling prophecy in African American Students: Exploring African American Achievers”) also exemplifies this approach. Her unit teaches the accomplishments of several prominent African Americans and uses activities designed to enhance a positive self-image among her students. In this group are also the units of Mr. Adebayo (“Teaching of Awareness of Human Development”) and Ms. Beasley-Murray (“A cultural interpretation of intelligence”). Mr. Adebayo writes on the importance of regulating and nurturing one’s body through stress reduction and adequate sleep in order to be an effective learner. Ms. Beasley-Murray uses the classic *Of Mice and Men*, as well as other books and movies, to raise highly provocative questions regarding how different people define and conceptualize intelligence, the role of cultural expectations regarding who is perceived to be intelligent, and the role of self-fulfilling prophecies. Ms. Coss’s unit (“Developing and assessing the intelligence of a kindergartner: A practical approach”) emphasizes increasing children’s learning by capitalizing on their own innate desire to learn. She develops a well-articulated set of ways for early childhood educators

to operationalize many of the theories and of early learning (e.g., teacher-centered versus child-centered instruction) and she discusses constructivist models of learning.

A second thematic grouping of units concerns enhancing student performance through improved attention, focus and concentration during the learning process. Ms. Baker exemplifies this theme in her unit on “Quiet time: An environment for school success.” Her unit discusses Eastern philosophical approaches to intelligence, and effectively argues for the value of meditation and quiet self-reflection for reducing stress and enhancing the learning process. Mr. Vollero’s unit (“Nurturing the body and mind in physical education with Mozart”) provides a critical review of the literature on the “Mozart effect”, the proposed relationship between listening to classical music and increased intelligence. He provides many ideas and techniques for incorporating music in the learning environment as a means toward focusing the attentional resources of the student for enhanced learning. Similarly, Ms. Canzanella writes on “The musical learner: Rhythms and Reading”, wherein she effectively builds the case for using music (particularly rhythm) as a mental organization tool to help children master many of the skills underlying learning to read and compute. Finally, Mr. Echter discusses rapport-building techniques as an essential part of the learning relationship between teacher and student in his unit (“Working with children’s powers, not their handicaps”). Mr. Echter provides many examples of how games and humor can be used to break down resistance, to tap inherent motivations, and to defuse children’s fear of failure.

A third area revolves around the theme of teaching multiple intelligences and student awareness of their many talents. This is exemplified by Ms. Trapp’s unit on “Multiple intelligences: The learning process in our students., and by Mr. Merritt’s work entitled “A multiple intelligence approach to the physiology of the brain and how middle school students learn.” Mr. Merritt and Ms. Trapp nicely spell out the details of Gardner’s theory of Multiple Intelligence and then use aspects of this in their curriculum exercises. One aspect of Gardner’s theory concerns bodily-kinesthetic intelligence. Ms. Bellonio effectively integrates this theme in her unit on “Multi-sensory manipulatives in mathematics: Linking the abstract to the concrete.” She presents a very well written argument for the use of manipulatives as an effective way of teaching numeracy and basic mathematical concepts.

Together this group of curriculum units touches on many of the emerging conceptual and theoretical issues in the field of Intelligence. Each unit offers many helpful teaching exercises and goes to great lengths to offer suggestions for practical teaching materials. The units all integrate theory into practice and they each should offer other teachers many valuable ideas and approaches to their own classrooms and curricula.

Robert T. Schultz

Synopses of the Curriculum Units

01.06.01

Getting to Know Yourself: Developing and Accessing Intrapersonal Intelligence Among Early Adolescents, by Dina Pollock

This unit draws on the theories of emotional intelligence (Salovey and Mayer; Goleman) and multiple intelligences (Gardner) to help young adolescents in grades 7 through 9 expand their view of their strengths and abilities. The goal of the unit presented here is to help students understand the nature of self-awareness (intrapersonal intelligence, as defined by Gardner) and increase their ability to understand and access their inner lives and abilities.

Conducted in a small group format of weekly sessions rather than in a conventional classroom, this unit utilizes experiential techniques including art projects, games, activities, discussions and personality inventories to help students learn about themselves and others and to understand what makes each of them unique.

(Developed for Social Work Counseling, grades 7-9; recommended for Social Work Counseling Groups and Social Development Courses, grades 7-9)

01.06.02

Self-Fulfilling Prophecy in African American Students: Exploring African American Achievers, by Cynthia A. Wooding

In this curriculum, I have developed a unit focusing on the achievement of minorities African Americans. The curriculum discusses African Americans that have successfully contributed to their own culture and made positive changes in American and world societies. This curriculum will help build positive self-image and hope regarding intelligence in different races, genders, and socio-economic groups.

The curriculum unit focuses on the accomplishments of African American achievers during February's black history month. The unit is to explore and familiarize fifth grade students with the history and knowledge of African American achievers. Exposing the students to achievers who share with them race, ethnic or gender profiles will allow them to explore themselves and be challenged, thus starting to create their own ideas of achievements they want to fulfill. The unit will use Robert Sternberg's Triachic Theory when exploring famous African Americans and their accomplishments. The unit will explore African Americans who are gifted in the three aspects of Sternberg's Triachic Theory. These three aspects are practical thinking, creative thinking, and analytical thinking. The unit will explore African Americans who have succeeded in using all or one of the thinking processes. The African American chosen to exemplify someone who succeeded in creative process will be Clementine Hunter. Clementine Hunter

contributed to society with her beautiful Black American Folk art. The African American chosen to exemplify someone who succeeded in analytical process will be Benjamin Banneker. Benjamin Banneker was an inventor, scientist, and writer who contributed the design of the development of Washington D.C. and the Farmers Scientific Almanac. Finally, the African American who exemplifies someone who succeeded in practical processes will be Jackie Robinson. Jackie Robinson was a famous Black baseball player, businessman, and great orator who contributed morals, ethics, patience and tolerance when encountering success. These three African American display great significance to both African Americans and all culture and races. These Africans Americans will be used for exemplifying positive role models for achievement in the unit.

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

01.06.03

Teaching Awareness of Human Development, by Afolabi James Adebayo

Teachers often experience the problem of students falling asleep in the classroom. This problem is prevalent during the first and second periods. This is a problem that would be addressed in this unit. The objective is also for students to identify the pros and cons of sleep behavior and its effect it will have on their bodies. This unit will help to encourage students to analyze the following: 1) reading comprehension, 2) positive thinking towards their lives and 3) having self-confidence in themselves where will lead to positive directions. Stress and lack of sleep can lead to self-destructive behavior such as absenteeism, school dropout, fighting stemming from anger, frustration, and isolation.

Goal: When this unit is completed, students will be able to understand the main ideas and increase their level of critical thinking in various situations. The students will be able to distinguish fact from opinion and identify different consequence to various situations.

(Developed for grades 9-12)

01.06.04

The Semantics of Intelligence as Illustrated in John Steinbeck's Of Mice and Men, by Angela Beasley-Murray

This unit is currently not available

(Developed for Reading, grade 10; recommended for Reading, grades 9-10)

01.06.05

Developing and Assessing the Intelligence of a Kindergartener: A Practical Approach, by Francine Coss

The cognitive development of the human brain is not concrete enough to be presented conceptually to Kindergartners. However, the biology of the brain, the weight, size, shape and sections of the brain are concrete and can be taught. Understanding the biology of the brain will lead students to better understanding the abstract workings of cognition.

Educators must address the needs of their students by first informing them of the brain's abilities. The twelve principles of brain-based learning and constructivist theory go hand in hand in a classroom that exemplifies learner-centered instruction. Traditional tests as well as other forms of assessment offer the teacher, and student, the opportunities to increase learning and motivation. These opportunities must be regular and consistent for success.

(Developed for Science and Language Arts, grade Kindergarten; recommended for Language Arts, Mathematics, and Science, grades K-2)

01.06.06

Quiet Time: An Environment for School Success, by Linda Baker

So many of our children come to school with extensive external stresses and traumas. Activating their brains and inner motivation, so that they can receive the most from learning experiences, is difficult. This unit will explore the value of quiet reflective time in which children can calm their inner selves, reduce stress, integrate their experiences and start their school learning with an ideal "mental palate." "Quiet Time" can be defined as a time when children can approach their inner selves through yoga, music, guided imagery, meditation, and reflective reading and writing. The Rationale for this unit will start with a brief survey of the research that has been done on the negative elements in the environment of some of our most "at risk" children. Aspects of newer thinking concerning intelligence will be discussed, especially Gardner's Multiple Intelligence Model and Sternberg's Triarchic Intelligence Model. New Western models of intelligence will be compared with Eastern models of the mind. Finally, the current research on how meditation affects brain integration and function will be discussed. The concrete Curriculum Unit Plan will involve formulating a developmentally appropriate practice that can be taught and used in public schools, specifically a 4/5-grade curriculum.

(Developed for Social Development and Developmental Guidance, grades 4-5; recommended for Elementary School, grades 4-5)

01.06.07

Nuturing the Body and Mind in Physical Education with Mozart, by Michael Vollero

Physical educators have a unique opportunity to not only nurture the body but the mind as well as by enriching the learning environment with musical sonatas created by Wolfgang Amadeus Mozart. Scholars are continuously seeking that magical answer to make students improve their intellect. As educators, we must utilize sensible data to substantiate an imaginative proposal. Educationalists enjoy various successful teaching strategies to increase student's intellect abilities. Some may call this questionable method called "The Mozart Effect," to enhance learning. This study presents information that gives the reader with recent concepts and investigative studies regarding the value of music in learning. Therefore the goal of this study is to nurture the body and mind through physical activities along with background music, can motivate and educate the student simultaneously. By reviewing this study, you will be familiar with neural connections and how the brain transforms sound into electrical messages. You will also understand how specific neurotransmitters (chemical stimulus) can be cultivated through physical exercise and a musical environmental. Together with physical activities and music, educators can utilize brain related approaches that can extend instructional strategies by deciphering new learning paradigms with the mind and the human body.

(Developed for Physical Education, grades K-5; recommended for Physical Education, grades K-6)

01.06.08

The Musical Learner: Rhythms and Reading, by Doreen L. Canzanella

As a K-4 General Music Teacher, I educate and see a variety of intelligence and social backgrounds. I am always amazed at the inherent ability of some students to process and nurture the information given. Some students apply the information of meter and sound to other disciplines of education while others do not. So, it is the question; Is this an example of general higher intelligence or an example of Howard Gardner's musical intelligence? Is it the naturally developed cognitive mind that is recalling and applying similar information, or a more developed part of the brain (i.e.; the musical brain) working for the student?

It is my quest to take Howard Gardner's theory and apply it to the student that is albeit seemingly interested in education, but falling behind in reading. The crux of my exploration is how to use the natural musical interest of a student to support the regular classroom. Specifically, helping the student to focus and achieve. The process of taking turns singing or playing an instrument, rhyming words and writing a song, or learning to listen for clues in poetry/songs should reinforce their classroom experience. Hopefully in turn create a stronger, self motivated reader.

(Developed for Reading, grade 2; recommended for Reading, Elementary grades)

01.06.09

Working with Children's Powers Not Their Handicaps, by Robert P. Echter

In all cases our special education students are dealing with serious and extreme problems of one sort or another that impact their learning in school, by definition. That makes them a very heterogeneous group. Trying to solve all their problems simultaneously is complex and anything but regular. I have been a teacher 30 years mostly with a very wide range of special education students. In this paper I try to convey that the quality of relationship we have with our students has very important implications for whether they are able to reach a degree of facility with subject matter that will allow them to participate more fully in school and society. I describe and discuss what it means to take individuality seriously and forge a group ambience of social and intellectual learning. The emphasis is on what I have done in specific and concrete instances and why I acted as I did. It includes examples from teaching in areas of reading, writing and math as well as the pre-conventional learning phase. Both Caleb Gattegno and Seymour Sarason have personally influenced my thinking and my work.

(Developed for Special Education, Literacy, Mathematics, and Social Studies, grades K-4; recommended for Special Education, Literacy, Mathematics, and Social Studies, all grades)

01.06.10

Multiples Intelligences: The Learning Process in Our Students, by Yolanda U. Trapp

Western society has always put great stress on intelligence and intellectual development. But what is intelligence? Since the early 1900s, the I.Q. test has been regarded as the best measurement of an individual's potential and possible role in society. Howard Gardner in his book *Frames of Mind: The Theory of Multiple Intelligences* (1983), puts forth a new and different view of human intellectual competencies. He argues boldly and cogently that we are all born with the potential to develop a multiplicity of intelligences, most of which have been overlooked in our testing society and all of which can be drawn upon to make us competent individuals. The potential for musical accomplishment, bodily mastery, and spatial reasoning, and the capacities to understand ourselves as well as others, are, Gardner argues "the multiple forms of intelligence that we must consider to the conventional—and typically tested—logical and linguistic skills long called I.Q. Drawing on many years of research in cognitive psychology and neuropsychology, and pulling together information from the widest range of sources, Gardner suggests that the multiple forms of intelligences can be mobilized by society to achieve a greater diversity of ends and to fulfill a wider range of social goals. Teachers can develop their student's intelligence by applying Howard Gardner's Multiple Intelligence Theory, which suggest that approaches other than classroom based education can develop or enhance children's multiple intelligences. Thanks to Howard Gardner we learned that each of us possess at least seven entirely different ways to understand the world and to express ourselves:

linguistic, spatial, musical, logical—mathematical, bodily—kinesthetic, and two kinds of social intelligence, intrapersonal (knowledge of self) and interpersonal (knowledge of others). Each intelligence has its own means and modes for expression. Each represents an area of expertise with a specific body of knowledge, as well as a way of approaching learning in any domain. As teachers we can use this theory stimulating students in all their domains, not typically part of traditional Western Education. Students may experience new ways of expression, helping their individuality, understanding multiple perspectives. No two educators are alike but in one way we are the same: we are all trying to give children the quality of teaching. With these new approaches to the mind of the students in which we want to do things in ways that fall outside the normal practices of the society, this is the way that can open us to diverse intelligences and sets of intelligences with which each of us is equipped.

(Developed for Bilingual Education and Biological Science, grades 1-4, and Language Arts, grades 1-5; recommended for Language Arts, grades 1-4, and Biologic Science, Social Studies, and General Science, Middle School and High School grades)

01.06.11

A Multiple Intelligence Approach to the Physiology of the Brain and How Middle School Students Learn, by Thomas O. Merritt

This unit is about how students learn. It details extensive study into the physiology of the brain and how the brain works. In my unit, a comparison of Howard Gardner's Theory of Multiple Intelligences and the general beliefs of mainstream psychologists was created. The unit reviews how Gardner believes in different independent intelligences such as Verbal/Linguistic, Logical /Mathematical, Visual/Spatial, Bodily/Kinesthetic, Musical/Rhythmic, Interpersonal and Intrapersonal skills. Then this theory is compared to the ideas of other researchers, such as Thomas Armstrong, Dr. Susan Teele, Ceci and Liker, as well as Dr. James Austin and Dr. Andrew Newberg, who support Howard Gardner's claims of Independent Intelligences. It also looks at mainstream psychologists like Sperman, Wissler, Lewis Terman and R.B Cattell and their determination of "g" or general intelligence as well as the research into specific intelligence also known as "s".

This unit encourages students to learn about how the brain functions when using different styles of learning. The use of hands-on activities will be the thrust of this classroom curriculum. The purpose of this unit is to let the students develop concrete guidelines that will help them understand how they learn best. The opportunity for the students to learn about how their brain functions will also help them to understand their own shortcomings or strengths at an early age. They may also begin to analyze how their intelligences have changed and can modify over time. This will also help students employ the learning styles that work best for them at this point in their lives.

(Developed for Biology, grades 7-8; recommended for Middle School Science, grades 7-8)

01.06.12

Multi-Sensory Manipulatives in Mathematics: Linking the Abstract to the Concrete, by Judith L. Bellonio

Experiential education is based on the idea that active involvement enhances students' learning. Applying this idea to mathematics is difficult, in part, because mathematics is so "abstract." One way of bringing experience to bear on students' mathematical understanding, however, is the use of manipulatives. Manipulatives are objects that can be touched and moved by students to introduce or reinforce a mathematical concept. Manipulatives come in a variety of forms, from inexpensive, simple buttons or empty spools of thread to tangrams and pattern blocks. Typically, it has been the primary grades' teachers who have generally accepted the importance of manipulatives.

Research indicates that manipulatives are particularly useful in helping children transition from the concrete to the abstract level. It is key for the teacher, however, to select the appropriate activities/manipulatives to support the transition. The transition often reflects the developmental process. Further research, in a review of activity-based mathematics learning, indicates that mathematics achievement increased when manipulatives were used.

This unit is intended for 5th and 6th grade students. The area of mathematics that is being covered is fractions. This unit includes lessons that extensively use pattern blocks, tangrams, and Cuisenaire strips. Pre-lesson activities include the making of tangram sets and Cuisenaire strips. In addition, the lessons include interactive Internet activities that coincide with each manipulative type.

(Developed for Mathematics-Fractions, grades 5-6; recommended for Mathematics-Fractions, Middle School grades 5-6)