The purpose of IMPACT II is to spread excellent teaching ideas throughout Ventura County.

IMPACT II does this by partnering with local businesses and organizations to provide $500 individual and $750 team grants to educators for unique, original and innovative curriculum that has been classroom tested.

IMPACT II enables excellent teaching ideas to reach all teachers in the county, and raises community awareness of exemplary classroom practices. IMPACT II boosts teacher morale by recognizing innovative teaching through both grants and an annual awards dinner where we celebrate the true heroes and heroines in our communities.

Over the years Ventura County IMPACT II has matured into the program that we envisioned at its inception in 1993. Business leaders, teachers, and administrators are becoming aware of the program and are participating in unprecedented numbers.

The Ventura County IMPACT II program is a partnership between the Ventura County Economic Development Association (VCEDA), the Ventura County Office of Education, and the Ventura County Star.

IMPACT II puts cutting edge classroom projects into the mainstream, turning students on to learning.

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Atomic Stew and Other Chemical Concoctions
Patty McLoughlin, Dos Caminos

Business Partner: Ventura County Office of Education
For grade levels 3 - 5
Curriculum Areas: "Kiddie Chemistry", Science, Math, Art, Creative Writing

The Idea and its Value:

Protons, neutrons, electrons too, put them all together - it's Atomic Stew ... this 6 - 8 week unit cooks up a recipe for 3rd to 5th graders to gain an awareness of basic Chemistry concepts. Starting with atomic appetizers, a molecular mania menu, progressing to the main entree, the water molecule, adding a dash of kids' favorite desserts in the form of hands-on lab work, the value of the unit becomes clear. We as teachers want to leave students wondering "What if ... ?" and "How come ... " as each discovery leads to higher order thinking and a hunger for more. "Kiddie Chem" allows junior chemists to be familiar with lab equipment such as test tubes and beakers, requires them to apply steps of the "Scientific Method" to observations and recordings, encourages making bold predictions (hypotheses) without fear of making mistakes (McStakes are welcome in McLab, the name of our science room). It builds on prior knowledge from earlier labs, resulting in students using sophisticated and advanced terminology as they gain background knowledge and a facility for filling out requisite lab reports as assessment tools. Novelty, depth, and complexity are cornerstones of what this unit hopes to accomplish.

Mini-scientists feel a sense of importance as each receives a copy of the Periodic Table of Elements. (Can you recite the noble gases five times fast?) Common elements are introduced by studying our amazing wall clock, which uses atomic symbols rather than numerals (it's Helium past Oxygen rather than 10 after 8.) Understanding protons, neutrons, and electrons is fun and easy as students are challenged to design 3-D models without using STYROFOAM BALLS! Creative art is integrated. It's amazing what kids will devise when the only materials allowed in this project are reused and/or recycled items found at home. (Warn parents to guard old doodad collections as kids tend to raid jewelry and craft boxes.) Students are asked to research "Quarks" which delightfully come in colors and flavors! They compose more musical verses for our tune "Atomic Stew." Creative writing is integrated as students write stories featuring Nicholas Neutron, Peter Proton, and Eloise Electron.

Fun with the Periodic Table continues as kids discover that "LION" is not just an animal, it's Lithium, Qxygen, and ~itrogen.

They decipher others (SEAL=Selenium+Aluminum), make up their own, and write their names in this newly learned "code." Molecular Mania continues as we make models from color-coded gumdrops and
toothpicks. "The Incredible Edible Atom" (AIMS Activity) offers concrete awareness for each student and the fun of designing his/her own molecule. Then to the crux of the unit, Mr. Water Molecule. Now kids know what the "H", the "2", and the "0" mean. Because of the unique features of water, numerous labs demonstrate properties such as hydrophilic molecules and surface tension (Can you float a paper clip on water?), water as a "universal solvent", density (drop an ice cube in water, then alcohol), viscosity, molecular movement, and water's frozen state. Highlights of the unit occur as students thrill to the competition of "Water Olympics" - 8 rotating stations of water-related activities. They delve into the adult world of marketing and advertising as they decide which paper towel really is the "quicker picker-upper", putting 4 brands to the tests of wet strength and absorbency and integrate math by figuring out the cost per sheet. Because many experiments use ice (buoyancy in different liquids, freezing points of salt vs. fresh), it's not too much of a stretch to include the Iditarod, especially integrating math by charting and graphing activities related to weather along the trail. (Last year our trail map was changed twice because of melting snow interfering with the planned 2003 route.)

The hands-on nature of lab work engages all learners in meaningful activities. Students need to work cooperatively with partners or groups. Labs are designed following the "Scientific Method" and requiring students to demonstrate, articulate, and evaluate what they learn by recording results on lab sheets. Videos and books about scientists such as Curie and Einstein, a giant illustrated Periodic Table chart, student-made models, and a plethora of Chemistry-Made-Simple-type texts are instructional devices used to further engage all. Working with different lab partners each time encourages team work and builds positive attitudes and behaviors. Without cooperating, students quickly discover that their experiments can end up as a heap of havoc or a perturbing puddle on the floor. In two years, we have broken only one test tube. Students develop a respect for lab work and equipment as they are trusted to use real "stuff" just like older kids do. Teachers can adapt and integrate into many curricular areas such as science, math, and biographies of scientists, science fair, and art (water color with crayon resist.)

**State Standards**

The science standard is supported as motivating, meaningful, and integrated learning goes beyond the textbook and right into the hands of mini-chemists as they perform experiments in this mind-engaging unit. Students will benefit by having this early introduction, as they will soon be responsible for science included in standardized testing. Technology is used as a research and presentation tool when kids design power point. Applications to the real world are embedded as students realize the inner workings of the chemical world that is all around us.
Students

This is the second year this unit has been presented to approximately 300 GATE students in grades 3-5. Expectations and instructional methods can be modified to accommodate the regular classroom or students with special needs.

Facilities/Materials & Outside Resources

AIMS (Activities That Integrate Math and Science), *Kids Discover* magazines, videos from school libraries, Newton Series (Chemical & Physical) from TLC (Teaching & Learning Company, Carthage, Illinois), Amgen (donations of equipment)
Backpack Diplomacy: A Road Trip to Understanding and Saving the World

Rita Neumeister, Adolfo Camarillo High School
Business Partner: Southern California Edison
For grade levels 7 - 12
Curriculum Areas: Language Arts, Geography, Humanities, Science, Social Studies, Economics

The Unit and Its Value:

Classroom United Nations simulations allow students to step into the shoes of ambassadors from United Nation countries to debate current issues on the organization's extensive global agenda. Student "delegates" exercise every mental muscle as they prepare draft resolutions, plot strategy, negotiate with supporters and adversaries, resolve conflicts, and navigate the United Nation's rules of procedures—all in the interest of mobilizing "international cooperation" to resolve global problems. Classroom participants become actively engaged in research, writing papers, and role-playing in exploring global concerns that include poverty, refugees, the environment, regional conflicts, human rights, and peace and security issues.

The excitement of the classroom U.N. simulation begins with the very first day when students "draw" the countries that they will represent. Delegations are presented with the essentials of the global topic they will be addressing through a 5-to-10 page background guide and teacher lecture. Careful reading of the background guide reveals the history of the problem/conflict and the present-day status of the situation as well as comprehensive websites for study. Each delegation, usually two students, begins their journey to resolution through extensive brainstorming. To earn their ambassador credentials, students must look closely at the needs, aspirations, and foreign policy of the countries that they will represent during the simulation through extensive research. This research is disseminated through a "working paper" that each delegation presents to the U.N. committee at large (classroom students). The insights they gain from their exploration of the history, geography, culture and economics of their nation state greatly contributes to the authenticity of the simulation once the actual role playing gets underway and ensures a lively and memorable experience.

Proof of their expertise comes in the structure of a position paper that outlines each delegation's national policies on the topic under consideration. It helps the delegates organize their ideas and share their foreign policy during committee through formal debate and informal caucusing. This is where the true engagement comes into play. Students take their roles seriously and oftentimes debate becomes rather heated when delegates are faced with strong opposition from global states with differing viewpoints. This task becomes
especially thought provoking when their arguments must stay within the mandates of the Charter of the United Nations, the Universal Declaration of Human Rights, or any other protocol of which their country is a signatory that directly affects the topic under deliberation. This truly hones a delegate's ability to think from another's "shoes."

After lengthy debate and dialogue the time comes when one consensus-driven resolution must be "hammered out" as a final class product. Before this finished document is born, there will be more than one draft resolution presented to the class and each must recommend what action is to be taken to resolve the simulation conflict. When drafting and sponsoring a draft resolution, classroom delegates must keep in mind the wording that will most influence its appeal (or lack thereof). The substance needs to be well researched, and reflect the character and interests of the sponsoring nations and students must follow the correct format of formal United Nations resolutions.

On the final day of the simulation all delegations are actively engaged in one last moment of authentic challenge. As the bell rings and the finished resolution boldly "stands out" on the whiteboard, applause and cheers ring throughout the room. Students realize that they have adeptly accomplished a multifaceted solution to a real world conflict. In short, they take great pride in "Saving the World" and "Sustaining the Global Community" for future generations.

State Standards

The four-to-six week unit blends the disciplines of the California State Standards from English, Economics, Social Studies, Humanities, Geography, and Science. All of the above subject areas are considered by delegations in formulating authentic solutions to global problems. This simulation infuses a broad-spectrum of acquired knowledge in international law and global concerns while introducing students to an appreciation of diverse Cultures and viewpoints. It prepares classroom delegates to be better able to deal with differences of opinion and to resolve conflicts in constructive, non-violent ways.

Students

The United Nations simulation was successfully used two years ago in my two Geography classes comprised of 36 students ranging from Resource students to College Preparatory. This year two Humanities teachers on my campus adapted my U.N. simulation curriculum to be successfully used in their courses, which contain 120 college prep sophomores. Two classes of freshman honors English students are presently in the midst of the simulation in my classes. Depending upon the United Nations organ being used, i.e. World Bank, World Health Organization, Security Council, Committee for Sustainable Development, United Nations Environmental Programme, etc., this type of simulation can be adapted to any curriculum and ensure a high level of engagement from students.
Facilities/Materials

Copies of the Universal Declaration of Human Rights, Charter of the United Nations, card stock (country placards), markers, access to computers, copies of position paper/resolution samples, background guides (may be downloaded from any number of websites), U.N. produced video M.U.N. Fun for Everyone. (This is an example of a simulation that features real students and classrooms.)
Boasting Along with Beowulf
Kara Bettencourt, Moorpark High School
Business Partner: VCEDA
For grade levels 11-12 (General to AP)
Curriculum Areas: English/Language Arts

The Unit and Its Value:
The Beowulf Boast is designed to assess a student's understanding of the conventions of Anglo-Saxon poetry/literary traditions and to have students create original poetry of their own. When I began teaching Anglo-Saxon literature, the immediate problem was trying to bridge over one thousand years and a teenager's reluctance to study poetry. Beowulf is a grand story, but there is so much more that I wanted students to appreciate than a good adventure story. Since this unit is taught in the first weeks of school, I wanted an activity which would engage all students and for each student to be successful. I discovered that the project was a way to build the community of my classroom and to validate each student's life experiences. Since the final product is an oral performance, it met reading, writing and speaking standards.

The activity is used after we have read the first section of Beowulf. In trying to develop Beowulf beyond a cartoonish super-hero, we take a careful look at the scene where Beowulf meets Hrothgar, king of the Danes. Before Beowulf is given permission to fight the monster Grendel, there is a series of boasts. It is part of an ancient and significant Scandinavian feasting ritual, which included the gielp, a boast of one's achievements and ancestors. Before the boast project, students have already discussed Beowulf's boasts as a part of his character, using it to pull out textual support for his courage, self-confidence, and pride. We have distinguished between pride and arrogance. They have learned about the role of wyrd (fate) in the story and the cultural/religious importance of fame and the immortality it bestows on those who have honorably earned it. Students are also learning about the different values of a pre-Christian world where humility and self-sacrifice is not the highest good. I remind them that Beowulf's boast is more like a job application or resume than pure vanity. Since most of my seniors are all working on resumes and/or college applications, they understand the need to look good on paper, or a boast.

At this point I spend a class period discussing the poetic elements, which are closely identified with Anglo-Saxon poetry: alliteration (repetition of initial consonant sounds) the caesura (a break in the middle of a line of poetry), and kennings (a two word metaphor distinctive to Anglo-Saxon poetry). We create class kennings together, and as we read about the battles between Beowulf and Grendel, and then with Grendel's Mother, I break the students into groups to write a short addition to this earlier boast, asking them to use alliteration and caesuras. After these practices, they are more than ready to demonstrate their understanding of Anglo-
Saxon poetry and the literary tradition of the *gielp*.

The activity requires that students write a personal boast about themselves. They are to use the elevated style of an epic poem and are free to embellish their own achievements to make them sound lofty and noble, even if they are quite ordinary. They are not to make up anything because all of Beowulf's boasts were truthful. The boast is to demonstrate that they understand the conventions of Anglo-Saxon poetry and must use both alliterations and a caesura in each line. Students are required to turn in a paper copy, but the real evidence of success is the oral performance before the entire class.

The end result is a lively class period or two where students can shine. They get a chance to share themselves, their family, their culture and their values with others. After this activity, students are not merely names on a roster; we begin to bond as a class. Some students are shy, and others more dramatic, but each of my students participates. Many boasts are silly and grandiose, but others are poignant and self reflective. Several of my students surprised me by wearing costumes and bringing props. I used to assess their understanding of this poetry with a standard quiz yet was never quite sure how well they understood the concepts. After developing this project, I am more confident about the depth of their understanding of Anglo-Saxon poetry.

**State Standards**

The California state standards measured by this activity are Literary Response and Analysis 3.13.6; Speaking Applications 2.1,2.3,2.5; Listening and Speaking Strategies 1.1,1.4,1.6-1.10; Writing Applications 2.1-2.3,2.5.

**Students**

This year, over 120 seniors participated and it was overwhelmingly successful. It reached students who were audio and kinesthetic learners. My classes include students who are working at all levels, ELL, honors, general, and college prep. It challenged reserved students to participate and develop public speaking skills. The activity is suitable for all levels. With AP students, I would expect their boasts to reflect the more complicated meter requirements. The length of the assignment and the memorization requirement can be adjusted for students' special needs. This activity can be enriched by having the students recreate an actual banquet scene with a *scop* (storyteller), a *beot* (an oath to complete a significant action) and gift giving. It can be tailored to fit the needs of anyone who teaches *Beowulf* to students of any age or ability.

**Facilities/Materials**

All that is needed to complete this activity is a copy of *Beowulf*, a standard selection in every British Literature anthology textbook, and a child's imagination.
The Blue House

Judith Gold, St. Paul’s Parish Day School

Business Partner: Ventura County Star

For grade level Kindergarten

Curriculum Areas: Social Studies, Language Arts

*The Unit and its Value:*

Constructed with pegboard walls and a pitched plywood roof, all painted sky blue, this 5’ by 5’ structure has served as a main focus in the Kindergarten classroom for 30 years. “What will be next in the blue house?” is the question asked over and over again each year as the children anticipate each new adventure. It serves as a main attraction involving the children in constructive, interactive play while motivating learning in many areas of the curriculum.

The blue house becomes something new each month (which involves a few hours of weekend work for me in order to keep it a surprise). The Monday morning squeals of delight as the students enter the classroom makes it all worthwhile. Immediately they are engaged and ready for a new curriculum focus.

Typically, in enhancing the Social Studies program, the blue house becomes the following: A Grocery Store, A Space Center, A Bank, A Hospital And An Antarctic Exhibit For Penguins. As we explore literature it may become a bakery for *The Little Red Hen*, a house for *The Three Bears* or a house for *The Seven Dwarves*.

Although the house, built by my husband, is very instrumental to the success of the centers, they could also be done in a modified way in a corner of the classroom. Once materials are collected, the set up evolves naturally and it is amazing how creative one becomes.

The Grocery Store

The grocery store is set up using empty containers of real food items such as cereals, pastas, canned goods, milk, orange juice, etc. Plastic fruits and vegetables are also used. The foods are organized on shelves and in baskets according to particular categories such as “frozen foods,” “dry goods,” “refrigerated foods,” and “food groups.” A cardboard box painted white makes a great “freezer.” The store is complete with play grocery carts and a check out lane with a cash register and grocery bags. The curriculum focus involves learning about the food groups as well as the value of good nutrition and even recycling.

The Post Office

February is the month for the Post Office, in time for Valentine’s Day. Each child has an individual “post office box” with its own number (a brown paper lunch bag tied to the peg board wall). Writing materials, envelopes, paper, labels and stamp pads with authentic stamps marked “Air Mail,” “First Class,” etc. are provided. Pretend 37 cent mailing stamps are sold at our Post Office counter (a puppet stage). Outside the Post Office stands a large blue and red mailbox, which was made by my father years ago. It is here that the children place the letters they have written and addressed. The entire school becomes involved in our Kindergarten Post Office venture. I give each class a list of the Kindergartner’s names and Post Office Box addresses. Each teacher in turn has every student write letters to the Kindergartners. The older students then help me organize and “mail” the letters. The children are so excited to get their mail at the end of each day. Many former students rank this center as their favorite.

The Space Center

The Space Center is always a highlight. It is set up with donated original Star Wars characters and spaceships as well as other space toys. The ceiling is hung with sparkling stars and twinkling Christmas lights. Planets are cut from a store-bought poster and hung in order on the outside. The children love learning about the
solar system and there are many wonderful published resources available. The children are excited to read and write the names of the planets as well as memorizing and naming them in order!

Penguin Encounter

January is a wonderful time to create The Antarctic in the blue house. This winter wonderland is set up with glittery snowflakes hanging from the ceiling, icicle lights trimming the eaves and sheets of store bought snow blanketing the roof. Inside on an icy, snowy table, (an affect created with by placing a large mirror on the table and encircling it with more store bought snow) sits an abundant collection of plush, wooden and plastic penguins. These penguins end up having many wonderful adventures as the children move them about and play with them. The children also enjoy being able to identify the many different families of penguins and will group the toy penguins accordingly.

The study of penguins is an exciting time in our class. Penguin literature abounds. *Tacky the Penguin* books are a favorite, and *Mr. Popper’s Penguin* is a wonderful adventure to read aloud. A day is set aside as we honor the penguin. The children come to school dressed in black and white and I’ve been known to actually don a tuxedo for the occasion. On this day the children practice keeping a “penguin egg” tucked atop their feet as the Emperor penguins do. Imagine the reaction when a huge refrigerator box marked “KEEP COLD OPEN AT ONCE” arrives. Upon opening the package we find Admiral Drake’s penguin (a bigger than life sized inflatable Emperor penguin bought at a nature store years ago)! This day includes many writing and art activities as well as a wonderful introduction to animal habitats throughout the world. Penguins teach us so much about caring for each other and for the environment.

Little Red Hen’s Bakery

The Little Red Hen’s Bakery is a flour lover’s delight! Inside the blue house, the classroom play kitchen is complete with brightly colored authentic measuring utensils and baking tools. The sensory tub is filled with flour. Kitchen aprons hang from a hook nearby. Let’s not forget the oven timer! The Bakery is a wonderful play center. Taking Little Red Hen beyond the blue house, a story line bulletin board is created to illustrate this timeless story teaching us about helping and cooperation. We read many versions of this classic tale, design our own books about Little Red Hen and her plight, and delight in all sorts of measuring activities. Of course after all the “practice bread baking” is done, we bake real bread and enjoy a delicious treat!

**State Standards**

The learning that occurs with the interactive play is valuable and stimulates activity in all areas of the Kindergarten curriculum. And very importantly the children learn to cooperate, share, take turns, role play and use their imaginations as they enter a world of pretend based on real life experiences. Once I have the done the work to set everything up, the children are responsible for keeping it all in good order and they always do an incredible job. Obviously, they take pride in keeping everything ready for the next free time when they can choose this activity among several centers.

After all these years the Blue House continues to be a very special part of my Kindergarten Program and a treasured memory for many students.

**Materials**

I have chosen only a few examples to describe in some detail. All the centers are created with classroom furniture and typical play items. Most materials are easy to collect or purchase inexpensively and can be stored in plastic tubs and trash bags.
Bowling for Brains
Lynz Mullaney, Blackstock Junior High School
Business Partner: Affinity Bank
For grade levels 4-9
Curriculum Areas: Mathematics and Language Arts/Physical Education

The Unit and Its Value:
Statistics, hypothesis, data analysis...those are big words and big ideas. The goal of this highly interactive standards based unit is to make these concepts meaningful for all students and facilitate lessons that will inspire students to eagerly calculate the measures of central tendency on authentic data, and apply the results to real world situations.

Using magazines and Internet polls to introduce statistical analysis creates an opportunity for all students to integrate personally meaningful topics with a standards-based learning experience. This integration encourages positive student attitudes and behaviors, providing the motivation to tackle challenging mathematical concepts. In small groups, arranged primarily according to topic interests, students discuss a variety of magazine surveys and internet polls. Following a detailed outline, students apply scientific language to the methods used in the polls and surveys. They objectively review the process through which researchers analyze data and come to conclusions. Discussions include potential motivational factors and biases that may have affected results. Students display evidence of their analysis on a poster and report their conclusions to the class.

This activity prepares students to conduct their own surveys. In pairs, students create a hypothesis and collect data to prove or disprove their assumption. Students are highly motivated to analyze their data because they personally selected the topic to investigate and are genuinely interested in the results. Students create a visual representation of their conclusion using PowerPoint and Excel to present the results of their study. Classmates objectively review the presentation and use higher level thinking skills to discuss whether the data could have been represented to illustrate a different point of view based on the emphasis of the analysis.

Students eagerly anticipate the next activity, a trip to the bowling alley. Prior to the excursion, students learn a lot about the game of bowling (from the proper form for releasing the ball to how to calculate scores of strikes and spares) through an informative book by Don Nace. Students are grouped specifically to test predetermined hypotheses such as “Table 7 will have a greater mean in the second game than in the first” or “The median of Table 3’s first game will be less than the class’ mode” or “The range of table 4’s first game will be greater than the range of table 1’s second game,” etc. Data collection occurs at the bowling alley. The
trip is economical and supported by local establishments throughout the county. Print-outs of scores are provided for students to follow up on during class. After using the measures of central tendency to analyze the bowling scores, students compare the results with their initial hypotheses. Students that predicted the outcomes accurately, proving their hypothesis correct, place their names on the “Crystal Bowling Ball” symbolizing foresight. Other data collection activities such as basketball free-throw points, golf scores, etc. could effectively be substituted for the field trip to the bowling alley if preferred.

The final assessment of this month long unit requires students to synthesize statistical data to support their opinions in a persuasive essay. Mastery of content information is assessed using a rubric that incorporates state standards for both language arts and mathematics. This essay requires students to act as agents for bowlers (basketball players, golfers, etc.) based on statistical evidence of player performance. Students decide between players based on factors such as: average bowling score (mean), high and low scores (range), the score attained by the player most frequently (mode), and the player’s middle score (median). Additional factors such as consistency and attitude are also addressed. Success of the program is ultimately measured when students demonstrate the knowledge they have acquired throughout the unit in a comprehensive and cohesive product.

**State Standards**

This unit provides students access to master content and performance standards for statistics and data analysis in Mathematics, as well as persuasive composition in Language Arts.

**Students**

In 2003-2004, 65 students participated in this unit. Over 350 students of varying abilities and backgrounds have assisted in the development and improvement of this unit since 1998.

**Facilities/Materials/Resources**

This unit is adaptable for any school setting. I am prepared to provide a complete list of resources to support all aforementioned activities.
Charmed by Ventura County Agriculture
Carolyn Alexander & Beverly Rueckert, Tierra Linda Elementary
Business Partner: Hansen Trust
For grade levels 2-6
Curriculum Areas: Social Studies/Economic History supported by Science, Technology, Language Arts, Arts, and Math

The Unit and its Value:

Our social science unit, developed and classroom tested over the past 4 years, offers all students the challenge of using multi-media resources to study and discover the remarkable historical development of Ventura County, from a semi-arid wasteland to a thriving agrarian region that has a major economic impact on our area.

Children have a natural curiosity to learn about the area where they are growing up and how it was in the "olden days" of their parents and grandparents. This inter-disciplinary unit spans the curriculum, emphasizing the two social science themes of how geography and economics work together to determine our land use. This unit is directly connected to their daily lives, more than just filling in the regular worksheets or growing plants without the social studies connection. This was dramatically proven to us two years ago. Two boys had chosen tomatoes, which were #7 on the Top Ten list that year, as their focus to study. According to their parents, the boys became "Tomato Experts" teaching their families about the history and widespread household uses. Their parents reported that this was, indeed, a first; to have the boys enthusiastically engaged beyond the school day.

Why is agriculture Ventura County's #1 economic resource? How can seven out of ten jobs be related to agriculture? Charles Weis, Superintendent of County Schools, summed up best why we had the interest to develop this in-depth study for young children. He stated, "Our long range goal is that no student will graduate without knowing the importance of agriculture in Ventura County."

Students become motivated by an introductory activity with separate question and answer cards, using fascinating farm facts from the past and present to stimulate their interest. One half of the students have cards with questions. (How did the strawberry get its name? What fruit was first called an alligator pear?) The other half of the students have cards with the answers. (The strawberry got its name because children used to pick the berries and string them on grass straws to sell. The avocado was first named alligator pear because of its rough skin. In the early 1900's its name changed to avocado and farming families' names identified the various types) Using the kid pages on the Sunkist, Driscoll's, and Calavo web sites, it is teacher and student friendly to find these facts.
Children create the time line from present day crops back to crops grown in the area about 90 years ago. That's when the Ventura County Farm Bureau was established and began keeping records. Each day the teacher presents farm facts to make the time line interesting. Then their task begins: to explore, research, and develop a comprehensive presentation that they give. This year we will add the innovation of presenting to kindergarteners before their Farm Day in June. Students worked as partners using the differentiated learning approach. Some students chose to do posters using their artistic expression, while others composed oral reports, wrote stories and riddles, or used their computer math skills to make graphs, charts and timelines. The advanced learners were thrilled to use the large numbers. They find the difference in the crop values between strawberries and raspberries ($297,924,000 - $19,963,000). This group writes math word problems and riddles for the class to solve each week. A focus here is the ever-changing Top Ten crops of the county. History is a by-product of this unit as students learn that sugar, cattle, apricots, walnuts and lima beans, which once dominated Ventura County agriculture, are no longer raised here.

One of the innovative parts of this 4-6 weeks study is each student making a charm, representing all aspects of agriculture in our county. This charm is a small clear bag that holds a symbol of each component of farming, be it the sun, colored beads representing different soil types, small stickers representing a crop or animal or piece of farm equipment. Cotton yarn forms the necklace. Each charm tells a part of the county farm story, to the kindergarteners and to parents at an open house.

The unit has teacher-directed lessons, such as how to access websites for research and how to make charts and graphs on the computer using Claris Works for Kids and Excel. Research and exploration time is teacher-monitored. The teachers provide various guest speakers from the farming community, water companies, and ag-related businesses such as packing houses and farm equipment companies. A field trip to a supermarket allows the produce manager to relate how marketing of products has changed, such as having many varieties of apples to offer now compared to just a few in years past, how pre-packaged produce takes more and more space on the supermarket shelves, how much fruit and vegetables are now offered year round. A longtime farmer who can relate to farming from an earlier era is brought in to add validity and personal experience to what they have learned.

Assessment comes as each child is able to name the Top Ten crops and tell how long they have been on the list. Each student is able to explain how irrigation has changed the use of our land from its original semi-arid state. The students can explain, with the use of their posters, charms, and graphs or charts the importance of agriculture in their home area.

**State Standards**

This unit supports all areas of the State Standards and engages student activity in the differentiated learning
process.

**Students**

All students are engaged and challenged by this differentiated learning approach. The extensive use of artifacts and hands-on lessons make this unit especially appealing to second language learners.

**Facilities/Materials**

**Videos:**

"Agriculture, Our Heritage, Our Future" (Narrated by Roz McGrath, a local farmer)

"People in Agriculture" (Short interviews with local people describing their jobs)

"Fields of Gold" (Agriculture history)

"Gardening for Kids"

"The Honey Bee Files: A Bee's Life"

**Web Sites:**

[www.ventura.org/agcommissioner/Public_records/VC_Crop_report_02.pdf](http://www.ventura.org/agcommissioner/Public_records/VC_Crop_report_02.pdf)

California Foundation for Agriculture in the Classroom, [www.cfaitc.org](http://www.cfaitc.org)

[www.ucdavis.edu](http://www.ucdavis.edu)

[www.lifelab.org](http://www.lifelab.org)

[www.calavo.com](http://www.calavo.com)

Cut flower commission, [www.ccfc.org](http://www.ccfc.org)

Farm water coalition, [www.cfwc.com](http://www.cfwc.com)

CA strawberry commission, [www.calstrawberry.com](http://www.calstrawberry.com)

Tomato commission, [www.tomato.org](http://www.tomato.org)

[www.dole5aday.com](http://www.dole5aday.com)

[www.honey.com](http://www.honey.com)

California Association of Nurseries, [www.can-online.org](http://www.can-online.org)

[www.sunkist.com](http://www.sunkist.com)

**Outside Resources**

Agricultural Commissioner - Santa Paula, (805) 933-3165

DC Cooperative Extension/4-H, (805) 645-1451

Farm Bureau, Ventura, (805) 289-0155

**Field Trips:**

Seminis Testing Grounds
Green Thumb Nursery, Ventura
Vons Market

**Speakers:**
Hansen Trust Ambassadors, CWA members (California Women in Agriculture), Farm Bureau members, Mary Jo McPherson (McGrath family history), Jean Stahl (Former farmer)
Colonial Connections To The 21st Century
Carolyn Zimring, Sunkist Elementary

Business Partner: VCEDA

For grade levels 1-5

Curriculum Areas: Social Studies

The Unit And Its Value

Colonial Connections to the 21st Century is a unit designed to motivate student appreciation of our country's background and its significance to their lives today. By making history come alive and relevant to a student's life today, learning is enhanced in many curricular areas in addition to social studies. Selecting the colonial era was relevant because our country's early background impacts so much of our government and political life today. Using a wide variety of experiences that incorporate visual, auditory, and kinesthetic activities, students formed an appreciation of the difficulties and rewards of the journey into forming a new country.

Working with a GATE group of twenty-one 3rd and 4th graders, the unit spanned five months, with meetings once a week. We started with the introduction of colonial toys. As a chaperon and tour director of eighth grade students, I have visited Washington D.C. and Williamsburg, Virginia fifteen times and I have collected many colonial artifacts used in the unit. Colonial toys and artifacts can be ordered online through the Colonial Williamsburg Foundation site. Students had a chance to work and play with the toys, developing an appreciation of activities children were involved with before television and video games. We then made replicas of one of these toys using common classroom materials of cardboard, markers, and string. The use of the toys was an "instant" motivator for the children and stimulated their desire to learn more about children in the colonial era.

Next we compared and contrasted the beginnings of the Jamestown and Plymouth settlements. We viewed videos on both settlements that emphasized children's as well as adult life in the colonies. We read portions of books emphasizing schools in the colonial era. Finding a recipe in one book utilizing strawberries and boysenberries, we made ink and used quill pens to write letters to our parents or teachers about our experience on one of the ships coming to America. Using computers in the classroom, we downloaded information from the Colonial Williamsburg Foundation internet site. Other hands-on projects included clay replicas of candleholders, vases, pitchers, and ink pots. We melted old crayons and candles to make our own candles to use in the candleholders.

Next was a study of the Declaration of Independence and how difficult it was to adopt the theory of
independence. We read portions of books, especially in the *We the People* series for children, and discussed the reasons for and against independence as viewed by the colonial leaders, including John Adams, Thomas Jefferson, and Benjamin Franklin. We then read today's newspapers discussing the current political ideas on taxes, war, and the economy. We compared the ideas echoed by colonial leaders and those of people currently involved in the political arena. We discussed leadership qualities and character traits of colonial leaders and compared them to other famous Americans, as well as to those in the current political news. Students began to realize the same qualities of honesty, responsibility, and vision were important both in 1776 and today. Students wrote about leadership qualities they hoped to develop, held a mini debate for and against independence, made posters, and then wrote a "document" detailing their views on whether they would vote for or against independence. Viewing portions of the Broadway musical video *1776* made characteristics and leadership qualities of colonial leaders vivid for the students.

Culminating the unit was a Colonial Faire in the school multipurpose room in which the students dressed in costume and displayed their colonial artistic replicas, their letters written with quill pens, and posters declaring the reasons to vote or not to vote for independence.

**State Standards**

The unit supports the social studies standards in providing meaningful and relevant activities and truly bringing history "alive". Integrating reading, writing, and art was a natural process within the unit. Younger and older students both realized that their own character traits have an impact on how others will view them.

**Students**

This unit offered many opportunities for reading, writing, artistic creations, and character development. It can be adapted for many grade levels and types of learners. I have modified and taught this unit to my 1st grade class. With many hands on activities, it is a great way for younger children to learn of their colonial background. Emphasizing the importance of character traits such as honesty and responsibility has value for children of all grade levels.

**Materials**

Materials can be obtained from school libraries, media centers, newspapers, and internet colonial sites. Art materials such as clay, markers, and poster board can be found at most schools. If actual artifact replicas are not available, pictures may be used.
Cultural Connections – Our Americas

Amy Reed, Peggy Walker - Newbury Park High School
Business Partner: VCEDA
For grade levels 10 – 12
Curriculum Areas: World History/Spanish

The Unit and Its Value:

Cultural Connections – Our Americas is a unit designed to help world history students investigate the independence movements, geographic and demographic features of several Central and South American countries and those countries cultural connections with the United States. Prior to the culminating activity students engaged in critical thinking activities including identifying analogies and interpreting maps relating to the independence movements of several Latin American countries. Students engaged in other skills that included discussing, defining and recording demographic data for a Latin American country and contributing to a visual wall matrix of demographic data for several South and Central American countries. Using the wall matrix, students collected and interpreted data, made comparisons and drew conclusions about the demography of Latin American countries. Students summarized reasons Latin American groups immigrated to the US and graphed immigration patterns.

This 12-day unit was taught in a SDAIE (Specifically Designed Academic Instruction in English) class. The unit culminated with an interdisciplinary activity. Foreign language students in their fourth and fifth years of Spanish prepared questions and interviewed world history students. History students spoke in their native language to share their heritage and experiences of leaving their native countries and adapting to a new culture with foreign language students. Foreign language students applied their skills by writing questions and interviewing Spanish-speaking students in their native language. Spanish students presented their articles in class in Spanish and then in English. The world history teacher created a multimedia photo show of pictures taken during the shared activity. The language teacher added background music. Students enjoyed watching the show the day the articles were shared in class. Articles, including photos, were published in both languages in the school newspaper. Students who were highlighted in articles and photos enjoyed the recognition, kept copies of the newspaper and discussed them periodically in class. The student body learned more about the backgrounds of several students who have recently immigrated.

State Standards

This unit supports the tenth-grade world history standards 10.2.3, 10.2.5, 10.4.1, 10.4.2, 10.4.3, 10.4.4, 10.10.1, 10.10.2, 10.10.3 & 10.11. The following are headings for these standards.
Understand the American Revolution, its spread to other parts of the world, and its continuing significance to other nations. Describe the rise of industrial economies and their link to imperialism and colonialism. Discuss the locations of the colonial rule and explain imperialism from the perspective of the colonizers and the colonized and the varied immediate and long-term responses by the people under colonial rule. Describe the independence struggles of the colonized regions of the world. Understand the challenges in the regions, including their geopolitical, cultural, military, and economic significance and the international relationships in which they are involved. Describe the recent history of the regions, including natural features, resources, and population patterns. Discuss the important trends in the regions today and whether they appear to serve the cause of individual freedom and democracy.

**Students**

Students participating in this unit include thirty SDAIE World History students, predominantly in the 10th and 11th grades, and twelve Spanish IV-V students. Three SDAIE students are native to Japan, two were born in Russia, and the majority of students are native to countries of Middle and South America including Columbia, Guatemala, Mexico and El Salvador. Foreign language students are level four and five International Baccalaureate students. Two of the twelve are native Spanish speakers. These two classes have met together several times throughout the world history course. The Spanish students practice language skills as they assist the SDAIE students in completing activities in small groups. The students from these two classes have developed a positive rapport that extends beyond the classroom.

This unit offered an opportunity for students in a world history SDAIE class and foreign language students in Spanish IV-V to work together to share cultural experiences and apply conversational and writing skills in a real-life environment. It also gave SDAIE students an opportunity to assist language students and discuss their personal experiences.

**Facilities/Materials**

No special facilities are required. Materials included handouts, maps, matrixes, texts and placards. Classroom walls were used to post collected data to build the matrix students used to draw conclusions about Latin American countries.

**Outside Resources**

No outside resources were required.
Edgar Allan Poe, Not Your Ordinary 'Joe'!

Joyce Stephenson, Santa Susana High School

Business Partner: Ventura County Star

For grade levels 9-12

Curriculum Areas: Language Arts

The Unit and Its Value:

High School students examine the life and works of Edgar Allan Poe, harbinger of the modern 'horror' story, definer of the modern short story, and creator of the modern detective story. The three to five week in-depth study of this important American author starts with learning the life history of this brilliant man. They learn how his tragic childhood, combined with his unique genius created new genres in American literature and ushered in a beginning psychological interest in the 'dark side' of the personality well before Sigmund Freud's work in psychoanalysis.

Abraham Maslow's Hierarchy of Basic Needs gives them a framework for understanding what all humans need to be psychologically healthy. The Grief Process is also taught to understand the effects of the many personal tragedies in Poe's life. They read biographical hand-outs, do a web quest search in the computer lab, and watch an A & E Biography video, taking notes to practice the web-cluster type of outline. This research about his life is then turned into acrostic biographical poems, which are displayed and shared.

The Elements of Horror are taught and students create an illustrated storyboard to show their understanding. Since these storyboards are based on student imagination, they enjoy sharing them. Topics have ranged from Little Red Riding Hood to alien space ship visitations. Horror is, after all, a favorite teen genre.

After reading three or more short stories they create, both literally and symbolically a Venn diagram using symbols from his life (instead of the usual double circle format) to compare and contrast two of his short stories before writing an essay. This is based on their choice from several stories the class has read and discussed. In this essay they also make connections from the events in the story to the tragedies in Poe's life, incorporating quotes and symbols from the stories appropriately.

Finally, they watch the movie Stand By Me based on a novella by Stephen King, one of our most popular current horror writers. They take video notes and do a follow-up character development essay based on
one of the four boys in the movie.

**State Standards**

This entire unit supports State goals to be able to write in a clear and concise manner, to apply higher-level thinking in analyzing literature at several levels and to use creative synthesis in quality products. It also meets district requirements for various types of essay writing.

**Students**

In 2000 through 2003 many aspects of this activity were completed yearly by 70 - 110 regular education tenth grade students as well as 30 - 50 special education students with another teacher. The project continues to develop and grow each year. Former 'honors' students now in the regular classroom have also enjoyed the project. One student requested and received as her Christmas gift, the complete works of Poe. It can easily be adapted in part or all to other grade levels, as Poe is taught in the 9th, 10th, and 11th grade.

**Materials**

There are many web-sites that have Edgar Allan Poe stories and poetry on-line. A & E has an interesting video, and biographies are generally available in school libraries.
The Magic of Fairy Tales
Laurie Cariker, Madera School
Business Partner: PSI Bearings
For grade levels 2-6
Curriculum Areas: Language Arts/Writing/Speaking and Listening

The Idea and Its Value.
Once upon a time there was a third grade classroom filled with children discovering that good triumphs over evil, brains are usually better than brawn, perseverance and hard work eventually payoff, and that justice will prevail. The students had discovered all of these things by reading, discussing, rewriting, comparing and performing Cinderella stories from around the world. Working with approximately twenty of the lowest readers in the third grade required teaching a curriculum that had not been used before. Many of these children were repeating third grade and therefore needed something new and interesting that was geared toward their maturity level and didn't involve reading materials they had used (with little success) before.

Our unit began with a daily reading of a wide variety of Cinderella stories and charting the characteristics of a fairy tale. The children then worked with a partner to read one version and to list in a Literature Response Log all of the characteristics they found. On another day, they wrote a description of the setting, and on another, a character description from the story. One day each week, they partnered with a kindergartner to read a story that they had practiced during the week. The third graders knew that they needed to choose books that were easy enough for their Kindergarten buddy to understand, but in reality it allowed the third grader to be reading a book that was truly at a low enough level for them to read fluently.

The children used individual world maps to glue paper slippers on the countries from which these tales originated. This allowed us to study different cultures, customs, interpretations and viewpoints. Children used various sources to find two or three facts about a country to share orally with the rest of the group. Venn diagrams were utilized to compare and contrast the different versions with the American Cinderella. We studied cause and effect: for example, who were the different fairy godmothers and why did they appear in each story? How did magic affect the story and characters? What if the magic didn't work? Point of view, author's message, alliteration, onomatopoeia, and basic plot were discovered throughout our study.

Storymaps were modeled many times with the whole group using an overhead, while each child individually filled in one on paper. These were kept for reference in a reading folder to use with a partner to fill in storymaps for a different Cinderella story. In this way students were able to analyze the elements of a story–theme, plot, setting and characters–the problems in the story, and how the character overcame and/or
solved these problems. Storymaps also helped to guide discussions on the variations in different versions of Cinderella tales: different personalities of the main characters; positive and negative qualities of Cinderella, the stepmother, stepsisters and the prince.

Building background knowledge, making predictions, (who or what would be the “fairy godmother” in the story? What would they use for magic? What would the "glass slipper" be—a cowboy boot, sandal, red slippers, etc?), using picture walks, generating and responding to essential questions, connecting to prior knowledge (text to text, text to self, text to world), visualizing, and making inferences enhanced comprehension. Literature Response Logs were used daily by the children to record feelings, responses to questions, and predictions for an upcoming story.

Near the end of the unit, children gathered in groups of three or four to perform written versions in a Reader's Theater format and then to rewrite their favorite version into their own Reader's Theater. This gave them further practice in writing using correct punctuation, spelling and grammar. When they had practiced many times and performed for their own class, they performed for other third grade classrooms and for their kindergarten reading buddies.

Several extensions are possible for this unit: a friendly letter from one character to another, illustration of a character or setting, fictitious newspaper articles, want ads/posters, poetry, TV news interviews, a contest to design a new slipper or graphs to chart the student's favorite tales.

Our culminating project was to have each child write an original version of a fairy tale. We brainstormed different beginnings and then allowed partners time to work, then share their ideas with the rest of the class. We used storymaps to plan the new version before completing their own-eventually to be illustrated and made into a book. These books were also shared with the kindergartners and then placed in our classroom library.

This unit was taught for three months. Adaptations were made to allow for the low level of readers in my class, including two resource students and one full inclusion autistic student. My goal was to build their self confidence, increase reading comprehension and vocabulary, promote higher-level thinking skills, and analyze the elements of a story using high-interest reading materials, thus encouraging these struggling readers to gain confidence. All of the books were read and discussed with the whole class, many were listened to on tape, and writing assignments were modeled numerous times and modified to meet the needs of the individual students. Students were encouraged to work with a partner for almost all of the activities in the unit. Students were assessed by reading their responses in their Literature Response logs, watching oral presentations of Reader's Theater, original fairy tales, poetry, art projects and their final original fairy tale. In addition, SRI reading scores increased an average of 140 percent.
State Standards

This unit supports the state standards for our third grade curriculum in Language Arts (Reading, Literary Response and Analysis, Comprehension and Analysis of Grade Level Appropriate Text), Writing Strategies and Speaking and Listening.

Students

This unit involved 20 third grade students but can be easily adapted to grades 2-6. Students of all academic levels can participate. All learning modalities are incorporated into this unit.

Facilities/Materials

Cinderella stories from around the world, tape recorder, Literature Response logs (a journal), art paper and materials, a world map, atlases, and chart paper. Software such as The Jolly Post Office, Story Weaver and Kidspiration, if available, are an extra resource.
Foreign Policy in the 20th Century: How the US Affects the World
Jennifer Duston, Ryan Duston – Foothill Technology High School
Business Partner: Ventura County Star
For grade 11
Curriculum Areas: US History, English, and Math

The Unit and its Value:

The goal of this project is for students to understand how America's foreign policy decisions affect the world. Students examine ten various foreign policy issues in depth to have a Town Hall meeting to discuss how America's decisions in foreign policy affect the world. At the completion of the project, students will have in-depth knowledge of a particular foreign policy issue having written an individual research paper and then worked as a group to write an action plan for the United Nations to follow when dealing with foreign policy issues in the world. Through this project students will gain an understanding of how government works, United States foreign policy both past and present, research skills and writing, how to create an action plan, presentation skills, and technology skills. This project encourages higher order thinking skills by making students apply the knowledge of previous American foreign policy and create a plan as to how the UN should deal with the current situation.

Students were introduced to the project as an entire 11th grade class with mock protestors (parents) circulating around campus at lunch in October. All 11th graders were then brought to the multi-purpose room to view live protestors (teachers) making one-minute speeches about each of the foreign policy issues that will be addressed in the project. Once the speeches were complete the still dumb-founded 11th graders were then given a brief introduction to their task of advising the UN on how to deal with these intertwining foreign policy issues.

Throughout the course of the project students will prepare an annotated bibliography of at least 15 sources including books, Internet articles, primary sources including speeches and interviews, pamphlets from interest groups, and sources from outside the US. Students will then create an outline of the research conducted for review by instructor. Once the research is approved students will then begin work on the actual research paper and create a political cartoon. This research paper must also include an appendix, which graphs monetary expenditure of the US on these issues, as well as a graphic display of their choice to support their research and recommendations. Upon completion of the individual research paper, students are then grouped based on their foreign policy issue to formulate an action plan as a group. In this action plan students assert short and long-term goals for the US, and how these goals will affect other countries, as well as justification for these actions based on historical precedent. Once the action plan is complete the
group begins work on their presentation for the Town Hall meeting to be held at the end of the year. Students will use a variety of methods in their presentations including live video, PowerPoint, charts, graphs, and the distribution of their original pamphlet. Various college professors and students from various 4 and 2-year institutions such as USC, UCLA, UCSB, CAL State Northridge, and Ventura City College who are experts in the field of foreign policy will assess students. The quality of the individual research papers as well as the depth of the discussion in the Town Hall meeting measure the success of the project. This project addresses the needs of all learners by encompassing a wide range of aspects into the project: research, writing, presenting, working as a group, working with technology, etc. No matter what the students' strength, there is a spot for them on the team.

This project is beneficial in that it is used throughout the entire year to constantly reference historical precedent of American foreign policy. Understanding American foreign policy is so crucial to our citizens that this project is extremely relevant and useful, especially in current times, to our students. Other teachers if not able to adopt the whole program, should at least modify it to give their students a solid understanding of American Foreign policy and the workings of our government and especially the effects we have on other countries. That I feel is the real value, many times our students go through classes with a "tunnel-vision" of the US and what we should do, this project forces them to look at the far reaching affects our actions have on other citizens of the world.

State Standards

This project completes California State Standards 11.2, 11.4-11.9, and 11.11 for grade 11 United States History and Geography.

For grade 11 English complete standards include: 2.1 Structural Feature of Informational Materials; 2.2-2.5 Comprehension and Analysis of Grade-Level Appropriate text; 2.6 Expository Critique; 1.0-1.5 Writing Strategies/Organization and Focus; 1.6-1.8 Writing Strategies/Research & Technology; 1.7 Writing Strategies/Evaluation and Revision; 2.0-2.4 Speaking Strategies

Students

All 150 11th grade students are currently participating in the project. Students are enrolled in either college prep US History and English or AP American Experience (AP US History/English combined.) Their achievement level at this point has far exceeded the expectations of the instructors and can be improved upon by better resources next year.

This project could be adapted to include special needs students by pairing them up with a college prep student or by simplifying the research paper, providing the research for them and scaling down questioning level in the town hall discussion.
Materials

Computers for research, invitations for authentic assessors & group pamphlets, technology (VHS Tapes, CD’s, Digital Camera, video camera for taping, etc.); updated books on current foreign policy issues

I will provide on disk copies of all handouts, instructions, and timelines used to implement project. I can also provide examples of the finished project.

Outside resources

Authentic assessors from various local colleges and universities (professors and foreign policy students); substitutes needed for team planning days and grading days (there is extensive grading involved, approximately 1 hour per paper for extensive feedback)
The Unit and Its Value:

While studying inheritance students learn how genes are used in cutting edge technology and go on to do some genetic engineering themselves. The unit starts with an overview of genetics as determined by Gregor Mendel in 1863 and the process of meiosis, which students emulate using different sized cards. Students "make" a baby by applying concepts of dominance, recessiveness, pleiotropy, and polygenic inheritance. Guest speakers from Technical Associates, a local business involved in DNA fingerprinting discuss genetic fingerprinting: how it works, how it's used, and what it's limitations are. After DNA fingerprinting we study DNA structure, replication, and control, and set the stage for a genetic engineering lab.

Students start the genetic engineering lab by using restriction enzymes to cut apart bacterial DNA. Electrophoresis gels are then run by students to confirm the cutting. These gels sort DNA fragments based on their length. Next, students mix fragments from different plasmids and use the enzyme ligase to sew them together, running gels again to check that ligation actually occurs. At this point, some of the reconstructed plasmids contain genes coding for ampicillin (a particular antibiotic) resistance, a control element sensitive to the presence of arabinose (a sugar), and a phosphorescent jellyfish gene. Such plasmids are also available commercially from BioRad, purified and tightly coiled, along with bacteria and growth media. Students grow these bacteria, insert the plasmids, and then grow the transformed bacteria (bacteria that have taken up the plasmid) on media containing ampicillin. The ampicillin allows only transformed bacteria to grow. A further check of transformation is performed by using arabinose to switch on the production of the jellyfish protein and seeing that indeed these bacteria now glow in the dark. We review again what the students have learned: DNA's structure, how it's controlled, the role of gel electrophoresis, restriction enzymes and ligase in biotechnology, and how bacterial cultures are screened for transformed individuals. We then do an internet search to determine the fears and accomplishments of the biotech industry. Finally students bring biotechnology back to Mendelian genetics by amplifying a non-coding portion of their own DNA using PCR and determining if they are homo- or heterozygous for the amplified section of DNA.

The unit takes 3-4 weeks and really excites students about genetics, biotechnology, and molecular biology. In fact, some are now in college majoring in molecular biology because of this experience.
**State Standards**

The unit meets high school "Investigation and Experimentation" and "Biology/Life Sciences" State Content Standards such as selecting and using appropriate technology, researching science-based societal issues, comparison of prokaryotic and eukaryotic cells, synthesis of macromolecules, as well as all genetic standards.

**Students**

45 advanced students completed the unit last year in my class, and the material is also used quite successfully by schools throughout Los Angeles and Ventura counties with regular biology classes. Students seem to enjoy the application of Mendel's laws to making their own "babies", and getting to work with high tech equipment they know are being used in modern biotechnology labs. Many students have seen electrophoresis gels on TV and are excited to run them themselves.

**Materials**

The genetics-engineering lab uses material from the Gold Coast Biotechnology Consortium, Amgen, and a bacterial transformation kit commercially available from BioRad labs. The material from the GCBC and Amgen are available to teachers throughout Ventura and Los Angeles to teachers after they have participated in free training.
Get With The "Time"

Tina Osborne, Our Lady of the Assumption

Business Partner: Ventura County Star

For grade levels 6-8

Curriculum Areas: Social Studies

The Unit and Its Value:

This comprehensive unit is designed to increase student awareness of current events and involve students in the process of relating these events to their own lives, develop and improve critical thinking skills, and enhance student writing and organizational skills. It integrates English, Science, Math, Technology and Art into the Social Studies curriculum. The unit culminates with each student publishing and presenting a unique issue of "Time" magazine.

The unit, carried out over the entire school year, consists of one major article per month. During this time students continually read and discuss current events in newspapers and magazines. Daily newspapers are made available to students in the classroom.

Using an actual Time Magazine, the teacher introduces students to all the elements of the magazine, discussing style and layout while bringing attention to things like cover stories, editorials, historical events, book and movie review reviews, politics, international affairs, etc. Students are then told that they will be featured in their own Time Magazine as the cover story "Man or Woman of the Year." For the cover story students write a concise and creative autobiography of themselves as though it would appear in the magazine.

As the unit progresses a variety of subjects are investigated by the students and "reported" on, such as significant weather patterns, historical events, international and local affairs, educational issues, outdoors, and fashion. Pertinent issues of the day are researched by the students and discussed or debated in class. The students then take the information they have gathered and "journalistically" report on the subject as it relates to their audience (Jr. High students). Students use their original artwork and photographs to enhance the publication.

For several of the articles the teacher provides the general subject, such as politics for an election year. After research and class discussion students select the "twist" they would like to use on their story. Reasoning skills are used to defend their "position" on certain subjects and convincing evidence must be used to persuade and catch the attention of their audience. The student writes a rough draft of each
article, which is corrected by the teacher. The corrected drafts are handed back to the students who then format them for the layout of their magazine. After all of the articles have been written, the students work with the teacher to finalize the magazine layout. Each student is responsible for getting his/her magazine "published". The student must oversee the organization of articles, art, layout of the cover and the final binding of the magazine.

Students take an active role in current events, improve writing skills (drafting, prewriting & editing), develop higher level thinking skills, learn about responsibility and independence while coordinating the actual "publication" of the magazine and conducting interviews for articles, learn to formulate and convey opinions, and learn the difference between fact and opinion. They are also exposed to various professions such as reporter, lawyer, and more, as guest speakers are invited into the class.

This unit engages all learning levels, builds self esteem and encourages creativity as it gives the student confidence to develop and express their opinions on paper. It promotes positive attitudes among the students as they thoroughly enjoy reading and reviewing each other's work. Continuous assessment throughout the unit provides immediate feedback on each article. Students are able to see their growth in the final product as they compare early articles to latter ones. Standardized templates are used to format each magazine, therefore, whether the student is an overachiever or a special needs student, each student's final product is something that generates great pride.

**State Standards**

This unit meets State requirements in many areas, but especially in the area of respecting student's thinking and demanding well reasoned arguments rather than opinions voiced without adequate thought or commitment. It is also integrated across the curriculum.

**Students**

Over 200 students during the past 8 years have participated in this program.

**Materials**

Templates, newspapers, colored pencils, red & blue markers for cover, computer.

**Outside Resources**

Students go on a field trip to a local newspaper production facility.
It Begins With Education

Diane Dowler, Buena High School

Business Partner: Ventura County Star

For grade level 9-12

Curriculum Areas: Social Science and Art

The Unit and Its Value:

This unit begins with a class lecture on social problems. The class discusses various contemporary social problems and then moves into possible solutions for the various problems. The class also examines various theories of group responses to crisis situations. The hour ends with the story of Polemicus, a monk, who through his actions ended gladiatorial fights to the death in ancient Rome. The point of the story is that Polemicus saw a problem, and rather than sitting passively like the other spectators in the Coliseum, moved directly to confront this barbarous practice.

On day two I challenge the students to choose a social problem they would like to address. They must research their problem using library and on-line sources, keeping track of the bibliographical data. Recent general problems have included violence, overweight children, bigotry, eating disorders, overpopulation and teen suicide.

Believing that the first step in solving any social problem in a democracy is educating the public, students create an educational collage. The collage must include images about their problem, statistical data about their specific problem, and the collage must be in a shape that represents their problem. I remember one girl who researched bulimia and presented her collage on a toilet seat. Ocean pollution appeared on a trash-covered surfboard and bigotry was once represented on a white hood. Convincing students that they are creative is one of the biggest instructional challenges in this unit. Once they have data and a shape in mind they really "take off".

The research work takes place at school; the creation of the collage takes place at home. Usually, I give students a week to work on their collage. The due date for the collage is always a special day. Students never miss class on that day as the last part of this assignment is an oral presentation of their collage. Each student must "educate" the class using their collage as their prop.

State Standards

This collage directly addresses standard 11.11… Students analyze major social problems and domestic policy issues in contemporary American society... from the History-Social Science Framework for California Public
Schools, although it could be used in any social science class that addresses social problems. It also integrates art into the social science curriculum and provides alternate avenues for success for all students.

**Students**

This project is most gratifying in that it involves all levels of students. Special Education students and Gate students are equally capable of achieving excellence on this assignment. It also provides an incredible sense of class community as ten minutes at the beginning of each day during the creation week are devoted to troubleshooting. We discuss problems students are having in the creative process or in the research process and other students provide suggestions. So, by the end of the week all students are invested and eager to see the collages that the other students have created.

**Materials**

Magazines and odds & ends from students’ homes.
Knock, Knock! Who's There?
Sherry Adkins, Walnut Elementary School
Business Partner: Rotary Club of Ventura
For grade level 3
Curriculum Areas: US History, language arts, visual & performing arts

The Unit and Its Value:
This is a unit used to teach immigration to our third grade students. It is further used to study thematic literature like Molly's Pilgrim and 100 Dresses.

All children benefit from learning to think critically. Sandra Kaplan's Elements of Depth and Complexity icons were used in developing the specific activities and lessons taught during this unit. For example, the language of this time is taught, the details of the big immigration are learned and practiced throughout the unit, the trends of immigrations are taught and compared in different cultures, unanswered questions are raised and explored, and the ethics of immigration rules are explored.

The unit begins with the reading of Molly's Pilgrim, a realistic fictional story about an immigrant girl from Russia and the troubles she and her family encounter by being different in their community. Following the reading and discussion of the story, the children research their own family's roots and design and make clothespin dolls representing their family's country of origin. We continue with reading 100 Dresses, a prize-winning story with a similar theme. Various activities include summarizing chapters, writing letters to characters, writing diary entries explaining how students might feel in similar circumstances, and a dress design contest. At the same time children are exposed to the history of immigration through the study of biographies of famous immigrants, interviews of family members who immigrated, and other non-fiction trade books about immigration and Ellis Island. The students are asked to consider what they might have brought or left behind if they had immigrated by packing a bag on paper. Study continues with a look at the kinds of food immigrants might have brought with them like the various breads people around the world eat. One afternoon we hold a bread tasting.

Just before winter holiday, we present a program for the parents, which includes first hand pictures of immigrants on Powerpoint with all 80 students narrating what these pictures represent. The children are dressed as nearly like the turn of the century as possible and we loan them babushkas and neckerchiefs to wear. During this part of the program songs are sung such as "Coming to America" and "The Great American Melting Pot."

Prior to the Ellis Island simulation each child is assigned a European persona. Some children travel with a family and some travel alone. All are given about $5 in play money to pay their fees during the simulation.
All pack their backpacks with books for their trip luggage. The classrooms are decorated with signs, and we enlist the help of several parent volunteers. All immigrants meet in front of the school for welcome remarks from the President (school principal) and The Statue of Liberty (me). After the children go through the stations, we finish the day with a writing assessment describing what happened during the simulation. We think this gives our students a wonderful memory of the important topic studied in an age appropriate engaging format.

**State Standards**

This is a US history unit with integration into language arts and the arts: drama, music, and art all of which supports the state standards

**Students**

It is taught to 80 third grade students at our school. Core curriculum activities include projects from various levels of difficulty, which engage the limited English speakers and students with other special needs as well as the gifted.

**Materials**

Regular classroom materials including art materials such as water-colors are used for all activities. Trade books, reference materials, video, and the Internet are also used.
Liberté, Egalité, Fraternité: Democracy Is Not Easy
Cherie Eulau, Foothill Technology High School
Business Partner: Nordman, Cormany, Hair & Compton
For grade level 10
Curriculum Areas: Social Science

_The Idea and Its Value:_

This four week, tenth grade World History unit about the French Revolution is designed to involve the students in events of the revolution so that they will understand that creating a democracy is not easy, whether it is eighteenth century France or twenty-first century Iraq. After completing a mini-unit on the philosophers' views about democracy, the stage has been set to launch the French Revolution!

The first phase of the unit is geared toward having students understand the inequalities of French society through simulations. As the students enter the classroom they are randomly handed a role; however I selected the King, Queen, banker and Robespierre. Peasants in all classes sat on the floor during this phase. Liberte is structured around real French identities including nobles, bourgeoisie, clergy and the controller general. Fittingly, the peasants don't get names. The peasants work by making "wheat" and are heavily taxed by the nobles and the Church. The nobles supervise their assigned peasants, collect wheat, visit other nobles and the king and queen. In Liberte the nobles decided which taxes to collect and there were also members of the bourgeoisie who conducted business by trading goods. The clergy collected the tithe and the banker tallied all taxes and recorded them on a wall chart. For Liberte the students wore nametags each day with their name and wealth. Rewarding students for positive attitudes and behavior with "money" is an effective motivation. This phase clearly demonstrated the frustration of the French people and the absolute power of King Louis XVI. At the end of this phase an announcement is made that France is almost bankrupt despite the tax collection due to extravagant spending and French support for the American Revolution, and a as result, King Louis XVI has called a meeting of the Estates-General. The peasants are quite frustrated at this point and ready to rebel. During this phase a parent sent me an e-mail, which said, "I just wanted to tell you how ENTHUSIASTIC Ellen is when she comes home and tells me about what she is doing in your class."

For the Estates-General and beginning of the revolution phase, the students enter the class according to their identity, royalty, clergy, nobles, bourgeoisie and last and least the peasants. The Honors students read and analyzed real cahiers, or the lists of grievances, and wrote their own for the meeting. The king in each class read parts of the speech King Louis gave which led to the rebellion of the commoners or the Third Estate and the subsequent Tennis Court Oath. The Third Estate then stands and recites the oath, which is followed by another brief speech by the king accepting the demands of the Third Estate with appropriate
applause.

The students learned about the storming of the Bastille by reading a script published by Interact. The college prep students illustrated the events of the day in comic book style. At this point they were also given instructions for the culminating activity, a storybook of the French revolution. This project requires them to write about six major events of the revolution using sensory details and historical facts while gearing their work to a ten year old. For each event of the revolution they must write whether it was a step towards democracy or not. The National Assembly phase of the revolution involves examining the Declaration of Independence and the Bill of Rights and comparing them to the Declaration of the Rights of Man and Citizen. The Honors students also did research and recreated the trial of King Louis. The trial involved all students either as lawyers, judges or members of the National Assembly who had evidence to support or refute the charges against the king. This activity was exciting as we watched the lawyers think on their feet and twist the evidence provided. Interestingly, not all classes convicted the king.

It was at this point we began to formally read, discuss and analyze the difficulties of setting up a democracy after the fall of a dictator. The students read editorials about Iraq and drew parallels between that conflict and revolutionary France. The mantra of the unit became: "Democracy is not easy; it requires constant vigilance." This idea became even more important as we began the next phase of the revolution: the Reign of Terror. After reading an eye witness account of the execution of the king in the college prep classes, a pre-selected student acted as Robespierre and jumped up to begin the Committee of Public Safety's denouncements. I had planted "evidence" in a few students' binders and backpacks, and the students chanted "off with her/his head" as the students were marched up to the model guillotine and then off to the class "graveyard". The student who was Robespierre from the beginning in the Honors classes had created a committee using the historical identities and began to denounce "traitors of the Republic", including his former friend, Georges Danton who was quite surprised by the denouncement. The students watched a brief clip from the French film Danton, and all students watched clips from A Tale of Two Cities to bring sight and sounds to this phase. The students again read articles about Iraq and we discussed the possibility of civil war or a return to a dictator in Iraq based on the experiences of the French Revolution. They drew a spectrum from 1-10 about their optimism of a thriving, successful democratic Iraq in the near future.

The storybook project gave the students a creative way to demonstrate their knowledge and for some, an outlet for their artistic talents. The Honors students wrote an essay on one of two topics: Assess the validity of the S.E. Finer quote, "The French Revolution is the most important event in the history of government", or "To what extent and in what ways was the French Revolution during the period 1789 through the Reign of Terror (1794) an attempt to create a government based upon Enlightenment ideals?"
Many students compared the French revolution to the situation in Iraq in their concluding paragraphs. One student wrote," Both of these countries have many things in common including political upheaval, war-torn environment, and a poor economy ... The only thing we can do now is to question ourselves if the Iraqis [will] follow the enlightenment's ideas when rebuilding their country, will a Reign of Terror of their own follow, [or] will the effort to rebuild Iraq create a period in which the country's newly formed ideals will be distorted and twisted ...”

Additionally, all students took a multiple-choice test and the college prep students also answered short essay questions since they did not write a long, formal essay. Generally, the students enjoyed this unit and I have found it easy to adapt to different levels of students. Any student remembers sitting on the floor as a peasant or watching classmates hauled off to the guillotine. What was most rewarding was having them make the connections between the phases of the French Revolution and the current situation in Iraq. We continue to explore these ideas.

**State Standards**

It is designed around standard 10.2. The unit is set up to reenact stages of the French revolution through role playing but also involves research, essay writing, analysis of democracy in each stage, comparisons to the American Revolution, and a creative yet informative culminating project.

**Students**

This year the unit involved 63 Honors students and 70 College Prep students, but I have adapted this unit for non-college bound students. The Honors students participated in Liberte by Interact, and I adapted a Teacher's Curriculum Institute (TCI) simulation for the other students.
Lifestyles of the Wild and Endangered
Debbie Moore, Camarillo Heights Elementary School
Business Partner: Procter & Gamble
For grades 2 and 3 with 5th grade research partners
Curriculum Areas: Science, Research Techniques, Writing, Reading, Music, Poetry and Art

The Unit and its Value:

*Lifestyles of the Wild and Famous* introduces the students to the world of research through non-fiction books, encyclopedias and technology. It allows for creativity in the vehicle of reporting information such as report writing, art displays, crossword puzzles, word searches, songs, Powerpoint presentations or poetry.

To begin *Lifestyles of the Wild and Famous* students choose the animal that they will research. This hands-on, student-centered activity begins with art. The students select pictures of their animal from magazines to fashion an art folder, complete with a pointillism painted geometric patterned border in their animal’s camouflaging colors, to house their research. Over a period of three weeks each 2nd and 3rd grade student visits the library, checks out books and meets with a 5th grade research partner to navigate the web at our media center. The 5th graders hone their technology skills by accessing sites for information. Condensing it to main ideas and crucial facts, the 5th graders read for pertinent information and relay that information to the younger student who adds it to the notes for the project. This symbiotic relationship allows the 5th graders practice in researching and reading for main ideas, while the younger students are exposed to technology techniques.

The specific instructional purpose is to introduce research methods and prepare a culmination of the information gathered. 2nd and 3rd graders learn how to take notes and write paragraphs using topic sentences and detail sentences. The value is that all students learn about their topic through more than one resource and have the opportunity to work and learn from older students. The educational value for the 5th graders is that they are able to work on their research skills and read for specific information. They are invited to the *Lifestyles of the Wild and Famous* culmination activity.

Promoting higher level thinking skills is achieved in the freedom of the project. Students can submit more that one project on their animal such as a research report, poster, power point activity, poem, a song about its habitat, hunting methods or status. Extra credit activities are available to the children who wanted to examine their topic in more depth. They are given extra time to work on the activities and many chose to do outside research at the public library or on the internet at home.
The educational value is far-reaching. Note cards, paragraphing organization, visual displays are all lessons being taught throughout the unit. In a multi-age class of second and third graders, higher-level thinking skills were promoted by allowing the students to choose their method of reporting. Students wrote songs or poems to convey information and incorporated music, rhyme and meter. Other students choose to create crossword puzzles with clues and facts, word searches or acrostic poems.

Allowing choice was the secret to positive student attitudes and behavior. Not only did the students get to choose their topic, they had many educational choices of how to present the information. Multi-modalities of learning incorporated music composition, song writing and art as alternative projects in a science based theme. Using 5th grade research partners allowed for proper modeling of behavior, attitude and how to use the library and research methods to the best advantage.

All learners needs are met because of the diversity of the end product. Students assisted one another, shared information as well as suggestions on topics and projects. Children were allowed to make decisions as to how they could best present at the Lifestyles of the Wild and Famous culmination display. Classes and parents were invited to review the projects, listen to the beat of poetry, be regaled in song and music or hear conventional oral reports.

Success was measured at intervals during the unit. All research was turned in which included information from the internet, glossary of terms written about the topic animal, note cards, informational paragraphs written in class, pictures and worksheets. These were graded & weighted with the culmination activity being 50% of the grade. This method of accountability kept students on track so that no one could fall behind and everyone was ready for the final project.

The benefit of this unit for teachers is that children become excited about learning how to research and making their own choices. By working with others, all parties are enriched. It also allows children with special talents to shine if they chose to incorporate them with their project. As teachers, it is enlightening to watch your students venture out on their own to create a project of which they are truly proud. A student doesn’t have to be good in all areas of the curriculum to complete a successful project. In reality, the students who give and ask for help learn the most, and I consider them successful.

State Standards

This unit bridges the curriculum by incorporating science, technology, geography, current events, art, music, reading and writing. It also lends itself to district and state standards in that it is flexible enough to insert the lessons that need to be taught such as research skills, note taking, paragraph writing, and reading for information.

Students
This unit can be done in part, whole, or adapted for any topic at any grade level. The essence of the project is to allow student-based instruction to take place. This is a multi-faceted unit, which can be adapted to suit the needs of a teacher. It can be modified to any type of learner, as it can be cooperative or individually based.

**Facilities/Materials**

Access to library and computers or media lab and musical instruments if needed.

**Outside Resources**

Presentations by resident experts from the community were given on native California animals.
Mars Maniacs!
Becky Monka, Los Primeros
Business Partner: Rockwell Scientific
For grade levels 1 - 3
Curriculum Areas: Science, Math, Language Arts

*The Idea and Its Value.*

The children were excited! The first simple newspaper article opened up their imagination about life, outer space, and the incredible world of science. They wanted more information about Mars, Spirit and Opportunity rovers, and NASA’s current research about life on this cold planet. Newspaper articles, discussions from home, and the information seen on TV became standard during our share time. I wanted their natural curiosity to lead them to their own conclusion regarding Mars. NASA's web site was introduced and the appetite for more information was insatiable. This is how we became the **Mars Maniacs!**

The activities developed for this unique learning opportunity had three purposes: first, gathering information as a basis for conclusions about Mars; second, participation in building their own Mars rovers; third, experiencing life as an astronaut on Mars. The curriculum unit was approximately three weeks in length.

The children and teacher developed a survey to gather opinions about Mars. To manage the survey, it was decided to inquiry age groups, list simple questions, and include a space for the interviewee to make additional comments. The first inquiry came from their parents and siblings. The second inquiry was accomplished within our class. A week later they sought different age groups, many asking grandparents, relatives, and people in the community. The comments given were extraordinary and provoked creative ideas. By sorting the responses by age groups and answer selections, the children were able to practice using their own statistical data.

NASA's web site added additional science information, interactive activities, and reality and simulated videos of the Mars expedition. Highlighting the purpose of the Mars rovers’ visit on Mars, the children developed a deeper understanding of the significant contributions the six wheeled vehicles were providing. Daily, they experienced their own link to NASA through the Internet. Many were using their home computers to be active on the children’s site NASA provides. In addition to online activities, I downloaded word searches and other tasks for permanent use.

Next, the children made their own versions of the Mars rovers. They could use any materials they wanted but the rovers needed to withstand our version of a landing. Rovers were to be dropped from the highest
point on our playground, which happened to be on top of our slide. Other classes were invited to participate in the activity. The children knew that Spirit and Opportunity used a parachute to slow their entry and air bags to soften their landing on Mars, so many of their rovers included their own ingenious landing devices. We watched each rover make the tremendously speedy ascent and final landing. It was a fascinating but solemn event. Some say the “red planet” is not forgiving and the class found likewise on our artificial Mars.

In order for the children to sense how astronauts might live on Mars, the children experienced first hand just such a task. The teacher’s desk area was Mission Control for the week and the “launch” information was broadcasted via the TV. Anticipated launches to Mars were delayed due to CommSat (communication satellite) reporting “high numbers of Rems” (radioactive particles) but the mission to Mars was finally completed. The children furnished their EVA suits (extra-vehicular activity) by bringing their helmets, parkas, gloves, and boots to school. They wore their backpacks, which served as their primary life support system, PLSS. The morning was spent in these clothes, having to do all their regular jobs bundled up as they would need to be on the cold, dry planet Mars. The children were, however, able to shed the EVAs when they were in the Mars Hab. This was a two-person tent set up in the class. Learning to live in these small quarters taught them how difficult an astronaut’s life would be on Mars.

For assessment purposes and language arts lessons, each student concluded the project by writing a personal opinion essay about the Mars study. They were asked to address three issues.

1) Why Spirit and Opportunity’s purpose (examining possible life on Mars) is important or not important
2) How and why finding life on Mars might affect their life
3) If it were possible, would they like to live on Mars.

The writing experience was an expression of their thoughts and enabled me to measure the success of this lesson series as they expressed their conclusions about our study of Mars.

Although I have geared this to first graders, any teacher could adapt the activities to use at any grade level. It is truly one of the best equalizer activities for all learning styles and ability levels.

State Standards

Mathematics, language arts, and science activities were aligned with the California State Standards.

Students

All twenty first-graders were involved in this activity. The children consisted of a variety of academic levels and ELD students. Other first grade classes were invited to share in the survey and activities.
**Facilities/Materials**

Tent, warm clothing, a variety of materials to build rovers (paper products, plastic, legos etc.)

**Outside Resources**

Newspaper, computers, NASA web site, library, parents, community
Myth, Art, and Literature:
A Portrait of the Student as a Contributor
Donna Fulgham, Moorpark High School
Business Partner: The Gas Company
For grade levels 6 – 12
Curriculum Areas: Language Arts, Social Studies, Art History

The Idea and Its Value

Joseph Campbell writes that myths are “clues to the spiritual potentialities of the human life.” This unit is designed to enable students to reflect on the power and meaning of myth as well as the hero lurking within each of us. Additionally, students are challenged to look at a long range goal, asking themselves how history will remember each of them as noted in the movie The Emperor’s Club through the main character’s statement, “Great ambition without contribution is without significance. . . What will your contribution be?” As students ponder this huge question, the unit continues with students focusing on the use of myth in literature and art so they can see how Joyce weaves the myth of Daedalus and Icarus into A Portrait of the Artist as a Young Man. Students begin by analyzing and linking a fine art transparency of The Fall of Icarus to the poems “Musee Des Beaux Arts” by Auden and “The Fall of Icarus” by Charles F. Madden. These works are used in conjunction with Bill Moyers’s interview of Joseph Campbell about the importance of myth in the world today. The group interaction activities before beginning Joyce’s A Portrait of the Artist as a Young Man enable students to recognize the importance of this specific myth in interpreting aspects of the novel, as well as to ponder their own heroic capabilities. Long-term reading comprehension goals synthesize content and ideas from several sources dealing with a single issue/theme, and also focus students on style analysis by interpreting and evaluating the impact of diction, tone, attitude, and point of view in text. This interactive activity lays a foundation for the novel study, but also enables students to do important work linking seemingly disparate works, theme ideas, and personal heroic qualities that form a bridge to their real world/future career dreams as evidenced in their personal mythical self-portraits. Their diverse backgrounds also yield different perspectives while enabling them to acknowledge the importance of cultural literacy through the power of myth and its relevance to them as individuals and members of society who CAN contribute with significance.

In the Meaning of Myth Group Activity, students learn how authors have used archetypes drawn from myth and tradition in literature, film, and writings as they approach the painting as if it were a poem, carefully examining all the elements, peeling back the layers to find deeper meaning through their interpretations. After the art and poetry analysis, group work ends with individual oral responses to
This myth group activity begins with four timed segments so students are focused and productive with each in roles of leader, recorder, timer, facilitator, and encourager. They trade group roles with each activity as the recorder notes each student’s contribution. **Part A.** Students discuss key points from the homework reading of the Moyers’s interview on Campbell’s Myth: Its Power and Meaning. **B.** Next, they view a transparency of Bruegel’s *The Fall of Icarus* on the overhead, as well as view copies of the colored artwork on each table along with questions designed to lead students to more in-depth analysis. Some questions focus on what’s happening in the work, the time frame, central image, what is not central, the observer, colors used, mood, tone, and the elements that contribute to these aspects. **C.** After students examine and discuss the painting, they read two poems linked to the fall of Icarus and answer questions. These questions ask about similarities, differences, the essence of the myth that the painting and poems convey, how each use the myth to make a statement about the human condition, and what that statement is. The last question focuses on what this study adds to our understanding of the original myth of Icarus and Daedalus. **D.** Finally, after discussion of the art and poetry, students present their individual mythical self-portraits, where they project themselves into their own future complete with their career/destination, deterrents/mentors, and their values, to group members. Their poems incorporate poetic devices and identify their own mythical qualities, ending this lesson on a personal note linking the power of myth to their own lives. As students share their mythical self-portraits orally, student listeners applaud such lines as the following where a student wrote about becoming a future physician who battles and slays diabetes, “that sweet-toothed beast with fangs unquenched by endless insulin.” (His mother has diabetes and he dreams of his future mythical contribution to the world that could truly affect others profoundly.) The unit then proceeds with a deeper understanding of the myth, art, and literature connections as students actively read and discuss *A Portrait of the Artist as a Young Man*, write stream of consciousness entries, complete study guides, essays, poetry, and a novel reading assessment. Throughout the unit, students reflect on potentialities of what their involvement and contributions to the world will be as they reiterate Campbell’s message about the need to be “well acquainted with literature of the spirit” so they don’t become “so engaged in doing things to achieve purposes of outer values that [they] forget… the rapture of being alive.”

*State Standards*

This unit supports many elements of the standards: Use of precise language and sensory details in writing, high level thinking activities, interdisciplinary and group activities, integration of listening, speaking, reading, and writing that guide students through a range of thinking processes.
**Students**

General, CP, GATE, and AP students benefit from this activity with success for all. Over a hundred seniors have participated with enthusiasm. Throughout this three-week unit, a wide range of student modalities are incorporated with cooperative learning and divergent thinking.

**Facilities/Materials**

Fine art transparencies, music CDs, *A Portrait of the Artist*…novels, Internet, poetry anthologies Joseph Campbell’s “Myth: Its Power and Meaning” interview extracts, and *Edith Hamilton’s Mythology.*
Panther Pi

Lynz Mullaney, Blackstock Junior High School

Business Partner: Blois Construction

For grade levels 4-9

Curriculum Areas: Mathematics

The Unit and Its Value

The formula for finding the area of a circle is pi(r)^2, but pies aren't square, they're round! Panther Pi is a two week unit designed to build student understanding of the formulas for the circumference and area of a circle. This hands-on unit combines the use of literature, technology, and manipulative materials to provide meaningful experiences with geometry. Based on the belief that memorizing isolated formulas presented in a text book will not contribute to students' ability to understand mathematic concepts, this unit provides opportunities for students to make connections between the area of polygons and the area of circles, as well as demonstrate challenging content vocabulary through a variety of standards-based high interest activities.

Introduce this unit by reading the first part of Sir Cumference and the Dragon of Pi by Cindy Neuschwander to the class. This will pose a conflict for students to resolve. To save the king, students have to figure out the relationship between the circumference and diameter of a circle. Students use string and centimeters rulers to measure a variety of circles. In small groups, students record the diameter and circumference of each circle in an organized table. Students enter their collected data into a Microsoft Excel spreadsheet to investigate the relationship between the two variables. Previous knowledge of vocabulary terms related to parts of a circle and the ability to measure accurately are prerequisites to the success of this activity. For students without access to technology, a calculator or pencil and paper, are sufficient substitutions. After guided dialogue, students conclude an approximate value for pi (a little greater than 3). Students listen to the conclusion of the book to confirm their findings. Subsequent lessons include a circle chalk walk and soap print bubble art as well as text based practice to demonstrate the usefulness of this new information and provide basis for assessment. Students are successful because they are afforded the opportunity to discover the value of pi for themselves through carefully planned standards-based activities, which lead to deeper understanding.

With the solid base of knowledge gained from previous lessons, students are ready to use pi to calculate the area of a circle. Again, I use related literature to grab students' attention and create an anticipatory set providing a purpose for performing mathematical tasks. After listening to Sir Cumference and the First Round Table, another book by Cindy Neuschwander, students use manipulative tiles to demonstrate how a circle cut into several equal parts (like pizza slices), can be reconfigured to resemble a rectangle. Students work in
pairs to find that the base of the rectangle is equal to half of the circumference of the circle and the height is equal to half of the diameter. Combining students’ prior knowledge of polygon area and their newly acquired understanding of circumference, students are able to calculate the area of the circle. They are not expected to accept and apply a meaningless formula; they are provided the opportunity to come up with a series of calculations and then simplify those steps to form a valid and efficient equation. Tortillas, or even construction paper cut into circles, can be adequately substituted in the absence of manipulative tiles. Again, students transfer this knowledge to text-based practice to verify that the algorithm is valid and demonstrate their learning.

I facilitate this unit during the first two weeks of March so that the culmination coincides with Pi Day (March 14th: 3.14). Several opportunities to extend and integrate this unit with other areas of the curriculum include: researching the history of pi throughout the world on the Internet and preparing a map to show the countries contributing to its discovery, creating a timeline to show the development of the constant since its inception to current date, assembling a PowerPoint presentation of pi facts to share with other math classes, performing a skit with pi comedy, composing a poem or song paying homage to pi, etc. These extensions can be made accessible to all learners. The most popular activity for students is the pi memorization contest. Students compete against each other to memorize the digits of pi: 3.1415926 ... The student that can recite the most accurate value wins an actual pie to toss in the face of their chosen administrator or math teacher at the spring assembly.

**State Standards**

This unit provides students the opportunity to master content and performance standards for geometry in Mathematics and can be extended to other areas of the curriculum.

**Students**

In 2003-2004, 65 students participated in this unit. Over 350 students of varying abilities and backgrounds have assisted in the development and improvement of this unit since 1998.

**Facilities/Materials/Resources**

This unit is adaptable for any school setting. I am prepared to provide a complete list of resources and detailed lesson plans to support all aforementioned activities.
Political Art: Art With Purpose

Cameron Crouch, Foothill Technology High School

Business Partner: Ventura Chamber of Commerce

For grade levels 9-12

Curriculum Areas: Art, multimedia

The Unit and Its Value:

The Political Art Project is designed for students to express their personal political views through the creation of a political art piece that incorporates prior knowledge of the elements of design, and through effectively using graphics, color, text, and three-dimensional objects.

This is one of the most anticipated projects for Art 1 students. Throughout the year, students learn the fundamentals of drawing, proportions, sighting, shading, and the elements and principles of design. All of these skills are needed for the student in order to be a highly effective artist. Until the Political Art project, students use their skills to create art without a distinct purpose other than fulfilling the assignment. The project is designed to take all prior knowledge of art, drawing, design, and shading, and use these tools to design and create a powerful piece of work that effectively conveys the student's personal political beliefs on a chosen topic. The purpose of the Political Art project is to inform both the students who create the work, and the viewers of the work. The project description requires that each student feels passionately about their topic. Art without passion is bland, but art combined with a sense of urgency and conviction is uncontrollable, fulfilling for the artist, and most importantly, forces people to stop, look, and think about the message.

Students begin the project by participating in a Socratic Seminar. This year, the legalization of drugs was the topic of discussion. Students discussed the benefits and consequences of legalizing drugs. When finished, the students agreed that they were able to see the complexity of the subject, and that there were no simple black and white solutions. This is used to demonstrate the complexity of topics each student will face when they choose a topic for the assignment. After learning the requirements, each student researches the topic from both sides of view, to better understand the beliefs of both sides. For example, a student who chooses to focus on gun control, would also research gun owner rights. Students are asked to question "why" when researching and creating their projects. Asking "why" will allow them to seek out the root of the problem, or to discover that there are additional questions to ask. Once each student has completed the research, they are given a week to brainstorm ideas, then two weeks for the creation and completion of the final project. The project is designed to
last 1.5 months, and is scheduled in the middle of the second semester. All grading is done through the use of a rubric.

When completed, students find that they have thoroughly learned about their topic, both through their research, and in their attempt to present the material in a manner it has never been before. While drawing exercises often leave students feeling inadequate, the **Political Art** Project empowers students and gives them a voice, truly allowing each student to speak with their artistic voice, and it is in their imagery we listen.

*State Standards*

The unit encompasses the four components of the state standards. Students use creative expression and artistic knowledge in the development and completion of the project. As the project is an art piece with a political message, students must utilize their knowledge of aesthetic perception, design elements and principles, and the use of creating interpretation. The end result is a critique, where each student will reflect and use judgment on the completeness and success of each assignment.

*Students*

In the 2001-2002 school year, 95 art students completed the **Political Art Project**. 65 students completed the project with another art teacher at our school.

*Outside Resources*

I use a lot of images from books, magazines, and other graphic related sources to give students ideas and to show examples. Much of what was presented is contained in image galleries that were made especially for the project. Examples of other artist's work, previous students’ work, and hundreds of web links for specific topics are shown in class.
Really Remarkable Rainforests---A Beautiful Biome

Robin Byrne, Los Primeros

Business Partner: Aera Energy LLC

For grade levels 3-8

Curriculum Areas: Science, Geography, Current Events, Economics, Math, Literature, Art, Technology

The Idea and Its Value

The focus of this 4-6 week unit is a celebration of the wondrous nature found within our planet's rainforests. It is an urgent plea to encourage and educate students to work together toward achieving a sustainable environment. Students learn that preserving and studying the jungle's biodiversity can also be F-U-N! A Rainforest Scavenger Hunt is the introduction that allows students (and parents) to search their homes for products that originate in the rainforests and find their way into our spice and medicine cabinets.

Next, students take a "virtual tour" of an actual rainforest using National Geographic's video Totally Tropical Rainforest, Earth Foundation's Save the Rainforest, or equivalent. This visual delight introduces the students to the myriad of sights, sounds, and colors of the tropics. Using the vast variety of trade books available from the library and classroom bookshelves, students explore the rainforest from the exotic animals' points of view. The Great Kapok Tree and Jaguarundi are just two of the many titles possible. Students learn that rainforests hold 90% of all our plant and animal species, and react with "shock and awe" to discover that cutting and burning leads to the creation of a lunar-like desert landscape once the trees are gone.

Differentiation of rainforest layers and stratification of flora and fauna become apparent as students create a "pop-up" rainforest of paper. Habitats are explored as students place animals in their proper layer. Our "Life Lab" terrariums become mini-rainforests in a jar using 2-liter soda bottles. Higher level thinking skills and integration occur as students "Create A Critter" and stuff it with newspaper. These hands-on lessons promote critical thinking and a positive focus. The rainforest animals can be real or imaginary, and students write stories, poems, or acrostics using rainforest vocabulary. Power Point or video presentations can also be created. Multi-sensory stimulation is provided using a tape of rainforest sound effects. Kinesthetic learning is involved as students create their own sound effects by a simple activity of clapping, snapping fingers, and rubbing hands together in a rainforest simulation that is surprisingly effective.

Working in pairs/small groups, students create a 12"x18" or larger Rainforest Mural. Cooperative learning facilitates positive attitudes and behavior, or their murals will be incomplete or uninteresting!
Recycling, reusing, and retrieving materials from the classroom "scrap box," students use crepe, tissue, and construction paper to create 3-dimensional murals. This activity incorporates math skills as students measure, count, and cut paper and is accessible to students from RSP to GATE abilities. The humidity seems to rise as beautiful and authentic assessments are hung about the room.

Enthusiasm builds as students present a "Rainforest Revue," that integrates recitation with rainforest songs sung to familiar tunes (i.e. "World Above Ground" sung to "When You're Happy and You Know It"). Students write additional lyrics, and make animal masks and simple costumes.

The unit gains momentum as students inquire, "But what can WE do?" We call it "character education in motion" as our classes team up with the Earth Foundation and The Nature Conservancy to save ecosystems throughout the world. In a community-building activity, we launch a sale of T-shirts, hats, and other items printed with rainforest themes. Every 10 items sold saves 1 acre of endangered ecosystem in the school's name. This project truly illustrates the "power of one person."

Rainforest Revelry is our closing celebration. We serve "tropical" punch, Rainforest Crunch/vanilla/Chunky Monkey ice cream, with all the rainforest toppings (i.e. cashew, brazil, macadamia nuts, peanuts, pineapple, coconut, bananas, guava, mango with chocolate syrup, sprinkles, etc.) we can find. Our sundaes make a delicious and effective close to our really remarkable unit.

**State Standards**

This unit strongly supports the new science standards, encouraging hands-on and minds-on activities that go beyond a textbook. Language Arts/Technology can be embedded and active learning takes place as "real life" issues such as slash and burn agriculture, logging, mining and global warming are investigated.

**Students**

Overall about 300+ students have participated in this unit, including RSP, GATE, special needs, and ELL. Approximately 60 4th grade students participated this year, but this unit can be easily adapted to curriculum for grades K-8.

**Facilities/Materials**


**Outside Resources**

Guest Speakers---Meteorologists, ecologists, parrots, National Geographic magazines, [www.ran.org](http://www.ran.org)
Searching for China: A United Wall Or A Wall With Cracks?
Kari White, Colina Middle School
Business Partner: Grether Farming
For grade levels 6-7
Curriculum Areas: Social Studies/ Language Arts

The Unit and Its Value:

Searching for China is a six-week unit designed to heighten students’ awareness of China’s culture through history, literature, art and music. Incorporating literature, art, music, current events, and politics, the unit focuses on students’ understanding of the impact of ancient China on our lives.

The six-week unit begins with students identifying the values and ideals emphasized in ancient China. Students participate in a group webquest where they assume the role of either a theologian, anthropologist, linguist, museum curator, poet, or historian. As their persona, students read and analyze background information on different aspects of ancient Chinese life searching for the important values of this intriguing people. Each group member presents his/her findings to the group to evaluate the most influential ideals of this civilization. Students continue on in the unit by reading “Fish Cheeks,” “The Clever Magistrate,” “Yeh-Shen,” Sweet and Sour: Tales from China, various Chinese proverbs and Chapter 8 in Across the Centuries in order to deepen their understanding of ancient China. Using the information from the webquest and literature, groups collaborate on writing authentic Chinese proverbs reflecting the discovered values. Each group presents its proverbs either in book form or on a Powerpoint presentation to the class.

From here, students, working independently or with a partner, choose an I-Search project that analyzes, creates, researches, or compares and contrasts aspects of ancient life. For example, research the ways paper, writing systems and machines were used from ancient China to modern times creating a block picture story illustrating the progress discovered. Or, research the voyages of Zheng Ho and compare them to the discoveries of Columbus and Magellan; create a television show depicting how the United States would be different had the Chinese discovered it.

Next, students engage in a fishbowl debate. The debate topics relate to potential ruling bodies to advise and govern along with the emperor. The competing ruling philosophies are: Nepotism, Aristocracy, and Meritocracy. Divided into inner and outer rings, students either argue a randomly assigned position with a moderator acknowledging each speaker or observe the debate. After a ten-minute discussion, students exchange roles.
Lastly, the unit culminates with a final webquest. Now that they are familiar with ancient China’s history, its values and philosophies, students analyze current Chinese policies. Students are presented with the following situation: The United States government feels very strongly about the need to understand China. To do this effectively, a special fact-finding team is being assembled that will travel to China to investigate the country, the people, and the culture. Each group answers the following question: What actions should the U.S. take in its policy towards China? Each team develops a Group Report that contains a Three Point Action Plan taking into account the following perspectives: Business, Cultural, Religious, Human Rights, Environmental, and Political.

The unit promotes the use of higher level thinking skills as students identify, analyze and interpret the ideals of ancient China. They also read, interpret, and discuss various pieces of literature as well as create oral and Powerpoint presentations. The unit addresses the needs of all learners by tapping into creative thinking as well as objective analysis of information. I am able to measure the success of the unit via discussion, tests and completed projects.

All in all, this unit is instructional, fun and one I will continue to use. **Searching for China** encourages positive student attitudes and behavior as students pay particular attention to the motivations, values and sacrifices portrayed in the ancient Chinese across time.

**State Standards**

This unit supports the social studies framework by connecting with content standard 7.3 where students analyze the geographic, political, economic, religious, and social structures of the civilizations of China of the Middle Ages. It also supports many aspects of the Language Arts framework: reading, writing, group discussion, interdisciplinary connections and higher ordering thinking activities.

**Students**

A total of 80 seventh grade students of various academic levels participated in 2003-2004.

**Materials**

Various pieces of literature, including Chinese proverbs and access to a computer lab are needed.
Trigonometric Graph Applications In The World Around Us
Randy Guzik, Pacifica High School
Business Partner: Procter & Gamble
For grade levels 9-12
Curriculum Areas: Algebra II, Trigonometry, Precalculus

The Unit and Its Value.
Trigonometric functions and their graph models can be used to explain many of the daily occurrences in the world around us. In this three-day lesson, students explore data that is periodic or cyclical, and learn how to develop both graphical and analytical models to make sense of this data.

Students begin by graphing selected sunrise and sunset times for 30 and 60 degrees north latitude. Discussion follows regarding the four key components of a trigonometric graph (amplitude, frequency, horizontal and vertical translation), and how these can be derived from the data or graph. Students then use these four components to develop an equation, which will model the particular data and graph. At about this time, students become very engaged in the lesson, due to the application of the sine / cosine curve to explain events in the world around them. Higher level thinking skills are being practiced as students analyze and apply a general equation model to a specific situation. I also have the students work in pairs while developing these equations, allowing increased interaction and reinforcement.

On the second day of the lesson, students will use the technology of the graphing calculator to verify their analytical and graphical results. After some initial demonstration regarding the use of a scatter plot on the graphing calculator, student pairs verify the accuracy of their graphical models. A sense of excitement and anticipation builds as the students observe their equation models connecting the dots of their scatter plot graphs. The graph models are analyzed by the pairs, checking the calculations of the four key components in any graphs that are inaccurate. In addition, students will begin to answer discussion question with their partners regarding the similarities and differences that are observed between the two graphs of varying latitudes. The questions also direct the students to reflect on the seasonal significance of the graph models. The classmates soon become very interested in the discussion and the implications for further study. "What would a sunrise graph look like at the equator? How would the total daylight hours of a year be calculated? Do all latitudes have an equal night on the first day of spring (equinox)?"—these are all questions that the students begin to investigate and ask from the data.

On the third and final day of the lesson, student pairs share with the entire class their observations from the discussion questions of the day before. Participants learn greatly from their colleagues' comments and interpretations. Students then brainstorm other possible applications that are periodic and could be analyzed.
using a trigonometric function. Ocean tides, average temperature, financial trends, sound, and blood pressure, are but a few of the many applications mentioned. Finally, students choose two U.S. cities from a chart showing their average monthly temperatures. Their assignment is to analyze this data using a graphical and an equation model.

State Standards

According to the California State Mathematics Content Standards for Trigonometry, students should graph functions of the form $f(t) = A \sin (Bt+C)$ or $f(t) = A \cos (Bt+C)$ and interpret $A$, $B$, $C$ in terms of amplitude, frequency, period, and phase shift (standard 4.0); and students should be adept at using trigonometry in a variety of applications and word problems (standard 19.0).

Students

This year, 30 students in my Precalculus class participated in this unit, and I have been incorporating this lesson for over 10 years into the Precalculus/Trigonometry curriculum.

Facilities/Materials

All of the materials needed are supplied in the packet that I will provide, with the exception of one graphing calculator for each student pair. I would highly encourage other teachers of Trigonometry to use this lesson to address the above objectives, because of the high degree of student interest, practical application, and higher level thinking skills involved.
We Care – Service Learning in the Middle School
Kimberley Fuerst-Dallape, Las Colinas
Business Partner: Santa Barbara Bank & Trust
For grade levels 6-8
Curriculum Areas: Service Learning with Multi-Disciplinary Integration, especially History and Language Arts

The Unit and Its Value:

We Care is an organization that invites and involves all students, regardless of age, grade, ethnicity, or academic standing, in projects that directly and positively impact their community. Students meet a minimum of once a week to determine what projects to undertake. On an average, students perform five projects a year. These projects have included, but are not limited to, working with Food Share, the RAIN Project, and Public Health in Ventura County.

The program has functioned as an extra curricular group for three years. However, it has great potential for integration in classroom curriculum. Students’ knowledge of career opportunities is expanded as guest speakers visit during lunch, sharing their own experiences with different programs. Students learn personal and program backgrounds, along with the speaker’s goals and purpose. Guests have included the President of Food Share, the RAIN Project director, and representatives from convalescent hospitals, public health offices and juvenile court.

Students keep personal response journals for different projects in which they are involved. This strengthens critical thinking skills, ability to reflect and evaluate, and extends into their own lives. Students do not fund raise, and with two voluntary exceptions, do not financially contribute. They offer time and effort, whether it’s during lunch, after school or on weekends.

For the third year, students have “shared the gift of song in exchange for a can of food” for Food Share. On three different nights, students met at different areas, separated into groups of 4-7, and went door-to-door singing winter songs. They explained that they offered their song in exchange for canned food for Food Share. Together with the school collection, We Care raised 3,600 pounds of food this year, the largest donation to date. In terms of curriculum, this could be tied to social studies, economics and history throughout the grade levels, as well as science and agriculture.

Presently, students are involved in a magazine and book drive for the armed forces stationed in Iraq. Students also started mailing cards and letters of support to specific service personnel who have been
designated as having no other mail deliveries. Historical connections can be drawn from any war, while basic letter writing is reinforced throughout the grade levels.

Planned for the spring, students are undertaking two new projects. Some are preparing a talent show for a local convalescent hospital, while others are directing a production that allows the children of the RAIN Project (a homeless shelter) to perform for their parents. The potential for tapping into a wide array of performing arts connects again throughout the grades.

Students have gained in many areas. Guests have provided career information emphasizing the necessity of different skills and education to prepare and perform different projects. The major impact has been the connection of the student to the community. These projects have allowed students to experience and appreciate the effect they can have on their own world. Regardless of students’ social, economic or academic standing, they are able to positively impact their community. Success has been continuous. Students have received letters of thanks, been acknowledged in the paper, as well as on radio and TV, and have been invited to receptions. Also apparent in their journal entries and in unsolicited parental responses, is the students’ immeasurable intrinsic satisfaction.

**State Standards**

The California Department of Education defines service learning as “a curricular strategy whereby students learn and develop through active participation in thoughtfully organized service that is conducted in and meets the needs of the community. It is integrated in and enhances the academic curriculum of the students while fostering their civic responsibility.” This program encompasses this strategy, but has been expanded to allow all interested students to participate.

**Students**

Availability to the student body is open. **We Care** began in 2001 and involved over 130 students. Currently in 2003-04, over 160 students are involved in the program. Students range from 6th through 8th grade, ages 11 to 14, and include a full range of the population: honors, RSP, special needs, CJSF, etc. This allows for different factions to come together for a common goal. Every student has been able to make a contribution to the program, achieving multiple levels of success, both independently and in groups.

**Facilities/Materials**

Guest speakers require a sound system for their presentations, as well as video equipment in some cases. The teacher provided students with journals. For the projects described in this application, the materials
were on-hand (lyrics and scripts), borrowed (wagons) and donated (postage for correspondence). A complete write-up of the program’s development, implementation, evaluation and summary are available upon request.

**Outside Resources**

Guest speakers are invited throughout the year. Carpooling and chaperoning are necessary for off-site activities, such as performances, and are volunteered by parents, guardians and school personnel.