Curriculum Units by

Fellows of the

Yale-New Haven Teachers Institute

Guide

2012

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Preface

In March 2012, forty-six teachers from seventeen New Haven Public Schools became Fellows of the Yale-New Haven Teachers Institute® to deepen their knowledge of their subjects and to develop 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 recognition as a pioneering model of university-school collaboration that integrates curriculum development with intellectual renewal for teachers. Between 1998 and 2003 it conducted a National Demonstration Project to show that the approach the Institute had taken for twenty years in New Haven could be tailored to establish similar university-school partnerships under different circumstances in other cities. An evaluation of the Project concluded that new Institutes following the Institute approach could be rapidly established.

Based on the success of that Project, in 2004 the Institute announced the Yale National Initiative to strengthen teaching in public schools®, a long-term endeavor to influence public policy on teacher professional development, in part by establishing exemplary Teachers Institutes in states throughout the country. In 2009 *An Evaluation of Teachers Institute Experiences* concluded that such Institutes promote precisely the teacher qualities known to improve student achievement and epitomize the crucial characteristics of high-quality teacher professional development. The study found that Institute participation was strongly correlated with teacher retention. In New Haven, Institute participants were almost twice as likely as non-participants to remain in teaching in a New Haven public school.

Teachers had primary responsibility for identifying the subjects on which the Institute would offer seminars in 2012. Between October and December 2011, Institute Representatives canvassed teachers in each New Haven public school to determine the subjects they wanted the Institute to address. 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 those topics both to Institute seminars and to courses they teach. Their principals verified that their unit topics were consistent with district academic standards and significant for school curricula and plans, and that they would be assigned courses in which to teach their units in the following school year. Through this process four seminars were organized, corresponding to the principal themes of the Fellows' proposals. Between March and July, Fellows participated in seminar meetings, researched their topics, and attended a series of talks by Yale faculty members. The four seminars were on “Understanding History and Society through Visual Art, 1776-1914,” led by Timothy J. Barringer, Paul Mellon Professor of the History of Art; “The Art of Biography,” led by John Lewis Gaddis, Robert A. Lovett Professor of History; “Anatomy, Health, and Disease: From the Skeletal System to Cardiovascular Fitness,” led by William B. Stewart, Associate Professor of Anatomy; and “Engineering in the K-12 Classroom: Math and Science Education for the 21st-Century Workforce,” led b Paul R. Van Tassel, Professor of Chemical and Environmental Engineering.

The curriculum units Fellows wrote are their own; they are presented in four volumes, one for each seminar. A list of the 204 volumes of Institute units published between 1978 and 2012 appears after the units. The units contain five elements: content objectives, teaching strategies, sample lessons and classroom activities, lists of resources for teachers and students, and an appendix on the academic standards the unit implements. They are intended primarily for the use of Institute Fellows and their colleagues who teach in New Haven. They are disseminated on Web sites at yale.edu/ynhti and teachers.yale.edu. Teachers who use the units are encouraged to submit comments at teachers.yale.edu.

This *Guide* to the 2012 units contains introductions by the Yale faculty members who led the seminars, together with synopses written by the authors of the individual units. The Fellows indicate the courses and grade levels for which they developed their units; many of the units also will be useful at other places in the school curriculum. Copies of the units are deposited in all New Haven school libraries. Guides to the units written each year, a topical *Index* of all 1856 units written between 1978 and 2012, and reference lists showing the relationship of many units to school curricula and academic standards are online at yale.edu/ynhti.

The Yale-New Haven Teachers Institute is a permanently endowed academic unit of Yale University. 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 2012

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I. *Understanding History and Society through Visual Art, 1776-1914*

Introduction

The Fellows set out to explore methods for understanding culture and society through art, and specifically to engage with the challenges and rewards of teaching from original objects in museum collections. A major focus lay in the development of skills in the description and critical analysis of images – not through the use of art history jargon, but through visual and contextual analysis. We worked together to discover and refine ways in which the analysis of works of art can enable students, from kindergarten to twelfth grade, to understand history and make a more direct connection with the experience of historical individuals. More generally, the aim of looking at works of art and developing critical thinking is to encourage students to be more discerning in their approach to the plethora of images that surround us today.

The seminar proceeded historically, and was focused on the "long" nineteenth century, from the American Revolution to World War I, 1776-1914. These areas are rich in holdings in the two Yale art museums, the Yale Center for British Art and the Yale University Art Gallery. While one emphasis for the Fellows, all of whom teach in New Haven public schools, was on how to utilize the collections in site visits with classes, all paintings and many of the works on paper owned by the Yale University Museums are now available free of charge in good quality digital images from the museum Web sites, so the Fellows' curriculum units could be adopted for use anywhere with access to the same corpus of images (see http://britishart.yale.edu/collections/search and http://ecatalogue.art.yale.edu/search.htm).

At the beginning of the seminar, Fellows were asked to consider the following questions when confronting an image, and to consider whether or how the same questions could be addressed in the classroom:

- What do you see?
- What do you think were the artist's intentions?
- Who was the image intended to appeal to/who were the audience or patrons?
- What does this image tell us about society at the time?
- Are there parallels with concerns in our contemporary world?
- How does the artist represent differences of gender/class/race?

Every meeting began with a session of 40 minutes discussing a small number of works – three or four paintings at most – hanging on the walls of the galleries. This intense exposure to works of art proved stimulating, and every member of the group offered considered and often inspiring responses to the work of art. In many cases, the Fellows drew on their own expertise, in history, literature or studio art practice, to illuminate the work we were examining. We also discussed how one might address a painting with groups of students of different ages – and here I as seminar leader learned a huge amount from the expertise of the Fellows. We agreed that technical terminology – "impasto," "chiaroscuro," "perspective," etc – could be off-putting, and that such ideas could well be explained using more straightforward language – "thick layer of paint, contrast of dark and light, representation of space." While the analysis and description of works of art can be a significant means of developing language and analytical skills, and

inferential thinking and reasoning, it can also be portal to unlocking a student's creativity. Mary Elmore's curriculum unit ("The Stories Art Work Tells"), designed for third-grade classes, offers an example of how new skills can be acquired while also positioning works of art as "wonderful tools to evoke a child's curiosity and creative spirit."

Although we moved chronologically through the nineteenth century, beginning with American works from the Revolutionary period, the seminar also encouraged Fellows to engage with recent art-historical thinking, and to consider how these ideas could percolate into classroom teaching practice with students at various stages. We opened the seminar with a lively discussion of John Berger's provocative book *Ways of Seeing* (1972) with screening of part of one of the original TV programs on which the book was based. Berger, we agreed, still has the power to make us re-examine our assumptions and look at the work of art in a more vivid, sometimes political, fashion. Throughout the seminar, our thinking was structured around three main themes, which represent three major schools of thought in recent art-historical writing:

A. Gender and Society (informed by feminist scholarship in art history)

B. Class and Society (informed by the 'social history of art')

C. Race and Society (informed by recent thinking in African American studies and post-colonial theory).

These themes emerged gradually and were interwoven with each other as we moved chronologically through the materials and through the readings assigned to the Fellows. The Fellows were encouraged to pursue research interests and develop curriculum unit proposals based on the works of art discussed during the seminars. Many of the topics emerged organically from conversations that began in front of a particular painting.

The nineteenth century is notable for the diversity of its visual productions; the period is characterized by work in many genres and media, of hugely differing sizes and costs to the purchaser. We began by looking at figures in the landscape in British art c.1770, in the work of Arthur Devis and Thomas Gainsborough, to form a notion of the world before the three revolutions – the Industrial Revolution, the American Revolution, and the French Revolution – that shaped the last quarter of the eighteenth century. Work from this early period can be vividly harnessed for teaching students at as early a stage as the third grade: Caterina Salamone harnesses Philippe Mercier's rococo series of the *Five Senses* (1745, Yale Center for British Art) to encourage students to explore the full extent of their own sensorium and to write creatively as if exploring the scene one sense at a time. Patricia Sorrentino employs a close viewing of Joseph Wright's *The Blacksmith's Shop* (1771, Yale Center for British Art) as a case study for encouraging inductive thinking and literacy skills in under-credited and overage students who fall below their reading/writing grade levels. By describing features of the painting and explaining "how you know," important skills can be developed.

The Fellows also examined art of a more explicitly ideological nature, noting how artists such as John Trumbull forged a new art for a new nation, the United States, but also observing that in the work of John Singleton Copley and in the decorative arts of the period – silverware,

ceramics, furniture – British colonial models still remained the target for American emulation. Leszek Ward uses Trumbull's *The Battle of Bunker's Hill, June 17, 1775* (1786, Yale University Art Gallery) as the starting point for an innovative study of the relationship between poetry and battle-painting intended to encourage students in grades 9-12 to think across boundaries of discipline and medium, between history, literature and art. The violence of the Revolutionary War, as depicted in Trumbull's series of history paintings of battle scenes, forms a basis for John Tarka's course unit that focuses on the theme of conflict. His carefully-prepared discussion plans, intended to foster language skills of students returning to education who have little or no preparation in history or art, make an excellent case for the immediate contemporaneity of these issues.

Striking, even violent, changes were underway in the economy of Great Britain, and the issue of class formation, the making of the new English working class, dominated our discussions of the Industrial Revolution, based on images such as JMW Turner's *Leeds* (in the Yale Center for British Art) and Phillippe Jacques de Loutherbourg's *Coalbrookdale by Night*, 1801 (digital image from the Science Museum, London). Landscape paintings form a backbone of Yale's collection of British and American Art, including masterworks such as JMW Turner's *Staffa: Fingal's Cave* and Albert Bierstadt's *Yosemite Valley*. We spent considerable time discussing how students might be encouraged to enter the landscape, perhaps by writing imaginary dialogue texts for the figures depicted; perhaps by art projects in which they respond to the landscape around them, or by describing a journey through the landscape depicted in a work of art. For students of all ages (including Yale undergraduates) the challenge of accurate and imaginative descriptive writing is a considerable one, and the task of looking closely at a painting and describing what you see – apparently a simple task, but deceptively so – is an essential educational exercise.

Portraiture is a key genre in British and in American art of the nineteenth century. It is easy to allow discussion of the biography of the sitter to overwhelm debate about the visual construction of the image – and about the choices the sitter made in self-fashioning. Jennifer Lee's curriculum unit assembles a diverse collection of portraits that speak to issues of women's identity and women artists, beginning with Joshua Reynolds's seductive portrayal of *Mrs. Abington* (1772, Yale Center for British Art) and ending in the contemporary moment with a powerful representation of a contemporary African American painter, *Unititled* by Kerry James Marshall (2009, Yale University Art Gallery). Jennifer Ports enshrines portraiture at the heart of her unit, "Teaching Colonial American Society through Visual Art," but also moves beyond the image to look at material culture, the decorative arts and architecture, as a way of bringing alive a period that seems remote from the contemporary experience of many students.

Questions of race and representation are central issues in today's media environment, and an understanding of the history of these tropes and conventions is an important preparation for adult life. Children and teenagers are adept users of image technologies, and the history of photography offers immediate parallels with the kinds of image manipulation familiar to all today through digital software. The combination of powerful racial politics and the visual politics of the camera underpinned our discussions of the Civil War, instantiated through the work of photographers such as Matthew Brady and Timothy O'Sullivan, as well as painters and engravers including Winslow Homer. Kristin Wetmore's curriculum unit for AP art history tellingly

juxtaposes an O'Sullivan photograph of the Civil War with a Trumbull painting of the Revolutionary War, drawing into lively comparison the two conflicts and the two visual media. Nancy Bonilla, who teaches fifth- and sixth-graders learning English, turns to representations of African American and Hispanic American figures in the first century of the history of the United States and to Jamaica, a colony of the British Empire at this period.

Representations of family life and labour in Victorian Britain and America of the same period (c.1830-1900) provided a basis for lively discussions of issues of gender. Referring to texts by John Ruskin and Thomas Carlyle, we looked at conventions of masculinity and femininity in nineteenth-century art, the 'separate spheres' of men and women as conventionally depicted at that time. Much thought was given to how, in a classroom setting, attention could be drawn to the constructed nature of gendered identities, both in the past and today. Elizabeth Johnson's unit was prepared with the special intention of reaching young men – in grades 9-12. Her unit on historical and contemporary constructions of masculinity discusses the issues of how to "be a man," both in nineteenth-century Britain and America, and in today's globalized world.

Overall, the Fellows demonstrated that while looking closely at art can be a constructive and creative exercise in and of itself, looking at history through art adds a further dimension of immediacy, excitement and pedagogical value.

Timothy J. Barringer

Curriculum Units

12.01.01
History through Art: The American Revolution and the Colonial New World (1750-1850), by Nancy Bonilla

This unit will use artwork to further enhance student comprehension of content vocabulary related to the Revolutionary War. Students will be encouraged to analyze what they observe in regards to gender, race, and social standing. Students will also analyze, compare, and contrast American Colonial life with life in Jamaica after the Emancipation. The artwork will help students in their second language development because they will be expected to report their observations and inferences in the target language, thus "obligating" them to acquire new vocabulary to report what they see and also what they think, using evidence. Analyzing artwork, students have an opportunity to report what they see without the threat of being right or wrong.

Students will be presented with artwork that addresses the period from 1750 to 1850. Images will include pictures, portraits, and scenes from Colonial America and Emancipated Jamaica. They will be asked to complete Venn diagrams, which will help students to organize their thoughts, identifying similarities and differences they see in these works. When similarities are not readily apparent, students will be encouraged to make inferences. Through artwork, students will put faces and names to historical figures, deepening historical understanding.

(Developed for History, Social Studies, and Bilingual Education, grades 5-7; recommended for History, Social Studies, and Bilingual Education, grades 5-7)

12.01.02
The Stories Artwork Tells: Opening Doorways Into Creativity, by Mary C. Elmore

As we get older, it may become harder to stay true to that rare quality that makes us individual, and so it is with a sense of urgency that I seek to provide my students with the opportunity to discover and nurture their creative spirit. I invite you to embrace this initiative through my curriculum unit, as it is interdisciplinary in scope, incorporating history, creative writing, oral language and reading through an exploration of visual art.

My curriculum unit opens with an introduction to both the technical elements of art as well as the historical background for British and American paintings, 1776-1914. Visual art is then utilized to develop inferential thinking and elaboration in narrative writing. The unit culminates with students creating their own "masterpieces." This unit includes six sections:

1. Teaching the Elements of Art
2. Understanding British and American History through Art
3. Inferential Thinking: Giving Figures in Art a Voice
4. Exploring Landscape in Art through the Senses
5. Allowing Stories to Unfold from Artwork
6. Coming Full Circle: From Masterpiece to Masterpiece

(Developed for Writing, Language Arts, Social Studies, and Art, grade 3; recommended for Art and Language Arts, grades 2-5, and History, Social Studies, and Writing, grades 3-6)

12.01.03
Portraits of Pride: Young Adults Question Their Roles Using Visual Arts, by Elizabeth A. Johnson

Too often, male students struggle in the classroom. This unit uses images, history, and the language of art to engage students in a conversation about their positive futures. Using current research and historical paintings, most available for viewing in New Haven, this unit asks students, "What Makes a Man?" After viewing and analyzing both current and historical paintings, students will create their own portraits to show what they will become as men and women. As closure to the unit, students will present their work and new knowledge to parents and community members at a Gallery Event. Through this, struggling students are led through the process of learning: going from their own knowledge, to historical precedents and learning, to creating of new work, and finally to a presentation of this learning.

(Developed for English 1, grade 9; recommended for English Language Arts, grades 9-12)

12.01.04
Image-Making: Reading Gesture, Objects, and Environment in Portraiture, by Jennifer Hoffman Lee

The overriding goals for this unit on image-making and reading portraiture are fourfold: (1) to ask students to take time and thought to closely observe; (2) to help students make connections between historical and contemporary times; (3) to encourage an awareness of the power of visual images to influence; and (4) to add to the understanding of students, who will follow the study of image-making to create their own portraits in the art studio.

The primary content will address the following four portraits of women, the first two from the Yale Center for British Art and the second pair from the Yale University Art Gallery. Each portrait depicts a single figure; the portraits include: one of Mrs. Abington from the 18th century, one of Grace Rose from the 19th century, an anonymous "Chorus Captain" from the 20th century and another anonymous woman in an "Untitled" work from 2009. Students will follow exploration of these portraits with more informed observation and discussion of portraiture in recent times. The study will lead to work in the art studio, and resulting portrait images.

(Developed for Advanced Placement Studio Art, grades 11-12, with plans to use some portions of the unit with Fashion students, grades 11-12; recommended for Art students with some Visual Arts background, High School grades)

12.01.05
Teaching Colonial American Society through Visual Art, by Jennifer M. Ports

This unit was developed as a way to help students learn about colonial American society through visual art. Students will be exposed to paintings as well as crafted items to help them construct

their own understanding of class, gender, race, and economy in colonial America prior to 1776. During this period of time, the colonists were creating their own identity and unique society that has manifested itself in the art and crafted objects of the period. Allowing students to learn about these themes in early American history from these primary sources, as opposed to mainly from textbook readings, can help engage them with this crucial period in the development of American society.

In this unit, students will be able to analyze visual art related to race, class, gender, and economy in the thirteen colonies, through discussion, group work, and using different art analysis techniques and exercises. This unit fits well into any United States history course that covers colonial America, but parts could fit into an American literature course, as well.

(Developed U. S. History 1, grade 10; recommended for U. S. History 1, grade 10)

12.01.06
Using Art to Develop Purposeful Talk and Enhance Writer's Workshop,
by Caterina Salamone

In an attempt to help my students become better communicators and writers, I have developed a unit that uses art to enhance purposeful talk and elaborative writing by using the five senses. This unit begins with introducing turn and talk to the student with the teacher modeling and creating an anchor chart for the classroom. Students will practice turn and talk throughout the year to build their conversation skills. The next lesson focuses on the five senses and describes two familiar pictures with the sense in mind. The teacher will aid in the discussion by providing simple questions to get the students to begin the discussion. To conclude the unit, students will use the images to help them become better writers. Again with the teacher modeling each lesson, the students will become better at writing narratives. The artwork will serve as a means of developing ideas and sentences. Students will have the opportunity to work in whole and small groups as well as independently based on the learning styles of the classroom.

(Developed for Elementary Writers Workshop, grade 3; recommended for Elementary Writers Workshop, grade 3)

12.01.07
Using High-Interest Artwork to Make Observations, Inferences, and Connections,
by Patricia M. Sorrentino

This unit's focus is to allow students to directly and concretely practice and master the foundational comprehension skills of making observations, inferences, and connections. High-interest artwork is the medium. Comprehension skills are used not only for reading, but for viewing artwork, reading newspapers, watching films, etc. Students in English classes are already asked to deal heavily with texts, so this unit gives students an alternative while still emphasizing foundational skills necessary to be a successful reader/viewer. The lessons are meant to be taught in very direct, concrete ways, lasting 15-20 minutes. Each lesson focuses on a different piece of artwork. Students are asked to go from making basic observations, to making inferences when prompted with questions, to creating short, creative stories about a piece of

artwork. By the end, students will be expected to be able to make observations, inferences, and connections to artwork and then apply those skills to all types of literature.

(Developed for English, grades 11-12; recommended for English/Language Arts, grades 6-12)

12.01.08
Art and Conflict: The Visual Struggle, by John Tarka, Jr.

This unit's overall purpose is to help students in the field of Language Arts with the concept of conflict in literature, both in fiction and non-fiction. Regarding the elements of fiction, the students will learn that conflict is an integral part of any story, a factor that drives a plot, develops the character, and engages the reader. Conflict not only is a fundamental part of any story, it is also one of the most complex facets of literature. There are five basic types of conflict: man vs. man, man vs. self, man vs. nature, man vs. society, and man vs. fantasy or technology. Aided by the instruction of Tim Barringer (who led the seminar in which this unit was prepared), the teacher using the unit will apply art seen in the Yale Center for British Art and the Yale University Art Gallery. The art in these galleries will be a valuable resource in helping students to grasp the importance and impact of America's westward expansion, as well as supporting their learning about conflict in literature and in life.

(Developed for English, grades 9-12; recommended for English/Language Arts, grades 6-12)

12.01.09
Interpreting the Imagery of War, by Leszek Ward

This unit aims to explore the various contradictions expressed in the poetry and painting of war. It also aims to help students substantiate interpretive claims using evidence and analysis from a variety of texts. It begins with the analysis of mystery cartoons, a strategy suggested by George Hillocks Jr. in his book, *Teaching Argument Writing*. After students have learned to make claims of fact and substantiate them with evidence from the cartoons, they begin to study paintings of war and to make interpretive claims about their meaning. The unit concludes with a study of three poems, by which point students should be able to analyze and argue independently. The paintings and poems selected for this unit express a variety of conflicting perspectives regarding the experience and meaning of war in order to help students understand that the unique experience of war allows for many seemingly contradictory ideas to coexist.

(Developed for True War Stories, grades 11-12; recommended for English, grades 9-12)

12.01.10
Questioning the Accuracy of War Images: John Trumbull's Paintings of the American Revolution and Photographs from the American Civil War, by Kristin Wetmore

This unit has students compare visual responses to two different time periods: the Revolutionary War and the Civil War. The images are John Trumbull's historic paintings at the Yale University Art Gallery and Civil War photographs that are also in Yale's collection. Students will discuss them and then determine whether and how they reveal, criticize, or report the events that they

depict. Artists and historians interpret historical events. I would like my students to understand that this interpretation is a construction, and to examine specifically visual means of interpreting historical events.

Students should be able to question the accuracy of artwork, to determine how the image is biased, and to ask what message the artist is trying to convey. This unit can be used for a photography course, art history course, U.S. history course or even an English course studying literature of the Revolutionary War or Civil War. These images do not have to be used consecutively, nor do they have to build on each other. They can be used individually at different points in the curriculum, if it is set up chronologically.

(Developed for Photography, grades 10-12, and AP Art History, grades 11-12; recommended for Social Studies, grades 6-12, and Photography and Art History, grades 9-12)

II. *The Art of Biography*

Introduction

This seminar, intended chiefly for teachers of history, social studies, and English, sought to encourage the use of biography (including autobiography) as a method of instruction in the classroom. Everyone has a life worth recalling, even if only to one's family or to one's self: learning itself, if by that we mean accumulated experience, is a form of biography. Maybe that's why biographies, whether in print or electronic editions, continue to be so widely read.

How, though, do you go about writing a life, whether it's your own or someone else's? Because I've been working on a biography myself – of the 20th century American diplomat and strategist George F. Kennan – I've tried to learn something about the subject by teaching it for over a decade to Yale undergraduates. This is the course I've adapted for the Yale-New Haven Teachers Institute, with a particular focus on several things:

First, the reading and critical discussion of biographies and autobiographies, selected with the help of the seminar to reflect a range of subjects and approaches. I wanted the list to include both good and not-so-good biographies, because I think you can learn at least as much from each. I wanted the emphasis to be as much literary as historical, because biography – which is really about character – relies as much on the skills of novelists as of historians. And I wanted to explore particular genres of biography, ranging from the first great autobiography (St. Augustine's *Confessions*) through graphic biography, the latest innovation in the field (Chester Brown's life of Louis Riel).

Second, to try to extract from these readings – again with the help of the seminar – certain principles of biography that can, with appropriate adaptation, be "teachable" across a wide range of age groups and student skill levels. I was fortunate enough to have teachers working with first- through twelfth-graders, many with special needs. Without the years of classroom experience my teachers brought to our seminar, we would hardly have been able to connect principles with practice as thoroughly as we did.

Third, based on the readings they had done and the principles they had identified, each of the teachers in my seminar produced a curriculum unit for use in their own classrooms and we hope in others, meant to engage students in the reading and actual writing of biographies or autobiographies. My summaries of these follow.

Medea Lamberti-Sanchez's unit, designed for fifth-grade language arts and social studies students but applicable at more advanced grade levels, draws explicitly upon the biographical principles we identified in the seminar.[1] After introducing these through classroom discussion, training in note-taking, and visual representations, Medea will separate her students into small groups for the purpose of interviewing each other, composing, and "publishing" a biography –

[1] These were: (a) the inseparability of identity from history; (b) the necessity of selection in conveying that history; (c) the inevitability of subjectivity in making such selections; (d) the utility – but also the limitations – of archives in evaluating subjective judgments; and (e) the biographer's responsibility to be fair in representing his or her subject to an audience.

that is, presenting it to the class as a whole. Her unit shows in detail how the students will discover for themselves the relevance of each principle to their own "work in progress." They will emerge from this experience not just with a clear understanding of what biography is, but also having wrestled themselves with the problems it presents.

Three of the units developed in our seminar move beyond Medea's focus on how to do biography to specific experiences in students' lives. Each deals in a different way with something they know a lot about: contemporary urban violence.

Tara Stevens, in a social studies unit designed for eighth-graders, confronts this issue head-on. Every one of her students, she writes, has experienced either the direct or indirect consequences of violence. At that age, though, they are too young to know how many others, in both the present and the past, have shared such horrors. Tara will ask her students, under careful monitoring, to talk and write about their experiences; but she will also have them read selections from fictional and non-fictional works – dating as far back as Homer's *Iliad* – to make the point that they are not alone. The students will then reflect, in a final essay, on what that awareness means to them.

Sean Griffin, who teaches language arts also to eighth-graders, approaches the issue of violence by another route. Building on what his students have already learned about the American civil rights movement of the 1960s, he will have each of them focus on a particular leader with a view to determining what caused him or her to assume that role. In doing so, Sean will introduce the concept of "turning points" in biography: the fact that lives so often take a particular direction in response to a particular event. Sean's students will write about these critical moments; they will also stage them through role-playing. The concluding class project will be a video "documentary," in which Sean's "leaders" will explain what impelled them to lead.

Jesus Tirado, a teacher of tenth-grade American history, has also developed a unit on violence, but has set it further back in time. Impressed by a student's comment that Matthew Brady's Civil War photographs reminded her of the violence she herself had witnessed, Jesus will use the history of that conflict to show how complex and intertwined the roots of violence can be. His students will focus on a single month, April 1861, first establishing a chronology of what happened, using contemporary newspaper sources now available online. From this, the students will identify broader causes of the crisis – for example slavery, or sectionalism, or abolitionism – tracing these as far back as they think appropriate. They will then research advocates of these causes, in order to role-play them. Jesus will conclude his unit with an in-class simulation of the events that took place during that critical month, thereby expanding his students' perspective on what they have themselves experienced.

Four teachers in the seminar took on another important issue in biography: what are the origins of artistic creativity?

Christine Elmore and Waltrina Kirkland-Mullins are, respectively, first- and third-grade language arts teachers whose curriculum units – designed for use through sixth grade – will allow students to explore the lives of successful authors/illustrators. Christine will introduce her

first-graders to the writings of Cynthia Rylant, Mem Fox, and Ezra Jack Keats. She will provide them with biographical information drawn from interviews with these authors, as well as a carefully framed set of questions designed to elicit her students' curiosity about connections to their writings and drawings. Waltrina, working with third-graders, will take them one step further: they will conduct their own interviews, electronically or in person, with Floyd Cooper and Yangsook Choi. Both curriculum units will thereby present, to elementary school students, one of the most significant dilemmas confronting any literary biographer: to what extent does creativity reflect actual experience, as against imagination?

Shakespeare biographers have wrestled with this issue for a long time, with inconclusive results. Matthew Monahan, who teaches English to twelfth-graders, will let them try their hand at resolving it by having them view excerpts from the critically-acclaimed 1998 film *Shakespeare in Love*, comparing its dramatization of the origins of *Romeo and Juliet* and *Twelfth Night* with the limited historical record that's available to us. They will then write autobiographies, making their own decisions about what combination of real and imagined experiences to include. They'll check what they've written against a modern autobiography, Richard Wright's *Black Boy*. And they'll conclude by participating in a sonnets "slam," some drawn from Shakespeare, some composed by themselves, to give them a sense of the link between life, art, and performance.

Marialuisa Sapienza, another teacher of English in the eleventh and twelfth grades, will show her students into this connection in a different way. Her unit focuses on Virginia Woolf's biography of the painter Roger Fry. Fry's pictures, it's widely acknowledged, influenced several of Woolf's novels and short stories. Woolf returned the favor, after Fry's death, by writing his biography. Marialuisa's students will view Fry's art and that of other artists of his era, while reading works by Woolf that appear to have been inspired by Fry. They will then prepare a written analysis of an excerpt from Woolf's writing, as well as an autobiographical essay focusing on connections they themselves have made to the visual arts. They will in this sense be exploring the relationship between biography and painting, a particularly vivid form of creativity.

But what about biography not written at all, but spoken, or even drawn? The remaining two teachers in the seminar are exploring these possibilities.

Crecia Cipriano teaches French to seventh-graders. Her unit is designed to improve their conversational skills, while illustrating the global reach of the French language. She will have her students create "Fauxbook" profiles, along with facsimile passports. These will provide ways for them to introduce themselves to each other in French; but they will also open up the possibility of "introducing" famous French speakers – politicians, movie stars, athletes, even cartoon characters like Tintin – not all of whom are from France. The purpose of the unit, through the use of biography and autobiography, is to make the learning of French both relevant and fun.

Jon Aubin, a teacher of ninth-grade English, has created a unit that will teach biography through his students' interest in graphic novels. Jon will introduce them to an increasingly sophisticated set of illustration techniques, with a view to instilling confidence in their own

drawing skills. He will have them read and discuss a graphic novel that will show how these techniques work in practice. The students will then prepare autobiographies in a graphic format, using what they have learned about visual dramatization, about the need to select what can appear in a single frame, about how frames relate to one another. Graphic biography, Jon points out, has been around since the cave paintings at Lascaux. So what seems to us an innovative form of biography is actually a very old one, certain nonetheless to elicit enthusiasm from today's visually-oriented students.

My seminar Fellows and I have learned a lot from working on these curriculum units, and we hope they'll be helpful to others. I'm grateful to have had the opportunity, once again, to work with these dedicated teachers, and to the Yale-New Haven Teachers Institute for having provided it.

John Lewis Gaddis

Curriculum Units

12.02.01
Visualizing Biography: Engaging Your Students' Creative Potential through Graphic Novels, by Jonathan R. Aubin

This unit uses the art of comics and graphic novels to teach the basic elements of biography and comic illustration. The unit employs a variety of drawing and writing exercises in the service of realizing students' potential as artists, writers, and readers. Students will work at these increasingly sophisticated drawing and cartooning exercises, culminating in the creation of their very own eight-page (autobio) graphic novel. Lessons teaching the role and responsibility of the biographer are imbedded within the curriculum. The unit uses several exemplars of autobiographical comics and instructional readings to explain the elements and theory behind effective comics as well as to show a variety of artistic styles and techniques. In addition to daily in-class readings, discussions, and drawing exercises, students will read at least one book-length graphic novel over the course of the unit.

(Developed for English, grade 9; recommended for English/Language Arts, grades 6-12)

12.02.02
Learning about Others While Talking About Self: Role-Playing Around the Francophone World, Using Passports and "Fauxbook" Profiles, by Crecia Cipriano

Who do middle schoolers like talking about more – themselves, or others? I'd say it's a pretty close call. In this unit, students will use passport facsimiles and faux Facebook pages (called Fauxbook profiles here) to learn about each other as well as famous French-speakers around the world. After making their own passports and Fauxbook profiles, students will be introduced to the many faces of the francophone world. Role-playing can be a fun and engaging way for students to practice language skills. But sometimes it can feel a bit contrived. The passports and Fauxbook pages will allow us to circumvent any sense of the stale or prescribed. Employing role-play allows students to build and reinforce question and answer skills revolving around introducing the self while developing a familiarity with well-known people who speak French and the places in which they live.

This unit is geared toward first-year French students in seventh grade.

(Developed for French 1A, grade 7; recommended for French, grade 7)

12.02.03
Author Biographies as Reflected in the Mirror of Their Works, by Christine A. Elmore

Biographies of celebrated authors can become truly inspiring to young readers because they can envision themselves tapping into their life-experiences and crafting their own stories. And what do young children know better than their own lives and those of the loved ones that nurture them?

My unit will focus on three award-winning authors/illustrators of children's picture-books: Cynthia Rylant, Mem Fox and Ezra Jack Keats. In it we will explore two questions: Where do authors/illustrators get their story ideas and how do they integrate their life-experiences into them? Interdisciplinary in scope, incorporating reading, writing and art, this unit will be implemented over a 3-month period. Designed for primary-aged children, this unit could easily be adapted for use by teachers in the intermediate grades as well. The purpose of this curriculum unit is to show children that their life-experiences, often similar to those of authors at some basic level, can be written about and shared with others.

This unit is divided into six sections:

1. From Inspiration to Published Story
2. Why Author Studies?
3. Cynthia Rylant
4. Mem Fox
5. Ezra Jack Keats
6. Telling Your Own Story

(Developed for Reading/Language Arts and Writing, grade 1; recommended for Reading/Language Arts and Writing, grades K-6)

12.02.04
Biography in the Moment: Studying Civil Rights Leaders at Their Moment of Glory, by Sean Griffin

Studying the lives of others has been a fascination for scholars and students for as long as mankind has focused on communicating through the written word. What is it about others' lives that drives us to study them? It is as if through the study of past lives we seek to discover something magical or insightful about our own, as if others' lives hold some secret key to our own happiness, to our own success. This unit is designed to explore the world of biography, autobiography and memoir by focusing on figures from the Civil Rights Movement. Beginning with an exploration of our own lives through autobiography and biography and continuing to explore the subject through the reading of *Getting Away with Murder: The True Story of the Emmett Till Case* by Chris Crowe, the unit will culminate with the writing of biography and role playing of "moments of glory" in the lives of Civil Rights-era figures The final assessment in the unit is a filmed interview which will be part of a class-created documentary on Civil Rights leaders in their moment of glory.

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

12.02.05
Authors Behind the Pages, by Waltrina Kirkland-Mullins

How do we inspire children at the primary-grades level to understand the intricacies that go into story writing? How do we rouse students to enthusiastically embrace literature and to create stories themselves? Educators can set the tone by introducing young learners to phenomenal,

contemporary children's book authors and their work, putting the accent on author's craft by way of doing biography. This unit proposes ways to achieve this end by spotlighting two award-winning author-illustrators, Floyd Cooper and Yangsook Choi. Targeted at third graders, the unit introduces novice writers to the elements of creating biography. Via this curriculum unit, blossoming biographers will be immersed in realistic fiction, memoir, and/or biographical works created by each of these noted authors. Students will examine key questions based on those literary creations to gain insight into the lives and personae of the authors themselves; they will conduct additional research to learn more about the author and their story creations. Based on their findings, developing writers will collaboratively create biographies about each respective author. Language-arts activities engage young learners in the writing process and in making use of metacognitive know-how that include defining character traits, using prediction, inference, picturing, logical thinking skills, and more. Through this interactive study, author's craft becomes experiential and reading comprehension skills are enhanced. It is hoped that this unit serves as a model to inspire elementary students to become lifelong readers and writers, and to embrace the human experience across cultures.

(Developed for Language Arts and Social Development, grade 3; Recommended for Language Arts and Social Development, grades 2-5)

12.02.06
A Timeline of Memories and Past Reflections, by Medea E. Lamberti-Sanchez

As a fifth-grade Language Arts and Social Studies teacher, I encounter difficulties teaching my students to (1) write with elaboration, (2) apply mechanical and grammatical skills beyond their own essay, and (3) engage student-centered discourse more often in the classroom. This unit on the principles of biography will help my students compose a piece of writing that stimulates imagination and creativity through conversations, texts, and visual stimuli. This unit uses visual stimuli as the main tool to connect principles to textual information. Information is presented using graphic organizers like Cornell Notes and the Venn diagram to help the students organize the material introduced at the start of every lesson. The culminating project will ask students to write a biography of a person that they know such as another student in the room, a teacher, or a family member, or to write their own autobiography. Students will work cooperatively to produce original work that encompasses the principles of biography taught throughout the unit. The unit is designed for grades five through eight but can be adapted to fit higher grades.

(Developed for Language Arts, Reading and Writing, and Social Studies, grade 5; recommended for Middle School grades 5-8)

12.02.07
What's *Shakespeare in Lov*e Got to Do with It? Biography and the Bard in the Secondary English Classroom, by Matthew S. Monahan

This unit explores two works which attempt to recreate the life of a genius, William Shakespeare specifically.

Students participating in the implementation of this unit will be able to do the following: work individually and cooperatively in writing, reading, and critically viewing works that will develop understanding of the relationship between experience, imagination and the creative process. They will also consider the essential question: how does one write the life of a genius?

Students will write autobiographies in preparation for their personal statements/college essays. They will create original works and biographies of one another and consider the relationship between these artifacts. In addition to reading and writing, students will memorize and perform either original works or Shakespearean sonnets written by others with an emphasis on those written by Shakespeare himself.

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

12.02.08
Virginia Woolf and Roger Fry: Distant Experiences United in Style, by Marialuisa Sapienza

On a spring day in London, Margaret Fry writes: "Years ago, after one of those discussions upon the methods of the arts which illuminated his long and happy friendship with you, Roger suggested, half seriously, that you should put into practice your theories of the biographer's craft in a portrait of himself." With these words, Virginia Woolf forewords the biography of her best friend from the Bloomsbury group. Roger Fry, art critic and post-impressionist painter, held a pivotal place in Woolf's life and literary career. His theories on aestheticism and art led her to experiment with new writing techniques in an attempt to create a literary narrative which would be the pure reflection of reality.

My unit's goal is to teach how to understand, analyze, and appreciate Virginia Woolf's fictional and non-fictional works, as well as how to write a biographical or autobiographical essay. In order to achieve this goal, my students will read Woolf's *Roger Fry, A Biography* and *Orlando*, and passages from Hermione Lee's biography, *Virginia Woolf*. Close reading strategies for written and visual texts will be implemented with two different final assignments: a written argument based on a self-selected fictional text (short story or excerpt by Virginia Woolf) and an autobiographical piece (college essay/personal statement).

(Developed for AP English Literature and Composition, grades 11-12, and College English 3, grade 11; recommended for AP English Literature and Composition, grades 11-12, and College English 3, grade 11)

12.02.09
Reading and Writing the Impact of Violence on Students' Lives, by Tara Stevens

This unit asks middle-school students to consider the impact that witnessing violence has on one's identity formation. Students will read texts which address state/wartime violence, family violence, urban violence and school violence. Through reading these accounts, students will be asked to consider the reaction of the subject (in the case of memoir or biography) or the protagonist (in the case of fiction) to his or her surroundings. As students work through a variety

of writing and discussion activities, they will develop an initial thesis as to the impact of violence on identity formation. The culminating activity will be an argumentative essay in which students pose a theory as to the effect of violence on identity formation using the mentor texts and personal anecdotes as evidence.

The ultimate goal is that through these exercises, students will grow to understand that their experiences are not so different from the experiences of people in distant places and times. Middle-school students, who often feel so isolated, can feel less lonely and can learn through the experiences of others how to cope with the trauma that is often a part of their lives.

(Developed for Social Studies, grade 8; recommended for Language Arts and Social Studies, grade 8)

12.02.10
The Biographies of April 1861, by Jesus Tirado

This unit encapsulates a belief that students can achieve a deep understanding of the Civil War while enhancing understanding of their world. The activities start with an investigation of the trends that make April 1861 such an exceptional month in American history. The unit then shifts to the people that formed those trends. Finally, students will re-enact the month, acting as the historical personas they've researched. These exercises will provide students with an opportunity to think like historians and at the same time encourage them to relate their conclusions to their own lives. These higher-order tasks will provide students with an opportunity to push their understanding of the Civil War and what it means for America and themselves.

(Developed for U. S. History 1 and U. S. History 1 Honors, grade 10; recommended for U. S. History 1 and U. S. History 1 Honors, grade 10)

III. *Anatomy, Health, and Disease: From the Skeletal System to Cardiovascular Fitness*

Introduction

The human body fascinates people of all ages. Anatomy is appealing to many because it is highly visual and can be understood by people who don't consider themselves to be scientists. This seminar sought to exploit the student's natural interest in his or her own body to teach the lessons of health and general biology. Study of the skeletal system forms the basis for much of what we know of the function of our bodies and the manner that these functions are altered by disease. Examination of fossilized remains provides us with most of the information about the evolution of man as well as the changes in life over time of our planet. The seminar also examined diseases such as obesity, diabetes and heart disease that are epidemic in our communities. Fellows have developed curriculum units to examine the relationships among healthy habits, disease and the body.

Shaunquetta Johnson has created a unit for second-graders that uses yoga to teach muscle control and self-discipline. The unit uses yoga poses that are linked to fables. The students are encouraged to analyze their own body positions and to discuss the moral lesson. Melissa Ugolik teaches second grade at the same school. Her unit examines the connections among eating, thinking, exercise and mood. Her students will chart their food intake, amount of sleep and "screen time" and mood. These graphical exercises will enable the students to see the links that influence their ability to perform. Ronald Coleman teaches sixth grade at the same school. His unit explores the links among diet, exercise, weight and fitness. Algebraic and graphical assignments show his students how these four factors are related. Larissa Spreng also teaches at this school, in the seventh grade. She has designed a unit to teach about puberty. Since most of her students will be in the midst of pubertal changes, they have a natural curiosity and concern about the changes in their bodies. These four units could be used as focal points to tie together health education across the primary education years.

Laura Carroll-Koch has written a unit on the brain for her fourth-grade class. Her activities include modeling the brain from the inside out, showing the evolutionary advance of the nervous system. Julia Biagiarelli has developed a unit for her fifth-grade class that focuses on factors such as diet and stress that may adversely impact health. Jaclyn Maler Ryan's unit for her second-grade class exploits children's interest in animals. She concentrates on the skeletons of man, birds, snakes, bats and pterosaurs. The unit also introduces concepts of evolution. Jane Hosen's unit uses the unifying concepts of elemental composition to show that the atoms that make up the universe are the same atoms that make up life. Her ambitious unit spans topics from the composition of the sun to the structure of the skeleton to the basics of nutrition. Kathleen Rooney uses topics in forensic medicine to teach high-school students lessons in statistical inference. She covers techniques such as fingerprinting, blood typing and DNA fingerprinting. Chris Willems' unit uses the digestive system to introduce students to the structure and function of proteins, carbohydrates and lipids.

William B. Stewart

Curriculum Units

12.03.01
Healthy Kids Become Healthy Adults, by Julia Biagiarelli

This unit is a basic anatomy unit for upper-elementary-school students. It can be used for grades three through five. The unit begins with an overview of some of the most prevalent health problems experienced today, including diabetes, heart disease and stress-related health problems. There is an overview of basic anatomy including bones, muscles, circulatory system, digestive system, endocrine system and immune system. All of the overview information is written in language that is easily understood by elementary students.

The lessons include a relaxation-response breathing exercise and a heart-rate exercise which incorporates the relaxation-response lesson. There is also a hands-on paper maché project that teaches students the inner structure of bones. All lessons are intended to be teacher directed with students keeping notes, data, charts, lesson reflections and drawings in an interactive science notebook. Links for interactive notebooks, Science Inquiry Standards, a supplementary reading list and some inspirational fitness videos for kids are included in the appendices.

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

12.03.02
The Brain, Our Silent Partner: Anatomy and Cognition, by Laura Carroll-Koch

We live in an exciting age, a New Age Renaissance, the Age of Neuroscience, reshaping every facet of society. The forward-thinking cultures of medicine, communication, science, and technology are exploding with new understandings, creating a highly active, dense grid of shared ideas and insights.

This unit is designed to teach students the anatomy and functions of the brain through engaging, hands-on activities that will develop an appreciation and understanding of its elaborately integrated systems. Students will come to understand that they are able to harness these systems and will be encouraged to stretch their once-accepted limits of thinking. An evolutionary journey will highlight the roots of our brain's anatomy, functions, and cognition. Students will construct a clay model of the brain as they learn its anatomy and major functions. A focus on the neuron's functions and structure will develop an understanding of its complex nature. Simulations of neural connections and electrical pathways will help students understand how messages move between neurons and will demonstrate how memories are made and recalled. As students explore memory processing, they will come to understand that these systems collectively produce our ability to think and learn. Creating, evaluating, and analyzing require different cognitive states which can be controlled and changed. With this understanding, students will learn to exercise cognitive flexibility, adapting as necessary to the needs of a particular problem, stretching their mental limits – propelling them forward, as thinkers, innovators, and creators.

(Developed for Anatomy and Science, grade 4; recommended for Anatomy and Science, grades 4-8, and Biology/Brain, grade 10)

12.03.03
Understanding the Effects of Diet and Fitness on the Human Body through Mathematical Equations and Statistical Analysis on Calorie Intake and Calories Expended, by Ronald B. Coleman, Jr.

This unit gives an interactive twist to the study of human anatomy and basic algebra for students in grades 5 and 6. Science and math are generally taught as separate subjects, yet mathematics is an integral part of scientific discovery. In this unit, students will study the basic function and developmental needs of three systems in the human body: the skeletal system, the muscular system, and the cardiovascular system. Students will work individually to understand their own personal nutritional needs, and they will work collectively to analyze hypothetical situations and compare the diets of several professional and Olympic athletes. After students have a clear, practical understanding of the nutritional values of proteins, carbohydrates, fats, and sugars they will track their own diet on a daily basis. Students will read and watch short films on the importance of combining a healthy diet with consistent exercise. Subsequently, individual students will showcase their knowledge through a self-exploration project that tracks their daily caloric intake and physical activity. Students will be able to apply their newly acquired skills towards improving their own physical and mental health. Once they are familiar with the mathematics involved in calculating net caloric intake, they will use Microsoft Excel and PowerPoint to create a final presentation. The hope is that students come away from the unit understanding the importance of proper diet and fitness in preventing disease and poor health. Finally, students will reflect on their own diet and level of physical fitness and make changes to become more confident, healthy individuals.

(Developed for Elementary Science and Elementary Math, grade 6; recommended for Elementary-School Science, grades 5-6, and Middle-School Science, grades 7-8)

12.03.04
Elements and Minerals in Our World and in Our Bodies, by Jane R. Hosen

My unit will introduce students to an overview of science topics using the elements as a common theme. This unit aims to reinforce the idea that while science is rapidly being added to and changed, certain methods and practices are constant. It also aims to show students that we are part of nature and have needs in common with all other living things. This unit is connected to many of Connecticut's science standards for second-graders; it addresses soil makeup and classification, life cycles, and food groups and nutrition. There are sections on astronomy, geology, and biology (both botany and zoology). Subtopics such as the skeleton, nutrition, and evolution are included. The unit begins with a brief introduction to the elements. Students will become familiar with the most commonly found elements in our atmosphere and earth and with those in our bodies. Students will learn about planets and the elements of which they are made. The unit will then delve into geology; students will learn about the three different kinds of rocks and the minerals of which they are made. Students will then learn about different types of soil.

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

12.03.05
My Body Tells a Story, by Shaunquetta N. Johnson

The main objective of this unit is to promote a healthy lifestyle, including yoga exercise, to students while determining the moral and lessons of stories and fables. Yoga is an ancient practice that connects the mind with the body. Through yoga, students will strengthen their bodies and stretch their minds to give meaningful thought to the lessons of fables and stories. This unit also provides students with a sense of body awareness and spatial boundaries. The yoga poses learned in this unit can extend from childhood through adulthood.

This unit is intended to teach and learn about feelings, morals, fables, and exercising in a meaningful but fun way. Students will gain motivation to exercise and improve their health. In addition, students will gain a deeper understanding of moral judgment and being a good citizen. This unit is designed for younger elementary-grades students with the flexibility to extend to all grade and age levels across the curriculum.

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

12.03.06
When Solving an Equation Means Solving a Crime, by Kathleen Z. Rooney

Our culture is saturated with television, movies and books that will make forensic evidence anecdotally familiar to students – fingerprints, skeletal remains, blood typing, and DNA. The purpose of this unit is to identify the specific types of data that are collected in crime scene investigations, to present the relevant background or biology involved, and to use this knowledge and statistical tools to create theories and hypotheses about the solutions to crimes.

Physical evidence is collected at the scene of a crime. It can be compared to known evidence or classified by type and assigned a probability using data. It can identify a victim or tie a suspect to the scene of the crime. Once collected and analyzed, these pieces of evidence speak most loudly through statistical analysis. Tremendous data exist to analyze evidence: databases of fingerprints, probability models based on sizes of specific bones, DNA databases. The purpose of this unit will be to inform the presentation of statistics to students by utilizing actual data sets related to the human body and judging "evidence" according to the probabilities predicted in these data sets.

Using crime cases as the basis for math problems frees students to inhabit the place of mystery and to feel comfortable in not knowing an exact answer. We will be poised together on the edge of discovering the answer to a riddle about a crime. My goal is that students learn to see mathematics as the tools to predict answers about which no one owns the truth.

(Developed for AP Statistics, Health and Business Statistics, grades 9-12; recommended for Statistics, grades 9-12)

12.03.07
Skulls and Bones: Comparing Form and Function of Vertebrate Skeletal Systems, by Jaclyn Maler Ryan

This unit looks at the skeletal systems of different vertebrates (including humans) and how their bones allow for specific patterns of movement, hunting, feeding, and reproducing. It emphasizes development of academic vocabulary and content knowledge and employs hands-on activities as well as the use of visual images for instruction. It takes an interdisciplinary approach that reaches across the curriculum to meet standards in science, math, and literacy.

Students will be encouraged to make connections among the different animals they learn about, and to draw conclusions about how form relates to function in the skeletal system. Students will use the four language domains (speaking, reading, writing, and listening) as they make observations about animals and document new learning.

(Developed for Science/Literacy, grade 2; Recommended for Science, grades 1-3)

12.03.08
Help! My Body is Changing, by Larissa A. Spreng

Puberty is both an exciting and nerve-racking time for adolescents, parents, and teachers. It is essential that middle-schoolers have access to information about puberty so they can be knowledgeable about their bodies. This unit focuses on changes that happen during puberty and is not intended to serve as a sexual education unit.

The goal of this unit is to meet a need that is currently not addressed in the New Haven curriculum: puberty education. This unit provides kid-friendly, accurate information that allows students to view the human body through the lens of puberty, including physical changes, biological events, and social issues. Students will walk away from this unit with a healthy and positive attitude about their bodies because they possess the knowledge of how and why they work the way they do.

This unit is structured over 10 weeks. The seventh-grade curriculum focuses on several human body systems which undergo a variety of changes during puberty. Puberty is a great hook to get students invested in learning about their bodies. They have many questions about this stage of their life because they are living puberty every day.

(Developed for Genetics/Reproduction, Life Systems: Musculo-Skeletal, and Life Systems: Biochemical, grade 7; recommended for Genetics/Reproduction, Life Systems: Musculo-Skeletal, and Life Systems: Biochemical, grade 7)

12.03.09
A Healthy Body is a Healthy Mind, by Melissa Beth Ugolik

My unit is geared towards students in grade 2. I expect my students to walk away from this unit understanding that when they eat healthy, exercise and sleep enough, their minds will be more

focused and energized for the day! We will discuss the food pyramid and what foods should be eaten daily, as well as how many fruits and vegetables we eat. We will discuss green-light foods, yellow-light and red-light foods to make the students more aware of what they are putting inside of their bodies. Along with nutrition, we will spend time discussing the importance of exercise. Being active every day is not only good for your muscles, but good for your mood and brain! We will use heart monitors to keep track of how much energy we are using during exercises. The students will record their daily food intake along with daily exercise in a journal. Writing down everything will put it all into perspective and make it realistic and tangible for my students. I am looking forward to conducting this unit with my students to promote lifelong, healthy learning.

(Developed for Literacy and Math Blocks, grade 2; recommended for Elementary Literacy, Math, and Science, grades 2-3)

12.03.10
Carbohydrates and Lipids in Human Health, by Chris Willems

This high-school science curriculum unit addresses diet, nutrition and digestion. The goal is to engage students with the topic via direct, personal experience with some aspects of their digestive anatomy.

The unit is specifically interested in major metabolic biological molecules, namely proteins, carbohydrates, and lipids. There are numerous classroom activities integrated into the text of the unit. Images have been chosen carefully for clarity and instructional value. Images are very helpful for understanding such content, and have been carefully appended in the text.

Biochemistry is complicated, but the use of examples and hands-on concrete activities as described in this teaching plan will help students delve more deeply into this fascinating topic.

(Developed for Biotechnology, grades 11-12; recommended for Biology, Anatomy and Physiology, Forensics, Health, Epidemiology, and Biotechnology, grades 9-12)

IV. *Engineering in the K-12 Classroom: Math and Science Education for the 21st-Century Workforce*

Introduction

Many recent initiatives seek to improve math and science education in the U.S. Efforts generally involve increased emphasis on, and new teaching methods in, basic math and science topics. We would all benefit from a better-educated, highly innovative populace, but how do we get there? How might improvements to math and science education be optimized so as to improve student proficiency now, and work force capability later?

In this seminar, we explored the integration of engineering concepts into existing K-12 curricula. Examples – theoretical and lab-based – were presented from Chemical, Civil, Electrical, and Mechanical Engineering, and their potential curricular insertion examined. Engineering Design was interspersed throughout, and served to conceptually link math/science skills, engineering principles, and innovation.

The seminar began with introductions to the history of engineering, to simple early machines such as the lever, and to the elements of engineering design. Subsequently, specific engineered systems were examined, including bridges, polymers, photovoltaic cells, electronic circuits, and trebuchets. Finally, a comprehensive treatment of engineering design – including economic analysis – was undertaken.

Participating Fellows gained knowledge of engineering fundamentals, applications, and career opportunities. In parallel, Fellows completed curriculum units seeking to integrate engineering concepts into their K-12 teaching.

Karen Beitler's unit focuses on polymers and nanotechnology. Students learn of the basic building blocks of polymers, the nature of the polymers encountered in everyday life, new technologies employing polymers at the nanoscale, and challenges and opportunities of recycling polymer materials. Polymers continue to change the way we live, and nanotechnology promises to accelerate the pace of change. By addressing key scientific, technological, and environmental underpinnings, Beitler provides balanced insight into these amazing materials.

Carol Boynton's unit focuses on simple machines: the lever, wheel, pulley, inclined plane, wedge, and screw. Through these machines – ubiquitous but often unnoticed in everyday life – she develops important engineering concepts such as work and mechanical advantage. Through children's literature, classroom exploration, and experimentation, students learn how simple machines work and benefit mankind, and gain a life lesson into what it really means to "work smarter, not harder."

William McKinney introduces a medieval siege weapon – the catapult – as an innovative tool to teach quadratic functions. Teams of students launch projectiles with a real model catapult, experiment with various settings (arm length, release angle, rubber band extension), record and graph the resultant trajectories, and employ regression techniques to obtain best-fit parabolas. Mathematics commonly precedes engineering, as a tool toward its understanding. McKinney

flips this relationship, employing an engineered system to teach an important mathematical topic. It's an idea that's sure to fly!

William O'Shea introduces students to nuclear chemistry. While outside of the typical high school chemistry curriculum, the study of nuclear reactions reinforces important concepts such as the periodic table, atomic and molecular structure, and electronic configurations – and instructs on the important concept of radioactivity. A key innovation is the use of animation: traditional instruction is "fused" with a video project, where students bring a nuclear process to life.

Samuel Rauch uses the warming arctic as a theme to introduce and reinforce lessons in geometry. Concepts of area, volume, and arc length are used to analyze loss of arctic ice, change in arctic shipping routes, and extraction of arctic oil and natural gas. With a thorough introduction to the current and projected state of the arctic, Rauch seeks to demonstrate the potential of mathematics as a tool toward understanding this important environmental, economic, and geopolitical issue. What a cool way to apply math!

Maria Stockmal proposes bridge design as a theme to teach math and inspire creativity. Students develop an understanding of ratio, proportion, and symmetry through field trips to local bridges; learn quadratic functions by analyzing arcs from a model suspension bridge; and even design a bridge themselves using computer software. From pre-history's modest efforts to today's modern marvels, bridges connect and unite. As shown here by Stockmal, bridges educate as well.

Charlene Woodland introduces students to the world of photovoltaics, i.e. the generation of electricity from solar radiation. Students build a simple photovoltaic device, test its efficiency with respect to control variables (e.g. color of incident light), and analyze its potential effectiveness for household use. The sun may yet solve mankind's energy challenge; in this unit, Woodland introduces the key scientific principles, and begins a conversation on the eventual place of photovoltaics in the world's energy portfolio. The future is indeed bright!

Through these curriculum units, the Fellows seek not only to enhance math and science learning, but also to introduce – indeed, to advocate – the field of engineering as a future career option. Technology is a dominant theme in today's world. To its masters await great opportunities. Ensuring today's youth can become tomorrow's technological leaders is an admirable goal – and one the Fellows join me in championing.

Paul R. Van Tassel

Curriculum Units

12.04.01
Fostering Connections: The Elements of Nano, by Karen A. Beitler

As technology advances, scientists have learned to manipulate atoms the way a cook manipulates spices for a gourmet dish. Working from an unseen world of nanoparticles that are only a few atoms in size and acting differently than would be expected, man has learned to mimic natural molecules and compounds. This unit takes the student from a review of the atom and encourages research into the vast work of polymers. By looking at a morning in a teenager's life, real-world relationships of the building blocks of plastics are explored.

Students will make connections between an everyday object and its raw material. Then they will examine the process of making a polymer, joining the atoms, repeating of molecular patterns and condensation of monomers to man's end use of materials to make objects that nature doesn't break down very well. Students will consider the reliability of the resources they use for information. The unit encourages students to do research, form opinions and defend positions they take on past and current chemical technologies.

By presenting both the risks and benefits to the health and well-being of humans, plants and animals, synthetic world processes are compared with the natural cycle of life. Students will explore new frontiers in material science and be able to make informed statements about nanotechnology. As they become more confident in the reliability of the information they gather and present scientific information individually and in small groups, students will become able to make informed decisions about the physical make-up of their world and hopefully become advocates for a sustainable future.

(Developed for Phy/Chem, grade 9; recommended for Phy/Chem and Integrated Science, grade 9)

12.04.02
Simply Amazing, by Carol P. Boynton

Work smarter not harder! This expression articulates the benefit of the basic engineering principles behind the simple machines that make our lives easier. All around us, day in and day out, we use simple machines to help us work smarter and more efficiently. But first we must ask, "What is considered work?" It does seem that there are a variety of possible answers, depending on your personal perspective. From the scientist's perspective, work is defined as using force to move an object (when the force and object are moving in the same direction).

The idea of working smarter is the foundation of this six-week curriculum unit designed for students in sixth grade as they use inquiry and experimentation to discover the work advantage gained through the use of simple machines. We will focus on the lever, wheel and axle, pulley, inclined plane, wedge, and screw.

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

12.04.03
Quadratic Regressions and the Catapult Wars, by William Lawrence McKinney

This curriculum unit introduces students to quadratic functions at a very theoretical level. It focuses on evaluating functions as a means of graphing and then analyzing the parabolic curve to determine key information about the function. The unit pays special attention to domain, range, intervals upon which the function increases or decreases, intercepts, maxima and minima, and the coefficients of a quadratic function in standard form: $f(x) = ax^2 + bx + c$.

Through a series of mini-lessons, students discover how the coefficients of the equation affect the overall shape of a parabola. Then, through experimentation, students discover how manipulating various components (arm length, angle of release, and torsion) of a catapult directly affects the trajectory of the projectile and consequently the equation that models its flight path. This unit plan emphasizes contextual understanding of quadratic functions as a means of improving a student's theoretical understanding.

(Developed for Algebra 1, grade 9; recommended for Algebra 1, grades 8-9, and Algebra 2, grades 10-11)

12.04.04
Animating a Nuclear Process, by William O'Shea

This is a unit designed to compel learners to engage material that might otherwise be inaccessible. It could just as easily be called "Animating a Scientific Process," if one only substituted the scientific process of their choosing for that of the nuclear process.

The challenge of presenting complex material to a population of students who might not otherwise find the material engaging is a struggle all teachers understand. This unit was born of that struggle. It is the express goal of this teacher to create a unit that draws in students and inspires their interest.

In the first half of this unit, students study nuclear chemistry. In the second half of this unit, students collaborate with a partner to plan an animation that details a nuclear process. Students then implement and later refine that design. In the process, students meet current state standards in chemistry and aspire to meet the Next Generation Science Standards currently in development.

(Developed for Chemistry/Science, grade 11; recommended for Chemistry and Physics, grades 9-12)

12.04.05
The Mathematics of a Warming Arctic, by Samuel Asa Rauch

As a result of a shift in global climate patterns, the Arctic region has experienced significant warming over the course of the past several decades. This trend is predicted to continue, which will have dramatic environmental, economic, and geopolitical ramifications in the years ahead. In this unit, students will use mathematics to investigate facets of Arctic warming. Designed for geometry students at the high-school level (but also with applications for students of algebra and

of social studies), this unit is intended not only to increase students' proficiency with geometric concepts, but also to help students understand how mathematics – normally studied as an isolated and highly abstract field of study – can shed light on one of the most important issues humanity as a whole must address in the coming years.

The unit is divided into three lessons. In the first, students will use algebra to analyze the rate at which the area and volume of Arctic ice has been decreasing in recent decades. In the second lesson, students will examine how loss of Arctic sea ice could impact global shipping routes and geopolitical tensions. In the third, students will analyze the mathematics behind the transport through pipes of raw crude oil.

(Developed for Geometry, grade 10; recommended for Geometry, grades 9-12)

12.04.06
The Road to Bridge Design, by Maria Stockmal

The emphasis of my curriculum unit is on students' learning mathematics and applying concepts learned to the real world through bridge design. They will write the equation of a parabola from a model suspension bridge; they will go on a field trip to find ratio, proportion, and symmetry on a bridge; and in a third lesson they will design a bridge using software.

My interest in teamwork has inspired me to apply it to student projects performed in the classroom. I have witnessed or been part of team exercises. The task of this curriculum unit is to develop my own exercises and the idea of teamwork further by allowing students to take charge of their learning.

This unit is an exercise in teaching strategies and sample activities that model engineering teamwork. Students will solve problems, troubleshoot, and work together. They have the opportunity to make their own decisions and take control of a project. All students are taken to the next level by developing a hypothesis that employs concepts already learned.

(Developed for Algebra and Geometry, grades 9-12; recommended for Algebra, Geometry, and Calculus, High School grades 9-12)

12.04.07
Photovoltaics: A Sun-Powered World, by Charlene Woodland

Photovoltaics (PV) is the process of transforming radiant energy into electrical energy. The Sun's energy, although not infinite, will outlive countless future generations, unlike fossil fuels which will be depleted within the next few hundred years. Photovoltaics has many applications already, from calculators to satellites. A myriad of research currently exists to further our knowledge of photovoltaic devices and their uses. Solar cells are now being inserted into roofing tiles. Soon we might see dedicated solar-cell-powered vehicles. Photovoltaics is an exciting field, one which students may be interested in pursuing if they knew a little bit more about it.

The goal of this unit is to give students a working knowledge of photovoltaics. The unit seeks to show connections among atomic structure and bonding, energy transformations, and electricity. Objectives include: describing the process of converting solar radiation to electricity using a crystalline silicon cell; measuring current and voltage of a PV cell; and determining how lighting and shading, the angle of the light source, wavelength, distance, and temperature affect PV cell performance.

This unit has been designed to be used in a ninth-grade physical science/chemistry course. The unit should follow a more in-depth unit on electricity. This prior knowledge will help students to understand the concepts in this unit. The unit also contains references to atomic structure, so a rudimentary knowledge of this is also suggested.

(Developed for PhyChem, grade 9; recommended for Freshman Science and Phy/Chem, grade 9, and Environmental Science, grades 9-12)

Curriculum Units by Fellows of the
Yale-New Haven Teachers Institute
1978-2012

2012

Volume I	Understanding History and Society through Visual Art, 1776-1914
Volume II	The Art of Biography
Volume III	Anatomy, Health, and Disease: From the Skeletal System to Cardiovascular Fitness
Volume IV	Engineering in the K-12 Classroom: Math and Science Education for the 21st-Century Workforce

2011

Volume I	Writing with Words and Images
Volume II	What History Teaches
Volume III	The Sound of Words: An Introduction to Poetry
Volume IV	Energy, Environment, and Health

2010

Volume I	Interdisciplinary Approaches to Consumer Culture
Volume II	The Art of Reading People: Character, Expression, Interpretation
Volume III	Geomicrobiology: How Microbes Shape Our Planet
Volume IV	Renewable Energy

2009

Volume I	Writing, Knowing, Seeing
Volume II	The Modern World in Literature and the Arts
Volume III	Science and Engineering in the Kitchen
Volume IV	How We Learn about the Brain
Volume V	Evolutionary Medicine

2008

Volume I	Controlling War by Law
Volume II	Storytelling: Fictional Narratives, Imaginary People, and the Reader's Real Life
Volume III	Pride of Place: New Haven Material and Visual Culture
Volume IV	Representations of Democracy in Literature, History and Film
Volume V	Forces of Nature: Using Earth and Planetary Science for Teaching Physical Science
Volume VI	Depicting and Analyzing Data: Enriching Science and Math Curricula through Graphical Displays and Mapping

2007

Volume I	American Voices: Listening to Fiction, Poetry, and Prose
Volume II	Voyages in World History before 1500
Volume III	The Physics, Astronomy and Mathematics of the Solar System
Volume IV	The Science of Natural Disasters
Volume V	Health and the Human Machine

Curriculum Units by Fellows (continued)

2006

Volume I	Photographing America: A Cultural History, 1840-1970
Volume II	Latino Cultures and Communities
Volume III	Postwar America: 1945-1963
Volume IV	Math in the Beauty and Realization of Architecture
Volume V	Engineering in Modern Medicine
Volume VI	Anatomy and Art: How We See and Understand

2005

Volume I	Stories around the World in Film and Literature
Volume II	The Challenge of Intersecting Identities in American Society: Race/Ethnicity, Gender and Nation
Volume III	History in the American Landscape: Place, Memory, Poetry
Volume IV	The Sun and Its Effects on Earth
Volume V	Ecology and Biodiversity Conservation

2004

Volume I	The Supreme Court in American Political History
Volume II	Children's Literature in the Classroom
Volume III	Representations of American Culture, 1760-1960: Art and Literature
Volume IV	Energy, Engines, and the Environment
Volume V	The Craft of Word Problems

2003

Volume I	Geography Through Film and Literature
Volume II	Everyday Life in Early America
Volume III	Teaching Poetry in the Primary and Secondary Schools
Volume IV	Physics in Everyday Life
Volume V	Water in the 21st Century

2002

Volume I	Survival Stories
Volume II	Exploring the Middle East: Hands-On Approaches
Volume III	War and Peace in the Twentieth Century and Beyond
Volume IV	The Craft of Writing
Volume V	Food, Environmental Quality and Health
Volume VI	Biology and History of Ethnic Violence and Sexual Oppression

2001

Volume I	Medicine, Ethics and Law
Volume II	Art as Evidence
Volume III	Reading and Writing Poetry
Volume IV	Race and Ethnicity in Contemporary American Art and Literature
Volume V	Bridges: Human Links and Innovations
Volume VI	Intelligence: Theories and Developmental Origins

Curriculum Units by Fellows (continued)

2000

Volume I	Women Writers in Latin America
Volume II	Crime and Punishment
Volume III	Constitutional and Statutory Privacy Protections in the 21st Century
Volume IV	Ethnicity and Dissent in American Literature and Art
Volume V	Sound and Sensibility: Acoustics in Architecture, Music, and the Environment
Volume VI	The Chemistry of Photosynthesis
Volume VII	Bioethics

1999

Volume I	Women's Voices in Fiction
Volume II	Art and Identity in Mexico, from the Olmec to Modern Times
Volume III	Immigration and American Life
Volume IV	Detective Fiction: Its Use as Literature and as History
Volume V	How Do You Know? The Experimental Basis of Chemical Knowledge
Volume VI	Human-Environment Relations: International Perspectives from History, Science, Politics, and Ethics
Volume VII	Electronics in the 20th Century: Nature, Technology, People, Companies, and the Marketplace

1998

Volume I	The Use and Abuse of History in Film and Video
Volume II	Cultures and Their Myths
Volume III	Art and Artifacts: the Cultural Meaning of Objects
Volume IV	American Political Thought
Volume V	Reading Across the Cultures
Volume VI	Selected Topics in Contemporary Astronomy and Space Science
Volume VII	The Population Explosion

1997

Volume I	Twentieth Century Latin American Writing
Volume II	American Children's Literature
Volume III	American Maid: Growing Up Female in Life and Literature
Volume IV	Student Diversity and Its Contribution to Their Learning
Volume V	The Blues Impulse
Volume VI	Global Change, Humans and the Coastal Ocean
Volume VII	Environmental Quality in the 21st Century

Curriculum Units by Fellows (continued)

1996

Volume I	Multiculturalism and the Law
Volume II	Environmental and Occupational Health: What We Know; How We Know; What We Can Do
Volume III	Race and Representation in American Cinema
Volume IV	Remaking America: Contemporary U.S. Immigration
Volume V	Genetics in the 21st Century: Destiny, Chance or Choice
Volume VI	Selected Topics in Astronomy and Space Studies

1995

Volume I	Gender, Race, and Milieu in Detective Fiction
Volume II	Film and Literature
Volume III	The Constitution and Criminal Justice
Volume IV	Coming of Age in Ethnic America
Volume V	The Geological Environment of Connecticut

1994

Volume I	Family Law, Family Lives: New View of Parents, Children and the State
Volume II	Poetry in the Classroom: Incentive and Dramatization
Volume III	Understanding the Ancient Americas: Foundation, Flourishing, and Survival
Volume IV	Racism and Nativism in American Political Culture
Volume V	The Atmosphere and the Ocean

1993

Volume I	The Symbolic Language of Architecture and Public Monuments
Volume II	Folktales
Volume III	Twentieth-Century Multicultural Theater
Volume IV	The Minority Artist in America
Volume V	Environmental Science

1992

Volume I	The Constitution, Courts and Public Schools
Volume II	Writings and Re-writings of the Discovery and Conquest of America
Volume III	Reading and Writing the City
Volume IV	The National Experience: American Art and Culture
Volume V	Ecosystems: Tools for Science and Math Teachers

Curriculum Units by Fellows (continued)

1991

Volume I	Regions and Regionalism in the United States: Studies in the History and Cultures of the South, The Northeast and the American Southwest
Volume II	The Family in Art and Material Culture
Volume III	Afro-American Autobiography
Volume IV	Recent American Poetry: Expanding the Canon
Volume V	Adolescence/Adolescents' Health
Volume VI	Global Change

1990

Volume I	The Autobiographical Mode in Latin American Literature
Volume II	Contemporary American Drama: Scripts and Performance
Volume III	The U.S. National Parks Movement
Volume IV	American Family Portraits (Section I)
Volume V	American Family Portraits (Section II)
Volume VI	Genetics
Volume VII	What Makes Airplanes Fly? History, Science and Applications of Aerodynamics

1989

Volume I	American Communities, 1880-1980
Volume II	Poetry
Volume III	Family Ties in Latin American Fiction
Volume IV	Detective Fiction: Its Use as Literature and History
Volume V	America as Myth
Volume VI	Crystals in Science, Math, and Technology
Volume VII	Electricity

1988

Volume I	The Constitution in Public Schools
Volume II	Immigrants and American Identity
Volume III	Autobiography in America
Volume IV	Responding to American Words and Images
Volume V	Hormones and Reproduction
Volume VI	An Introduction to Aerodynamics

1987

Volume I	The Modern Short Story in Latin America
Volume II	Epic, Romance and the American Dream
Volume III	Writing About American Culture
Volume IV	The Writing of History: History as Literature
Volume V	Human Nature, Biology, and Social Structure: A Critical Look at What Science Can Tell Us About Society
Volume VI	Science, Technology, and Society

Curriculum Units by Fellows (continued)

1986

Volume I	The Family in Literature
Volume II	Writings and Re-Writings of the Discovery and Conquest of America
Volume III	Topics in Western Civilization: Ideals of Community and the Development of Urban Life, 1250-1700
Volume IV	The Process of Writing
Volume V	The Measurement of Adolescents, II
Volume VI	Fossil Fuels: Occurrence; Production; Use; Impacts on Air Quality

1985

Volume I	Poetry
Volume II	American Musical Theater
Volume III	Twentieth Century American Fiction, Biography, and Autobiography
Volume IV	History as Fiction in Central and South America
Volume V	Odysseys: Nineteenth and Twentieth-Century African-American History Through Personal Narrative
Volume VI	Time Machines: Artifacts and Culture
Volume VII	Skeletal Materials-Biomineralization
Volume VIII	The Measurement of Adolescents

1984

Volume I	Elements of Architecture, Part II
Volume II	Greek Civilization
Volume III	Hispanic Minorities in the United States
Volume IV	The Oral Tradition
Volume V	American Adolescents in the Public Eye
Volume VI	Geology and the Industrial History of Connecticut

1983

Volume I	Elements of Architecture
Volume II	Greek and Roman Mythology
Volume III	Reading the Twentieth Century Short Story
Volume IV	America in the Sixties: Culture and Counter-Culture
Volume V	Drama
Volume VI	Cross-Cultural Variation in Children and Families
Volume VII	Medical Imaging

1982

Volume I	Society and the Detective Novel
Volume II	Autobiography
Volume III	The Constitution in American History
Volume IV	An Unstable World: The West in Decline?
Volume V	Society and Literature in Latin America
Volume VI	The Changing American Family: Historical and Comparative Perspectives
Volume VII	Human Fetal Development

Curriculum Units by Fellows (continued)

1981

Volume I	The "City" in American Literature and Culture
Volume II	An Interdisciplinary Approach to British Studies
Volume III	Human Sexuality and Human Society
Volume IV	Writing Across the Curriculum
Volume V	The Human Environment: Energy
Volume VI	Computing

1980

Volume I	Adolescence and Narrative: Strategies for Teaching Fiction
Volume II	Art, Artifacts, and Material Culture
Volume III	Drama
Volume IV	Language and Writing
Volume V	Man and the Environment
Volume VI	The Present as History
Volume VII	Problem Solving

1979

Volume I	The Stranger and Modern Fiction: A Portrait in Black and White
Volume II	Themes in Twentieth Century American Culture
Volume III	Remarkable City: Industrial New Haven and the Nation, 1800-1900
Volume IV	Language and Writing
Volume V	Strategies for Teaching Literature
Volume VI	Natural History and Biology

1978

Volume I	Language and Writing
Volume II	20th Century Afro-American Culture
Volume III	20th Century American History and Literature
Volume IV	Colonial American History and Material Culture