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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Discovery Days: Articulating with feeder elementary schools
Karen Reynosa and Woody Maxwell – Ventura High School
Business Partner: Amgen
For grade levels: K - 12
Curriculum Areas: All

Exploring Science and Technology with Lego Robotics
Martha Nissen – Township Elementary
Business Partner: Amgen
For grade levels: 4 - 6
Curriculum Areas: Mathematics, Science and Technology

From Seeds to Soup
Karen Allen – Camarillo Heights School
Business Partner: Hansen Trust
For grade levels: K – 12
Curriculum Areas: Language Arts/Reading, History/Social Science, Health, Music, Theater, Science, Visual Arts and Agriculture/Gardening

Go Figure, Fibonacci!
Sandra Hayes – Tierra Linda
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Going Fishing for Readers: Bait, Hook, Catch and Devour
Ginger Brandenburg and Donna Fulgham – Moorpark High School
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I Think I’m Turning Japanese: A Student Centered Investigation of Japan through the Arts
Allan Viscarra – Ventura Charter School
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Kids Can Be Heroes Too
Nancy Tracy and Megan Jones – Lang Ranch Elementary
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Carol Cook – De Anza Middle School
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Danna Lomax and Kimberley Papenhausen – UCMS at CSU Channel Islands
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The Pebble and the Hill
Robert Shapiro – Moorpark High School
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The Readiness is All: Reflecting, Introspecting, and Recognizing Unique Potential to Contribute
Donna Fulgham – Moorpark High School
Business Partner: Sage Publications
For grade levels: 9 – 12
Curriculum Areas: Language Arts/Reading, History/Social Science, Health, Theater and Visual Arts

Under the Sea
Jodi Atkinson, Christina Smith, Tim Pryor, Rebecca Friday and Karen Allen – Camarillo Heights School
Business Partner: Amgen
For grade levels: K – 5
Curriculum Areas: Language Arts/Reading, History/Social Science, and Science
Counting is something we do every day in first grade. We thought our first grade students were “Getting it.” That was several years ago until the second grade teachers informed us during a cross grade level planning meeting that our students were coming to second grade without being able to skip count by 2s, 5s, and 10s. In short, they hadn’t “Gotten it!” We knew we had to take action. We put our ideas together and came up with creative ways to make sure our students mastered skip counting, a skill specifically addressed by California State Mathematics Standard 2.4: Count by 2s, 5s, and 10s to 100.

We continued practicing counting daily using the hundred chart at the story floor but added a twist. Counting in different styles of voices makes it more exciting to practice. There are many ways to count as we’ve discovered, including squeaky mice voices, opera voices, and moving your mouths to count but no sound comes out voices. There is no limit to the styles you and your students can come up with to count.

Next we added drums to the mix. We counted to slow beats, fast beats, loud beats, and soft beats. A class set of homemade drums can be used. The teacher or a student leading with simply a single rhythm instrument is just as effective, and not as loud!

We also incorporated another kinesthetic approach by combining movements with counting. This ranges from simple seated arm and hand combinations to full body motions. We even march around the room while skip counting. Sometimes puppets love to count even if students, or especially if students, are not in the mood to count, as they make great hands-on helpers for practice counting.

While using hundred charts to color in boxes to show skip counting patterns is an activity in our textbook and not a new or original idea, we jazzed it up a bit! We let the children use highlighters. Trust us when we tell you that to a first grader, no writing instrument is as cool as a highlighter! Once a hundred chart is highlighted, it becomes a perfect study guide.

Our students’ own bodies make for great incentives to discover skip counting with a more personal focus. “Just how many fingers do we have altogether in our classroom?” We first ask the children to share their estimates and strategies for determining the answer with each other and the teacher. Next we try out some of the strategies suggested and discover the efficiency of using skip counting to arrive at the answer. If we want to find out how many ears, hands, feet, or eyes, or all of the above, we can count by 2s. Lastly, we
make a poster depicting our investigation and results. This poster then serves as a resource to use if a child forgets a number in the skip counting sequence.

During PE we started to use jump rope activities to combine Physical Education with Math. When we are using the long jump rope, students who are waiting for turns are asked to skip count how many jumps the jumper makes. Donated tennis balls are also used by students to skip count how many bounces they get. These activities lend themselves to great discussions when we get back to the room. We ask the students to share the highest count they got. Then we ask how they were counting when they got that count. It doesn’t take long to figure out that counting by 10s will result in a higher number. Not only is counting by 2s the most challenging, students quickly discover they get the lowest number of bounces when they skip count by 2s.

We read stories with the students that involve skip counting. *One Hundred Hungry Ants* and *Arctic Fives Arrive* are two of our favorites. Books such as these are bridges between math and reading.

We encourage students to find things at home to count using skip counting. We give extra credit when a student brings in a recording of something they counted at home. We tell the students to practice counting in the car, in the tub, wherever they can. We encourage creativity in practicing. Students have counted ordinary household items such as pennies and Cheerios, but we have also had students count some rather interesting items. Who knew one girl could have fifty six pair of Barbie shoes?

We assess by having students count individually for us. We send a copy of the assessment home to the parents and ask for their help as well in having their child practice skip counting. We have found our students really do “Get it” now. Our second grade teachers have confirmed that the students know how to skip count. We re-assess at regular intervals any students who are not yet proficient.

Once we opened our eyes to skip counting, the possibilities and applications seemed endless. An added benefit is that it makes learning to count money easier. Counting coins is specifically addressed by California State Mathematics Standard 1.5: Identify and know the value of coins and show different combinations of coins that equal the same value. An additional value of proficient skip counting by 5s is in learning to tell time in second grade. Skip counting also lends itself to learning multiplication in later grades. Students have actually learned their multiplication facts for 2s, 5s, and 10s before leaving first grade simply by learning to skip count!

We have found ourselves using the pun while urging our students to practice, “I am counting on you to learn how to skip count.” Instead of making counting practice drudgery, we have worked to create new ways
to make it fun and exciting, as well as successful. In First Grade, making learning fun is \textbf{half} of the battle.

Wait, now we’re talking fractions and that is a different topic…

Not to worry, we can make that fun, too!
2, 4, 6, 8, Skip Counting is What We Appreciate!

HOW THREE TEACHERS WENT FROM THINKING THEIR STUDENTS WERE “GETTING IT” TO MAKING SURE THEY “GOT IT!”

Skip Counting with the 100 Chart
These drums were made by parents at our school. Our music shared the idea with us a few years ago. They are made of wood scraps and clear mailing tape wrapped around a wood frame. The drumsticks are made out of pieces of wood dowel with pencil erasers stuck on the end.

DRUMS!

Counting with Puppets
Some of our cool counting moves...

Ooooh, highlighters!
Counting Feet

Counting Hands
Here is Rayleene showing two of our favorite books related to skip counting, *One Hundred Hungry Ants* and *Arctic Fives Arrive.*
Math Made Easier

Multiplication

- Students have actually learned their multiplication facts for 2s, 5s, and 10s before even leaving first grade, just by learning to skip count!
For millions of high-schoolers, Prom night is the biggest event of their young lives. In recent years this event has escalated into fancy dinners, rented limos and other assorted lavish expenditures. This right of passage, filled with its tangled emotions and high expectations, provides an intrinsically motivational topic for seniors to study statistical methods presented in an AP Statistics class. In this unit, students study various aspects of Prom with real data and practice inference procedures to answer stimulating questions about this important event.

A long-term goal for students who have taken AP Statistics is that they will understand studies they read about long after the class has ended. By organizing the AP Statistics standards with a single cohesive theme, students are able to recollect the topics more than if they have been presented as a disconnected set of procedures. Students may not remember how to calculate the mean of a discrete random variable several months after we study the topic, but if I refer to a memorable problem such as “Harold and the Prom” (see below), in which we figure out how much money a young man can expect to spend for Prom based on probability, they remember the purpose of the calculation and how to compute it.

This unit supports many of the state standards for AP Statistics: determining the mean and the standard deviation of a normally distributed random variable (Standard 8), determining confidence intervals for a simple random sample from a normal distribution of data and determining the sample size required for a desired margin of error (Standard 17), calculating the P-value for a statistic for a simple random sample from a normal distribution (Standard 18), and becoming familiar with the chi-square distribution and chi-square test and understand their uses (Standard 19). Students are expected to use technological tools throughout the course, and the lessons in this unit provide conceptual understanding by stressing both formulas and the graphing calculator. The unit includes rigorous calculations, deductive thinking, real-world examples, decision-making, and experimental methods.

**Topic:** Means and Variances of Random Variables  
**Activity:** Harold and the Prom  
Students consider the situation in which a young man has narrowed down his choices for prom dates to 3 seniors and 2 juniors. He has determined probabilities for the number of girls who might say yes if he asks them to Prom, and this enables us to find his expected cost for Prom. This activity gives students a clear conceptual understanding of the term random variable.
**Topic:** Binomial and Geometric Distributions  
**Activity:** Finding a Prom Date: Who Will Say Yes?  
Students answer hypothetical questions that require the Binomial Formula and geometric distribution probabilities.

**Topic:** Confidence Intervals for a Mean  
**Activity:** Estimation Calculations  
Students calculate confidence intervals for the cost of prom, the time it takes to get ready for Prom (guys vs. girls), the number of days before Prom students invite their dates, and the proportion of students who rent limos for Prom.

**Topic:** Hypothesis Tests: Type I and Type II Errors  
**Activity:** Prom Night Disasters  
Students write descriptions of Prom night disasters that illustrate Type I errors (rejecting the null hypothesis when it is really true) and Type II errors (failing to reject the null hypothesis when it is actually false).

**Topic:** Hypothesis Testing for a Mean (One Sample Test)  
**Activity:** From Prom Night to the Poor House (Part I)  
Do students realize how much Prom will cost? (Prom night costs can easily run from $400 to $3,000 and up!) Students use hypothesis testing methods to compare student results of a survey given several weeks before Prom with the actual amounts students spent reported on a survey after Prom.

**Topic:** Hypothesis Testing for a Mean (Two Sample Test)  
**Activity:** From Prom Night to the Poor House (Part II)  
Who spends more on Prom – the guys or the girls? Students use hypothesis testing methods for two samples to answer this question.

**Topic:** Hypothesis Testing for a Proportion  
**Activity:** Sentimental Limo Rental  
Is the number of students who rent limos for Prom greater on the west coast than in other parts of the country? The teacher uses contacts from the AP Statistics discussion group at collegeboard.com to acquire data to answer this question.

**Topic:** Hypothesis Testing for Two Proportions  
**Activity:** Making Wise Decisions on Prom Night  
Statistics indicate that alcohol-related peer pressure is strongest at Prom time. According to the National Highway Traffic Safety Administration, the proportion of traffic fatalities that are alcohol-related increases during the Prom/graduation season. Students research and test the significance of this statistic.
**Topic:** Chi-Square Procedures  
**Activity:** Who Has the Most Fun at Prom?  
Do students who spend more on Prom have a better time than students who spend less? Do students who go to Prom with a boyfriend/girlfriend have more fun than students who go with someone who is just a friend? Students use after-Prom survey data and chi-square procedures to answer these types of questions.

**Topic:** Inference for Regression  
**Activity:** Recession Regression  
Is there a correlation between the amount of money a student spends on Prom and his/her overall rating of the experience?

Results of chapter tests, final exams and the AP exam administered by the College Board will be used to assess the success of the curriculum. In addition, at the end of the unit, students are required to think of ten research topics related to high school graduation and identify the type of statistical method that would be appropriate to answer each question. Students often encounter the most difficulty in the course when they need to determine the correct statistical procedure to use for different types of questions. Abstract equations and concrete examples must co-exist in an AP Statistics class. Students often feel that math is too disconnected from their everyday lives instead of seeing that math underlies nearly every aspect of our existence. The age-old question “When will I ever use this?” does not arise in this curriculum since concrete examples in everyday life are the norm. Students enjoy collecting information about themselves. In this unit, we practice the calculation steps, formulas, and theories so students develop fluency and automatic recall of the information, and students become aware of how these concepts connect to the world around us.
11-1 Significance Tests

How Much Does Prom Cost?

Do high school students know how much Senior Prom costs? We will explore this question using hypothesis testing methods. Please write down your estimates for the costs of the following Prom expenses.

Expenses typically paid for by the guy:

2 Prom tickets (At our high school, this price includes dinner.) ________

Tuxedo rental ________________

Corsage for the girl ________________

Expenses typically paid for by the girl:

Prom dress ________________

Boutonnière ________________

Getting hair done professionally ________________

Manicure / Pedicure ________________

Expenses usually shared:

Limousine rental  
(Estimate the cost PER COUPLE – The limo is usually shared by at least 4 couples.) 

Photography ________________

TOTAL ESTIMATE FOR PROM: ________________

Do you want to go to Prom? _______
11-1 Significance Tests

Do high school students know how much Prom costs?

Expenses typically paid for by the guy:

<table>
<thead>
<tr>
<th>Expense</th>
<th>Cost</th>
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</thead>
<tbody>
<tr>
<td>Prom tickets</td>
<td>$95 x 2 = $190</td>
</tr>
<tr>
<td>(This expense may be shared.)</td>
<td></td>
</tr>
</tbody>
</table>
| Tuxedo Rental                | Range is $50 - $150  
(Average is $100) |
| Corsage for the girl         | $25 - $50  
(Average is about $38) |
| Total                        | $328       |

Expenses typically paid for by the girl:

<table>
<thead>
<tr>
<th>Expense</th>
<th>Cost</th>
</tr>
</thead>
</table>
| Prom dress                   | $150 - $500  
According to Seventeen Magazine, the average is around $195. |
| Boutonnière                  | $15        |
| Getting hair done professionally | $52  
(according to Seventeen Magazine) |
| Manicure / Pedicure          | $50        |
| Total                        | $312       |

Expenses usually shared:

<table>
<thead>
<tr>
<th>Expense</th>
<th>Cost</th>
</tr>
</thead>
</table>
| Limousine rental             | $400  
($100 per couple)  
(The limo is usually shared by at least 4 couples.) |
| Photography                  | $35 - $175  
(Average is about $105) |
| Total                        | $205       |

Total Cost of Prom per Couple (APPROXIMATE): $845
1. Enter the class data into a list on your calculator. Run 1-Var Stats.

\[ \bar{x} = \frac{828}{15}, \quad s = 255 \]

2. What is the null hypothesis? (\( \mu \) stands for the true mean of students' estimates)

\[ \mu = 845 \]

3. What is the alternative hypothesis? \( \mu \neq 845 \)

4. Suppose you are told that the standard deviation for the actual cost of Prom (for the entire population of high school students) is \( \sigma = 100 \).
   
   a. Test the conditions necessary to use this test.
   
   - SRS - No (Proceed with caution.)
   - Population size \( \geq 10n \) - OK
   - Population is normal or large sample size - OK

   b. What is the test statistic for the hypothesis test? (Remember... The test statistic measures how much the sample data diverge from the null hypotheses.)

   \[ z = \frac{\bar{x} - \mu_0}{\sigma/\sqrt{n}} = \frac{828 - 845}{17.6777} = -0.9617 \]

   c. What is the p-value for this test?

   \[ p\text{-value} = P(z < -0.9617) = 0.3362 \]

   d. What is your conclusion? We do not have evidence against \( H_0 \). We do not reject the null hypotheses. Students do seem to be aware of the cost of Prom.

5. Suppose you do not know \( \sigma \).

   a. Test the conditions necessary to use this test.
   
   - SRS - No
   - Population size - OK
   - Sample is skewed - proceed with caution.

   b. What is the test statistic for the hypothesis test? (Remember... The test statistic measures how much the sample data diverge from the null hypotheses.)

   \[ t = \frac{\bar{x} - \mu_0}{s/\sqrt{n}} = \frac{828 - 845}{255/\sqrt{15}} = -3.771 \]

   c. What is the p-value for this test?

   \[ 2 \times \text{cdf}(\{-0.9617, -3.771, 31\}) = 0.7087 \]

   d. What is your conclusion?

   Do not reject the null hypothesis.
Harold has narrowed down his choices for prom dates to 3 seniors and 2 juniors. He has determined the following probabilities for the number of girls who might say yes if he asks them to the prom.

Let $X =$ the number of senior girls who will say yes.
Let $Y =$ the number of junior girls who will say yes.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
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</thead>
<tbody>
<tr>
<td>$X$</td>
<td>.3</td>
<td>.4</td>
<td>.2</td>
<td>.1</td>
</tr>
<tr>
<td>$P(X)$</td>
<td></td>
<td></td>
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<tbody>
<tr>
<td>$Y$</td>
<td>.4</td>
<td>.5</td>
<td>.1</td>
</tr>
<tr>
<td>$P(Y)$</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

1. 
\[ \mu_X = 1.1 \]
\[ \mu_Y = .7 \]

2. Harold decides to ask all 5 girls to the prom. What is the expected number of girls Harold will actually bring to the prom?

\[ G = X + Y \]
\[ \mu_G = \mu_{X+Y} = \mu_X + \mu_Y = 1.8 \]

3. Harold knows that flowers are the key to a girl's heart, so he will buy a corsage for each girl who says yes. He decides to spend $15 for the junior girls and $20 on the senior girls. What is an estimate of the amount of money this will cost?

\[ z = 20X + 15Y \]
\[ \mu_z = 20\mu_X + 15\mu_Y \]
\[ = 20(1.1) + 15(0.7) \]
\[ = 32.50 \]

4. The photographer at prom has a $3 sitting fee for portraits, and he charges $10 for each picture. Harold wants to buy a picture for each girl he brings to prom. (He only pays one $3 fee, not a fee for each girl.) What is the expected amount Harold will pay for the pictures?

Let $P =$ the amount Harold spends on the pictures

\[ P = 3 + 10G \]
\[ \mu_P = 3 + 10\mu_G \]
\[ = 3 + 10(1.8) \]
\[ = 21.00 \]
Archimedes Goes Solar
Beverly Rueckert – Tierra Linda School
Business Partner: Amgen
For grade levels: 4 - 8
Curriculum: Mathematics, History/Social Science, Science and GATE

Application Narrative Begins Here:

Archimedes Goes Solar
Archimedes Goes Solar is a hands-on working timeline of how changing energy sources have affected civilizations. Energy sources have always had a great impact on society, culture and lifestyles. Rather than teaching science principles in isolation, students are looking back in time to reference the historical events that were affected by changing scientific energy forms. The physical scientific principles involved in each energy source such as pulleys, levels, screws, springs, circuits, batteries, electricity and solar power were explored and experimented with by students with enthusiasm! My supplemental materials included the DK Eyewitness Book Great Scientists, Mathematicians Are People Too, Depth and Complexity worksheets by Sandra Kaplan and Mr. Roger Ransom, advisor for scientific information and working models.

Curriculum Supports State Standards:
Students are natural scientists, asking “why” and “how” about the mysteries of the world around them. Children want to know how energy developed into its present state. The focus of this project is to produce a timeline, starting in earliest history, to document the evolution of physical science energy models and their practical uses throughout time.

Teaching real world connections with current curriculum is a basic premise of adhering to our state standards. This unit clearly enables the student to discover scientific progress by asking meaningful questions and conducting careful investigations as a basis for understanding. Sources of energy and materials differ in amounts, distribution, usefulness and time required for their formation. An exciting motivation for the students is that each of the energies requires learning about that energy’s capacity for danger as well as potential. State standards emphasize the importance of understanding energy sources and their uses. Hands-on working models to observe and explore before constructing the students’ own energy projects are in line with best practices models of discovery learning.

We acknowledged the fact that man’s energy history began with the discovery of fire, but quickly moved onto the students making Styrofoam sundials to represent the initial mark of man in the first century using instruments to measure time for our timeline project. Learning how the measurement of time was calibrated not only in hours but days, weeks, and years introduced the students to how man’s use of simple machines and science have affected all of our lives. Continuing on to the second century, Archimedes became the hero for activities using pulleys, levels and catapults. A series of exciting activities with pulleys proved the early intelligence of man in getting machines to help with work. A tug of
ingenious use of tools against the Romans. The Archimedes screw enabled irrigation of otherwise arid land. History and science are blended together to allow the student to make inferences and connections as to how the world around them continues to evolve within the static elements of physical science.

A further highlight on our timeline was the development of the steam engine which lessened the need for large numbers of laborers worldwide, thereby ending the need for dependence on slave labor in this endeavor. Again, Archimedes’ pulley system was revisited to review how mechanical devices could help. Students each rode an ingenious bicycle hookup powered by muscle to demonstrate this concept. Each was able to get a better understanding of what was meant by horsepower (476 watts) by converting their volts and amps output to watts and then dividing to get their own fractional power of one horsepower.

As our studies entered the 20th century students assessed the changes in lifestyles as electricity became common and then oil-produced plastics and electronics took over. The hot topic of solar power fascinated the students as we again revisited the old Archimedes pulley system, this time with a solar powered hoist system and a small gear head motor to lift weight.

Assessment of the Curriculum:
Best practices states that assessment should be ongoing and embedded into the activities. Each lesson had a hands-on component where the students were constructing or demonstrating their understanding by working the demonstration model. With guided practice they were taught to name and convert formulas into energy units. A Jeopardy team game with facts and terminology made assessment fun. A final project using the energy source of their choosing and making a project to show how force times distance equals work (F x D = W). This project had to be demonstrated with directions for others to follow, and featured a display for our Open House Science Fair Night. An accompanying Depth and Complexity sheet examined the multiple elements of this energy’s use.

Students who had never thought that energy impacted them could see how this basic knowledge affects their everyday life. Students and parents reported the enthusiasm and pride felt in constructing working projects with some understanding of how and why they worked. Eagerness to improve their projects as they gained additional information and facts about transfers of energy power made it evident that the physics had a direct collation to their world. One student revised his project three times using a mechanical car which later used a battery and then added magnets to tow another vehicle. All students finished the unit being challenged to solve our most urgent need to expand the use of electrical and solar energy by inventing a battery that could store large amounts of either of these energies for later use on demand. This is the major obstacle today and would be a major breakthrough. The students left being thrilled and some even committed to possibly accomplishing this in their own future!
Archimedes would be proud of us, I’m sure.

Below is a form on which to record your data and do the necessary arithmetic.

Mechanical:
Total weight lifted: $\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + 0.28 \text{ (I.o pulley)} = W = \underline{5} \text{ lbs}$

Height lifted $= \underline{3} \text{ feet}$

Potential energy added to system $= H \times W = \underline{14.34}$ footpounds

Electrical:
Average Elect. Current $= mA = \underline{83} \text{ milliamperes}$.
Divide milliamperes by 1000 to get Amperes $= \frac{0.08}{A}$
Average Elect. voltage $= V = \underline{20} \text{ volts}$
Average Elect. Power $= A \times V = \underline{1.60} = P \text{ watts}$

Time to lift $= 82 \text{ seconds}$, divided by $60 = \underline{1.4} \text{ minutes} = T$

Electrical energy used $= P \times T = \underline{97.4} \text{ Wattminutes}$
To convert wattminutes to footpounds, $P \times T \times 44.27 =$ \underline{97.4} footpounds

The efficiency of the hoist: useful energy divided by energy consumed $= \frac{\text{Ep}}{\text{Ee}} = \underline{150}$

Where did the rest of it go? \textbf{Friction}
Adult seen is a volunteer, not the teacher.
Some good things about the solar powered car is that we won’t have to pollute the air. It doesn’t pollute the air. It uses solar power.

Solar cooker, solar energy, transportation, toys, heating.

What I’m amazed with is how much energy the solar panels and how many ways you can use it.

When will someone invent a solar powered box?

When will the solar powered car be "Today" car?
Be the Change Hero Project  
Ashley Johnson, Terri Hoosen and Jessica Murphy – Ventura Charter School of Arts and Global Education  
Business Partner: Affinity Bank  
For grade levels: K – 5  
Curriculum Areas: Language Arts/Reading, History/Social Science, and Visual Arts

How do you make a change for our world? Our classes believe it is important to put your best foot forward and “be the change” in both small and big ways. “Be the Change” is the theme for our school community this year. To support our theme, the third/fourth grade classes participated in a study of famous heroes and everyday heroes. Throughout our hero project students learned what it means to be a hero and became everyday heroes by taking action for change in him/herself and for the world.

In class we learned about heroes through books, videos, discussions, and activities. Examples of heroes we studies include Dr. Martin Luther King Jr., Barack Obama, Gandhi, John Muir, Helen Keller, Wangari Maathai, Matthew Henson, Thomas Edison, and Rachel Carson. After our readings and/or watching videos of heroes, students engaged in activities that reflect multiple intelligences and support the learning of grade level content standards. Activities included writing songs, creating artistic posters identifying characteristics that make that person a hero, time lining the events from a hero’s life, comparing and contrasting ourselves to a hero using a Venn diagram, letter writing to a friend as if they were the hero, creating an open-minded portrait with pictures and words for a hero, writing a diary entry from the perspective of the hero, and note-taking.

Students interacted with the school community and the Ventura community in several ways. To interact with the school community, students first researched the dictionary definition of a hero and then interviewed students and parents for their personal definitions of a hero. Afterwards, students wrote their own definition of a hero and we compared them to what other people in our community stated as their definition. The definitions were insightful and utilized the characteristics discussed in class and were connected to heroes we studied. To connect with our Ventura community, guest speakers from Clean Seas came to discuss what they do as everyday heroes for our environment. Local firefighters also came to discuss what they do as everyday heroes for our community.

The culminating event for the project was a magical experience that 60 children participated in called “Museum Alive”. For the museum, students researched a hero of their choice, created artifacts to represent their hero (such as a timeline or diary entry), and participated in “Museum Alive”. For “Museum Alive”
students wrote note-cards for a speech, rehearsed a 60-second speech as that hero, and then participated in the Museum during the day and night. During school, other classes rotated through our museum to meet heroes and at night students were illuminated with candles as museum statues for their families to meet heroes. Students dressed in realistic costumes (such as a ballet leotard for Darcy Bussel) that included props (such as a diary for Anne Frank) and were frozen in a position as if they were in a museum (such as catching a football as Brett Favre). When a museum visitor tapped the person on the arm the student came to life as their hero and performed their speech. When the speech was complete the student became a frozen museum statue again and the visitor found another student to learn about. Students had a wonderful time and are eager to participate in another museum to share their learning. Our entire school community of parents, teachers, administration, and other students provided extremely positive feedback for our innovative and rich curriculum and can’t wait for what we do next.

For our hero project we conducted entry level, progress, and summative assessments. For a pre-assessment, we discussed who we think are heroes, why we think they are heroes (characteristics), and why would we study heroes. During our project student participation and products were assessed. For an authentic summative assessment, students and teachers engaged in one-on-one conferences to discuss their experience and what they learned, students engaged in a self-evaluation and rewrote their definition of a hero, and teachers used a rubric to assess student work and participation.

Many California grade level content standards were covered during this project. All third and fourth grade students created note cards, rehearsed, and made narrative presentations (Speaking Applications). Specifically for third grade, students learned to extract appropriate and significant information from the text, including problems and solutions (Comprehension and Analysis of Grade-Level-Appropriate Text). For fourth grade, students used knowledge of a situation, setting, and of a character's traits and motivations to determine the causes for that character's actions (Narrative Analysis of Grade-Level-Appropriate Text).

Overall, students were successful, they engaged in learning about people as heroes, discussions were rich and thought provoking, and students applied their learning to their own lives. Students began using characteristic vocabulary, relating their own behaviors to the actions of famous heroes, and wanting to “be the change”. Shortly after our project, several students went to the meeting held to support the libraries in Ventura. One student gave a public speech at the meeting and stated that her school taught her to make change and say what she believes in. That day she was an everyday hero standing up to keep Ventura community’s public services. We can only hope that more students are inspired from this project and will
use their public speaking skills to stand up for what they believe in and make change in themselves and the world.
BUY-OLOGY 101; Trash Talk
Debbie Maulhardt and Chris Crice – Christa McAuliffe School
Business Partner: Ventura County Star
For grade levels: 2
Curriculum Areas: Language Arts/Reading, History/Social Science, Music, Science, and Visual Arts

I’m starting with the man in the mirror. I’m asking him to change his ways. And no message could have been any clearer, If you want to make the world a better place, take a look at yourself and then make a change.” (Michael Jackson)

Using “Man In The Mirror,” as the unit’s theme song we asked our students to join us in making a New Year’s Resolution, to ban plastic bags. We told them we didn’t expect them to make their pledge until they had been educated on the subject. During the next six weeks (through the contents of Language Arts, Science, Social Studies, Music, and Art) students gained a basic understanding of ecology, economics, and the negative effect plastic bag consumption was having on them.

Our strategy was, “Educate yourself, then educate other members of the community.” When students were able to explain to us what the problems were with plastic bags and what some possible solutions were, they were offered the opportunity to sign a declaration stating, “I promise to be a wiser consumer of plastic products and to stop using plastic bags.”

Now that we had, “…the consumer in the mirror to change his ways…” we wanted to take it a step further in our community’s hierarchy……. the students’ parents!

Students were put in cooperative groups and given one guiding question to research:
1. What are the problems caused by plastic bags?
2. How do plastic bags get into our environment?
3. Why don’t we recycle plastic bags?
4. What can you do?

Throughout our textbook study of soil, natural resources, buyers, sellers, producers, government, and law-making, our classes were shown films, music videos and advertisements on the topic. They were taken from the internet. Groups clarified vocabulary and key concepts and took notes related to their group’s guiding question. After this research they used their calligraphy and word-processing skills to make a poster.
answering their question. The two classes got together and presented their poster to the whole group, developing their public speaking skills.

Then we took the students’ text and illustrated it with pictures from the internet to make an infomercial. **(DVD enclosed)** The 2nd Grade Activists took the DVD home to their parents in hopes of persuading them to join us in our pledge to ban the use of plastic bags. The “New Converts” found all the plastic bags in their home confiscated by their children, which they brought back to school and we made a display illustrating the 288 bags one person uses in a year. We hung it up with our posters in the hall.

Next, we wanted to make an impact on the school. Our posters in the hall were creating an interest by the student body, but how to inform students without using our class time? We decided that upper-grade students had the background knowledge to understand the main concepts of our unit in a short time. So we made up a 5 day unit on banning bags and put a copy of it in the library for teachers to check out. Included in it was our infomercial, the internet films on the topic and addresses of government officials. We designated the unit to be used as a prompt for writing a persuasive letter. The brown paper sack that held the DVDs, served as a document for students to make a pledge to ban plastic bags. Now we could calculate the number of students we were having an impact on. **(We are presenting the unit idea at our next staff meeting in March and we expect a huge upper grade response, especially with Earth Day just around the corner!)**

Now that we had made a change locally we wanted to go more globally, but how? The Crusaders decided to flexed their political power and write a persuasive letter to City Councilman Dean Maulhardt, and Pres. Barack Obama. The 2nd Grade Conservationist explained the problem and asked their leaders to enact laws to ban plastic bags. With students’ newfound word-processing skills it was easy to write the two letters. They simply edited the greeting and a sentence or two of the body. We also enclosed an infomercial. We are looking forward to hearing back from them!

In conclusion, not only did our students acquire academic skills throughout this unit, but more importantly they felt empowered by being a small part of a great community project. Our students have acquired a social conscious and will grow up to be contributing adults. Adults who are civic-minded and have the know-how and ethics to bring about revolutionary change through our democratic process. They know that, “It’s the small changes that can make the big differences!”

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This unit is based on 2nd grade standards and is an extension of the Science and Social Studies textbook units on Plants, Soil, Natural Resources, Government, and the Economy. Furthermore, it teaches music, art, Reading, Writing, and Speaking Standards through content areas of Science and Social Studies.

**Outside Resources and Instructional Materials:**

Non-fictional Media downloaded free of charge from [www.youtube.com](http://www.youtube.com):

- How plastic bottles are made.
- PET plastic bottle recycling plant
- The Impact of Plastic Bags-from “Message in the waves”
- The Plastic Bag Problem, [www.PoconoRecord.com/PoconoGreen](http://www.PoconoRecord.com/PoconoGreen)
- Ocean of Plastic, Turning the Tides, NOAA/The Ocean Conservancy 2008.
- Bag the Bags. National Geographic
- Plastic Bags-just say no!
- Plastic Bag TVC. Darcy Pendergast

**NOTE:** New videos are posted daily, free for the download! All are no longer than 10 minutes.

**Our Thematic Music:**

- Man In The Mirror, Michael Jackson
- The 3Rs, Jack Johnson
- I Don’t Need A Bag, The Abe Lincoln Story (You Tube video)
- Recycle Rap, T-Bag and Bonkers (You Tube video)
- We All Live Together, Greg and Steve

**NOTE:** These can be bought and downloaded for $1.00 each. The lyrics can be “googled” and printed.

**The Novel:**

- *PeeWee Scouts, Trash Bash*, by Judy Delton
Calling the F.B.I.
Debbie Moore – Dos Caminos Elementary School
Business Partner: Limoniera
For grade levels: 1 – 5
Curriculum Areas: Language Arts/Reading and Technology

Calling the F.B.I. is better known as our "Friends and Buddies Investigations". Calling the F.B.I. is a multi-grade level unit to assist bilingual speakers as well English-only students in exploring the school campus environment through language and writing.

Second graders learn investigative research and writing by identifying and understanding duties of support providers on campus. The final product is a school photo-journal available for check out and a slide show for classroom use. The need for this innovative program was evident when it was realized that many students were unaware and unable to name adults on campus who provide essential support such as the school nurse, custodian, principal, supervisors, and librarian. What better way to familiarize students with these adults and teach the writing lessons needed to produce well rounded student writers?

To create a unique solution to this problem, campus adults were photographed and second grade students were assigned a "Friend" to research and interview. Students then wrote about the adult to explain their role on our campus. Each bilingual student was paired with an English-speaking student for additional language support. Language lessons included the use of proper nouns and pronouns, informational paragraph writing, sentence structure, and understanding the difference between fact and opinions. By not having the assessment focus on worksheets, students demonstrate what they have learned in the context of authentic student writing.

As the first drafts are completed, students meet with 4th and 5th grade Big Buddies to word process their final product for a school slide show to be used in all classrooms. Big Buddies transferred writing and photos into a slide show and added graphics, color, new fonts, and transitions as part of their grade level technology plan.

Assessment of information and lesson skills were achieved through student rubrics and checklists. This is an example of using best practices as it is documented that children learn best when they are directly involved in the assessment process. Conferencing with the teacher allowed each student to self edit through their checklist and revise writing when needed. This type of assessment encourages the student to monitor their own progress.
The success of this program was evident by the students’ expertise regarding their F.B.I. subject and the feedback and improvement of their paragraphs. As a secondary assessment, students prepared a Jeopardy style game using categories to identify jobs, tools of the trade, and names of the F.B.I. subjects. Not only were students experts about their specific subject, but by playing the game, they learned about other campus adults and how to phrase questions and assimilate information to attribute specific skills and tools to other FBI subjects. The benefits of this project were numerous. This allowed the students to practice grade level standards in writing in a fun and creative way. They learned about their school environment, were able to greet adults by name, and they provided a useful service in the school photo-journal for new and non-English speakers to check out. Thanks to the upper grade Big Buddies, we have a slide show that can be viewed by any class on our campus. All of the students were proud to have their writing displayed in the office book. They practiced their lessons and grade level standard for grammar, word usage, and punctuation in a fun and exciting way.

As a follow up to the F.B.I. project, students research other subject areas such as famous Americans, athletes, entertainers, or topics related to curriculum currently being studied. Now that students have writing and computer skills, they can diversify their learning by completing an "I Search" study researching a person or subject of their choice. By allowing the student to self select a topic of interest, they are being encouraged to engage their skills with computer and book research. Practicing writing and paragraph composition at personal instructional levels allows each student to monitor their own progress and critically evaluate their writing compared to previous assignments. Calling the F.B.I. can open a world of research and writing for children of all grade levels.
Chefs Across the USA: Traveling across the curriculums to teach math, science, social studies, reading, and writing
Nancy Tracy – Lang Ranch Elementary
Business Partner: Amgen
For grade levels: 2 – 5
Curriculum Areas: Language Arts/Reading, History/Social Science, Science and Mathematics

A Major Impact on Student Learning- Grades 2-6 and combination classes.

Chefs Across the USA makes students want to “Kick their learning up a notch.” The children will journey through the different states in the USA. While they are traveling, they will be learning information about the states, reading maps, following directions, and sampling a taste of the food that each state is famous for. Everyone will want to say “BAM!” when they travel and cook their way across the USA.

Pre-Travel Preparations

Before the traveling started, each child was issued a pretend driver license so that they could travel across country. The children were given a copy of the Chefs Across the USA Cookbook that they could fill with facts about the states they visited and the recipes for the food that they made or sampled in each state. Each student was given a laminated placemat-map of the United States that they colored. This placemat also served as a tool to follow the directions and locations of the different states. Additionally, the students made chef hats and aprons out of paper. (Note: If you prefer to travel abroad you can also do this with different countries around the world and issue a pretend passport instead of the license and fly.)

During Our Activities

We began in our home state of California and learned all about this beautiful place. We started with some homemade “Holy Moly Guacamole.” The children mashed avocados, onions, tomatoes, salt and pepper, and later sampled the dish with chips. During our preparation, we were able to do some math without anyone even knowing it. We measured using measuring spoons and cups, added and subtracted ingredients, estimated weighted items on our pan balance scale, and looked at different geometric shapes of the items that we used in our recipe.

Many math questions were asked and answered during our cooking: What is the area of the pan we used? How do you cut the recipe in half? How much does the cream cheese weigh? We often wanted to know how long we would have to travel from one state to another. We also looked at the distances on the maps and talked about miles. Math seemed to be all around us as we traveled and cooked. The unit also opened
the door to science skills. We used the basic science process skills of making observations, using estimations, and relying on inferences about our recipes. When we finished preparing our treats, we completed a writing activity in our mini cookbooks, writing the recipe, and including some facts about the state we visited. The children also were able to do a small illustration about each state, which enabled them to add their artistic ability and individualize their cookbooks.

Reading and Technology

There are many great books and web sites you can use for this unit. I used the book, *Our Fifty States* by Lynne Cheney. Additionally, a useful web site that has lots of information about each state is [www.50states.com](http://www.50states.com). At this site, you can learn interesting facts about each state you choose to visit.

Additional Information

We only had about ten days to travel however, you can add or delete states depending on your time frame. We traveled to the heat of Arizona, making “Sweet Desert Tortillas.” We drove to Montana, making “Happy Trail Mix.” We ventured south to Mississippi, making “Mississippi Mud Pies.” We returned north to eat “Wisconsin Big Cheese Cake.” We also went east for “New York’s Famous Egg Creams,” amongst others.

Not a single recipe we used required cooking in an oven, or on a stove, making this a very teacher-friendly activity. Learning a little about what each state was known for helped create the names of the recipes. I used donations from parents to buy the food supplies, and each child was only given a small sample so we did not need large quantities. We learned facts about each of the states that we visited and had a blast being chefs. This unit can be adapted to each grade level by increasing and differentiating the information taught to that grade. There is so much to learn about each state, and making the information a hands-on experience is a great incentive for the children to retain the information.

Throughout the unit, both parents and students affirmed how much they enjoyed the unit and what they learned. One parent said, “My child can’t make it to school today they are sick but they are home crying that they are missing traveling to New York today. Can we make the recipe at home?”

When we traveled to Arizona one child told me of how their grandparents live there and that they always eat tortillas for breakfast whenever they visit. The children were making connections and they couldn’t wait for the next day to travel, cook, eat, and most of all learn.

I developed this unit to do with a combination class because it is something new and special. It really helps to have some new ways to teach in a combination class so that the curriculum is not repeated to the children.
again the next year. However, it addresses the needs of all learners and reaches all different modalities of learning along with many standards. There are numerous visual, sensory, and hands-on experiences to make the learners say “BAM!”

This unit has met the following standards: Math Standards: Number Sense 1.1,1.3,2,2.2,2.3 Fractions 4.1,4.2,4.3, Measurement 6.1, Science, Investigation 2.4 English Language Arts 1.1,1.2,1.3,1.4,1.6.1,7,and 2.7 Social Studies 2.2,and 2.4

Assessments: In class journal writing in our travel cookbook, and teacher observation during lessons. Exit Activity of the children bringing their cookbooks home to read and share their recipes with their families.
Montana's Happy Trail Mix

Ingredients:
1 cup of pretzel sticks
\( \frac{1}{2} \) cup of teddy graham cookies
\( \frac{1}{4} \) cup of raisins

1 tablespoon of kissable candy

1. Mix all of the ingredients in a baggie.
2. Store your Happy Trail mix in a sealed baggie to keep it fresh.
Nothing says "chef" like a poofy white hat, and these are especially easy to make.

CRAFT MATERIALS:
- White poster board
- White tissue paper
- Tape
- Paper clips

Time needed: Under 1 hour

1. Start with a band of white poster board 26 inches long and 3 1/2 inches high, and 3 sheets of 20-by-30-inch white tissue paper. Fold each sheet in half the long way.

2. Gather and tape one of the short sides of each sheet along the hat band, overlapping the sheets slightly.

3. Curl the band tape side out, place it around a child's head, and paper clip the ends. Gather the tissue at the top, taping it tightly together, as shown at right. Cut off the extra tissue, remove the paper clips, and turn right-side out. Reattach the paper clips, puff up the tissue, and start cooking!

How to make a chef hat.
Chefs Across the USA
Cookbook
Wisconsin's Big Cheese Cheesecake

Ingredients:
graham crackers
8oz. package of cream cheese
$\frac{1}{2}$ cup of sugar
8 oz. of cool whip topping

1. Blend the cream cheese and sugar together until smooth.
2. Fold in the Cool Whip and continue blending until smooth.
3. Crush the graham crackers in a baggie.
New York's Famous Egg Cream

Ingredients:
1 to 2 ounces of chocolate syrup
4 ounces of milk
Splash of seltzer (club soda)

1. Place the chocolate syrup into a glass or cup.
2. Add the milk and stir.
3. Next, add the club soda and stir.
Composers Through the Decades
Courtney Young and Clark Barnett – Lang Ranch Elementary
Business Partner: Ventura County Star
For grade levels: 3 – 5
Curriculum Areas: Language Arts/Reading, Dance and Visual Arts

“Composers Through the Decades” is a unit that takes students on a journey through the major historical periods in music (Baroque, classical, romantic, and modern) and investigates major composers that have made their mark in musical history. This curriculum is innovative because it gives students a chance to reflect and investigate upon the music, historical time-period, and important facts on the famous composer’s from each time period. A PowerPoint presentation was developed to stimulate a musical journey through each period. It gives students background knowledge on each destination (time-period) through pictures and relevant historical events. Then allow students to hear samples of music from each composer they learn about. The “journey” is an interactive stimulation through key musical periods and investigates different composers and musical genres at its finest.

Taken from the California standard for third grade visual and performing arts; music 3.0 Historical and Cultural Context: understanding the historical contributions and cultural dimensions of music students analyze the role of music in past and present cultures throughout the world, noting cultural diversity as it relates to music, musicians, and composers. “Composers Through the Decades” directly aligns with the analysis of composer’s, from all parts of the world, and their historical contributions. Additionally, learning about the relevant historical events during each time period covered.

The initial lesson introduces the journey the students are about to partake on. It gives a brief overview of the four historical periods in music that will be addressed. Following the introduction students create a timeline that contains all of the composer pictures in chronological order, marking the four different periods. The following lessons are structured as followed:

1. Introduce destination (time period) through the PowerPoint presentation, which gives students a chance to visually put themselves in that era (ex: to see what they may be wearing, outside surroundings, relevant historical events).
2. Then play a sample piece from the next composer and ask them to close their eyes and reflect on what they would be doing, feeling, ext.
3. Students draw a picture of what came to mind in their composer books
4. Then introduce composer, from the previously played sample music by giving them basic facts about their life and main contributions to music.
5. In their composer books, on the page beside their illustration, students glue a picture of the composer and copy the bulleted notes about the composer below from the PowerPoint.

This will be the ongoing structure of each lesson and will cover 13 + composers. Students document everything in their composer books, which are turned in at the end of the unit.

Once students become familiar with the structure of each lesson you can add a research aspect to the unit. Students can be guided to www.classicsforkids.com via the Internet, which allows students to find the composer (organized by time period), listen to a sample of the composers’ music, and then find important facts about the composer. This allows the student to practice researching information using a computer and also can be used for differentiating further lessons.

The success of this unit will be assessed by their completion and correct work of the following; timeline, notes, illustrations, and short paragraph’s from their composer books that will be collected and graded at the end of the unit. The success of this curriculum is monitored throughout the unit as well by mini review sessions of their “destinations” or time period’s they have learned about. Students’ composer books will act as an excellent resource for ongoing review and an overall outline on the development of music through the decades.

The students’ responses showcase the success of this unit. In the words Zack (3rd grade), “We have covered all 4 musical periods. Baroque, Classical, Romantic, and Modern. There are even more periods before that but that is what we did. I really liked learning about composers!”

Audrey said, “One thing we did was the power point presentation and our composer books. By doing that we learned when the composers lived, what they are well known for, what period of music they played in, and where they came from”. From what we learned, I think composers are very interesting.”

Jonathan B. said, “One of the best things we did was make composer books. We drew what we imagined while we listened to the music.” I believe a successful unit is validated by positive written responses about what they learned!

This unit positively affects student learning because it is interactive and engaging for the students. The “journey” stimulates a trip through each decade, thus creating a more exciting, enriching, and engaging curriculum for all types of learners. The chronological dates and time periods showcase how music evolved, dating back to the Baroque period to modern times. Research proves that students are more apt to store information in their long-term memory if they can make connections. The visual, theatrical, and musical
aspects coincide into a unit that not only covers the main objective of composers but also offers ample opportunities for students to make connections with each time period. Thus, this interacting unit takes the student on a journey through the decades, allowing them to make constant connections with history, music, and numerous composers. Ultimately, creating a memorable educational experience to any class.

Composers Timeline

[Image of a composers timeline showing various composers and their time periods]

Composers Book Cover

[Image of a book cover with a title that reads, "Composers Through the Decades: By: Ms. Young"]
My Thoughts and Impressions

I see myself gracefully swimming through the water of the ocean.

Frederic Chopin was one of the greatest pianists of his day. He gave his first concert at age 8.

The most interesting thing I found was that he never liked being Polish.
Discovery Days: Articulating with feeder elementary schools
Karen Reynosa and Woody Maxwell – Ventura High School
Business Partner: Amgen
For grade levels: K - 12
Curriculum Areas: All

The goal of this project is to articulate with elementary school students who feed directly into our high school to increase science awareness and experiences. For 18 years, we have promoted Discovery Day, an innovative and exciting experience developed by high school volunteer students. These students designate a theme and meet to determine concepts and labs that they will teach to 3rd and 4th grade students. This two day event occurs in the Main Street Gym which is decorated prior to elementary school student arrivals. This year’s them is “Under the Sea”. The students have currently participated in 7 labs. Student teachers have designed water density, fish dissection, ocean topography, shark experience, predator/prey game, pirates and shipwrecks, and the kelp forest labs.

Participation occurs as follows. Each school receives an email where they can sign up for the date and time in which they wish to attend. This year the event was filled within one week, since space is at a premium. Over 755 elementary students participated with the 150 high school students.

The curriculum involved in this project varies yearly. Since the students are determining the theme, we choose science labs that involve math, art, social studies, language, physical education, theater and music. High school students can choose to become a teacher of a lab or a tour guide. If one chooses a teacher, the responsibility is to research and develop a lesson that can be taught in 15-20 minute rotations. Student teachers produce a lesson plan and practice prior to the “big day”. Then they teach their lesson 7 times / session. After the two day event, this works out to approximately 21 times. The tour guides produce and ready the passports for the elementary students. These consist of a booklet with elementary student names and tour guides names. They also will be stamping the passports as each student completes a lab and rotates to the next station. Tour guides, in pairs, also learn to develop rapport with their ten students. They become their big brothers and sisters for the two hours, and amazingly the young and old students become quite attached. Tour guides take care of the students throughout the day, and foster a sense of trust and camaraderie with them.

The state standards that are relevant to this project are numerous. All third and fourth grade standards are consulted prior to designing labs. The high school science standards are also met as students must develop their lesson plans and learn the depth and breadth of designated topics. These may include standards for
more than one discipline. For example, the pirate/shipwreck lab involved science, history, math, language arts, theater and physical education standards. Students had to orienteer, run to different “buried treasure” sites, count, listen to historical facts, watch a designed play about Ventura Channel shipwrecks and answer questions posed by the teachers.

During the activities in Discovery Day, all of the senses are utilized with the main goals including science excitement and fun. Both the elementary students and the high school students gain invaluable experiences which transcend into indelible memories. Interestingly, since this event is not grade related, and since high school students are not from a specific class, this purely volunteer group of students self-selects to participate. Their enthusiasm and energy is contagious and it is perhaps the finest moments for the elementary school and high school teachers alike. We often comment on how lucky we are to live in a town where there is still incredibly good things happening! As the years progress, the younger students who have visited Discovery Day in years past become the teacher leaders and tour guides, and hence the circle completes itself.
How do students in grades four through six connect the basic math and science lessons that are foundational during the elementary school years in ways that challenge their thinking, help them to see the value of the skills taught, and look to future careers in these areas? Using Lego Mindstorms sets, our GATE (Gifted and Talented Education) identified students have the opportunity to program, build, motorize and run a robotic vehicle. This class harnesses the motivational effects of LEGOs to teach simple machines, forces in motion, gear ratios, learning mechanical vocabulary, problem solving, three dimensional shapes, comparing and contrasting objects, extending patterns, and listening and following directions. Students worked together on these and other activities during a five week after school enrichment class.

Purpose of the Enrichment Session

I continue to encourage my students to look toward careers in math and science. I expect that this highly motivational program will reinforce the interest that both my boys and girls have in math and science and the value of continuing to pursue learning in these academic areas as they move towards middle school and beyond.

First Steps

My students began the session by sorting the literally thousands of pieces that came in the two kits purchased for the class of fourteen. This gives them the chance to become familiar with the pieces they will be working with and discuss the possibilities for construction. As they worked I observed them begin to hypothesize, experiment and revise plans to make simple structures and machines.

An integral part of the Mindstorms kit is the NXT brick, which serves as the “brain” for the robotic vehicle. Students use the provided software to download instructions for making the robotic vehicle move, make appropriate decisions during movement, and “speak” or have sound effects. Their initial challenge is to figure out what choices are available and how to make decisions within the group. This is a highly motivating time for the students with quite a bit of heated discussion. With minimal guidance from me, they are able to practice the give and take necessary to move forward with the project.

Building the Robots
Once the NXT Brick has been programmed, the students must next decide what type of robot or robotic vehicle to build. Basic building instructions come with each set, yet they quickly researched and found additional suggestions on the Lego Mindstorms website. Groups work together to follow the directions for constructing the vehicles as shown. They quickly discovered the need to start simple and work up to more complicated designs, as long intricate building leave little time to experience the success of completion. Because two groups work on projects simultaneously, they witness the success and frustration of each other and learn from the experiences as they go along. As they become more comfortable with the way these robots are constructed, I began to see less direction-following and more innovative thinking, giving them the unique creations they were hoping for.

The sessions culminated with all groups sharing their constructed vehicles, complete with downloaded sound effects and programmed movements.

Meeting the Criteria for GATE Enrichment

GATE identified students are expected to continue to grow in their learning by having the opportunity to participate in activities that focus on **Depth, Complexity, Acceleration** and **Novelty**. This enrichment session focused primarily on three of the four areas:

**Novelty** This program uses an extremely high-interest medium—Lego’s- to give students the opportunity to design and construct simple machines. Students work independently and in groups to hypothesize, experiment and revise plans to make simple structures and machines

**Depth and Complexity** California State Standards in Science require students to participate in Investigation and Experimentation during the elementary school years. This program gives students the opportunity to learn about simple machines, forces in motion, gear ratios, learning mechanical vocabulary, problem solving, 3 dimensional shapes, comparing and contrasting objects, extending patterns, and listening and following directions.

**Learning from Students**

Because this enrichment session was designed to be student-led with an emphasis on exploration, I spent much of the time observing, while trying not to get in the way. Leaders had no trouble identifying themselves early on, but cooperative groups emerged and there was little disagreement among the participants. Those that preferred to work with the software found plenty to do at the computer, while others had their hands full constructing the robots or vehicles. After the third session, I asked the students to reflect on the program so far. The following are their words:
Megan, 6th grade: “The best part of this enrichment session is having so much technology at your fingertips and knowing you can just make it do what you want it to do. It is necessary to be very organized and patient, and you need to be able to concentrate.”

Jillian, 5th grade: “The best part about this is that we get to play with something everyone loves and at the same time learn things and get the experience. To successfully build a robot you mostly need to be friendly and work well, because if you don’t people won’t want to help you.”

The comment common to all students completing the reflection was the need for more Lego kits and more time. As this was a first-time class for our site, I felt lucky to have the materials I did. Before offering it again, I hope to add at least another kit to ensure that the groups are smaller. I consider the request for more time, since this was only a five-week session, a measure of success!

This session was presented as an optional enrichment to GATE identified students in grades four through six. This Math, Science and Technology-based unit addresses the California State Science standards which expect students to have experiences with Investigation and Experimentation. In addition, as a supplement to the Unit on Physical Science, my students had the opportunity to test out lessons learned involving velocity, force and the relationship between distance, time and average speed.

Students work together to program the NXT brick using provided software.
Many additional construction ideas were found on the Lego Mindstorms website.

Success is measured when the robotic vehicle moved and sounded as planned!
Lego Mindstorms Mid-Session Reflection

Please answer as fully as you can—I’ll use your responses to try to get more supplies and activities!

1. What do you think is the best part of this enrichment session?

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

2. What skills are necessary to successfully build and run the robots? Think about both academics, social and organizational skills.

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

3. What’s the biggest challenge with this project?

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

4. How could this activity be reorganized or changed to be more successful?

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
Students use both the provided written user guide and the software to troubleshoot problems and make modifications.
From Seeds to Soup
Karen Allen – Camarillo Heights School
Business Partner: Hansen Trust
For grade levels: K – 12
Curriculum Areas: Language Arts/Reading, History/Social Science, Health, Music, Theater, Science, Visual Arts and Agriculture/Gardening

This unit takes first graders on an inspiring trip from “seeds to soup.” The children begin the cycle by planting seeds (and seedlings) in the school garden. For four months, they will tend their garden until they cultivate their plants to make their own “stone soup.”

Here are just some of the activities included during those four months (which are based on state standards):

- observe, graph, record and document information about plant growth (life science)
- food pyramid (health / life science)
- count seeds, measure plant growth, make calculations (math)
- prepare for weather conditions, plant foods for soup (history-social science)
- listen to and read “Stone Soup” by various authors (reading)
- identify and discuss the story elements, make comparisons (oral language)
- stick puppets and flannel board characters for story retelling (oral language, visual art)
- write own versions of “Stone Soup” with narratives for characters (writing)
- make posters as invitations to other classrooms and scenery for the students’ performance of “Stone Soup” (visual and performing arts)

What a different and exciting unit this is for the students! This multi-month unit allows students to use their many skills inside and outside the classroom building.

+ Outside, each child has their own plants to tend in their own personal way learning some real-life skills.
+ Inside the classroom, children work in groups to plan, create and enjoy reading, writing, cooking, and a variety of art mediums.

+ On the stage, children have fun expressing their inner thespian as they perform their version of “Stone Soup” for the student body at school as well as their families and friends.

+ I also work with the children to incorporate singing to their performance—we turn a familiar tune into a song: (example...tune: Row, Row, Row Your Boat

Do, do, do you have
Do you have some food?
We are hungry, yes we are...
Oh, do you have some food?)

With only a few twists and turns, this unit can be adapted to other grade levels as it includes multiple disciplines for the range of abilities. It would also be easy to adapt these ideas to other grade level studies: kindergarten—community; second grade—heritage, third grade—Native Americans; fourth grade—westward movement; fifth grade—Egyptian life....

The faces on the children, after their performance when they are eating their stone soup, are a sure-fire assessment to this delightful unit!

- Additional sample information is included regarding the following resources:
  - State Standards
  - Photographs
  - Gardening / Planting Guide
  - Story Versions and Resources
  - Food Pyramid
  - Additional Resources
ADDITIONAL SAMPLES and INFORMATION

regarding:

From Seeds to Soup
Stone Soup

California State Standards
FIRST GRADE STANDARDS

Life Sciences

2. Plants and animals meet their needs in different ways. As a basis for understanding this concept:
   a. Students know different plants and animals inhabit different kinds of environments and have
      external features that help them thrive in different kinds of places.
   b. Students know both plants and animals need water, animals need food, and plants need light.
   e. Students know roots are associated with the intake of water and soil nutrients and green leaves
      are associated with making food from sunlight.

Investigation and Experimentation

4. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a
   basis for understanding this concept and addressing the content in the other three strands, students
   should develop their own questions and perform investigations. Students will:
   a. Draw pictures that portray some features being described.
   b. Record observations and data with pictures, numbers, or written statements.
   c. Record observations on a bar graph.
   d. Describe the relative position of objects by using two references
   e. Make new observations when discrepancies
Mathematics Content Standards

Number Sense

1.0 Students understand and use numbers up to 100:
   1.1 Count, read, and write whole numbers to 100.
   1.2 Compare and order whole numbers to 100.
   1.3 Represent equivalent forms of the same number.
   1.4 Count and group object in ones and tens.

2.0 addition and subtraction

   2.1 Know the addition facts and the corresponding subtraction facts.
   2.2 Use the inverse relationship between addition and subtraction to solve problems.
   2.3 Identify one more than, one less than.
   2.4 Count by 2s, 5s, and 10s to 100.
   2.5 Show the meaning of addition and subtraction.
   2.6 Solve addition and subtraction problems.
   2.7 Find the sum of three one-digit numbers.

3.0 estimation strategies

   3.1 Make reasonable estimates when comparing numbers.

Algebra and Functions

1.0 number sentences with operational symbols

   1.1 Write and solve number sentences involving addition and subtraction.
   1.2 Understand the meaning of the symbols +, -, =.
   1.3 Create problem situations that might lead to addition and subtraction.
Measurement and Geometry

1.0 comparison to describe the measurements of objects:

1.1 Compare the length, weight, and volume of two or more objects
1.2 Tell how time that relates time to events

2.0 identify geometric figures and classify them by common attributes

2.1
2.2 Classify objects by attributes (color, position, shape, size)
2.3 Give and follow directions about location.
2.4 Arrange and describe objects in space by proximity and position

Statistics, Data Analysis, and Probability

1.0 Students organize, represent, and compare data by category on simple graphs and charts:

1.1 Sort objects by common attributes
1.2 compare data by using bar graphs, tally charts, and graphs.

2.0 sort objects and describe by numbers, shapes, sizes or colors:

2.1 Describe ways to get to a next element in repeating patterns

Mathematical Reasoning

1.0 Students make decisions about how to set up a problem:

1.1 Determine materials and strategies
1.2 Use manipulatives or sketches to model problems.

2.0 Students solve problems and justify their reasoning:

2.1 Explain the reasoning selected
2.2 Make calculations and check the results

3.0 Students note connections between one problem and another.
History-Social Science Content Standards.

A Child’s Place in Time and Space

1.2 compare locations of the physical characteristics of places.

4. Describe how location, weather, and physical environment affects food

1.5 describe the characteristics of familiar places

1. Recognize traditions
2. Understand the ways immigrants have helped define California
3. Compare the beliefs, traditions, and social practices of the varied cultures

1.6 Students understand basic economic concepts

1. Understand the concept of exchange
2. Identify the work that people do to manufacture, transport, and market goods
1.0 Word Analysis, Fluency, and Systematic Vocabulary Development

*Concepts About Print, Phonemic Awareness, Decoding and Word Recognition, Vocabulary Development*

2.0 Reading Comprehension

Students read and understand grade-level-appropriate material.

*Structural Features of Informational Materials*

2.1 Identify text that uses sequence

*Comprehension and Analysis of Grade-Level-Appropriate Text*

2.2 Respond to who, what, when, where, and how questions.

2.3 Follow one-step written instructions.

2.5 Confirm predictions about what will happen next

2.6 Relate prior knowledge to text

2.7 Retell the central ideas

3.0 Literary Response and Analysis

Students read and respond to a wide variety of significant works of children's literature. They distinguish between the structural features of the text and the literary terms or elements (e.g., theme, plot, setting, characters).

*Narrative Analysis of Grade-Level-Appropriate Text*

3.1 Identify and describe the elements of plot, setting, and character(s) in a story, as well as the story's beginning, middle, and ending.
Writing

1.0 Writing Strategies

Students write clear and coherent sentences

Organization and Focus

Penmanship

1.3 Print legibly

2.0 Writing Applications

Students write compositions that describe and explain

2.1 Write describing narratives
2.2 Write expository descriptions

Written and Oral English Language Conventions

1.0 Written and Oral English Language Conventions

Sentence Structure, Grammar, Punctuation, Capitalization, Spelling

Listening and Speaking

1.0 Listening and Speaking Strategies

Students listen and respond to oral communication.

Comprehension, Organization and Delivery of Oral Communication

2.0 Speaking Applications (Genres and Their Characteristics)

Students deliver brief recitations and oral presentations
Visual and Performing Arts: Theatre Content Standards.

2.0 CREATIVE EXPRESSION

Creating, Performing, and Participating in Theatre

Students apply processes and skills in acting

Development of Theatrical Skills

2.2 Dramatize simple stories from classroom literature

4.0 AESTHETIC VALUING

Visual and Performing Arts: Visual Arts Content Standards.

2.0 CREATIVE EXPRESSION

Creating, Performing, and Participating in the Visual Arts

Students apply artistic processes and skills, using a variety of media to communicate meaning and intent in original works of art.

Skills, Processes, Materials, and Tools

Communication and Expression Through Original Works of Art

2.4 Plan and use variations in line, shape/form, color

2.6 Draw or paint a still life

2.8 Create artwork of actual objects
Stone Soup

Gardening
Northern Hemisphere Temperate Climate

This table is a sowing guide for approximately which months of the year vegetables can be sown (planted) in a 'temperate' climate.

The climate descriptor 'temperate' can vary a lot between areas. Generally it means summer temperatures are hotter than other seasons but winter doesn't mean snow. Some frost may be experienced in winter.

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<th>Weeks to Harvest</th>
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</tbody>
</table>

Red Checks indicate when class needs to plant...

Note: Some items will be planted in May / June for the following year's class.
Stone Soup

Stories / Resources
<table>
<thead>
<tr>
<th>Title</th>
<th>Author</th>
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</thead>
<tbody>
<tr>
<td>Stone Soup (Puffin Pied Piper)</td>
<td>Tony Ross</td>
</tr>
<tr>
<td>Stone Soup</td>
<td>Heather Forest</td>
</tr>
<tr>
<td>Stone Soup</td>
<td>Marcia Brown</td>
</tr>
<tr>
<td>Stone Soup</td>
<td>Ann McGovern</td>
</tr>
<tr>
<td>Stone Soup</td>
<td>Jon J. Muth</td>
</tr>
<tr>
<td>Stone Soup: A Story from the Old Country</td>
<td>Virginia Johnson</td>
</tr>
</tbody>
</table>
Stone Soup: traditional version

A kindly, old stranger was walking through the land when he came upon a village. As he entered, the villagers moved towards their homes locking doors and windows.

The stranger smiled and asked, why are you all so frightened. I am a simple traveler, looking for a soft place to stay for the night and a warm place for a meal.

"There's not a bite to eat in the whole province," he was told. "We are weak and our children are starving. Better keep moving on."

"Oh, I have everything I need," he said. "In fact, I was thinking of making some stone soup to share with all of you." He pulled an iron cauldron from his cloak, filled it with water, and began to build a fire under it.

Then, with great ceremony, he drew an ordinary-looking stone from a silken bag and dropped it into the water.

By now, hearing the rumor of food, most of the villagers had come out of their homes or watched from their windows. As the stranger sniffed the "broth" and licked his lips in anticipation, hunger began to overcome their fear.

"Ahh," the stranger said to himself rather loudly, "I do like a tasty stone soup. Of course, stone soup with cabbage -- that's hard to beat."

Soon a villager approached hesitantly, holding a small cabbage he'd retrieved from its hiding place, and added it to the pot.

"Wonderful!" cried the stranger. "You know, I once had stone soup with cabbage and a bit of salt beef as well, and it was fit for a king."

The village butcher managed to find some salt beef . . . and so it went, through potatoes, onions, carrots, mushrooms, and so on, until there was indeed a delicious meal for everyone in the village to share.

The villager elder offered the stranger a great deal of money for the "magic" stone, but he refused to sell it and traveled on the next day.

As he left, the stranger came upon a group of village children standing near the road. He gave the silken bag containing the stone to the youngest child, whispering to a group, "It was not the stone, but the villagers that had performed the magic."

Moral: By working together, with everyone contributing what they can, a greater good is achieved.
One evening, just at sunset, a little old figure wrapped in a shawl and a headscarf came into the village. She was a babushka, a grandmother, and she dragged a handcart behind her. She went to the very center of the village where in better times the villagers had danced and sung and feasted together near their well. She saw the empty iron kettle and clucked her tongue happily.

"Ah, perfect!" she cried. "Just what I need to make delicious stone soup."

Emile, who had been getting his family's water at the well, drew closer.

"Babushka, what is stone soup? I would like to try some. I am so tired of carrots!"

"Ah, it is a most wonderful thing. First you take a stone."

She plopped a fist-sized rock into the iron kettle.

"May I have a bit of that water, young man?"

Emile obliged. Puzzled, he said, "Babushka, you don't want to eat rocks and water."

"No? But that is what I have…"

"Wait! I will get you something more."

Emile scurried off and came back with a fistful of carrots.

From her apron pocket, Babushka pulled out a handful of rosemary.

"Very nice."

"That's not so nice, Babushka," said Jacob. He had been sent out to get the morning's water also. "But I can help." He quickly ran back to her house and returned with a bucket full of potatoes.
“Very good, my dear,” said Babushka as she patted Jacob on the cheek. She cut the potatoes and the carrots with her paring knife and added them to the pot, along with a pinch of thyme.

By this time the soup smelled like the beginning of something good. Curious Karina stopped sweeping her stoop and came over to see.

“Babushka, might I help?”

“Of course, my dear.”

Karina flitted back to her house and came back with a plate full of pieces of salted beef.

“Ahh,” Babushka smiled as she added the beef to the pot, with a handful of parsley. “A little more water, please, Emile.”

The three friends sat with Babushka as the stone soup cooked itself into a savory meal. While they waited, she stirred the pot and told them fantastic stories about wise men, princesses, and fools.

By the time the soup was ready the grown ups had come out of their houses. They smelled the good soup. They gathered together and forgot their jealousies as they shared a wonderful meal with their children. One family shared their apples. Another family shared their flour. Yet another shared honey and cracked walnuts. All these were put together to create a fine dessert. Later that night there was dancing and singing just as before the days that hunger came. Babushka was invited to stay with the families for the winter, each one wanting a turn, so they could enjoy her wonderful stories and good stone soup.
A tramp knocked at the farmhouse door. "I can't let you in, for my husband is not at home," said the woman of the house. "And I haven't a thing to offer you," she added. Her voice showed unmasked scorn for the man she held to be a beggar.

"Then you could make use of my soup stone," he replied, pulling from his pocket what appeared to be an ordinary stone.

"Soup stone?" said she, suddenly showing interest in the tattered stranger.

"Oh yes," he said. "If I just had a potful of water and a fire, I'd show you how it works. This stone and boiling water make the best soup you've ever eaten. Your husband would thank you for the good supper, if you'd just let me in and put my stone to use over your fire."

The woman's suspicions yielded to her desire for an easy meal, and she opened the door. A pot of water was soon brought to a boil. The tramp dropped in his stone, then tasted the watery gruel. "It needs salt, and a bit of barley," he said. "And some butter, too, if you can spare it." The woman obliged him by adding the requested ingredients. He tasted it again. "Much better!" he said. "But a good soup needs vegetables and potatoes. Are there none in your cellar?"

"Oh yes," she said, her enthusiasm for the miracle soup growing, and she quickly found a generous portion of potatoes, turnips, carrots, and beans.

After the mixture had boiled awhile, the man tasted it again. "It's almost soup," he said. "The stone has not failed us. But some chicken broth and chunks of meat would do it well."

The woman, recognizing the truth of his claim, ran to the chicken yard, returning soon with a freshly slaughtered fowl. "Soup stone, do your thing!" she said, adding the chicken to the stew.

When their noses told them that the soup was done, the woman dished up a healthy portion for her guest and for herself. They ate their fill, and -- thanks to the magic stone -- there was still a modest bowlful left over for her husband's supper.

"My thanks for the use of your pot and your fire," said the tramp as evening approached, and he sensed that the husband soon would be arriving home. He fished his stone from the bottom of the pot, licked it clean, and put it back into his pocket.

"Do come again," said the thankful woman.

"I will indeed," said the tramp, and disappeared into the woods.
The Wisdom Of Sharing Stone Soup

There are many variations on the story of stone soup, but they all involve a traveler coming into a town. The inhabitants try to discourage the traveler from staying, fearing he wants them to give him food. They tell him in no uncertain terms that there’s no food anywhere to be found. The traveler explains that he doesn’t need any food and that, in fact, he was planning to make a soup to share with all of them. The villagers watch suspiciously as he builds a fire and fills a cauldron with water.

With great ceremony, he pulls a stone from a bag, dropping the stone into the pot of water. He sniffs the brew extravagantly and exclaims how delicious stone soup is. As the villagers begin to show interest, he mentions how good the soup would be with just a little cabbage in it. A villager brings out a cabbage to share. This episode repeats itself until the soup has cabbage, carrots, onions, and beets—indeed, a substantial soup that feeds everyone in the village.

This story addresses the human tendency to hoard in times of deprivation. When resources are scarce, we pull back and put all of our energy into self-preservation. We isolate ourselves and shut out others. As the story of stone soup reveals, in doing so, we often deprive ourselves and everyone else of a feast.

This metaphor plays out beyond the realm of food. We hoard ideas, love, and energy, thinking we will be richer if we keep to them to ourselves, when in truth we make the world, and ourselves, poorer whenever we greedily stockpile our reserves. The traveler was able to see that the villagers were holding back, and he had the genius to draw them out and inspire them to give, thus creating a spread that none of them could have created alone.

Are you like one of the villagers, holding back? If you come forward and share your gifts, you will inspire others to do the same. The reward is a banquet that can nourish many.
Working together, with each of us contributing a bit, we can be successful.

A weary, poor traveler arrived in a small village. He had no food or money and had not eaten in days. The one thing he did have was a cooking pot that he used on those rare occasions when he had something to cook.

He built a small cooking fire, placed his pot on it, and poured in some water. When a few villagers asked what he was doing, he replied that he was making Stone Soup which was an ancient tasty recipe passed down to him from his ancestors. He then dropped in a smooth, round stone he had in his pocket into the pot.

As the soup warmed, the traveler told the villagers stories of his travels and the exciting things he'd seen. He tasted his soup and said it was coming along nicely, but a bit of salt would bring out the flavor. One curious villager went into her home and returned with some salt for the soup.

A few more villagers walking by stopped to see what was going on when they heard the traveler speaking. The traveler told more stories and said that a couple carrots or onion would be a nice addition to the already delicious soup. So, another villager figured he could give a few carrots and retrieved them from his cellar.

This continued on with the traveler casually asking for onions, seasoning, a bit of meat, celery, potatoes to bring out the full potential of the soup.

Finally, the soup was ready and everyone enjoyed the tasty meal prepared for them from just a stone, and a few other items.

Working together, with each of us contributing a bit, we can be successful. Others will support a project that is underway and appearing successful more easily than committing to a new project that has not yet started.
Stone Soup

Food Pyramid

information, games, activities, resources
Pyramid Go Fish Instructions

Getting Ready
Print copies of the Pyramid Go Fish food cards. At least two sets of cards are needed for a class of 25 students; one set is adequate for a class of 10–12 students. Cut out the cards along the dotted lines. To make the cards sturdier, print onto card stock, laminate the cards, or paste the printed cards onto index cards or playing cards.

Playing Pyramid Go Fish
- Divide the students into groups of four.
- Give each group 30 cards.
- The dealer shuffles the cards and deals out four cards to each student, and places the rest in the middle.
- The first student (let’s call him Michael) asks the student sitting to his left, “Kayla, do you have a fruit?” If Kayla has a fruit she says, “Yes, I do,” and hands it to Michael, who then places his pair on the table. Michael is then able to ask the next student a question.
- If Kayla doesn’t have a fruit, she replies, “No I don’t have a fruit. Go fish,” and Michael can take a card from the pile in the middle. It is then Kayla’s turn to ask the student on her left for a card. The students continue to ask questions and match cards until all the pairs are found.
- The student with the most pairs wins.
MyPyramid
Eat Right. Exercise Have Fun.
MyPyramid.gov
# MyPyramid Worksheet

## Check how you did yesterday and set a goal to aim for tomorrow

<table>
<thead>
<tr>
<th>Write In Your Choices From Yesterday</th>
<th>Food and Activity</th>
<th>Tip</th>
<th>Goal (Based On a 1800 Calorie Pattern)</th>
<th>List Each Food Choice In Its Food Group*</th>
<th>Estimate Your Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast:</td>
<td>Grains</td>
<td>Make at least half your grains whole grains.</td>
<td><strong>6 ounce equivalents</strong>&lt;br&gt;(1 ounce equivalent is about 1 slice bread, 1 cup dry cereal, or ½ cup cooked rice, pasta, or cereal)</td>
<td></td>
<td>ounce equivalents</td>
</tr>
<tr>
<td>Lunch:</td>
<td>Vegetables</td>
<td>Color your plate with all kinds of great tasting veggies.</td>
<td><strong>2½ cups</strong>&lt;br&gt;(Choose from dark green, orange, starchy, dry beans and peas, or other veggies)</td>
<td></td>
<td>cups</td>
</tr>
<tr>
<td>Snack:</td>
<td>Fruits</td>
<td>Make most choices fruit, not juice.</td>
<td><strong>1½ cups</strong>&lt;br&gt;(1 cup yogurt or 1½ ounces cheese = 1 cup milk)</td>
<td></td>
<td>cups</td>
</tr>
<tr>
<td>Dinner:</td>
<td>Milk</td>
<td>Choose fat-free or lowfat most often.</td>
<td><strong>3 cups</strong>&lt;br&gt;(1 cup yogurt or 1½ ounces cheese = 1 cup milk)</td>
<td></td>
<td>cups</td>
</tr>
<tr>
<td>Physical activity:</td>
<td>Meat and Beans</td>
<td>Choose lean meat, and chicken or turkey. Vary your choices—more fish, beans, peas, nuts, and seeds.</td>
<td><strong>5 ounce equivalents</strong>&lt;br&gt;(1 ounce equivalent is 1 ounce meat, chicken or turkey, or fish, 1 egg, 1 T. peanut butter, ½ ounce nuts, or ¼ cup dry beans)</td>
<td></td>
<td>ounce equivalents</td>
</tr>
<tr>
<td></td>
<td>Physical Activity</td>
<td>Build more physical activity into your daily routine at home and school.</td>
<td>At least <strong>60 minutes</strong> of moderate to vigorous activity a day or most days.</td>
<td></td>
<td>minutes</td>
</tr>
</tbody>
</table>

*Some foods don’t fit into any group. These “extras” may be mainly fat or sugar—limit your intake of these.

How did you do yesterday?  □ Great  □ So-So  □ Not So Great

My food goal for tomorrow is: ____________________________________________________________

My activity goal for tomorrow is: ________________________________________________________

---

**REPRODUCIBLE TEAMNUTRITION.USDA.GOV**
<table>
<thead>
<tr>
<th>Vegetables</th>
<th>Baked Potato</th>
<th>Grains</th>
<th>Biscuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat &amp; Beans</td>
<td>Baked Beans</td>
<td>Meat &amp; Beans</td>
<td>Beef Jerky</td>
</tr>
<tr>
<td>Fruits</td>
<td>Baked Apple</td>
<td>Fruits</td>
<td>Apple</td>
</tr>
<tr>
<td>Grains</td>
<td>Bagel</td>
<td></td>
<td>Banana</td>
</tr>
<tr>
<td>Vegetables</td>
<td>Grains</td>
<td>Cereal</td>
<td>Grains</td>
</tr>
<tr>
<td>------------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>Celery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grains</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cauliflower</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carrot Sticks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grains</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cereal</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Milk

Vegetables
Mashed Sweet Potatoes

Fruits
Mango

Milk
Cottage Cheese

Milk

Fat Free Milk

Fat Free Milk

2% Milk

Chocolate Fat Free Milk
Project Ideas from Other Sources
Resource List

Publications for Children and Adults

All About Seeds (Do-It-Yourself Science Series)
Melvin Berger. Reading level: Grades 2–3
Simple text, basic experiments, and colored illustrations teach what seeds need to grow.
This book is currently out of print, but may be available in libraries.
Recommended/reviewed by MG Marjorie Kinney, ABE Center.

All About Seeds
Susan Kuchalla. Troll Associates, 1982. $10.55 Reading level: Ages 4-8
Brief text and pictures present several kinds of seeds and show how they grow into plants.
Recommended by Tara Ciacciura, Franklin County Program Assistant.

The Big Bug Book
Margery Facklam. Little Brown & Co, 1994. $5.06 Reading level: Ages 4-8
Describes thirteen of the world's largest insects, including the birdwing butterfly and the Goliath beetle.
Recommended by Tara Ciacciura, Franklin County Program Assistant.

The Blossom on the Bough: A Book of Trees
Anne Ophelia Dowden. Ticknor & Fields, 1994. $16.95 Reading level: Ages 9-12
A Notable Book of 1975 is made available once again, to introduce young readers to the often unfamiliar flowers and fruit of trees in the seven major forest regions of the United States.
Recommended by Tara Ciacciura, Franklin County Program Assistant.

Blue Potatoes, Orange Tomatoes
Rosalind Creasy. Little Brown & Co, 1997. $5.91 Reading level: Ages 4-8
Describes how to plant and grow a variety of colorful vegetables, including red corn, yellow watermelons, and multicolored radishes.
Recommended by Tara Ciacciura, Franklin County Program Assistant.

Bugs and Other Insects (Crabapples)
Bobbie Kalman and Tammy Everts. Crabtree Pub., 1994. $5.06 Reading level: Ages 4-8
Simple, informative text describing the biology of various insects is illustrated with color drawings and photographs of the insects in their natural habitats.
Recommended by Tara Ciacciura, Franklin County Program Assistant.
Resource List
Publishers and Suppliers

Gardening with Kids
A supply catalog available through the National Gardening Association. See page 29 for additional information.

Let’s Get Growing!
1900 Commercial Way, Santa Cruz, CA 95065
phone: (800) 408 – 1868
web site: www.letsgetgrowing.com
This company offers a catalog of environmental science and nature supplies, including books, curriculum guides, butterfly larvae, indoor plant growing units and worm composters.

Magic Worm Ranch
3163 Roadrunner Rd., San Marcos, CA 92069
phone: (760) 598 - 0607
web site: www.magicworms.com
Sells worm composting units, redworms, and books on vermiculture. Supplies can be ordered online. The web site also contains information on worm composting, as well as links to other web sites on the topic. The organization is sponsored by the Maximum Achievement Center, a nonprofit corporation benefiting children and adults with learning disabilities.

Flowerfield Enterprises
Mary Appelhof, WormWoman
10332 Shaver Rd., Kalamazoo, MI 49024
phone: (616) 327 - 0108
web site: www.wormwoman.com
Sells worm composting supplies and educational resources. An order form is available on-line. The web site also contains information on worm composting, and links to other web sites.

NK Lawn & Garden Kidseeds Product Line
A part of their Kidseeds product line, NK Lawn and Garden offers seed packets with colorful cartoon characters on the front. Cartoons feature names such as “Hairy Carrot,” “Luke the Cuke,” and “Be Cool Coleus.” Currently these seed packets are not readily available, but can be ordered from NK Lawn & Garden through local retailers or garden centers. The Andersons, Target, and ACE Hardware are retailers that carry the NK line. The minimum order is 20 packs of seeds, but can be a mix of varieties.
Resource List

Internet Sites

www.kidsgardening.com
Sponsor: National Gardening Association
A new, interactive web site for people gardening with kids.

http://aggie-horticulture.tamu.edu/kindergarden/kinder.htm
Sponsor: Department of Horticulture Sciences, Texas A & M University
Contains information on topics such as school gardens, plant activities for kids, research on
children’s gardening, and tips for gardening with kids.

http://ag.arizona.edu/maricopa/garden/garden/
Sponsor: Maricopa County Home Horticulture, The University of Arizona Cooperative Extension
Click on the “Youth Gardens Link” for a variety of information. Perhaps most useful is a reference
list of funding sources for children’s gardens. The web site also contains descriptions of youth gar-
dens in Maricopa County. The “Specialty Gardens” link gives brief information on various types of
theme gardens for kids, such as bat gardens, pizza gardens, sunflower houses, etc. (although the hort-
cultural information is geared to the low desert, it still provides helpful ideas).

www.empnet.com/worms/welcome.htm
Sponsor: RecycleIt Corporation
The web site contains useful, basic information on how to compost with worms, including a re-
sources link to other articles on vermiculture.

www.magicworms.com
Sponsor: Maximum Achievement Center
Sells worm composting supplies, which may be ordered on-line. Also contains information on worm
composting, as well as links to other web sites on the topic.

www.wormwoman.com
Sponsor: Mary Appelhof, WormWoman, Flowerfield Enterprises
Information on worm composting, with links to other web sites. An order form for purchasing sup-
plies is available at the site.
Go Figure, Fibonacci!
Sandra Hayes – Tierra Linda
Business Partner: Amgen
For grade levels: 4 - 8
Curriculum: Mathematics and GATE

Go Figure, Fibonacci: A Mathematical Journey

*Go Figure, Fibonacci* leads students on a journey through time to discover the history of our numeral system and to an exploration of a number sequence found in nature by Leonardo Fibonacci, (1175-1250), who some called the greatest mathematician of the Middle Ages. Students used embedded hands-on activities to discover the number sequence of Fibonacci and then investigated the Golden Ratio, the concept of Phi ($\phi$) and the Golden Rectangle, exploring how they have been used in mathematics, art, architecture and how they are found throughout the natural world.

An appreciation of the beauty and elegance of mathematics, as required state standards, began to unfurl itself as the students began their study of Leonardo Fibonacci. They traced the history of his life and mathematical discoveries on a map of the Mediterranean region in the Middle Ages. Fibonacci was the son of an Italian merchant who traveled with his father to the Moslem Empire of North Africa in the late 12th century. There he was tutored in math by a Moslem tutor using the Hindu-Arabic numeral system, which was unheard of in Europe, where the Roman Numeral system had been in place for centuries.

After trying to perform mathematical operations using Roman Numerals, it soon became apparent to students that without being able to convert those numerals to our current Hindu-Arabic numeral system, calculations and operations that we take for granted were almost impossible. Students were intrigued to discover that Fibonacci was so excited about the Hindu-Arabic numeral system that he returned to his hometown of Pisa and in 1202 published a book titled *Liber Abaci*. The numeral system he introduced soon spread to the rest of Europe, and the rest is history.

Continuing on, we tackled Fibonacci’s rabbit problem as set out in *Liber Abaci*:

\[
\text{A man has one pair of rabbits at a certain place entirely surrounded by a wall. We wish to know how many pairs will be bred from it in one year, if the nature of these rabbits is such that they breed every month one other pair and begin to breed in the second month after their birth.}
\]

Using a system of charts, students were able to calculate that the answer to the problem (144 pairs) resulted in what is now known as the Fibonacci Sequence; that is, $1, 1, 2, 3, 5, 8, 13, \ldots$ Recognizing patterns is a standard for mathematics. Once they discovered the pattern of the numbers, they were able to make the “hop” to predicting the answer to the problem without having to complete all the calculations.

Best practice techniques and the making of connections between mathematics and other disciplines such as science and art continued as we moved into more hands-on discoveries. Our learners were presented with a variety of objects from nature: pinecones, flowers, seed pods and seashells and were asked to count. How many spirals, are in a pinecone, a sunflower seed head, a shell? How many petals are on this succulent, or
that flower? And what about the number of seeds inside some fruits and vegetables? After keeping track of their discoveries, they analyzed their data and discovered that most of their numbers were part of the Fibonacci sequence! After doing more research, students were amazed to find the same spirals in some very big places such as the Milky Way.

Among on going assessments of our study of the Fibonacci sequence were Fibonacci art projects, in which everything, such as numbers of fish in the water, had to be a Fibonacci number. Students drew their own equiangular spirals based on the Fibonacci sequence. They gathered into groups and used their handouts on Depth and Complexity by Sandra Kaplan to brainstorm what elements we could apply to our knowledge of Fibonacci. The result was a Depth and Complexity patchwork quilt made of squares of Fibonacci information. They also completed Fibonacci “frames” on which they demonstrated the icons of Depth and Complexity that fit with the subject.

Moving along on our mathematical journey, students discovered that by dividing two adjacent Fibonacci numbers together, the result is always an answer hovering around 1.618. (try 55/34). This, it turns out, is called the Golden Ratio or Phi (Φ) and has fascinated people for thousands of years even before Fibonacci discovered his number sequence in the late 12th century. The Golden Ratio has been found in architecture such as the Great Pyramid of Cheops and the Greek Parthenon. It is also one reason Greek statues as well as masterpieces such as the Mona Lisa appear to be in perfect proportion. To check out that theory, we completed two ratio worksheets involving measuring lengths on a Greek statue and face. Eureka! The proportions stuck to the Golden Ratio!

As we continued exploring the Golden Ratio, we ventured further and found that it is the basis for the Golden Rectangle, prevalent in many places. The Greeks built the Parthenon with it, and Leonardo da Vinci used it in most of his art works. Before da Vinci it was called many things, such as the sacred ratio or the golden number by the Egyptians. Leonardo named it the Golden Ratio, wrote a book about it, and in a striking similarity to Fibonacci, the concept spread throughout Europe. We measured pictures of many buildings and art works, and found that it is indeed in widespread use. We drew our own Golden rectangles by starting with a square and using Phi to calculate the length and sides. We experimented with measuring other items such as parents' credit cards, and even found the Golden Ratio there!

Students eagerly involved themselves in our Go Figure, Fibonacci unit and relished each new discovery. Soon they began bringing pictures of spirals and information to class to share. One student even presented a cartoon from the Sunday funnies depicting some cheesy Fibonachos as snacks! Math suddenly became more than learning new computational skills; a whole new world of the history and beauty of math had opened up!
Go Figure, Fibonacci!

1, 1, 2, 3, 5...

The big idea:
The patterns in his sequence are all nature because nature is a pattern. It is constantly being used in spirals everywhere.

Leonardo Fibonacci traveled to Africa and learned about the Hindu-Arabic numeral system from the Moors. He introduced the system to the West.

He created Fibonacci numbers 1, 1, 2, 3, 5, 8, 13, and goes on and on. You just add the last two numbers to get the next number and then do it again.

Details:

Patterns:

He created Fibonacci numbers 1, 1, 2, 3, 5, 8, 13, and goes on and on. You just add the last two numbers to get the next number and then do it again.
As English teachers, one of our biggest challenges is the decline of reading amongst our youth as we are competing with video games, U-Tube, and other fast-paced entertainment. In response to this challenge, we discovered some effective motivational concepts: (1) students are more likely to read when given a choice (2) utilizing a variety of pre-reading strategies hooks readers, (3) peer and group participation provides significant motivation, and (4) using more contemporary, high-interest pieces can turn around reading attitudes. Employing these elements in the last two years has yielded marvelous dividends when coupled with baiting, hooking, and catching strategies that help our students devour literature.

**Student Choice**

**Summer reading:** The first major change that required buy-in from our entire English Department was giving students the opportunity to select a “free-choice” novel related to designated grade-level themes based on the curriculum. Next, we compiled annotated lists of recommended books, and most students chose from these lists (see attachment).

**Pre-reading Strategies:** To **bait and hook** students, we met with the local youth librarian and brainstormed ideas. She helped us by creating “book talks” on some outside reading novel choices and came to our classes. Her entertaining previews of sassy characters in suspenseful situations hooked students’ curiosity—much like the old Saturday morning movies for kids that left them hanging at a climactic part.

For the summer reading, having baited and hooked our readers, we designed a fall assessment that combined high accountability with fun, as we had our students create visual comic strips (graphic novel snippets) to be presented orally with emphasis on characterization and theme (rubric attached). All students participated and put forth their best effort. On one student’s exit card, he said, “I think the graphic novel snippet was a great, fun, creative project because it stimulates the mind and makes you visualize the book, instead of just writing or taking a test.” This was a stark contrast to the previous low test scores when specific books were required and multiple-choice tests were given. Students, parents, and teachers have been pleased with the positive results.
**In-class novels**: Even when specific classics are to be taught, we have structured motivational learning activities so that more students **WILL** read. Throughout the year, we continue book-baiting by translating a synopsis of the novel into modern day settings and characters and again leave our students hanging at the climax so they must dive into the works to find out what happens next. For example, Othello becomes a modern day General in a war zone in Baghdad, newly married to a Southern belle, the daughter of a Senator, who takes issue with their elopement as they leave for the war zone. Hamlet becomes a college student whose dad has died mysteriously and his mother has hurriedly married his uncle who has taken over his father’s company. The kids are intrigued and discuss their predictions about what is to come. These activities are linked with other Anticipation Guide activities that focus on theme ideas and conflicts that maximize the effectiveness of the “anticipation.” Students select topics to discuss in their journals with follow-up group discussions that often end in debate because of the controversial nature of the topics. Additionally, students add quotes, evidence, and commentary to the anticipation topics as shown on the attached sample. Other examples include *Great Expectations*, *Pride and Prejudice*, and *Cry, the Beloved Country*, which are on our list of senior supplementary novels. These novels are divided into three parts, so we designed a unit that gives the students a choice from these classics. The three-part format provides uniformity for reading deadlines, in-class quizzes, and small group discussions. To **bait** the reader, we again give intriguing previews of plots and main characters. To further **hook** them we provide in-class time to start reading. We **catch** the readers in our nets each week by devoting every Monday to reading activities. We alternate quizzes with literary circles (see rubric) and finish off the period with D-E-A-R (Drop Everything And Read). Finally, we **devour** salient and savory aspects of the novel by offering a choice of learning style projects done in pairs or individually, and students really enjoy designing projects based on their preferred learning style. The projects are presented orally giving the class a taste of the two novels that they did not read, furthering interest in other novels.

**Peer and Group Participation**

**Motivating students to read the classics**: When we need everyone to read the same book, using peer involvement is another excellent source of motivation. For example, we created a Frankenstein Survivor game with weekly activities and quizzes. The group scores were totaled from week to week building peer pressure to keep up with the reading for the sake of the team. We rotated quizzes and activities every other week. The activities were designed to appeal to different learning styles and talents (see attachment). As we got closer to our culminating exam, the pressure mounted since we were offering points added to the test scores based on the first, second, and third place teams.

**Contemporary, High-interest Pieces**
Furthermore, we have found that interspersing contemporary articles with the classics also *baits* our readers. We recently designed an expository reading unit that was enthusiastically received by all students. We used “Bonfire of the Brands” as the model piece and analyzed the author’s message through the use of a PowerPoint presentation. We began by surveying the text and eliciting speculation and predictions, such as “Will he actually burn all of his brand-name clothes?” To further *hook* our readers, we asked “Should companies be able to hire only people who project their image? Should teens worry less about wearing brand-name clothes?” Having *hooked* our readers, we previewed some of the challenging vocabulary and then proceeded to read two or three paragraphs at a time using a variety of strategies to analyze the persuasion techniques used by the author. Having thus modeled the steps to use, we assigned the students to groups so that they could follow the pattern of analysis with their assigned article—all related in some way to discrimination, our literary theme for the month since our students were reading *To Kill a Mockingbird* at home. Within the groups, students volunteered to be in charge of (1) identifying persuasive phrases, (2) locating challenging words, (3) formulating “thinking questions,” (4) designing and conducting a survey related to the topic, and (5) graphing the results. All readers were *caught in our net* and they *devoured* the articles so they could teach the rest of the class. Selecting teen-appropriate topics is truly a way to *hook* our readers. They *loved* this project.

This unit meets L.A. **Reading Standards** 2.0, 3.2, 3.3, 3.6, and 200+ students have engaged in these activities adaptable to any literature-based program. **Assessments:** Graphic Novel Snippet, Literature Circle Rubric, Frankenstein Survivor Activities, and Discrimination Article Presentations with Literary Analysis Rubric.
# APPENDICES

## Going Fishing for Readers: Bait, Hook, Catch, and Devour

<table>
<thead>
<tr>
<th>Evidence</th>
<th>Page No.</th>
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</thead>
<tbody>
<tr>
<td>Summer Reading “Graphic Snippit” Work Samples</td>
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<tr>
<td>Recommended Summer Reading Novels</td>
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<tr>
<td>Summer Reading Project Scoring Rubric</td>
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<tr>
<td><em>Frankenstein</em> Anticipation Guide</td>
<td>7</td>
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<tr>
<td>Literature Circle Rubric</td>
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<td><em>Frankenstein</em> Survivor Activities</td>
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<td>Analyzing Persuasive Choices</td>
<td>11</td>
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<tr>
<td><em>(Discrimination project)</em></td>
<td></td>
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<tr>
<td>Rubric Scoring—Discrimination Articles</td>
<td>13</td>
</tr>
</tbody>
</table>
"Forty-nine men and boys martyred in those mountains. We had seen the only four saved." pg. 163

"Condemn Me. It does not matter. History will absolve Me."

In the Time of the Butterflies by Julia Alvarez
Fallen Angels
by Walter Dean Myers

You make plans for life,
but life makes plans on its own.
The Opposite of Music by Janet Young

With his family, fifteen-year-old Billy struggles to help his father deal with a debilitating depression.

Notes on a Near-Life Experience by Olivia Birdsall

Fifteen-year-old Mia feels like a ghost watching her own life when her parents' arguments escalate into a separation, triggering counseling sessions, strange behavior in her brother and sister, and a new connection with her brother's best friend.

Empire Falls by Richard Russo

Miles Roby, cook at the Empire Grill for twenty years, deals with a teenaged daughter, a soon-to-be ex-wife, and a woman who owns everything in town.

Charming Billy by Alice McDermott

At an Irish wake, friends and survivors of Billy Lynch recall his zeal for life, his alcoholic demise, and Eva, the great love of his life.

We Were the Mulvaneys by Joyce Oates

The lives of a typical family are rocked by the rape of a sixteen-year-old daughter, touching off 25 years of secrets and despair, until a miracle brings them all together.

Dough Boy by Peter Marino

Overweight, fifteen-year-old Tristan, who lives happily with his divorced mother and her boyfriend Frank, suddenly finds that he must deal with intensified criticism about his weight and other aspects of his life when Frank's popular but troubled, nutrition-obsessed daughter moves in.

Elsewhere by Gabrielle Zevin

After fifteen-year-old Liz Hall is hit by a taxi and killed, she finds herself in a place that is both like and unlike Earth, where she must adjust to her new status and figure out how to "live."

Trigger by Susan Voight

Teenager Jersey Hatch must work through his extensive brain damage to figure out why he decided to shoot himself.

Winter in the Blood by James Welch

A tale narrated by a sensitive young man living on the Blackfeet Reservation in Montana and his haunting memories of his once proud heritage.

Gilead by Marilynne Robinson
In 1956, toward the end of his life, Reverend John Ames begins a letter to his young son, sharing the story of his life and explaining how his faith influenced his choices and actions.

**American Pastoral** by Philip Roth

Seymour "Swede" Levov, a hard working man who came of age in triumphant postwar America, must give up his dreams of a peaceful life when his daughter grows up to be a 1960s revolutionary terrorist.

**The Rainbow** by D. H. Lawrence

Follows three generations of the Brangwen family after the father marries a Polish widow and adopts her daughter.

**The Shepherd, the Angel, and Walter the Christmas Dog** by Dave Barry

Doug Barnes, a junior high student in Asquont, New York, in 1960, tells about a memorable Christmas Eve on which the beloved family pet died, his dad got a flat tire, the church ceiling fell down, and a stray dog adopted his sister.

**Beach Music** by Pat Conroy

Beach Music is about Jack McCall an American living in Rome with his young daughter, trying to find peace after the recent trauma of his wife's suicide. But his solitude is disturbed by the appearance of his sister-in-law and two school friends who request him to return home. This launches Jack on a journey that encompasses the past and the present in both Europe and the American South, and that leads him to shocking truths.

**Black Juice** by Margo Lanagan

Provides glimpses of the dark side of civilization and the beauty of the human spirit through ten short stories that explore significant moments in people's lives, events leading to them, and their consequences.

**Independence Day** by Richard Ford

Frank Bascombe, having lost his career and his family, is selling real estate in Haddam, New Jersey, and is settling for a life of mere existence until the events of one Fourth of July weekend shock him into real contact with life.

**The Stone Diaries** by Carol Shields

Story of an ordinary woman's struggle to find a place for herself in her own life.

**The Color of Water** by James McBride

James McBride grew up as one of twelve siblings in an all-black housing project in Brooklyn. He was the son of a black minister and a white woman who through sheer force of will saw her dozen children through college, and many through graduate school. This is a powerful portrait of growing up, race identity, and a beautifully crafted hymn from a son to his mother.
**Pay attention to:** visual details of characters that help portray theme ideas; setting; typography cues that show emotions, speed, sound level of dialogue; and background of each panel (p. 587G). Note your theme quote and commentary at the bottom. Finally, attach a half-page Creator’s Note summarizing main events, visual details and how they lead to the universal theme idea; also identify your learning style and how it played a role in your project. Your work will be expected to be neat, comprehensive, and representative of your best work.

---

**Scoring Criteria for Summer Novel Graphic Theme Snippet**

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Portrays important theme comprehensively:</td>
<td>( \text{Characters’ visual details} \quad \text{Setting} \quad \text{Typography cues} \quad \text{Panel backgrounds} )</td>
</tr>
<tr>
<td>b. Evidence of quality/creativity/originality of the project</td>
<td>( 1 \quad 2 \quad 3 \quad 4 \quad 5 ) ( (10) )</td>
</tr>
<tr>
<td>c. Theme quote cited with commentary neatly noted at the bottom of visual</td>
<td>( 1 \quad 2 \quad 3 \quad 4 \quad 5 ) ( (5) )</td>
</tr>
<tr>
<td>d. Creator’s note summarizes main events, visual details and how they lead to the universal theme idea; it also identifies your learning style and how it played a role in your project</td>
<td>( 1 \quad 2 \quad 3 \quad 4 \quad 5 ) ( (10) )</td>
</tr>
<tr>
<td>TOTAL</td>
<td>( 50 )</td>
</tr>
</tbody>
</table>

---

**Frankenstein Anticipation…**

**While reading, add quotes (2 or more) and commentary (all)**

Mark in column #1 (before reading) / column #2 (after reading): **A** = agree; **D** = disagree; ? = unsure

<table>
<thead>
<tr>
<th>Before</th>
<th>After</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. It’s unwise to take an action if you are unsure of the consequences.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Those closest to a problem or situation are often the ones least aware of the problem.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. When friends know another friend has done something wrong, they should do nothing.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Both good and evil exist in every man.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. A good intention can become an evil result.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Experiments conducted in the name of science are acceptable.</td>
<td></td>
</tr>
</tbody>
</table>

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Reading 3.8 Evaluate text for ambiguities, subtleties, ironies, incongruities.

Reading 3.5 Compare works that express a universal theme and provide evidence to support ideas.
**Literature Circle Discussion Rubric**

**Name:** __________________________   **Date:** __________________________

**SELF-ASSESSMENT:** Check the boxes that apply to your performance, then mark an "X" in the top bar to indicate approximate placement on a continuum. Also, make comments below regarding your strengths and weaknesses, what you found interesting, and your improvement goals for next time.

<table>
<thead>
<tr>
<th>NOVICE</th>
<th>APPRENTICE</th>
<th>PRACTITIONER</th>
<th>EXPERT</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ not prepared for discussion (forgets log or book)</td>
<td>☐ brings book with a few passages marked</td>
<td>☐ brings book with passages marked and a few reading log entries</td>
<td>☐ PREPARATION: brings book with passages marked (use post it notes) and thoughtful reading log entries</td>
<td>/4</td>
</tr>
<tr>
<td>☐ log is skimpy or does not cover the required reading</td>
<td>☐ Log is missing 2 of the 3 requirements</td>
<td>☐ Log is missing questions, quotes, or insights</td>
<td></td>
<td>/5</td>
</tr>
<tr>
<td>☐ rarely contributes to discussion</td>
<td>☐ contributes vague, generic comments</td>
<td>☐ contributes appropriately to discussions, occasionally reads log entries, asks questions, listens actively, builds on others’ comments, makes connections to other books and experiences)</td>
<td>☐ CONTRIBUTION: uses thoughtful reading log entries to contribute significantly to discussion, asks questions, makes connections to other books and experiences, discusses author’s style and literary elements</td>
<td>/5</td>
</tr>
<tr>
<td>☐ rarely listens or responds to group members</td>
<td>☐ sometimes listens and responds appropriately</td>
<td>☐ listens and responds adequately</td>
<td>☐ HABIT OF MIND: listens actively and responds thoughtfully; building on others’ comments</td>
<td>/3</td>
</tr>
<tr>
<td>☐ Section below NOT filled in</td>
<td>☐ Section below is partially filled in</td>
<td>☐ Section below is 2/3rd filled in</td>
<td>☐ REFLECTION: Section below is completely filled in</td>
<td>/3</td>
</tr>
</tbody>
</table>

**TOTAL** /20

**Comments:**

- **Your strengths:**
- **Your weaknesses:**

**What you found interesting:**

**Goals for improvement next time:**
Frankenstein Survivor Activities

10 points plus a 2 point bonus for being the 1st team done and a 1 point bonus for being the 2nd team done

**Challenge #1: **Victor represents the stereotypical “mad scientist” whose unbridled ambition often results in tragedy for the researcher and/or for all humankind. On a separate sheet of plain white paper, draw your interpretation of the “mad scientist.” The most original and creative drawing will be selected for the winner. Put your name on the back side of the paper, so I won’t see it until after selecting the best. There is a time limit: approx. five minutes to coincide with the completion of the quiz below. (5 pts and 3 pts bonus)

**VICTOR’S BODY PARTS: “Robber Barons” Challenge #2**

#1 He gathered the necessary parts and materials. The **team who gathers and assembles the most complete body & highest point total** wins challenge #1. Check off the parts listed below as you find them; then attach them here.

#2 Then in his laboratory he built up a huge male monster in which he housed the life which he had discovered. His creation was of fearsome appearance. It had long ragged hair, rolling blood-shot eyes and ugly yellow features so distorted and loathsome that no one could look upon them without a scream of terror. **Choose a team member to draw the monster most fitting the above description, and complete it when Challenge #1 is done.**

1. Torso & vital organs ___/5 pts
2. Circulatory system ___/5 pts
3. Skeletal structure ___/5 pts
4. Two hands ___/5 pts
5. Arm ___/2 pts
6. Arm ___/2 pts
7. Two feet ___/5 pts
8. Leg ___/2 pts
9. Leg ___/2 pts
10. Nose ___/3 pts
11. Mouth ___/3 pts
12. Brain ___/5 pts
13. Left eye ___/2 pts
14. Right eye ___/2 pts
15. Head ___/5 pts
16. Nerves ___/5 pts

**POINT TOTAL _____/pts**
Challenge #1: Creative Fun

Fact #1: The subtitle, “The Modern Prometheus” refers to the myth of Prometheus, the shaper who made people out of clay. Fact #2: Mary Shelley’s mother died giving birth to Mary; thus, she never knew her mother. Also, Victor creates a monster who did not have a mother. Let’s create a mother for the monster. Using the “clay” that will be provided, you have five minutes to sculpt a mother for the monster. (Judged on completeness & creativity)

Challenge #2: Grammar Practice

Correct the sentences from student-created ghost stories below. Mark directly on the paper.

1. Well, that’s all folks I better leave while we still can.
2. I knew I had to leave, I couldn’t allow myself to be found.
3. Oh, man the Monster just let go of his tongue and Grendel flew out of the ring in fact I think he’s dead hanging from the light fixtures above.
4. Here it is folks. The fight of the century.
5. For those of you at home I will tell you the rules, there are no rules.
6. Thinking that I was murdered lying dead somewhere with my rotten corpse for the world to see.
7. There it is, I see it, I can’t wait!
8. He was an older man. Tall and bony in structure.
9. It was a dark calm night the moon was full and was the color of white snow.
10. I vow to keep my promise, I will die here.
11. Scott ran with all of the might left in his body, blood was flowing out of his arms on to the ground.
12. The creature and its ship sailing on the Atlantic.
13. It started out as just another typical night. Partying with my friends at the beach.
14. I hear Grendel’s music, he’s walking down the aisle.
15. Hey, look at that Frankenstein stands up.
16. One day when Mrs. Martin was going upstairs to beat the creature.
17. But wait, what’s this here comes Beowulf and look he has an object and oohhh!
NUMBERS GUESSING/MATCHING CHRONOLOGY GAME

(All selections will be used at least once)

(a) 3  (b) 4  (c) 12  (d) 16  (e) 17  (f) 19  (g) 21  (h) 23  (i) 27  (j) 31 (k) same age as... (l) a year younger than

1. _______ years have elapsed between the murder of William and the time when Walton creature on the Arctic ice.
2. Victor was _______ years old when the “infant” Elizabeth was brought into his family.
3. Justine came to live with the Frankenstein’s when she was _______ years old...
4. ...and served the family for _______ years before returning home...
5. ...a few months after Victor’s departure for Ingolstadt when they were both _______.
6. Victor is _______ years older than William
7. Victor is _______ years older than Elizabeth
8. Victor is _______ as Justine.
9. Victor is _______ years (approximately) younger than Waldman.
10. Victor is _______ years old when his mother contracts scarlet fever and dies.
11. Victor is _______ years old when he attains fame at the university.
12. Victor is _______ years old when he finishes the Creature.
13. Victor is _______ years old when William is murdered by the creature.
14. Victor is _______ years old when he dies.

(answers)

1. 4
2. 4
3. 12
4. 5
5. 17
6. 16
7. 3
8. same
9. 31
10. 17
11. 19
12. 21
13. 23
14. 27
Frank Themes

The THEME of a work is its central idea or insight. It represents the author’s ideas about the subject of the work. The subject can usually be stated in a single word; the theme requires a sentence.

Instructions: On a separate sheet of paper, state in a single sentence the theme you believe is represented by each set of passages below, taken from Frankenstein.

(Part 1—12 points possible)

1. “...I pursued my undertaking with unremitting ardor.”
   “Yet with how many things are we upon the brink of becoming acquainted, if cowardice or carelessness did not restrain our inquiries.”
   (4 points)

2. “The astonishment which I had first experienced on this discovery soon gave place to delight and rapture.”
   “Dreams that had been my food and pleasant rest for so long a space were now becoming a hell to me.”
   (4 points)

3. “I saw how the worm inherited the wonders of the eye and brain.”
   “I grew alarmed at the wreck I perceived that I had become.”
   (4 points)

(Part 2—2 points each)

List as many additional theme statements (original sentences—not clichés) as you can come up with in the time remaining.
Analyzing Persuasive Choices: “Bonfire of the Brands”

**Directions:** Answer the following questions for each of the quotes below.

<table>
<thead>
<tr>
<th></th>
<th>A. To what extent do you agree or disagree? (1-disagree – 10-agree) Support your stand.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B. Has the author persuaded you to see his perspective beyond your original thinking? (Y/N)</td>
</tr>
<tr>
<td></td>
<td>C. (Upon completion of the article and after responding to all of the quotes below) <strong>Which ideas have been the most persuasive</strong> arguments? Do you think the author achieved his purpose in writing? (Y/N)</td>
</tr>
</tbody>
</table>

1. (paragraph #14) “The manner in which we spend our money defines who we are.”
   A.  
   B.  

2. (paragraph #14) “In this secular [worldly; material] society of ours, where family and church once gave us a sense of belonging, identity and meaning, there is now Apple, Mercedes and Coke.”
   A.  
   B.  

3. (par. #15) “These brands offer us a set of beliefs and goals which we can aspire to.”
   A.  
   B.  

4. (par. #16) “For great brands to survive, they must create loyalty beyond reason.”
   A.  
   B.  

5. (paragraph #16) “The secret is the use of mystery, sensuality and intimacy…the power to create long-term emotional connections with consumers.”
   A.  
   B.  

6. (paragraph #17) “…I believed in the promises that these brands made…”
   A.  
   B.  

7. (paragraph #18) “For every new status symbol I acquire, for every new extension to my identity that I buy, I lose a piece of myself to the brands.”
   A.  
   B.  

8. (paragraph #19) “Perhaps if I consume on the basis of need instead of want, or utility instead of status, I might start to value material things for the right reasons.”
   A.  
   B.
B. (continuation of Bonfire worksheet)

C. Which ideas have been the most persuasive arguments?  Do you think the author achieved his purpose in writing?

**Group Assignment**

Divide up the following assignments:

1. From what point of view is your article written? Does it influence your interest and involvement in the reading? Who is the intended audience?

2. Teach three – five vocabulary words to the class.

3. Select passages for teaching stylistic (S-T-Y-L-E) and persuasive effectiveness. (ethos, logos, pathos, and other stylistic choices)

4. Compile* and conduct a survey of questions related to the article asking approximately five adolescents and five adults. (**Feel free to use some of the survey questions below if they relate to your article.**)

5. Graph and share your results.

6. Create and answer a “thinking” question as it relates to your topic.

**Survey Questions:**

1. How old are you?
2. Name two clothing brands that you especially enjoy wearing.
3. Why do you like these brands?
4. Do you agree/disagree with the following quote: “The manner in which we spend our money defines who we are”?
5. Name two food and/or beverage brands that portray a status image.
6. Name a TV commercial that has especially influenced you as a consumer and tell why.

**Oral Presentation:**

1. Plan to share the analysis of your assigned article and the findings of your survey in a ten-minute instructional presentation.
2. Begin your presentation with a “thinking” question for the class.
3. Wrap up with your response and opinion as it relates to your opening question.
RUBRIC SCORING—Discrimination Articles

**Literary Analysis**

OVERVIEW

- Summary of key points
- Point of view
- Intended audience

PERSUASION TECHNIQUES

- Ethos, logos, pathos
- Other stylistic choices

SURVEY + ANALYSIS OF RESULTS

**At least** 5 teens & 5 adults
- Attach actual surveys
- Analyze results

VOCABULARY

- Teach 3 – 5 vocab words

THINKING QUESTION(S)

- Stimulates class discussion

OVERALL PRESENTATION

- Demonstrates knowledge of article

CLASS NOTES ATTACHED:

TOTAL (SBA pts)

---

RUBRIC SCORING—Discrimination Articles

**Literary Analysis**

OVERVIEW

- Summary of key points
- Point of view
- Intended audience

PERSUASION TECHNIQUES

- Ethos, logos, pathos
- Other stylistic choices

SURVEY + ANALYSIS OF RESULTS

**At least** 5 teens & 5 adults
- Attach actual surveys
- Analyze results

VOCABULARY

- Teach 3 – 5 vocab words

THINKING QUESTION(S)

OVERALL PRESENTATION

- Demonstrates knowledge of article

CLASS NOTES ATTACHED:

TOTAL (SBA pts)
Teach 3 – 5 vocab words
THINKING QUESTION(S) ______/5

Stimulates class discussion
OVERALL PRESENTATION ______/10

Speaking skills (no “ums”)
Demonstrates knowledge of article
CLASS NOTES ATTACHED: ______/10

TOTAL (SBA pts) ______/60

RUBRIC SCORING—Discrimination Articles

Literary Analysis

OVERVIEW ______/10

Summary of key points
Point of view
Intended audience
PERSUASION TECHNIQUES ______/10

Ethos, logos, pathos
Other stylistic choices
SURVEY + ANALYSIS OF RESULTS ______/10

At least 5 teens & 5 adults
Attach actual surveys
Analyze results
VOCABULARY ______/5

Teach 3 – 5 vocab words
THINKING QUESTION(S) ______/5

Stimulates class discussion
OVERALL PRESENTATION ______/10

Speaking skills (no “ums”)
Demonstrates knowledge of article
CLASS NOTES ATTACHED: ______/10

TOTAL (SBA pts) ______/60

RUBRIC SCORING—Discrimination Articles

Literary Analysis

OVERVIEW ______/10

Summary of key points
- Point of view
- Intended audience

PERSUASION TECHNIQUES ______/10

- Ethos, logos, pathos
- Other stylistic choices

SURVEY + ANALYSIS OF RESULTS ______/10

- **At least** 5 teens & 5 adults
- Attach actual surveys
- Analyze results

VOCABULARY ______/5

- Teach 3 – 5 vocab words

THINKING QUESTION(S) ______/5

- Stimulates class discussion

OVERALL PRESENTATION ______/10

- Speaking skills (no “ums”)
- Demonstrates knowledge of article

CLASS NOTES ATTACHED: ______/10

TOTAL (SBA pts) ______/60
I think I’m Turning Japanese: A Student Centered Investigation of Japan through the Arts
Allan Viscarra – Ventura Charter School
Business Partner: Blois Construction
For grade levels: K - 6
Curriculum Areas: Language Arts/Reading, History/Social Science, Science and Visual Arts

What kind of art is there in Japan? What do Japanese houses look like? What kind of clothes do Japanese people wear? Having just studied Mexico and Día de los Muertos my 1st and 2nd grade students became curious about world travel and Japan was the next country that interested them most. After all, Japan is the country that brought them Pokémon, Bokugon, Nintendo, and Hello Kitty! As a teacher at a project-based school, when my 1st and 2nd grade students began asking questions about Japan it became clear that we had to find a way to investigate the information that might answer some of our inquiries. From the children’s own curiosity emerged an eight-week investigation of the similarities and differences between Japan and The United States. During this project my 1st and 2nd graders were paired with a 3rd & 4th grade “big buddy” class. Together we drew upon literature, video, authentic personal experiences, and the visual arts to investigate our questions about Japan. To conclude our exploration of the country our classes hosted a multi-grade Japanese Art Show which was attended by other classes from the school, parents, and family.

LEARNING TOOLS

Beginning with the end in mind we created a KWL chart to record what the students already knew about Japan and what they would like to learn about the country. The questions that arose helped me as a teacher connect our inquiries to appropriate activities that would bring us closer to creating our art show, meanwhile meeting grade level content standards. After finishing the project and hosting the art show we completed the KWL chart by compiling a list of all the facts that we had learned about Japan throughout the entire investigation.

Our guiding question for the project asked, “What are the similarities and differences between Japan and The United States?” There were six main topics that our class used as a basis from which we would make our comparisons of the two countries: Art & Music, Nature, Food, Sports, Clothes, and Buildings. The students learned to use Venn diagrams in order to graphically organize what they learned about each main topic in comparison to the United States. As our class learned about each topic the students added information to their own journal of Venn diagrams. The Venn diagrams were later used as tools when each student created their own brochure about Japan. At the end of the project the brochures were used as an
assessment piece to measure what the students had learned about Japan. The brochures included descriptive writing and detailed illustrations of Japan.

INVESTIGATION
We began our investigation of Japan by first locating the country on the globe. Noticing that Japan is geographically much smaller than the United States we searched books and maps to gather information about Japan’s geography and nature. At home and in class the students researched Japan. They found that Japan is actually composed of about 3,000 islands, many of which are volcanic. Their interest in volcanoes was sparked and as a result we investigated information about volcanoes. We watched NOVA and National Geographic videos about volcanoes and performed simulations of volcanic eruptions in class. We learned how volcanic eruptions helped form the islands that make up Japan.

After investigating Japan’s natural resources and biodiversity the students were able to see the connection that Japan’s geography has with the traditional foods of the country. Students found that since Japan is an archipelago of islands the people catch a wide variety of fish that they use as the basis of their cuisine. Students discovered that rice, soy, seaweed, and other agriculture are also staples of the Japanese diet. With adult assistance students answered their own questions about Japanese food when they prepared and ate Japanese foods including edamame, udon noodles, and vegetable sushi.

My 1st & 2nd grade class and the 3rd & 4th grade buddy class met every Thursday morning to work on creating Japanese arts connected to each of the six topics that our classes were investigating. Many of the art pieces that the 1st-4th graders made together would later be put on display at our Japanese Art Show. The following list includes descriptions of the art that the students created.

- Daruma – We created papier-mâché daruma statues and painted them in the traditional style.
- Hiroshige Paintings – We recreated paintings in the style of Utagawa Hiroshige, one of Japan’s most famous artists.
- Miniature Pagoda – We created miniature pagoda buildings and investigated the use and significance of the pagoda buildings.
- Koinobori – We assembled and decorated carp wind socks which are used to celebrate Japan’s Children’s Day (May 5th).
- Karaoke – We sang songs in class using a karaoke machine.
- Mini Japanese Me – We made miniature representations of ourselves in traditional Japanese clothing.
Japanese Brochure – We designed Japanese brochures which included information about art & music, nature, food, sports, clothes, and buildings.

PRESENTATION AND ASSESSMENT
The culminating event that concluded our investigation of Japan was a Japanese Art Show and Movie Night hosted by the 1st-4th grade classes. The Art Show would give the students the opportunity to demonstrate everything they had learned about Japan by sharing their written work, displaying the Japanese artwork that they created, and engaging in discussion about the entire process of exploring Japan. **Assessments:** Student-made Venn diagrams, oral discussion about Japanese art and culture, Japanese Art Show event, brochure of Japan including the use of a rubric and self-evaluation.

CONNECTIONS TO CURRICULUM
This 8-week project was done with 40 students, grades 1-4. It can be adapted to meet the interests and needs of students grades K-8. This project meets **California English-Language Arts Writing Standards** 1.0; 1.1; 1.2; 2.1; 2.2 and **Written and Oral English Language Conventions** 1.1 for grade 1. This project meets **California English-Language Arts Writing Standards** 1.0; 1.1; 1.2; 1.4; 2.1 for grade 2.
Supplementary Material

Students used printing techniques to create their own Japanese headbands to be worn during Japanese food preparation.

This is an example of vegetable sushi made by students. The ingredients are sushi rice, rice vinegar, sugar, carrots, cucumber, and nori.

Students investigated volcanoes and how they erupt. Japan is home to many volcanoes!

Students tested their reading and singing skills by singing karaoke together in class!

These are recreations of famous Hiroshige paintings, but with a unique and creative interpretation of color choices!
Shibori is the name of a traditional Japanese style of cloth dyeing. The students created their own cloth in the style of shibori and donated it to our school’s kindergarten class to be used for a class quilt.

These are some of the books that we read in class and used as resources when we performed research about Japan.

This student is proudly showing off his Japanese brochure shortly after completing it!
Here a student shares about his daruma statue with a friend from another class. He explains that darumas are used to help a person set and achieve a goal. The left eye is filled in when the owner sets a goal and the right eye is filled in when the goal is achieved!

Our big buddy class staged a mock airplane ride to Japan and led groups of students and adults to another room where the 1st and 2nd grade students displayed their work at the Japanese Art Show. The students proudly display their artwork and share what they have learned about Japan. On display are their printed headbands, Hiroshige paintings, Koinobori (carp wind socks), mini Japanese pagodas, daruma statues, “mini-japanese me” characters (to show examples of Japanese clothing, not pictured), and Japanese brochures.
Kids Can Be Heroes Too  
Nancy Tracy and Megan Jones – Lang Ranch Elementary  
Business Partner: State Farm  
For grade levels: 2 - 5  
Curriculum Areas: Language Arts/Reading and History/Social Science

From Powerpuff Girls to Johnny Bravo to Wonderdogs kids always have looked up to and enjoyed heroes. But do kids really know what real heroes do or have done? In addition, can a kid be a hero? Sure in cartoons and stories it seems like anyone can save the day, even a mouse. So maybe that is a good place to start to teach children about heroes: what they are, what qualities a hero has, things a hero may do, and how they too, can be a hero.

Reading about Heroes Children can Connect To
What can be a better place to start learning about heroes than to read about one? A hero that children seem to connect to most naturally is a fictional one. Heroes always seem so much more realistic when they have super powers to children. Such as dogs that fly and rangers that save the world. In reality, to get children to see that a hero can be an everyday person such as a mom, dad, teacher, coach, or firefighter can be difficult concept to grasp. To begin with we started with Language Arts and read-aloud the book The Tale of Despereaux by Kate DiCamillo to our classes. In this book a small mouse becomes the unlikely hero and saves the day. During this read-aloud we were able to get many kids hooked on books. The interest in reading was sparked. A foundation had been laid, but more work would have to be done with the heroes.

Real Heroes are Introduced
We discussed as a class what makes a person a hero. We decided on several general ideas such as heroes help others, heroes make a difference, heroes change the laws, and heroes are brave. Each day for the following two weeks we introduced a new hero to the class. Some of the heroes we studied were Harriet Tubman, Benjamin Franklin, Florence Nightingale, and Alexander Graham Bell. We read picture books about the heroes and viewed videos about their lives and contributions to the world. Each day we wrote a summary paragraph about what we learned in our hero book.

Time to Pick a Hero
Now that we have a clear understanding and appreciation of what a hero was the children were given choices of real heroes to write about and create their own in class biography report. We wanted all of the work to be done in class so that we could be sure the children were really learning how the report writing
process. We had 40 hero books that we had from class or checked out of the library. We teamed up a child from each class with a partner from the other class to take notes together on their hero.

Time to Be a Hero
We decided on a few community service projects that the students could actively participate in. First, we became “blanketeers” making blankets for Project Linus, a nonprofit organization that provides blankets for children who are ill or otherwise traumatized in our community. The blankets are donated to facilities such as Los Robles Hospital, Casa Pacifica, and Manna. Next, the students wrote and decorated valentines for the children living at Casa Pacifica. Currently we are collecting gently used books for a used book sale. The children will work alongside parent volunteers to sell these books. All proceeds will be donated to Casa Pacifica, a Ventura County residential center offering shelter and care to children in need.

They revealed the impact of the experience in their own words:
Tatiana shared: “I’m glad we made the blankets for Project Linus. It made me feel good to help others.”
Sofia said: “I would like to have a garage sale. I could sell things I don’t need anymore and bring in the money to give to the children at Casa Pacifica.”
Chad stated: “I hope someone enjoys the blanket I made for them.”
Caelyn said: “I liked making blankets for kids who are in the hospital or who can’t be with their family. I hope the blankets make them feel better.”
Olivia exclaimed: “I can’t wait to work at the book sale and help others.”

This social studies based unit meets Social Studies Standards 2.5, Language Arts Reading Standards 2.1, 2.5, and Writing Standards 1.1, 1.2, 1.3, 1.4.

Assessments: In-class journal writing, in-class biography report writing, biography report presentation, and journal reflections.
I wish I could be like... This person is special because... 

I wish I could be the Hero Harriet Tubman because she freed over 300 slaves! She got her Dad out of jail. She snuck to a free land. She was a runaway slave. That is who I wish I could be.
January 30, 2009

I learned many things when I did my biographical report. First, I learned that Teddy Roosevelt helped black kids in slavery. Next, I learned that he supported civil rights. Finally, I learned 4 things I learned when I did my biographical report.
Project Linus

While you are waiting to make your blanket please read the paragraph and answer the questions below. Be sure to sign your name on the bottom next to the *

Project Linus is dedicated to providing love, security, and comfort to children who are seriously ill, or need help. The children are given gifts of handmade blankets, created by a volunteer like you. The volunteers are called “Blanketeers.” The children that receive the blankets are from ages newborn to 18. The blankets that you donate must be homemade, and washable.

1. Why would you make a blanket for Project Linus?

   I would like to help the kids.

2. Who will receive the blankets?

   newborns to 18.

3. What is the rule about a blanket that you donate to Project Linus?

   They must be homemade and washable.

* Caitlin is officially a “Blanketeer” and is congratulated for doing something special to help other children.
A Biography Report on

Frederick Douglass

Written and Illustrated by

James Keenan
What is a hero?

Why did heroes show the things that they learned?

How do heroes help people?

Frederick Douglass is a hero because he helped others.
Frederick Douglass was born in February 1818. He only saw his mother four or five times. He cleaned his master's house at six years old. He got taught to read by a girl called Sophia Auld. When Frederick was eight years old, he was taken to Baltimore to live as a slave of Sophia and John Auld relative.
Could the act of flying a kite contribute to world peace? Perhaps… in a world of instant gratification and virtual experience as the *only* experience, a good old fashioned kite flight can inspire so much more than merely watching paper float through the air.

Our adventure began one cold November day while reading the story of a mother and her children who decide to make their own kite. After the excitement of finally accomplishing the daunting task of reading long i words, one young man in my class cautiously raised his hand and asked “What’s it like to fly a kite?” Murmurs rushed through the class and I quickly realized not one student in my class had ever flown a kite before. This was not the expected outcome of the lesson, but as all great ideas are hatched, this became the beginning of something truly great.

As the children began to beg to build their own kites my mind swirled around the possibilities and the too perfect timing of a new science unit the next day that emphasized air and weather. It was almost as if the stars had aligned for this lesson. Our first task was to explore kites. We looked into kite shapes, construction, materials and purpose. Over the next few days we accessed books, the Internet, encyclopedias, moms, dads, grandmas and grandpas. Anywhere the information could be obtained, we tapped into it. Each day we (yes, I too felt the excitement) hurried through our “regular” class work to find out more. The project seemed to take on a life of its own. Paralleling with our science unit, students began to discuss the affect air might have on their kites as well as discovering that birds and kites were similar, and even asking the question, “Hey, is that how an airplane works?” The degree of higher level thinking was just amazing considering these students are a mere six years old!

Becoming anxious to apply our knowledge, we settled on a date to fly our kites and sat down to decide on materials and shape. Much discussion was spent on using recycled materials because as one student put it, “We have to learn to fly a kite and save the Earth this year.” In the end the sensible were out numbered by the aesthetic conscious who thought, “Colors will be so much prettier in the sky.” Although we decided on a basic shape, students were given freedom to make adjustments where they felt necessary, but only after justifying it with their teacher.
As kite flying day approached the questions became more inquisitive and directed towards the impact of wind and wind currents. Inquires included “What happens if there are clouds?” and “Is the wind stronger higher in the sky, because that’s where the birds are?” Being six, of course, meant this question would be extremely important to them… “What happens if it rains?”

Kite flying day finally arrived and again the stars aligned for us as it was quite possibly the windiest day on record, (which made the teacher ever so nervous). By afternoon we were nearly bursting to fly our kites. As anyone who has been around six year olds can attest to, being six means being loud. But the moment those kites were airborne, silence and awe befell them. (This lasted only moments until they realized kite flying requires yelling to your friend across the yard, screaming questions to your teacher and basically running like you are on fire.) In the end one student summed our experience perfectly, “Teacher, this is better then Disneyland!” (Yes, I can still get my head through the door.)

Since kite flying day our little first grade world has changed. Writing is more descriptive as the students finally understand what it’s like to write about something you have actually experienced and to remember every detail when you are telling exactly what happened. Everyday there is wind someone will comment about whether or not it is a good kite flying day. Science has taken on a life of its own. Most of our science lessons are over taken by questions and wonderings that never cease to surprise me. But most interesting of all the changes is the question we all ask ourselves before we start a difficult task… ”What makes me fly?”

The building of kites has become so much more than “a day at the beach.” It has become a mantra of sorts to help us realize we must reach higher in all we do… higher to find the stronger or more exciting wind currents … higher to see more of the world. What makes me fly has helped us to realize that when we fly we can do so much more. So to answer the question first posed, “Can the act of kite flying bring world peace?” I suppose will be answered a few years from now as these now first graders reach, climb, inquire and soar their way to the top and find a way to world peace. Now you must ask yourself, “What makes you fly?” (Do you suddenly find yourself humming “Let’s Go Fly a Kite?”)

Although this lesson was inspired and ultimately controlled by first graders, I see absolutely no barriers to expanding it to all learners, kindergarten through eighth grade. In my experience what we may consider the most trivial and simple can in fact be the most inspiring, thought provoking and educational, as kite flying became. This lesson encompassed many facets of language arts and science, but certainly could include other disciplines. For our purposes the following California State Standards were addressed: Language Arts, Reading: 1.1, 1.4, 1.17 2.1, 2.2, 2.3, 2.5, 2.6, 2.7, 3.3. Writing: 1.1, 1.2, 1.3, 2.1, 2.2. Science: 4a, 4b, 4c, 4d, 4e. Assessments: Reflective journal writing, What My Kite Looks Like, Why My Kite Will Fly, What Does Air Do?, and individual oral assessment.
What My Kite Looks Like

In the box draw a picture of your kite. Be sure to label the parts of your kite to show how it will fly.
Why My Kite Will Fly

Explain why your kite will fly. Be sure to write at least 3 sentences.
Kite Reflective Journal

Describe to me all about kite flying day. Be sure to use descriptive words and explain what happened first, next, then, last. Then tell me what you think about kites.
Living and Touching History
Sharron Keesee – Park Oaks Elementary
Business Partner: Limoniera
For grade levels: 1 - 5
Curriculum Areas: Language Arts/Reading, History/Social Science, Theater and Visual Arts

The LIVING AND TOUCHING HISTORY unit is unique and successful because it incorporates teaching techniques that range from Sandra Kaplan’s Depth and Complexity to GLAD’s English language learner charts. The unit covers California Standards in writing, math, and maps with the focus on social studies. This unit combines the child’s love of historical stories with “hands on” experiences, researching, touching, and simulating historical events. They examine historical events using Depth and Complexity icons such as multiple perspectives, language of the discipline, changes over time, trends, and unanswered questions displaying the results in learning frames and GLAD charts. This unit incorporated prior knowledge as a motivation for the second grade THEN AND NOW UNIT.

Last year, the first graders went to Leonis Adobe as a culmination activity for CHANGES OVER TIME. They learned about life long ago by feeding farm animals, making tortillas, churning butter, washing clothing, and hanging them on a clothes line. Reviewing this experience was our introduction to THEN AND NOW.

We used all of the pathways and components from our social studies series. We researched the Leonis family using the computer and books about California history. (2.0 Reading Comprehension, ELA2WS1.3 Understand the purpose of various reference materials.) Using this information, we constructed a timeline for the Leonis family from Miguel’s arrival in America, biography cards, and a map of Miguel’s travels. (H-SS2.2 Students demonstrate map skills.) We discussed artifacts that had been found at the adobe. (H-SS2.1.1 Trace the history of a family through the use of primary and secondary sources, including artifacts, photographs, interviews, and documents.) An archaeologist gave a presentation explaining the procedures, tools, and language of the discipline. She brought artifacts for the children to touch and guess what they had been used for. The children brought in family artifacts such as a train engineers hat, family letters, and old family photos. We constructed a chart emulating an archaeological dig by using pictures of people, places, and things. The children learned about different types of questions (evaluative and factual) and the type of questions that should be asked to construct a timeline. (ELA 2RC2.4 Ask clarifying questions.) They wrote questions and interviewed relatives to create timelines and learn more about the differences between now and then. They also made a personal timeline. I interviewed Libby Hudson, a 97 year old Californian about her early childhood memories. The children made a fold out book which included a photo of Libby at 4
years old and one of her today comparing Libby's childhood to their childhood. (H-SS 2.1.2 Compare and contrast their daily lives with those of their parents, grandparents, and/or guardians.) I brought in a telegraph key. They asked yes/no questions (containment style lesson) to figure out what it was used for. Then, we researched how communication and transportation have changed over time. We placed the drawings, photos, and magazine pictures on our archeological dig/timeline chart. (HSS2.1.3 Place important events in their lives in order in which they occurred, on a time line or story board.) This archeological dig/timeline chart initially started with the 1800's and went to present day.

We wrote (unanswered) questions about the Leonis family and life on the ranch. Then, we revisited Leonis Adobe and asked the docents about our unanswered questions. The students were assessed throughout the unit on their personal and family timelines, discussion participation in all aspects of the unit, questions and interview results from family members, brought in or searched for relevant photos/drawings to add to the dig, written paragraphs about related topics, and scores from the Scott Foresman test. (ELA2WS1.1 Group related ideas. ELA2SW1.4 Revise original drafts to improve sequence and provide more descriptive details. ELA2WA2.1a Move through a logical sequence of events.)

As Thanksgiving and the presidential election approached, we started the Interact Kit(simulation) Pilgrims. The purpose of the kit is to give the students a closer look at the real struggles that the Pilgrims experienced. We used our guided reading groups and read the Magic Treehouse Research book. The students were divided into cooperative learning groups, given Pilgrim Logs. Each group travels on a ship, solves problems, makes decisions, and ultimately establishes a community. After each activity, students write an entry in their Pilgrim Logs that is graded for correct language and quality/quantity of information.

The first group activity is to come up with a list of their 102 (friends and family) passengers and make entries in their Pilgrim Logs. They learn about the reasons for leaving England/Holland. They live during the group activities on a 3 X 6 foot area to simulate the crowded conditions on board the Mayflower. If anyone moves from the rectangle, they lose a Pilgrim. Before, they leave the ship in the new world they must write a “compact” (set of laws to cover the problems that are to come) and elect leaders by “popular vote”. They construct their village by earning points answering questions and doing timed activities. This unit continues with the Pilgrims trading with the Indians, learning to planting corn, and making a treaty with the Indians. (H-SS2.3.1 Explain how the United States and other countries make laws, carry out laws. H-SS2.3.2 Describe the ways, in which groups and nations interact with one another to try to resolve problems in such areas as trade, cultural contacts, treaties.) During this unit we added the 1700's and the 1600's to our dig chart. The students write paragraphs from different perspectives about the Pilgrim experience. The Interact Kit activities were used as a motivation for the study of American Government (Unit 3) .
When children are engaged with rigorous historical content, with “hands on” experiences from various resources, researching, touching, and simulating historical events they love to learn and will remember the learning experience through the connections that they make. To this day the students are bringing in found photos and information to add to the dig/timeline chart and making connections across disciplines.
An archeologist gave a presentation explaining the procedures, tools, and language of the discipline.

She brought artifacts for the children to touch and guess what they had been used for.
They children brought in family artifacts such as a train engineers hat, family letters, and old family photos (some were added to the timeline. Writing with a quill

Leonis Adobe
Living and Touching History
They wrote questions and interviewed their parents or grandparents to create timelines and learn more about the differences between now and then.

The students were divided into cooperative learning groups, given Pilgrim Logs.
Living Museum
Carol Short – E.O. Green Junior High School
Business Partner: Aera Energy
For grade levels: 7 - 8
Curriculum Areas: Language Arts/Reading and History/Social Science

In my 8th grade language arts class, the students are required, as part of their state standards, to write a biographical essay. The standard calls for students to “relate a clear, coherent incident, event, or situation by using well-chosen details, reveal the significance of, or the writer’s attitude about, the subject and employ narrative and descriptive strategies (e.g., relevant dialogue, specific action, physical description, background description, comparison or contrast of characters).” I designed an activity originally intended to support students’ mastery of this standard that ultimately succeeded in accomplishing so much more. This activity, called “Living Museum” includes a series of lessons wherein students not only write the biographical essay but create a visual poster on a historical character, dress up as this person, and finally, learn a one-minute informational speech written in the first person from the character’s point of view.

We spend some time looking at the qualities of a good biography, and brainstorm on the different aspects of life from which these characters might have originated. My one criterion is that the character has to be someone who has made a positive and enduring impact on our society. The brainstorm produces characters that range from Alexander the Great to Harriet Tubman to Roberto Clemente. Students are not allowed to choose the same character as any one of their classmates; every student in a class has to select a different character. I take my students to the computer lab in initiate the research process; they ultimately have three or four days to decide upon their chosen person.

I then give the students an outline of the essay in which they open their biography with a “hook” – a quotation or anecdote that will capture the reader’s attention, followed by an introduction to the character, and a thesis statement identifying three qualities that distinguish this person. The three body paragraphs focus on and explore these particular qualities, and the conclusion restates the thesis, and ends with a statement as to why the student chose this person.

Once they have written their essay, they work on their poster, making it a visually attractive combination of pictures, quotes, biographical information, their essay, and a “button” that the visitors push to bring them to life. I also encourage the students to find unique objects to place on their poster that clearly identify their
character. For example, one student chose to glue strategically placed sunglasses all over her Audrey Hepburn poster, while another put a small plastic basketball hoop on his Magic Johnson poster. As for their dress, they are persuaded to use a creative assembly of secondhand garments rather than a prepackaged costume. The students then stand in the school quad like statues, and “come to life” when other visiting students push the button on their poster. I have facilitated this activity for the past six years, and after taking the time to reflect on its effectiveness and adjusting the format to meet the needs of each group of students, I have improved it to the point where it has become a favorite and much-anticipated yearly event in the school. I usually hold the Living Museum over an entire day, so that the rest of the school can have the opportunity to visit the “characters.” My students take turns either presenting or else fulfilling some other task: they can be tour guides (they take six students at a time and lead them around the presentations – this helps to keep the visitors focused), or worksheet distributors, or judges, or photographers.

The project, which includes the essay, poster, costume, and speech presentation, is worth 100 points and each component is 25 points. I have a rubric for the essay that assigns points for students using MLA format, employing a “hook” and thesis statement in their introduction, exploring three qualities in three separate body paragraphs, and demonstrating mastery of language conventions. The costume is evaluated on its creativity and attention to detail, while I look for the poster to be informational, attractive, easy to read, and unique. The speech is appraised on the following: it must contain important and pertinent facts about the character, be well-enunciated, and well-projected.

As this activity has developed over the years, it has become an exercise in collaboration and teamwork. I work closely with the 8th grade social studies teachers who help the students choose a suitable historic character and point them toward resources for their research. I also work with the other language arts teachers in the school who coach their students in the art of listening. Their students attend the Living Museum, listen to the characters’ speeches, and, on a worksheet that is presented to them, write down pertinent facts on each character. My students not only present to their peers, but also to parents, faculty, district office personnel, and school board members. As a result, they see that what they do matters to someone other than their teacher.

Initially, my students are often intimidated by the idea that for the first time in their lives, they have to dress up, memorize a speech, and stand up and make a presentation to hundreds of other people. But five
minutes into the exercise, they invariably loosen up and start to enjoy themselves. Ultimately, this is one activity that the students remember; they enjoy the interaction with their peers and adults, and the opportunity to role-play. Because they have to present themselves and display their essay, they tend to take more care over their writing and are fully prepared to write multiple drafts in an effort to come up with a superior product. The fact that they are facing a wider audience is the motivation to be more conscientious; if I was the only one appraising their essay, poster, costume, and speech, the students would not feel compelled to work on and perfect their presentation.
Eleanor Roosevelt: Trying to Make the World Equal

“You gain strength, courage, and confidence by every experience in which you really stop to look fear in the face. You are able to say to yourself, I’ve lived through this horror I can take the next that comes along. You must do the thing that comes along you must do the thing you can not do.”

Anna Eleanor Roosevelt became famous because she tried to make the world balance; she wanted the world to be equal. Eleanor Roosevelt was known as one of the greatest women in the twentieth century. I would describe Eleanor Roosevelt as a strong, courageous, and confident woman.

Anna Eleanor Roosevelt was born through an upsetting and a forlorn childhood. She was born on October 11, 1884, in New York City. Elliot Roosevelt, her father, was an alcoholic. Anna Rebecca Hall Roosevelt, her crucial and beautiful mother, was very embarrassed from Eleanor’s lack in style. She nicknamed her unfashionable daughter “Granny.” Both her parents died, her mother died of diphtheria and her father by his drinking. By the age of ten, she was an orphan and lived with her insufferable Grandmother Hall. Through the harsh times living with her grandmother, she would often visited Theodore and Edith Roosevelt, her aunt and uncle. When she was fifteen years old, her life changed completely. She was sent to go to Allenwood, an English finishing school. When she came home in 1900, she started teaching at Rivington Street Settlement. Moreover, she also visited houses and joined a consumers’ league, a purchaser. As often as she can, she would always visit her uncle, Theodore Roosevelt, our 26th president, in
the White House, but there was a slight problem. Her cousin, Alice and she loathed each other.

Arguing furiously, Edith Roosevelt stopped their fight and warned her stepdaughter to stop.

Throughout those sixteen years, Eleanor has been through numerous times, but she was able to handle all of it. She stayed strong all the way.

Franklin Delano Roosevelt was Eleanor’s fifth cousin. They were both fairly close. They would talk to each other every moment they could. After awhile, they began to see more and more of each other. Franklin’s mother, Sara Roosevelt, disapproved of their love to one another. As hard as she tried, Sara couldn’t stop them. Franklin and Eleanor were engaged in 1904. They got married on March 17, 1905. They had six children, which one died from birth, - Anna Eleanor Roosevelt, James Roosevelt, Franklin Roosevelt, Elliot Roosevelt, Franklin Delano Roosevelt Jr., and John Aspinwall Roosevelt. Finding love letters, Eleanor figured out that her husband was having an affair with his social secretary, Lucy Mercer. Once she found out, she went up to him and said that he better end the affair or get divorced. In the end, they kept their marriage. In 1945, President Franklin Roosevelt died. Finding out, she found out that Lucy Mercer was with him when he died. Mercer was with him with Anna Roosevelt’s assistance. With her marriage, Eleanor was strong. She fought for what was the right thing to do at the right time. She stayed strong through all the events she needed to be the best.

Throughout her life, Eleanor Roosevelt built self-confidence. Once she returned from England, she insisted on becoming a social worker. She taught children about literature. Eleanor became the hostess to Franklin Roosevelt when he was elected to be Senator of New York. She became interested in politics when her husband was selected Assistant Secretary of the Navy. She contributed of the works of Red Cross when Word War I began. She helped take care of the injured
soldiers. She also actively supported in the Woman’s Suffrage Movement. When Franklin had polio, she opened a furniture factory for the jobless people. With the help of Marion Dickerman, they bought a private school for girls. In this school, she taught history. FRD (Franklin Roosevelt) was very overwhelmed with his wife’s works. So, he used this for his presidential elections in 1932. When FRD became president, she had press conferences with women reporters about promoting jobs for women and not just for men. She started a program, “New Deal,” just for FRD’s depression. She addressed her problems in a column in the newspaper called “My Day.” In 1935, she created National Youth Administration (NYA) an organization to supply financial aids for children and jobs for men and women. She supported the issues of the African Americans. For this, she worked with National Association for the Advancement of Colored People (NAACP) and with the National Council of Negro Women. Anna Eleanor complained about Marian Anderson not being able to perform in Constitution Hall. She protested with the Daughters of the American Revolution. During World War II, she became the assistant director of the Office of Civilian Defense. She had to find civilian people to help with the war. In 1946, she was the chairperson of the UN Human Rights. In 1948, Ms. Roosevelt drafted a law called “Universal Declaration of Human Rights.” This law helped make things equal and have liberty to people of their race, color, and beliefs. Ms. Roosevelt resigned from the United Nations and became the ambassador of Asia, Europe, and the Middle East. Writing, she wrote about her life experiences. The books that got published were This Is My Story in 1937, This I Remember in 1950, and On My Own and Tomorrow is Now in 1958. She died on November 7, 1962, at the age 78, from bone marrow tuberculosis in New York. Her
accomplishments really show that she built more self-confidence in herself. Her beliefs brought her to believe that she should fight for what was right.

Eleanor Roosevelt was a humanitarian and a leader who helped with the poor, women, African Americans, people at home and abroad, and mostly anything else. Being strong, courageous, and confident, the three qualities really helped her contribution because she helped countless people around the world. I chose Anna Eleanor Roosevelt because she wasn’t afraid to stand up to the plate and fight for what was the right thing to do. It is just like what Edith Roosevelt said, “Be careful, Alice, the ugly ducking will grow to be a beautiful swan.”

“As for accomplishments, I just did what I had to do as things came along.”

-Eleanor Roosevelt

Bibliography

1. www.lkwdpl.org/wihohio/roos-ele.htm 12-8-08
Living Museum

[Image of a person dressed up]

[Image of a person holding a sign: "King Henry VIII"]
Many students question why they are learning such things as higher level math, how to write an essay or the history of the Middle Ages. I tell them that how they will use the information depends on the career path they choose. At their age, they do not know what path that will be, but a broad education is essential in today’s global society. To illustrate this point, students were given an assignment to research careers. The assignment consisted of computer research and writing, creation of a power point presentation on one career, and an oral presentation of the power point with a visual representation of the career by either tools used or the proper attire for the career.

STANDARDS

The assignment met a the following Writing Standards. Students delivered research presentations, recorded important ideas and concepts from information sources, paraphrased and summarized. They planned and conducted multiple-step information searches by using computer networks and modems, organized and recorded information on charts, and prepared a speech.

LESSONS

We began with the website www.california.realitycheck.com. Students accessed the site and selected a place in California they thought they would like to live as an adult. They were led through a series of questions to determine the type of car, house and lifestyle they would like. The questions included selections on health, taxes and savings. When they were finished, they received a printout of exactly how much they would need to earn per year to sustain that lifestyle. We then spent a month, working 1 or 2 days a week on the assignment. On any given day, students could be found at the computer doing research or creating a power point, creating a visual or a costume for the oral presentation, or writing reflections about the high cost of living in California and what they learned from their research. The following were the steps each student completed:

- Reality Check
- Discussion with parents about the results of the Reality Check with a parent signature on the printout
• Personal reflection about the results
• List of 6 careers the students were interested in and why
• Using the website www.explorestudent.org to research careers and find the following information:
  - Type of career
  - Work tasks
  - Size and growth of the field
  - Yearly salary
  - Education necessary
• Power Point presentation on one career
• Matrix of notes on all oral presentations from the class
• Final reflection on what was learned about careers, did they feel that they need to go to college and how were they going to use the information.
• All information was put together in a report

ASSESSMENT

Students were assessed in a variety of manners.

• The written reflections told me what they had learned and each student’s reaction to what was learned.

• All the presentations followed the same format which made it easy for students to complete the career matrix and thus compare and contrast different careers.

• Power Points were graded on the information included and the graphics used to represent the career

• Oral presentations were graded on speaking skills and the visual representation of the career

POSITIVE AFFECTS

All students were engaged in the assignment. It was interesting to hear or read about the parent reactions to the Reality Check. One parent told his son that he didn’t earn in three years what the Reality Check showed his son would need. The student said he realized that he will need to go to college if he wants a different lifestyle than that of his parents. Another student said that the Reality Check was wrong because it had calculated the tax at 28% and tax is only 7 ¼%. It was an opportunity to teach students about income tax.
The oral presentations were a method for students to learn about a variety of careers. There were no duplications of careers within any of the classes. One girl researched the career of chemist and did an experiment for her visual representation. As the chemicals reacted with each other, we had a mini explosion with green goo shooting all over. The students said they would never forget the career of chemist and that chemistry might be an interesting career. Budding lawyers wore ties and carried brief cases. An aspiring chef wore an apron and produced homemade cookies for the class. A coroner discussed her career wearing scrubs and holding a plastic bag with spaghetti and red paint to represent a specimen from a body.

The power point slides were printed out and posted in the classroom. Many students come into my classroom during breaks and lunch. I hear them talking about the careers. They comment that they did not know that certain careers paid so much money or that you needed so much education for other careers. It has opened the eyes of not only my students, but other students in the school.
Entry requirements

• Bachelors degree is preferred
• Broad knowledge and experience with computers systems and technology
• People with degrees concentrate on computer science or software engineering
• People with out degrees concentrate on computer science or computer information systems

Salary & growth

$81,000 rapidly 3.8%

Works tasks

• Work in systems or applications development
• Design and develop software for operating systems, networks distribution and complier and other systems
• Test and evaluate software systems

WORK TASKS

• Teach children the basics
• Use films, slides, computer, & games
• Assign lessons
• Give tests
• Maintain discipline

ENTRY REQUIREMENTS

• bachelors degree
• complete a training program
• supervised practice teaching
• all states require a license

SALARY: $50,000      SIZE: large      GROWTH: moderate
**Chemist**

- Knowledge about chemicals
- Discovery of new products
- Advances in medicine
- Research chemistry of living things

- $65,500 average per year ($31.50 per hour)
- A medium occupation (79,000 workers)
- Expected to grow moderately (0.9% p/y)

- Bachelors degree in chemistry
- Chemistry relations
- Voluntary certification to indicate professional status

---

**Fashion Designer**

**Word Tasks**

- design clothing and accessories like coats, dresses, pants, shirts, bracelets, necklaces, rings etc.
- Make anything or almost anything that the client tells them to design.
- Sketch drawings and go over them millions of times.
- The designs that they make are over the top!

- → gLamOrOuS
- → sHiNnY
- → CaTCh yOuR AtTeNtIoN

**Entry Requirements**

- employers prefers fashion designers to have a 2-year degree and who are knowledgeable in the areas of textiles, fabrics and animations.
- in the fashion world sketching ability is especially important.
- a good portfolio is where fashion designers keep their sketches
**ARCHITECT**

**Work tasks:**
- Design and develop building plans to be constructed by others
- Design buildings that are:
  - Functional & Safe
  - Economical
  - Suit the needs of the people that use them
- Design
- Houses/ Schools/ Churches

**Entry requirements:**
- Professional degree in architecture from a nationally recognized university

**Salary:**
- $70,500 average per year
- $34.00 per hour

**Size:**
- A medium occupation (106,800 workers in 2007)

**Growth:**
- Expect to grow moderately (1.8 per year)

**WORK TASKS**
- Argue cases in court
- Research law
- Interview witnesses
- Negotiate settlements

**SALARY:**
- $103,500 average per year

**SIZE:**
- Very large

**GROWTH:**
- 1.1% per year

**ENTRY REQUIREMENTS**
- College graduate
- Law school graduate
- Pass the bar exam
- State license
Students dressed the part or brought the “tools of the trade”
Soaring to New Heights: An Introduction to adding and subtracting Integers
Dorene Reed
Business Partner: Amgen
For grade levels: 6 - 7
Curriculum Areas: Mathematics
Soaring to New Heights: An Introduction to Adding & Subtracting Integers

“Would you like to fly in a beautiful balloon? Way up in the sky in a beautiful balloon?” If you said yes, did you ever wonder about how to get down? Imagine, if you will, being in 6th grade, and your teacher asks you these questions. All hands go up! “Yes, I want to ride in a balloon. Pick me! Pick me!” And then, she asks, when aloft, how would you get down? Well, I couldn’t exactly take my students on a hot air balloon ride, but, I did get their attention! And, many creative replies for descending: douse the fire, bring aboard sand bags, shut off the gas, and pop the balloon!

In order to teach my special education students about adding and subtracting integers, I decided to use a unit that I became acquainted with at a math conference. The unit was based on hot air balloons (more on this later). I began by reading stories about hot air balloons, playing a conceptual bingo game that explores + and − relationships with concepts students can relate to (climbing a mountain, losing money, losing/gaining weight, etc.), I showed videos about ballooning, and discussed the times when I went to the Reno Hot Air Balloon Races when I used to live in Carson City. In her “Hot Air Balloon Unit-Fun with Integers”, Susan Mercer applies the concepts of hot air balloons going up and down by adding “bags of gas” or “bags of sand”. This unit provided my students with the visual, concrete ideas that they were able to understand.

Taking it further:

During the planning of the unit, I decided to incorporate art. Each student made their own hot air balloon. The students had to measure and cut tissue paper strips in order to papier mâché a balloon (to my surprise, many students had never done papier mâché). When the balloons were completed, I hung them from the ceiling, creating a wonderful, colorful atmosphere in the classroom.

During the entire time that we were working on this unit, creating hot air balloon booklets, and coming to understand how we add positive and negative integers, and how to subtract negative integers, the students were fully engaged in the learning process. They were excited to move their balloon marker up and down the vertical number lines, and they were having success! Their enthusiasm did not wane, and they were undaunted by the more difficult and longer problems toward the end of the unit.

Additionally, I taught my students the “Integer Song”, sung to the tune of “Row, Row, Row Your Boat”:

The Integer Song

Same signs add them up
Different signs subtract
Give the sign of the larger number
And you will be exact.

To this day, my 7th and 8th graders remember the song and I sometimes see them or hear them singing the song to themselves when solving integer problems. Also, with the students who just completed the unit, I just remind of the hot air balloon going up or down, and what do they need to do—add sand or gas, or remove sand or gas? This jogs their memory and helps them view a problem in a more concrete fashion.
Follow up with a thematic unit

While the students were involved with learning the concept of adding and subtracting integers, I developed a final project-based assignment for them. I wanted them to use their new found knowledge of integers and apply it to a curriculum area that interested them. I also wanted to be able to differentiate the project so that students would have choices and would have more of an interest in turning in a quality project. (The project choices are enclosed as an attachment.) The projects themselves were quite good. One parent commented that this was one of the best projects her daughter ever had and had enjoyed doing.

This unit is one that I shared with another special education math teacher at my school. She also used it and experienced the same positive results. I have also shared this unit with the general education math teachers and a student teacher at my school.

This unit meets the California 6th grade math standard 2.3: Solve addition and subtraction problems including those arising in concrete situations using positive and negative integers. Assessment was based on the student booklet, teacher observation and an informal, teacher made test.
Fred lived in a town near the mountain. He rose 25 feet in the air so he could take a picture of baby birds in a tall tree. He was 60 feet in the air.
Fred's Balloon was cruising 1,000 feet over the town. Suddenly, he saw something interesting on the ground. He lowered his burner and dropped 650 feet!! Flash! A huge ball of fire appeared. "Oh boy! I could see Elizabeth's birthday party and her yard full of balloons. Fred could see the colors from 350 feet."

(1,000 - 650 = 350)
Elizabeth's life. Fred had 12 balloons to decorate the house. For each year of
12 th birthday. He blew up 2 packages of sugary
balloons. There were 6 balloons in each pack, so Fred
balloon helped decorate Elizabeth's house. For her
Fred Balloon helped Elizabeth thank her friends for coming to her birthday party. He took 3 balloons to give.

12 + (-3) = 9
The next day, Fred Balloon decided to watch the soccer game and accidentally landed in the arroyo behind the park. The arroyo was 20 feet deep. Fred had to clear the 10 foot fence at the end of the field, so he rose 35 feet in the air on his way home.
Then, while holding his cone, he went 30 feet past the school to his house.

$p = (50 + 70) = 120$

After school on Tuesday, Fred Balloon wanted to buy some ice cream, so he went 50 feet down and bought a cone from the man with the ice cream cart.
Fred went 66 feet to his house. He went 24 feet further down to the candy store next to the theater to buy snacks for the movie. After the movie, Fred went 42 feet down to Elizabeth's house. When his friend Elizabeth invited him to see a movie, so he just finished eating his ice cream.
Fred had a very important project to do for his math class and his friend Josie was his partner. He went up 39 feet to Josie's house, but she had forgotten her math book in her locker. So Fred and Josie went 75 feet down the hill from his house to the dollar store to get it.

\[-2x + (2x) = 0\]
\[+3x + (3x) = -2x\]
The next morning, Fred Ballood packed his backpack with his math book and went 75 ft down the hill from his house to the dollar store to get paper for his project to the class. Fred got an A+.

Then, he went 49 ft back up the hill to the school and presented his project to the class.
The End

Fred went down the bleachers to greet Elizabeth, his friend. Fred cheered for her and she won. After school, Fred went across the playground and house to celebrate Fred's A+ and Elizabeth's blue ribbon.

Elizabeth, the two friends went up 37 ft to Elizabeth's.
HOT AIR BALLOON PROJECT

We will be embarking on a hot air balloon trip with integers. During this trip, we will be learning how to add, subtract, multiply and divide integers. Our trip will begin with the design of a hot air balloon using papier mache. We will be using our balloons to learn how to add and subtract integers.

EVERYONE WILL BE RESPONSIBLE FOR TURNING IN A HOT AIR BALLOON UNIT BOOKLET, which I will provide and which will be done in class. The packet will be scored according to accuracy and neatness. (100 points).

IN ADDITION TO THE BOOKLET, YOU MUST CHOOSE ONE OF THE FOLLOWING PROJECTS:

1. Acrostic Poem: An acrostic poem uses the letters in a topic word to begin each line. In this acrostic poem, all of the lines of the poem should be math words. Your lettering must be large, neat and readable. Your poster must be no smaller than 8 ½" x 11". You must illustrate, as best as you can, the terms used on your poster. (75 points)

   Example: S=sum
   U=unit
   N=number line

2. Illustrated Story: Write a children’s story about ballooning and how it can be used to teach the concepts of adding and subtracting integers (like “Less Than Zero”). Your story must be at least 10 pages, typewritten and illustrated. (90 points)

3. History of Hot Air Ballooning: Create a time line of at least 8 events in the history of hot air ballooning. Your time line must be illustrated. (70 points)
4. **Science**: How do hot air balloons work? Briefly describe how hot air balloons work, draw diagram(s) and label the parts. (65 points)

5. **Cartoons**: Using the shape of a balloon as cartoon characters, draw a cartoon strip explaining how to add/subtract integers. Your cartoon strip must have at least 6 panels and must be done in color. It must be large enough to read. (65 points)

As with all projects, NEATNESS and SPELLING ARE HIGHLY IMPORTANT.

These projects will be due **MONDAY, MARCH 4, 2008**.

My parent(s) and I have reviewed the requirements of the hot air balloon unit. We understand that this is an important project and will work hard to be successful.

Please sign and return the bottom portion:

_________________________________________________________________________

I have chosen ______________________________ as my project.

Parent Signature: ________________________________________

Student Signature: _______________________________________

Date: __________________________
Name: ____________________

<table>
<thead>
<tr>
<th>Hot Air Balloon Scoring Rubric</th>
<th>Points</th>
<th>Your Score</th>
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</thead>
<tbody>
<tr>
<td>Turned in on time</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Neatness</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Spelling</td>
<td>5</td>
<td></td>
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<tr>
<td>Followed Directions:</td>
<td></td>
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<tr>
<td>A. Acrostic Poem</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Explained/illustrated math</td>
<td></td>
<td></td>
</tr>
<tr>
<td>terms used</td>
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<td></td>
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<tr>
<td>B. Cartoon Strip</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>Explained math concept of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>adding/subtracting integers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Hot Air Balloon</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>Explained/illustrated how hot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>air balloons work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. Time Line</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>Included/illustrated at least</td>
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<td>8 events</td>
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<tr>
<td>E. Story</td>
<td>90</td>
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</tr>
<tr>
<td>Explained the concept of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>adding/subtracting integers</td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>Turned in early</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Total: ........................................................
A Pew Research study found that a vast majority of Generation Y has set its sight on becoming rich and famous. YouTube, reality shows, and MTV all help convince teenagers that fame and fortune are attainable and desirable goals. As our planet becomes increasing smaller, understanding among different people becomes essential. What’s more, the challenges the next generations face are global ones: global warming, international markets, the interconnectedness of the effects of our cultures and lifestyles, etc. In order to ensure peace, promote global understanding, and prepare the next generation of leaders to meet global challenges, students need to learn to appreciate various perspectives and truly understand what it is like to walk in another’s shoes. The purpose of this unit is to help students begin to look beyond themselves with an empathetic and critical eye.

**Building Background**

The discussion of empathy begins with understanding perspective. The students study film and photography terminology, take digital images, consult a professional photographer, watch various films on the topic of immigration, learn immigration songs, and consult various texts. Students begin with the key vocabulary such as long shot, close up, medium shot, high key lighting, low-key lighting, high angle shot, etc. A professional photographer visits the classroom and shares his/her work and ideas about “successful” photos. Next, the students put this information to use; they practice taking photos of their favorite subject, each other. Then they watch films on the subject of immigration: *La Misma Luna*, *El Norte*, and *The Visitor*. The students look for the choices directors make, and they engage in discussions about the experiences of the characters. Students refer to a variety of texts to learn about the push and pull factors that cause people to emigrate. The students also sing a variety of immigration songs from Los Lobos, The Pogues, Arlo and Woody Guthrie, Los Tigres Del Norte, and U2.

**Going Deeper – Reading Activities**

Students read the novel *Lupita Mañana* by Patricia Beatty. This novel is about a young girl and her brother who come to the United States to look for work. They face many hardships during their travels and eventually settle in Indio and work in the fields. Each day, before reading, students engage in warm ups that require them to imagine themselves in similar situations as the characters. They also play a human board
game in which they take become the characters and have to overcome the types of obstacles faced by Lupita and her brother. In another activity, students summarize the plot in a favorite warm up called “Rock Band.”

In order to help the middle schoolers empathize further with the characters, students create scrapbooks from a character’s perspective. They dress up as their character and have a friend take a digital photo of them. They also write letters home from the character’s perspective, include maps of the character’s travels, imagine what movies their character might like, and write letters from other people in the novel to their character. They literally and figuratively put themselves in the character’s shoes.

**Bringin’ It On Home – Beyond the Text**

The culminating activities in this unit personalize the issue of migration/immigration. We are a nation of immigrants, and many of our families have come to Ventura County from somewhere else. Of those of us who were born here, nearly all have moved within the county. In this final part of the unit, the students take what they learn and apply it to their own lives. Students conduct a migration/immigration interview to find out what push or pull factors brought a parent, grandparent, relative, or friend to Ventura County or caused them to move within the county. In addition, they take photos of the interviewee. This activity gets teenagers talking with their parents about their lives and the choices that their moms and dads have made. We found that parents and adolescents appreciate this opportunity for dialogue, and these conversations help students empathize with loved ones. The students then write essays about the person whom they interview. In addition, students write My Life Poems in which they describe their homes, families, communities, state, country, and ancestry. These poems give students the opportunity to express their thoughts and feelings about their own experiences. These poems are moving and inspirational.

This year, students presented what they learned in this unit at a conference at a local university. One professor of economics who was in attendance was so inspired that he asked if he could come and speak to the classes about immigration and El Salvador. His presentation was the final activity of the unit.

Students’ learning is positively impacted in a variety of ways. Students learn about perspective. When asked to take a photo at a recent dance, a student asked, “Do you want a long, medium, or close-up shot?” Students also comment that they will never see film the same way again. They are aware of the choices directors make; they see the craft in the medium. In addition, students empathize with the characters in the novel, “We have to ask ourselves what we would do if we were in their position.” Finally, the students also learn a great deal about their own histories. One student commented, “I never knew my grandma had been through so much.”
We have presented this unit to over 100 middle school students. Throughout the unit, we employed scaffolding, realia, visual and aural representations, and hands on experiences so that all students could access the information. This unit is adaptable to a variety of texts and integrates Spanish, Geography, Social Science, Photography, Film, and Language Arts.

Language Art Reading Standards: 2.3, 2.7    Literary Response and Analysis: 3.2, 3.3, 3.4, 3.7
Writing Strategies: 1.1, .12, 1.3, 1.6    Writing Applications 2.1, 2.2    Speaking Applications: 2.3, 2.5
Written and Oral Conventions: 1.1, 1.4-1.6
Assessments: digital photo assignment, scrapbooks, warm-ups, chapter quizzes, two essays, and poem.
Title: “The Pebble and The Hill”, (a study of derivatives, slope fields and differential equations), is a bold 3-4 week Calculus unit presented to 8th – 12th grade students to stimulate enthusiasm for taking Advanced Placement Calculus in high school. The instantaneous rate of change, the “derivative,” will be defined, explained and explored by finding the slopes of small tangent lines drawn to graphs. The derivative allows us to solve numerous/varied problems. This innovative unit, taught to earlier grade levels than previously thought possible, reinforces existing grade level standards (with refresher worksheets) and then makes difficult concepts interesting and accessible for young students.

Grade Levels: With minor modifications, “The Pebble and The Hill” is for all students who are taking Algebra 1B or higher math classes. The unit is designed to expose, familiarize and excite students with what would normally be considered “tough” material. One of the desired outcomes is increased student interest and enrollment in Calculus, thus producing high school graduates with stronger fundamentals in math and science to address the problems/opportunities/concerns of the 21st Century.

Curriculum Areas: In Algebra 1B, students study and graph linear equations (State Standards 5.0; 6.0; 7.0; 9.0) and “quadratic functions.” In Geometry, students work with “secants and tangents” and perform “rotations, translations and reflections (Standards 21 and 22).” In Algebra II, students “graph quadratic equations and determine the maxima and minima” (Standard 10). For Trigonometry, students learn that “the tangent of the angle that a line makes with the x-axis is equal to the slope of the line” (Standard 7.0). The instructional purpose of the “Pebble and the Hill” is to expand these standards then slowly/gently present related Calculus concepts, namely, “the derivative, slope fields and differential equations.”

The Unit and Its Value: Students will be introduced to the history of Calculus and its numerous/varied “real-world” applications. In addition to modeling a wide range of data, differential equations are used with population growth, radioactive decay (think CSI Miami crime scenes), compounding interest, temperature changes (Newton’s Law of Cooling) and electrical circuits. Students learn Calculus concepts such as the “power rule” for taking derivatives and how to analyze differential equations. By the end of this cooperative and creative unit students will understand one of the most important mathematical concepts to shape our world – the “derivative.”
To access prior knowledge and provide instructional scaffolding we start the unit by reviewing slopes and lines and associated vocabulary and formulas (see worksheets). I collect and review the worksheets to be sure that all students (ELL, Special Ed) have a solid foundation. Next, we review graphs of linear and higher order equations. Algebra 2 students spend an additional day graphing exponential and logarithmic functions (see worksheet), part of the Algebra 2 curriculum. Students enjoy discussing the vocabulary and history of Calculus (The word “calcoli” was first used by the Sumerians to mean “pebble” or “clay token” and was used to represent quantities of different items. Slopes and tangent lines to graphs are similar to “hills,” thus “The Pebble and The Hill.”)

At this point I demonstrate the use of the overhead graphing calculator to graph higher order equations, incorporating technology in the unit. To further stimulate interest in the unit, additional vocabulary is presented over the next few days followed by a discussion of the use of derivatives and differential equations (see handout) to solve a host interesting problems.

With interest piqued, students learn about average vs. instantaneous rates of change (secants vs. tangents) using the change in temperature throughout a one-day period as our example (see handout). We spend the next several days working in groups estimating slopes of tangent lines to curves, matching slope fields with differential equations and learning the power rule. Groups are comprised of English Language Learners (ELL) mixed with English only students. Students of varying abilities collaborate and apply critical thinking skills. Collaborative groups provide kinesthetic learners an opportunity to excel. Graphing is especially good for tactile learners. I assist both groups and individuals and present the concepts slowly with basic examples thus ensuring that all students are learning.

Since some of the unit reaches beyond grade level standards, worksheets and group work are graded on completion, participation and effort. As the teacher provides guidance, groups generate slope fields and sketch first derivatives. Groups apply high level analytical and evaluative thought processes in order to present their solutions and graphs to the class.

We discuss the presentations and provide feedback to one another. Using their worksheets, students are asked to summarize what they have learned about Calculus, the history, the concepts and what the derivative means as well as to list a few types of problems that might be solved with Calculus. Students are amazed at the depth of knowledge and high interest level displayed by their classmates.

I end the unit with an Internet presentation of Euler’s Method for drawing the solution to a differential equation and I request feedback from classes by asking, “What more would you like to learn about Calculus?”
**CA State Standards:** The “Pebble and The Hill” is an easily adaptable, inspiring, non-textbook driven unit that engages learners at all levels, supports State Standards, and encourages the use of technology and collaborative group interactions. I hope that more in-depth concepts of Calculus will be presented to middle school and young high school students in an effort to ignite interest in this exciting topic.

**Students:** The “Pebble and The Hill” has been implemented in high school math classes including Algebra 1, Algebra 2 and Calculus. I would encourage eighth through twelfth-grade math, science and business classes to adapt this cognitively demanding, engaging unit.

**Facilities/Resources:** There are four vocabulary/history/graphing worksheets and a “What are Differentials Used For?” handout included in the unit as well as specific problems provided on line by Larson’s 8th edition of Calculus ([www.mathgraphs.com](http://www.mathgraphs.com)). An overhead TI 83+ graphing calculator was used in lessons 3 and poster paper and markers are needed for the group activities. Lastly, Euler’s differential approximation method is located on line at [http://www.calculusapplets.com/euler.html](http://www.calculusapplets.com/euler.html).
41. **Radioactive Decay** Radioactive radium has a half-life of approximately 1599 years. What percent of a given amount remains after 100 years?

42. **Carbon Dating** Carbon-14 dating assumes that the carbon dioxide level on Earth today has the same radioactive content as it did centuries ago. If this is true, the amount of $^{14}$C absorbed by a tree that grew several centuries ago should be the same as the amount of $^{14}$C absorbed by a tree growing today. A piece of ancient charcoal contains only 15% as much of the radioactive carbon as a piece of modern charcoal. How long ago was the tree burned to make the ancient charcoal? (The half-life of $^{14}$C is 5715 years.)

**Compound Interest** In Exercises 43–48, complete the table for a savings account in which interest is compounded continuously.

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<th>Rate</th>
<th>Time to Double</th>
<th>Amount After 10 Years</th>
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</thead>
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<td>$1000</td>
<td>6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$20,000</td>
<td>5%</td>
<td></td>
<td></td>
</tr>
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<td>$750</td>
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</tr>
<tr>
<td>$500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$2000</td>
<td>5%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Compound Interest** In Exercises 49–52, find the principal $P$ that must be invested at rate $r$, compounded monthly, so that $300,000 will be available for retirement in $t$ years.

49. $r = 7\%$, $t = 20$  
50. $r = 6\%$, $t = 40$
51. $r = 8\%$, $t = 35$  
52. $r = 9\%$, $t = 25$

**Compound Interest** In Exercises 53–56, find the time necessary for $1000 to double if it is invested at a rate of $r$ compounded (a) annually, (b) monthly, (c) daily, and (d) continuously.

53. $r = 7\%$  
54. $r = 6\%$
55. $r = 8.5\%$  
56. $r = 5.5\%$

79. **Temperature** At time $t = 0$ minutes, the temperature of an object is $140^\circ F$. The temperature of the object is changing at the rate given by the differential equation

$$\frac{dy}{dt} = -\frac{1}{2}(y - 72).$$

(a) Use a graphing utility and Euler's Method to approximate the particular solutions of this differential equation $t = 1, 2, \text{and} 3$. Use a step size of $h = 0.1$. (A graphing utility program for Euler's Method is available on the website college.hmco.com.)

(b) Compare your results with the exact solution $y = 72 + 68e^{-t/2}$. $\newline$

61. **Modeling Data** One hundred bacteria are started in a culture and the number $N$ of bacteria is counted each hour for 5 hours. The results are shown in the table, where $t$ is the time in hours.

<table>
<thead>
<tr>
<th>$t$</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>$N$</td>
<td>100</td>
<td>126</td>
<td>151</td>
<td>198</td>
<td>243</td>
<td>297</td>
</tr>
</tbody>
</table>

(a) Use the regression capabilities of a graphing utility to fit an exponential model for the data.

(b) Use the model to estimate the time required for the population to quadruple in size.

62. **Bacteria Growth** The number of bacteria in a culture increasing according to the law of exponential growth. There are 125 bacteria in the culture after 2 hours and 350 bacteria after 4 hours.

(a) Find the initial population.

(b) Write an exponential growth model for the bacteria population. Let $t$ represent time in hours.

(c) Use the model to determine the number of bacteria after 8 hours.

(d) After how many hours will the bacteria count be 25,000?

63. **Learning Curve** The management at a certain factory has found that a worker can produce at most 30 units in a day. If learning curve for the number of units $N$ produced per day after a new employee has worked $t$ days is $N = 30(1 - e^{-t})$. After 2 days on the job, a particular worker produces 19 units.

(a) Find the learning curve for this worker.

(b) How many days should pass before this worker is producing 25 units per day?

64. **Learning Curve** If in Exercise 63 management requires new employee to produce at least 20 units per day after 30 days on the job, find (a) the learning curve that describes the minimum requirement and (b) the number of days before minimal achievement is producing 25 units per day.
Applications

EXAMPLE 7  Wildlife Population

The rate of change of the number of coyotes $N(t)$ in a population is directly proportional to $650 - N(t)$, where $t$ is the time in years. When $t = 0$, the population is 500, and when $t = 2$, the population has increased to 500. Find the population when $t = 3$.

Solution  Because the rate of change of the population is proportional to $650 - N(t)$, you can write the following differential equation.

$$\frac{dN}{dt} = k(650 - N)$$

You can solve this equation using separation of variables.

$$\frac{dN}{650 - N} = k \, dt$$

Integrating,

$$\ln|650 - N| = kt + C$$

$$N = 650 - 500e^{-kt}$$

Using $N = 500$ when $t = 0$, you can conclude that $C = 500$, which produces

$$N = 650 - 350e^{-kt}.$$  

Then, using $N = 500$ when $t = 2$, it follows that

$$500 = 650 - 350e^{-2k} \quad \Rightarrow \quad e^{-2k} = \frac{1}{7} \quad \Rightarrow \quad k \approx 0.4236.$$  

So, the model for the coyote population is

$$N = 650 - 350e^{-0.4236t}.$$  

When $t = 3$, you can approximate the population to be

$$N = 650 - 350e^{-0.4236(3)} \approx 552 \text{ coyotes}.$$  

The model for the population is shown in Figure 6.14.

![Graph showing number of coyotes over time](image)
5. Modeling Data  The table shows the population $P$ (in millions) of the United States from 1960 to 2000. (Source: U.S. Census Bureau)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Population, $P$</td>
<td>181</td>
<td>205</td>
<td>226</td>
<td>250</td>
<td>282</td>
</tr>
</tbody>
</table>

(a) Use the 1960 and 1970 data to find an exponential model $P_t$ for the data. Let $t = 0$ represent 1960.

(b) Use a graphing utility to find an exponential model $P_t$ for the data. Let $t = 0$ represent 1960.

(c) Use a graphing utility to plot the data and graph both models in the same viewing window. Compare the actual data with the predictions. Which model better fits the data?

(d) Estimate when the population will be 320 million.

5. Modeling Data  The table shows the net receipts and the amounts required to service the national debt (interest on Treasury debt securities) of the United States from 1992 through 2001. The monetary amounts are given in billions of dollars. (Source: U.S. Office of Management and Budget)

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Receipts</td>
<td>1091.3</td>
<td>1154.4</td>
<td>1258.6</td>
<td>1351.8</td>
<td>1453.1</td>
</tr>
<tr>
<td>Interest</td>
<td>292.3</td>
<td>292.5</td>
<td>296.3</td>
<td>332.4</td>
<td>343.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>1997</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receipts</td>
<td>1579.3</td>
<td>1721.8</td>
<td>1827.5</td>
<td>2025.2</td>
<td>1994.2</td>
</tr>
<tr>
<td>Interest</td>
<td>355.8</td>
<td>363.8</td>
<td>355.3</td>
<td>361.9</td>
<td>359.5</td>
</tr>
</tbody>
</table>

(a) Use the regression capabilities of a graphing utility to find an exponential model $R$ for the receipts and a quartic model $I$ for the amount required to service the debt. Let $t$ represent the time in years, with $t = 2$ corresponding to 1992.

(b) Use a graphing utility to plot the points corresponding to the receipts, and graph the corresponding model. Based on the model, what is the continuous rate of growth of the receipts?

(c) Use a graphing utility to plot the points corresponding to the amount required to service the debt, and graph the quartic model.

(d) Find a function $P(t)$ that approximates the percent of the receipts that is required to service the national debt. Use a graphing utility to graph this function.

---

Sound Intensity  The level of sound $\beta$ (in decibels), with an intensity of $I$ is

$$\beta = 10 \log_{10} \frac{I}{I_0}$$

where $I_0$ is an intensity of $10^{-16}$ watts per square centimeter, corresponding roughly to the faintest sound that can be heard. Determine $\beta$ for the following.

(a) $I = 10^{-14}$ watts per square centimeter (whispers)

(b) $I = 10^{-8}$ watts per square centimeter (busy street corner)

(c) $I = 10^{-6}$ watts per square centimeter (air hammer)

(d) $I = 10^{-4}$ watts per square centimeter (threshold of pain)

68. Noise Level  With the installation of noise suppression materials, the noise level in an auditorium was reduced from 93 to 80 decibels. Use the function in Exercise 67 to find the percent decrease in the intensity level of the noise as a result of the installation of these materials.

69. Forestry  The value of a tract of timber is

$$V(t) = 100,000e^{0.1t}$$

where $t$ is the time in years, with $t = 0$ corresponding to 1990. If money earns interest continuously at 10%, the present value of the timber at any time $t$ is $A(t) = V(t)e^{-0.1t}$. Find the year in which the timber should be harvested to maximize the present value function.

70. Earthquake Intensity  On the Richter scale, the magnitude $R$ of an earthquake of intensity $I$ is

$$R = \frac{\ln I - \ln I_0}{\ln 10}$$

where $I_0$ is the minimum intensity used for comparison. Assume that $I_0 = 1$.

(a) Find the intensity of the 1906 San Francisco earthquake ($R = 8.3$).

(b) Find the factor by which the intensity is increased if the Richter scale measurement is doubled.

(c) Find $dI/dt$.

71. Newton's Law of Cooling  When an object is removed from a furnace and placed in an environment with a constant temperature of 30°F, its core temperature is 1500°F. One hour after it is removed, the core temperature is 112°F. Find the core temperature 5 hours after the object is removed from the furnace.

72. Newton's Law of Cooling  A container of hot liquid is placed in a freezer that is kept at a constant temperature of 20°F. The initial temperature of the liquid is 160°F. After 5 minutes, the liquid's temperature is 60°F. How much longer will it take for its temperature to decrease to 30°F?

True or False?  In Exercises 73–76, determine whether the statement is true or false. If it is false, explain why or give an example that shows it is false.

73. In exponential growth, the rate of growth is constant.

74. In linear growth, the rate of growth is constant.

75. If prices are rising at a rate of 0.5% per month, then they are rising at a rate of 6% per year.

76. The differential equation modeling exponential growth is $dy/dx = ky$, where $k$ is a constant.
In Examples 2 through 5, you did not actually have to solve the differential equation
\[ y' = ky. \]
(This was done once in the proof of Theorem 6.1.) The next example demonstrates a problem whose solution involves the separation of variables technique. The example concerns Newton's Law of Cooling, which states that the rate of change in the temperature of an object is proportional to the difference between the object's temperature and the temperature of the surrounding medium.

**EXAMPLE 6** Newton's Law of Cooling

Let \( y \) represent the temperature (in °F) of an object in a room whose temperature is kept at a constant 60°. If the object cools from 100° to 90° in 10 minutes, how much longer will it take for its temperature to decrease to 80°?

*Solution* From Newton's Law of Cooling, you know that the rate of change in \( y \) is proportional to the difference between \( y \) and 60. This can be written as
\[ y' = k(y - 60), \quad 80 \leq y \leq 100. \]

To solve this differential equation, use separation of variables, as shown.

\[
\frac{1}{y - 60} \, dy = k \, dt
\]

Integrate each side:
\[
\ln|y - 60| = kt + C
\]

Find antiderivative of each side.

Because \( y > 60 \), \( |y - 60| = y - 60 \), and you can omit the absolute value signs. Using exponential notation, you have
\[
y - 60 = e^{kt + C} = e^C e^{kt} = Ce^{kt}, \quad C = e^C.
\]

Using \( y = 100 \) when \( t = 0 \), you obtain \( 100 = 60 + Ce^{0} = 60 + C \), which implies that \( C = 40 \). Because \( y = 90 \) when \( t = 10 \),
\[
90 = 60 + 40e^{10k}
\]
\[
30 = 40e^{10k}
\]
\[
k = \frac{1}{10} \ln \frac{3}{4} = -0.02877.
\]

So, the model is
\[
y = 60 + 40e^{-0.02877t}.
\]

and finally, when \( y = 80 \), you obtain
\[
80 = 60 + 40e^{-0.02877t}
\]
\[
20 = 40e^{-0.02877t}
\]
\[
e^{-0.02877t} = \frac{1}{2}
\]
\[
\ln \frac{1}{2} = -0.02877t
\]
\[
t = 24.09 \text{ minutes.}
\]

So, it will require about 14.09 more minutes for the object to cool to a temperature of 80° (see Figure 6.11).
EXAMPLE 10 Solving a Logistic Differential Equation

A state game commission releases 40 elk into a game refuge. After 5 years, the elk population is 104. The commission believes that the environment can support no more than 4000 elk. The growth rate of the elk population $p$ is

$$\frac{dp}{dt} = kp \left( 1 - \frac{p}{4000} \right), \quad 40 \leq p \leq 4000$$

where $t$ is the number of years.

a. Write a model for the elk population in terms of $t$.

b. Graph the slope field of the differential equation and the solution that passes through the point $(0, 40)$.

c. Use the model to estimate the elk population after 15 years.

d. Find the limit of the model as $t \to \infty$.

Solution

a. You know that $L = 4000$. So, the solution of the equation is of the form

$$p = \frac{4000}{1 + be^{-kt}}.$$

Because $p(0) = 40$, you can solve for $b$ as shown.

$$40 = \frac{4000}{1 + be^{-400}} \implies 40 = 4000 \frac{1}{1 + b} \implies b = 99$$

Then, because $p = 104$ when $t = 5$, you can solve for $k$.

$$104 = \frac{4000}{1 + 99e^{-450}} \implies k \approx 0.194$$

So, a model for the elk population is given by

$$p = \frac{4000}{1 + 99e^{-0.194t}}.$$

b. Using a graphing utility, you can graph the slope field of

$$\frac{dp}{dt} = 0.194p \left( 1 - \frac{p}{4000} \right)$$

and the solution that passes through $(0, 40)$, as shown in Figure 6.18.

c. To estimate the elk population after 15 years, substitute $15$ for $t$ in the model

$$p = \frac{4000}{1 + 99e^{-0.194 \cdot 15}} \implies \text{Substitute 15 for } t.$$

Then

$$p = \frac{4000}{1 + 99e^{-2.81}} \approx 626.$$

Simplify.

So, $\lim_{t \to \infty} \frac{4000}{1 + 99e^{-0.194t}} = 4000$. 

EXAMPLE 4 Population Growth

Suppose an experimental population of fruit flies increases according to the law of exponential growth. There were 100 flies after the second day of the experiment and 300 flies after the fourth day. Approximately how many flies were in the original population?

Solution Let \( y = C e^{kt} \) be the number of flies at time \( t \), where \( t \) is measured in days. Because \( y = 100 \) when \( t = 2 \) and \( y = 300 \) when \( t = 4 \), you can write

\[
100 = Ce^{2k} \quad \text{and} \quad 300 = Ce^{4k}.
\]

From the first equation, you know that \( C = 100e^{-2k} \). Substituting this value into the second equation produces the following.

\[
\begin{align*}
300 &= 100e^{-2k}e^{2k} \\
300 &= 100e^{2k} \\
\ln 3 &= 2k \\
\frac{1}{2} \ln 3 &= k \\
0.5493 &= k.
\end{align*}
\]

So, the exponential growth model is

\[
y = 100e^{0.5493t}.
\]

To solve for \( C \), reapply the condition \( y = 100 \) when \( t = 2 \) and obtain

\[
100 = 100e^{0.5493(2)}
\]

So, the original population (when \( t = 0 \)) consisted of approximately \( y = C = 33 \) flies, as shown in Figure 6.9.

EXAMPLE 5 Declining Sales

Four months after it stops advertising, a manufacturing company notices that its sales have dropped from 100,000 units per month to 80,000 units per month. If the sales follow an exponential pattern of decline, what will they be after another 2 months?

Solution Use the exponential decay model \( y = Ce^{kt} \), where \( t \) is measured in months. From the initial condition \( (t = 0) \), you know that \( C = 100,000 \). Moreover, because \( y = 80,000 \) when \( t = 4 \), you have

\[
\begin{align*}
80,000 &= 100,000e^{-k} \\
0.8 &= e^{-4k} \\
\ln(0.8) &= -4k \\
-0.558 &= k.
\end{align*}
\]

So, after 2 more months \((t = 6)\), you can expect the monthly sales rate to be

\[
y = 100,000e^{-0.558(6)}
\]

\[
= 71,500 \text{ units}.
\]

See Figure 6.10.
Euler’s Method In Exercises 49–52, (a) use Euler’s Method with a step size of \( h = 0.1 \) to approximate the particular solution of the initial value problem at the given \( x \)-value, (b) find the exact solution of the differential equation analytically, and (c) compare the solutions at the given \( x \)-value.

<table>
<thead>
<tr>
<th>Differential Equation</th>
<th>Initial Condition</th>
<th>( x )-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>49. ( \frac{dy}{dx} = -6y )</td>
<td>(0, 5)</td>
<td>1</td>
</tr>
<tr>
<td>50. ( \frac{dy}{dx} + 6y )</td>
<td>(0, 3)</td>
<td>1</td>
</tr>
<tr>
<td>51. ( \frac{dy}{dx} + 12 ) ( \frac{1}{3}y^2 )</td>
<td>(1, 2)</td>
<td>2</td>
</tr>
<tr>
<td>52. ( \frac{dy}{dx} = 2x(1 + y^2) )</td>
<td>(1, 1)</td>
<td>1.5</td>
</tr>
</tbody>
</table>

53. Radioactive Decay The rate of decomposition of radioactive radium is proportional to the amount present at any time. The half-life of radioactive radium is 1599 years. What percent of a present amount will remain after 25 years?

54. Chemical Reaction In a chemical reaction, a certain compound changes into another compound at a rate proportional to the unchanged amount. If initially there are 20 grams of the original compound, and there is 16 grams after 1 hour, what will 75 percent of the compound be changed?

55. Slope Fields In Exercises 55–58, (a) write a differential equation for the statement, (b) match the differential equation with a possible slope field, and (c) verify your result by using a graphing utility to graph a slope field for the differential equation. [The slope fields are labeled (a), (b), (c), and (d).] To print an enlarged copy of the graph, go to the website www.mathgraphs.com.

56. The rate of change of \( y \) with respect to \( x \) is proportional to the difference between \( y \) and 4.

57. The rate of change of \( y \) with respect to \( x \) is proportional to the product of \( y \) and the difference between \( y \) and 4.

58. The rate of change of \( y \) with respect to \( x \) is proportional to the difference between \( y \) and 4.

59. Weight Gain A calf that weighs 60 pounds at birth gains weight at the rate

\[
\frac{dw}{dt} = 1000 - w
\]

where \( w \) is weight in pounds and \( t \) is time in years. Solve the differential equation,

(a) Use a computer algebra system to solve the differential equation for \( k = 0.8, 0.9, \) and 1. Graph the three solutions.

(b) If the animal is sold when its weight reaches 800 pounds, find the time of sale for each of the models in part (a).

(c) What is the maximum weight of the animal for each of the models?

60. Weight Gain A calf that weighs \( w_0 \) pounds at birth gains weight at the rate

\[
\frac{dw}{dt} = 1200 - w
\]

where \( w \) is weight in pounds and \( t \) is time in years. Solve the differential equation.

91. Electric Circuits The diagram shows a simple electric circuit consisting of a power source, a resistor, and an inductor.

![Electric Circuit Diagram]

A model of the current \( I \), in amperes (A), at time \( t \) is given by the first order differential equation

\[
\frac{dI}{dt} + RI = E(t)
\]

where \( E(t) \) is the voltage (V) produced by the power source, \( R \) is the resistance, in ohms (Ω), and \( L \) is the inductance, in henries (H). Suppose the electric circuit consists of a 24-V power source, a 12-Ω resistor, and a 3-H inductor.

(a) Sketch a slope field for the differential equation.

(b) What is the limiting value of the current? Explain.
Most graphing utilities have curve-fitting capabilities that can be used to find models that represent data. Use the exponential regression feature of a graphing utility and the information in Example 2 to find a model for the data. How does your model compare with the given model?

Radioactive decay is measured in terms of half-life—the number of years required for half of the atoms in a sample of radioactive material to decay. The half-lives of some common radioactive isotopes are shown below.

- Uranium (U-238) 4,470,000,000 years
- Plutonium (Pu-239) 24,100 years
- Carbon (C-14) 5715 years
- Radium (Ra-226) 1599 years
- Einsteinium (Es-254) 276 days
- Nobelium (No-259) 25 seconds

**Example 3: Radioactive Decay**

Suppose that 10 grams of the plutonium isotope Pu-239 was released in the Chernobyl nuclear accident. How long will it take for the 10 grams to decay to 1 gram?

**Solution:** Let $y$ represent the mass (in grams) of the plutonium. Because the rate of decay is proportional to $y$, you know that

$$ y =Ce^{kt} $$

where $t$ is the time in years. To find the values of the constants $C$ and $k$, apply the initial conditions. Using the fact that $y = 10$ when $t = 0$, you can write

$$ 10 = Ce^{0} = Ce^{0} $$

which implies that $C = 10$. Next, using the fact that $y = 5$ when $t = 24,100$, you can write

$$ 5 = 10e^{24,100k} $$

$$ \frac{5}{10} = e^{24,100k} $$

$$ \frac{1}{2} = e^{24,100k} $$

$$ \ln \left( \frac{1}{2} \right) = 24,100k $$

$$ -0.000028761 = k $$

So, the model is

$$ y = 10e^{-0.000028761t} $$

Half-life model

To find the time it would take for 10 grams to decay to 1 gram, you can solve for $t$ in the equation

$$ 1 = 10e^{-0.000028761t} $$

The solution is approximately 80.059 years.
How do students internalize the relevance of their education and learn to reflect and set goals? How do they learn to appreciate the diversity in individuals and the many talents that make the world a better place? Educators need to help students connect the dots to see the importance of reflection, analyzing strengths and weaknesses, and goal setting before sending them from our classrooms into the larger world, whether for summer breaks or post-graduation life. **Using literature**, music, articles, speeches, literary characters and real-world individuals, students examine strengths and weakness to recognize their own talents and set goals for their education or future careers. This unit helps students focus thinking on literary character analysis and then shift thinking to their own unique challenges and talents to help them see that they indeed are ready to impact the larger world outside of school. This unit incorporates a range of media to impact students’ thinking as they reflect on characters’ choices and universal theme ideas that are revealed through characters’ strengths, weaknesses and conflict resolution. Students see how literary themes represent views on life that are relevant inside and outside of texts.

First students create finale video projects where they examine characters from texts read throughout the year and groups identify common themes that thread their way through literary selections. Their video projects incorporate vignettes from literature united by original scripts that support their themes, incorporating quotes, motifs, flashbacks, music, and acting to portray ideas. As they create scripts, they discuss literary characters and conflicts faced in a non-threatening manner. Life-lessons are examined as they view video projects and reflect on themes. This jump-starts the next phase of the unit, which is an examination of personal qualities that impact their lives.

Next students watch a 4 minute music video of Brad Paisley’s “Letter to Me,” beginning, “If I could write a letter to me/And send it back in time to myself at 17…” We discuss what it would be like to be able to look back 20 years and give advice knowing intimately the challenges faced. Then I give them the lyrics along with my prompt: “Write a letter to your 17 year old self—project yourself into the future about 10 years and have the voice of the wise adult that you will become speak candidly to you about your present concerns—Be introspective and sincere so it will really matter to you.” Additional bullets state: *Give yourself some proof
it’s really you, Detail some of your current struggles, Give some advice,” etc. Then they date, sign, seal, and address the letter to themselves to be opened in 10 years. As students wrote this timed write, you could hear a pin drop—except for a few sniffles. Next I shared a Parade article titled “Advice to the Young Me,” June 8, 2008, which detailed comments that Ben Stiller, Felicity Huffman, etc. would have given their younger selves, and students loved the hip words of wisdom.

After that to help students get in touch with the diverse talents individuals possess, I have students list one non-academic talent they have, and we present talents over the next several days, interspersed with other class activities. The range of talents was surprising from the sublime to the ridiculous—Things such as playing violin, guitar, trumpet, baking, drawing, painting, Indian dancing, reciting the chart of molecular elements from memory, video game playing techniques, swimming (one swimmer pushed desks together and illustrated winning strokes), photography, a peristalsis dance (for physiology), ear-wiggling, singing, map-reading, sustained hula hooping, card making, hugging, and moon walking were some talents that enriched our days.

As part of connecting the dots of reflection, introspection, and potential to contribute, students write an autobiographical reflection identifying a mentor who has helped them reach successful goals. They weave literary information throughout the piece as they relate universal ideas to their own talents, lives and ethics and present a copy of this to their mentor before they leave school (usually a parent or coach who is so touched by this communication). Once they recognize a mentor, I ask them to become a mentor by writing a welcome letter to an incoming freshman. They share wisdom with specific ideas on how to be successful at high school. They think about things they wished someone older and wiser had told them as freshmen, sometimes focusing on mistakes or opportunities lost. Students took this very seriously and some asked if they could spend more time completing them at home that night. Specifics shared were to join clubs, get involved, eat with a different group of kids, branch out, be kind to their peers because they all had different strengths and might need a math or English tutor, etc.

Moving into reflections on ethics, next they read, “A Message to Garcia” by Elbert Hubbard and had a rich seminar on this, detailing ideas on how this 1899 piece relates to the work world of today. An excerpt:

My heart goes out to the man who does his work when the "boss" is away, as well as when he is at home. And the man who, when given a letter for Garcia, quietly take the missive, without asking any idiotic questions, and with no lurking intention of chucking it into the nearest sewer, or of doing aught else but deliver it, never gets "laid off," nor has to go on a strike for higher wages. Civilization is one long anxious search for just such individuals . . . The world cries out for such: he is needed, & needed badly—the man who can carry a message to Garcia.
Finally, students hear Steve Jobs’ online 2005 Stanford Commencement Address and note discussion points to share as Jobs tells the students three stories about connecting the dots, illustrating that there are many paths to success in the world. During this last seminar, one student said, “It has all really come together here--First, looking at literary characters, then looking at ourselves in ‘Letter to Me,’ next sharing our talents showed us how different we all are and how we can contribute in our own ways –besides it was really fun!” I was delighted that she articulated this. The Message to Garcia opened a window on students’ need to practice perseverance, initiative, and problem-solving. Students’ comments on Jobs’ Address linked his text to their own “I wish” statements and the need to live life to their fullest potential. They got it. As Shakespeare said, “The readiness is all” and through reflection, introspection, and discussion, these students recognized that they are ready to contribute their own unique talents to impact the larger world. 140 students have engaged in this unit that addresses multiple learning styles and modalities, adaptable to any subject where the issue of reflection, introspection, and goal setting can be explored. This literature-based unit meets Language Arts Reading Standards 2.1, 2.4, 2.5, 3.2 and Writing Standards 1.1, 2.2, 2.3. Assessments: Video project rubric, Reflection essay, Seminar notes, Letter Rubric.
TABLE OF CONTENTS: SUPPORT MATERIALS

TALENT PICTURES

1. Finale Video Project
2. “Letter to Me”
3. Reflective Essay – identify mentor and role, weave literary allusions
4. Letter of Advice to incoming Freshmen – mentoring them with wisdom
5. Message to Garcia and Seminar
6. Steve Jobs Commencement Speech and Seminar
Learning Goal: Students will examine the literature read this year (or throughout your high school academic career) and as a group identify a common universal theme that threads its way through various literary selections. Using these findings, the group will create a final video project that incorporates aspects from each piece of selected literature that supports your ONE identified theme. Reflect on characters’ choices and how they lead to theme.

Focus on a significant theme and create your project incorporating motifs, quotes, carefully selected music, props, dramatic acting, costuming, etc. based on key aspects of the universal theme. Include a Creators’ Note detailing your artistic choices & effects.

RUBRIC FOR FINAL VIDEO PROJECT

CRITERIA POINTS

a. Portrays significant universal theme true to texts & uses motif(s) to reinforce theme 1 2 3 4 5 ____ (30)

b. Creativity/originality 1 2 3 4 5 ____ (10)

d. Technical merit (camera stability, credits, clear & understandable audio) 1 2 3 4 5 ____ (10)

e. Typed script with quotes highlighted & cited + MLA Works Cited—minimum of 10 quotes Creators’ Note detailing motif use and artistic elements 1 2 3 4 5 ____ (50)

TOTAL ____ (100)

Reading 3.2 Analyze how the theme of a selection represents a view or comment on life using textual evidence to support the claim.

Writing 2.2. Demonstrate a comprehensive understanding of the significant ideas in works; analyze the use of imagery language, universal themes, and unique aspects of the text.

VIDEO PROJECT NOT TO EXCEED ___ MINUTES
REMEMBER TO BE SCHOOL APPROPRIATE!
#2. “Letter to Me” Brad Paisley

If I could write a letter to me
And send it back in time to myself at 17
First I'd prove it's me by saying look under your bed
There's a Skoal can and a Playboy no one else would know you hid
And then I'd say I know it's tough
When you break up after seven months
And yeah I know you really liked her and it just don't seem fair
All I can say is pain like that is fast and it's rare

And oh you got so much going for you going right
But I know at 17 it's hard to see past Friday night
She wasn't right for you
And still you feel like there's a knife sticking out of your back
And you're wondering if you'll survive
You'll make it through this and you'll see
You're still around to write this letter to me

At the stop sign at Tomlinson and Eighth
Always stop completely don't just tap your breaks
And when you get a date with Bridgett make sure the tank is full
On second thought forget it that one turns out kinda cool
Each and every time you have a fight
Just assume you're wrong and dad is right
And you should really thank Mrs. __________
She spent so much extra time
It's like she sees the diamond underneath
And she's polishin' you 'til you shine

And oh you got so much going for you going right
But I know at 17 it's hard to see past Friday night
Tonight's the bonfire rally
But you're staying home instead because if you fail Algebra
Mom and dad will kill you dead
Trust me you'll squeak by and get a C
And you're still around to write this letter to me

You've got so much up ahead
You'll make new friends
You should see your kids and wife
And I'd end by saying have no fear
These are nowhere near the best years of your life

I guess I'll see you in the mirror
When you're a grown man
P.S. go hug Aunt Rita every chance you can
And oh you got so much going for you going right
But I know at 17 it's hard to see past Friday night
I wish you'd study Spanish
I wish you'd take a typing class
I wish you wouldn't worry, let it be
I'd say have a little faith and you'll see

If I could write a letter to me
To me

Write a letter to your 17 year old self—project yourself into the
future about 10 years and have the voice of the wise adult that you
will become speak candidly to you about your present concerns—
Be introspective and sincere so it will count.

*Give yourself some proof it’s really you (lines 3-4) . . .
*Detail some of your current struggles
*Give some advice to yourself
*Reassure yourself that “you got so much going for you going right”

*Detail your strengths
*State that “you’ve got so much up ahead”
*Promise yourself there are better years ahead
*Make some “I wish” statements of what you wished you’d done at 17 . . .
(study Spanish, etc.)  Date the letter today, sign it, seal it, and address it to yourself
to be opened in ten years.
Learning Goal: Students will write autobiographical reflections identifying a mentor who has helped them reach their successful graduation and pursue their future lives and career goals. Students will display knowledge of literature through allusions to literary works and characters using textual evidence to support their claims while relating universal theme ideas to their own lives.

Standards:
- **Writing 1.1** Demonstrate control of grammar, diction, and paragraph and sentence structure and an understanding of English usage.
- **Writing 2.3** Write reflective compositions that explore the significance of personal experiences, events, conditions, or concerns by using rhetorical strategies (e.g., narration, description, exposition, persuasion), and draw comparisons between specific incidents and broader themes that illustrate the writer’s important beliefs or generalizations about life. **Writing 1.1** Demonstrate control of grammar, diction, and paragraph and sentence structure and an understanding of English usage.

**Reading 3.2** Analyze the way in which the theme or meaning of a selection represents a view of comment on life, using textual evidence to support the claim.

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### RUBRIC FOR English 4 Final Essay

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>POINTS</th>
<th>Self</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Portrays important experiences that have affected the writer, identifies mentor &amp; role</td>
<td></td>
<td>1 2 3 4 5</td>
<td>(50)</td>
</tr>
<tr>
<td>b. Displays literary knowledge through allusions</td>
<td></td>
<td>1 2 3 4 5</td>
<td>(15)</td>
</tr>
<tr>
<td>c. Uses figurative language, strong vocabulary, etc</td>
<td></td>
<td>1 2 3 4 5</td>
<td>(20)</td>
</tr>
<tr>
<td>d. Structure (thesis, body theses, transitions) &amp; free of grammar, punctuation, usage errors</td>
<td></td>
<td>1 2 3 4 5</td>
<td>(15)</td>
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<tr>
<td>TOTAL</td>
<td></td>
<td>(100)</td>
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<table>
<thead>
<tr>
<th>Levels of Mastery</th>
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<tbody>
<tr>
<td>1 – Severe Difficulty, Little or No Evidence of Achievement</td>
</tr>
<tr>
<td>2 – Weak, Limited Evidence of Achievement</td>
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<tr>
<td>3 – Insufficient Some Evidence of Achievement</td>
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<tr>
<td>4 – Competent, Adequate Achievement</td>
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<tr>
<td>5 – Very Effective, Commendable Achievement</td>
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<tr>
<td><strong>Content</strong></td>
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<td>---</td>
</tr>
<tr>
<td><strong>Displays literary knowledge through allusions, linking experiences &amp; mentor to successful graduation (and future goals).</strong></td>
</tr>
<tr>
<td><strong>Uses figurative language, strong vocabulary, etc. to create a tone of gratitude, praise, etc. (Dictation, Imagery, similes, metaphors, personification, symbols, etc.)</strong></td>
</tr>
<tr>
<td>Essay Organization and Proper English Conventions</td>
</tr>
</tbody>
</table>
#4. **Write a welcome letter to an incoming freshman.**

- In this letter share your great wisdom on how to be successful at the high school.
- Give your reader specific ideas on how to do this and wish them well in their high school journey.
- Think about some things you wish someone older and wiser had told you on your first day at the high school.
- Proofread your letter and sign and print your name.
- Know the incoming freshmen read these letters with great interest!
#5. A Message to Garcia, 1899

By Elbert Hubbard

In all this Cuban business there is one man stands out on the horizon of my memory like Mars at perihelion. When war broke out between Spain & the United States, it was very necessary to communicate quickly with the leader of the Insurgents. Garcia was somewhere in the mountain vastness of Cuba- no one knew where. No mail nor telegraph message could reach him. The President must secure his cooperation, and quickly.

What to do!

Some one said to the President, "There’s a fellow by the name of Rowan will find Garcia for you, if anybody can."

Rowan was sent for and given a letter to be delivered to Garcia. How "the fellow by the name of Rowan" took the letter, sealed it up in an oil-skin pouch, strapped it over his heart, in four days landed by night off the coast of Cuba from an open boat, disappeared into the jungle, & in three weeks came out on the other side of the Island, having traversed a hostile country on foot, and delivered his letter to Garcia, are things I have no special desire now to tell in detail.

The point I wish to make is this: McKinley gave Rowan a letter to be delivered to Garcia; Rowan took the letter and did not ask, "Where is he at?" By the Eternal! there is a man whose form should be cast in deathless bronze and the statue placed in every college of the land. It is not book-learning young men need, nor instruction about this and that, but a stiffening of the vertebrae which will cause them to be loyal to a trust, to act promptly, concentrate their energies: do the thing- "Carry a message to Garcia!"

General Garcia is dead now, but there are other Garcias.

No man, who has endeavored to carry out an enterprise where many hands were needed, but has been well nigh appalled at times by the imbecility of the average man- the inability or unwillingness to concentrate on a thing and do it. Slip-shod assistance, foolish inattention, dowdy indifference, & half-hearted work seem the rule; and no man succeeds, unless by hook or crook, or threat, he forces or bribes other men to assist him; or mayhap, God in His goodness performs a miracle, & sends him an Angel of Light for an assistant. You, reader, put this matter to a test: You are sitting now in your office- six clerks are within call.

Summon any one and make this request: "Please look in the encyclopedia and make a brief memorandum for me concerning the life of Correggio".

Will the clerk quietly say, "Yes, sir," and go do the task?

On your life, he will not. He will look at you out of a fishy eye and ask one or more of the
The following questions:

Who was he?

Which encyclopedia?

Where is the encyclopedia?

Was I hired for that?

Don’t you mean Bismarck?

What’s the matter with Charlie doing it?

Is he dead?

Is there any hurry?

Shan’t I bring you the book and let you look it up yourself?

What do you want to know for?

And I will lay you ten to one that after you have answered the questions, and explained how to find the information, and why you want it, the clerk will go off and get one of the other clerks to help him try to find Garcia- and then come back and tell you there is no such man. Of course I may lose my bet, but according to the Law of Average, I will not.

Now if you are wise you will not bother to explain to your "assistant" that Correggio is indexed under the C’s, not in the K’s, but you will smile sweetly and say, "Never mind," and go look it up yourself.

And this incapacity for independent action, this moral stupidity, this infirmity of the will, this unwillingness to cheerfully catch hold and lift, are the things that put pure Socialism so far into the future. If men will not act for themselves, what will they do when the benefit of their effort is for all? A first-mate with knotted club seems necessary; and the dread of getting "the bounce" Saturday night, holds many a worker to his place.

Advertise for a stenographer, and nine out of ten who apply, can neither spell nor punctuate- and do not think it necessary to.

Can such a one write a letter to Garcia?

"You see that bookkeeper," said the foreman to me in a large factory.
"Yes, what about him?"

"Well he’s a fine accountant, but if I’d send him up town on an errand, he might accomplish the errand all right, and on the other hand, might stop at four saloons on the way, and when he got to Main Street, would forget what he had been sent for."

Can such a man be entrusted to carry a message to Garcia?

We have recently been hearing much maudlin sympathy expressed for the "downtrodden denizen of the sweat-shop" and the "homeless wanderer searching for honest employment," & with it all often go many hard words for the men in power.

Nothing is said about the employer who grows old before his time in a vain attempt to get frowsy ne’er-do-wells to do intelligent work; and his long patient striving with "help" that does nothing but loaf when his back is turned. In every store and factory there is a constant weeding-out process going on. The employer is constantly sending away "help" that have shown their incapacity to further the interests of the business, and others are being taken on. No matter how good times are, this sorting continues, only if times are hard and work is scarce, the sorting is done finer- but out and forever out, the incompetent and unworthy go.

It is the survival of the fittest. Self-interest prompts every employer to keep the best- those who can carry a message to Garcia.

I know one man of really brilliant parts who has not the ability to manage a business of his own, and yet who is absolutely worthless to any one else, because he carries with him constantly the insane suspicion that his employer is oppressing, or intending to oppress him. He cannot give orders; and he will not receive them. Should a message be given him to take to Garcia, his answer would probably be, "Take it yourself."

Tonight this man walks the streets looking for work, the wind whistling through his threadbare coat. No one who knows him dare employ him, for he is a regular fire-brand of discontent. He is impervious to reason, and the only thing that can impress him is the toe of a thick-soled No. 9 boot.

Of course I know that one so morally deformed is no less to be pitied than a physical cripple; but in our pitying, let us drop a tear, too, for the men who are striving to carry on a great enterprise, whose working hours are not limited by the whistle, and whose hair is fast turning white through the struggle to hold in line dowdy indifference, slip-shod imbecility, and the heartless ingratitude, which, but for their enterprise, would be both hungry & homeless.

Have I put the matter too strongly? Possibly I have; but when all the world has gone a-slumming I wish to speak a word of sympathy for the man who succeeds- the man who, against great odds has directed the efforts of others, and having succeeded, finds there’s nothing in it: nothing but bare board and clothes.
I have carried a dinner pail & worked for day’s wages, and I have also been an employer of labor, and I know there is something to be said on both sides. There is no excellence, per se, in poverty; rags are no recommendation; & all employers are not rapacious and high-handed, any more than all poor men are virtuous.

My heart goes out to the man who does his work when the "boss" is away, as well as when he is at home. And the man who, when given a letter for Garcia, quietly take the missive, without asking any idiotic questions, and with no lurking intention of chucking it into the nearest sewer, or of doing aught else but deliver it, never gets "laid off," nor has to go on a strike for higher wages. Civilization is one long anxious search for just such individuals. Anything such a man asks shall be granted; his kind is so rare that no employer can afford to let him go. He is wanted in every city, town and village- in every office, shop, store and factory. The world cries out for such: he is needed, & needed badly- the man who can carry a message to Garcia. THE END.

#6
This is a transcript of the 2005 Commencement address by Steve Jobs, CEO of Apple Computer and of Pixar Animation Studios.

> Thank you. I'm honored to be with you today for your commencement from one
> of the finest universities in the world. Truth be told, I never graduated
> from college and this is the closest I've ever gotten to a college
> graduation.
> 
> Today I want to tell you three stories from my life. That's it. No big
> deal. Just three stories. The first story is about connecting the dots. I
> dropped out of Reed College after the first six months but then stayed
> around as a drop-in for another 18 months or so before I really quit. So
> why did I drop out? It started before I was born. My biological mother was
> a young, unwed graduate student, and she decided to put me up for
> adoption.
> She felt very strongly that I should be adopted by college graduates, so
> everything was all set for me to be adopted at birth by a lawyer and his
> wife, except that when I popped out, they decided at the last minute that
> they really wanted a girl. So my parents, who were on a waiting list, got
> a
> call in the middle of the night asking, "We've got an unexpected baby boy.
> Do you want him?" They said, "Of course."
> 
> My biological mother found out later that my mother had never graduated
> from college and that my father had never graduated from high school. She
> refused to sign the final adoption papers. She only relented a few months
> later when my parents promised that I would go to college. This was the
> start in my life. And 17 years later, I did go to college, but I naively
> chose a college that was almost as expensive as Stanford, and all of my
> working-class parents' savings were being spent on my college tuition.
After six months, I couldn't see the value in it. I had no idea what I wanted to do with my life, and no idea of how college was going to help me figure it out. And here I was, spending all the money my parents had saved their entire life. So I decided to drop out and trust that it would all work out OK. It was pretty scary at the time, but looking back, it was one of the best decisions I ever made. The minute I dropped out, I could stop taking the required classes that didn't interest me and begin dropping in on the ones that looked far more interesting.

It wasn't all romantic. I didn't have a dorm room so I slept on the floor in friends' rooms. I returned Coke bottles for the 5-cent deposits to buy food with, and I would walk the 7 miles across town every Sunday night to get one good meal a week at the Hare Krishna temple. I loved it. And much of what I stumbled into by following my curiosity and intuition turned out to be priceless later on. Let me give you one example.

Reed College at that time offered perhaps the best calligraphy instruction in the country. Throughout the campus every poster, every label on every drawer was beautifully hand-calligraphed. Because I had dropped out and didn't have to take the normal classes, I decided to take a calligraphy class to learn how to do this. I learned about serif and sans serif typefaces, about varying the amount of space between different letter combinations, about what makes great typography great. It was beautiful, historical, artistically subtle in a way that science can't capture, and I found it fascinating.

None of this had even a hope of any practical application in my life. But 10 years later when we were designing the first Macintosh computer, it all came back to me, and we designed it all into the Mac. It was the first computer with beautiful typography. If I had never dropped in on that single course in college, the Mac would have never had multiple typefaces or proportionally spaced fonts, and since Windows just copied the Mac, it's likely that no personal computer would have them. If I had never dropped out, I would have never dropped in on that calligraphy class and personal computers might not have the wonderful typography that they do.

Of course it was impossible to connect the dots looking forward when I was in college, but it was very, very clear looking backward 10 years later. Again, you can't connect the dots looking forward. You can only connect them looking backward, so you have to trust that the dots will somehow connect in your future. You have to trust in something-your gut, destiny, life, karma, whatever-believing that the dots will connect down the road will give you the confidence to follow your heart, even when it leads you off the well-worn path, and that will make all the difference.
My second story is about love and loss. I was lucky I found what I loved to do early in life. Woz [Steve Wozniak] and I started Apple in my parents' garage when I was 20. We worked hard, and in 10 years, Apple had grown from just the two of us in a garage into a $2 billion company with over 4,000 employees. We'd just released our finest creation, the Macintosh, a year earlier, and I'd just turned 30, and then I got fired. How can you get fired from a company you started? Well, as Apple grew we hired someone, who I thought was very talented, to run the company with me, and for the first year or so, things went well. But then our visions of the future began to diverge, and eventually we had a falling out. When we did, our board of directors sided with him, and so at 30, I was out, and very publicly out. What had been the focus of my entire adult life was gone, and it was devastating. I really didn't know what to do for a few months. I felt that I had let the previous generation of entrepreneurs down, that I had dropped the baton as it was being passed to me. I met with David Packard and Bob Noyce and tried to apologize for screwing up so badly. I was a very public failure, and I even thought about running away from the Valley. But something slowly began to dawn on me. I still loved what I did. The turn of events at Apple had not changed that one bit. I'd been rejected but I was still in love. And so I decided to start over.

I didn't see it then, but it turned out that getting fired from Apple was the best thing that could have ever happened to me. The heaviness of being successful was replaced by the lightness of being a beginner again, less sure about everything. It freed me to enter one of the most creative periods in my life. During the next five years I started a company named NeXT, another company named Pixar and fell in love with an amazing woman who would become my wife. Pixar went on to create the world's first computer-animated feature film, Toy Story, and is now the most successful animation studio in the world.

In a remarkable turn of events, Apple bought NeXT and I returned to Apple. And the technology we developed at NeXT is at the heart of Apple's current renaissance, and Laurene and I have a wonderful family together.

I'm pretty sure none of this would have happened if I hadn't been fired from Apple. It was awful-tasting medicine, but I guess the patient needed it. Sometimes life's going to hit you in the head with a brick. Don't lose faith. I'm convinced that the only thing that kept me going was that I loved what I did. You've got to find what you love, and that is as true
> for
> work as it is for your lovers. Your work is going to fill a large part of
> your life, and the only way to be truly satisfied is to do what you
> believe
> is great work, and the only way to do great work is to love what you do.
> If
> you haven't found it yet, keep looking and don't settle. As with all
> matters of the heart, you'll know when you find it, and like any great
> relationship it just gets better and better as the years roll on. So keep
> looking. Don't settle.
>
> My third story is about death. When I was 17 I read a quote that went
> something like, "If you live each day as if it was your last, someday
> you'll most certainly be right." It made an impression on me, and since
> then, for the past 33 years, I have looked in the mirror every morning and
> asked myself, "If today were the last day of my life, would I want to do
> what I am about to do today?" And whenever the answer has been "no" for
> too
> many days in a row, I know I need to change something. Remembering that
> I'll be dead soon is the most important thing I've ever encountered to
> help
> me make the big choices in life, because almost everything-all external
> expectations, all pride, all fear of embarrassment or failure-these things
> just fall away in the face of death, leaving only what is truly important.
> Remembering that you are going to die is the best way I know to avoid the
> trap of thinking you have something to lose. You are already naked. There
> is no reason not to follow your heart.
>
> About a year ago, I was diagnosed with cancer. I had a scan at 7:30 in the
> morning, and it clearly showed a tumor on my pancreas. I didn't even know
> what a pancreas was. The doctors told me this was almost certainly a type
> of cancer that is incurable, and that I should expect to live no longer
> than three to six months. My doctor advised me to go home and get my
> affairs in order, which is doctors' code for prepare to die. It means to
> try and tell your kids everything you thought you'd have the next 10 years
> to tell them in just a few months. It means to make sure that everything
> is
> buttoned up so that it will be as easy as possible for your family. It
> means to say your good-byes.
>
> I lived with that diagnosis all day. Later that evening I had a biopsy
> where they stuck an endoscope down my throat, through my stomach and into
> my intestines, put a needle into my pancreas and got a few cells from the
> tumor. I was sedated but my wife, who was there, told me that when they
> viewed the cells under a microscope, the doctor started crying, because it
> turned out to be a very rare form of pancreatic cancer that is curable
with
surgery. I had the surgery and, thankfully, I am fine now.

This was the closest I've been to facing death, and I hope it's the
closest
I get for a few more decades. Having lived through it, I can now say this
to you with a bit more certainty than when death was a useful but purely
intellectual concept: No one wants to die. Even people who want to go to
heaven don't want to die to get there, and yet death is the destination we
all share. No one has ever escaped it. And that is as it should be,
because
death is very likely the single best invention of life. It's life's change
agent; it clears out the old to make way for the new. Right now, the new
is
you. But someday not too long from now, you will gradually become the old
and be cleared away. Sorry to be so dramatic, but it's quite true. Your
time is limited, so don't waste it living someone else's life. Don't be
trapped by dogma, which is living with the results of other people's
thinking. Don't let the noise of others' opinions drown out your own inner
voice, and most important, have the courage to follow your heart and
intuition. They somehow already know what you truly want to become.
Everything else is secondary.

When I was young, there was an amazing publication called the Whole Earth
Catalog, which was one of the bibles of my generation. It was created by a
fellow named Stewart Brand not far from here in Menlo Park, and he brought
it to life with his poetic touch. This was in the late '60s, before
personal computers and desktop publishing, so it was all made with
typewriters, scissors and Polaroid cameras. It was sort of like Google in
paperback form 35 years before Google came along. It was idealistic,
overflowing with neat tools and great notions. Stewart and his team put
out
several issues of the Whole Earth Catalog, and then when it had run its
course, they put out a final issue. It was the mid-1970s, and I was your
age. On the back cover of their final issue was a photograph of an early
morning country road, the kind you might find yourself hitchhiking on if
you were so adventurous. Beneath it were the words "stay hungry, stay
foolish." It was their farewell message as they signed off. "Stay hungry,
stay foolish." And I have always wished that for myself, and now, as you
graduate to begin anew, I wish that for you. Stay hungry, stay foolish.

Thank you all very much.
Under the Sea
Jodi Atkinson, Christina Smith, Tim Pryor, Rebecca Friday and Karen Allen–
Camarillo Heights School
Business Partner: Amgen
For grade levels: K – 5
Curriculum Areas: Language Arts/Reading, History/Social Science, and Science

UNDER THE SEA

Living in Ventura County gives our children the ultimate hands on chance to inspire and develop a life long respect and love of the ocean. We can only do this by allowing children many different learning opportunities reaching all different modalities and learning styles, kinesthetic, visual, musical, etc. This unit allows many learning opportunities that allow the child to simply learn for the love of learning. The assessments are all things they have been exposed to before they just have a more inspiring connected knowledge. Included in this application you will find numerous activities and lessons that encompass and enlighten the learners in all areas of the curriculum. Working closely with there 5th grade buddies gives them more familiar faces around school to look up to, it makes their “ocean” a more comfortable place. It also gives the 5th graders a chance to be the “big fish in the sea” and more accountable for their “role model” behavior.

All children are naturally drawn to the ocean. With some creativity and innovation we can encourage an abundance of divergent, creative thinking. This unit allows for a student centered approach that will let them develop their own point of view which will include the importance and relevance of the ocean to all of life giving them the inspiration to become young conservators of the ocean so they may share it and keep it for generations; this is the perfect opportunity to give them ownership of one of life’s most precious resources.

With a culminating field trip to Carpinteria State Beach students can display their new found expertise of the ocean. This interdisciplinary unit is multi faceted and incorporates all areas of the curriculum not only first grade but all the way up to and including fifth grade.

This exciting unit begins by brainstorming, the essential question, “What is life like “Under the Sea?”.

Brain storm:

- Discuss to build prior knowledge (OL 2.1 R2.1, 2.3) Building on a student’s prior knowledge about what they know about the ocean adds excitement and ownership to their learning.
- Develop a KWL Chart: K=What we know, W=What we want to know L=What we have learned (RC 2.6)
- List all possibilities to give everyone a positive chance to affect their learning (LS 1.2, 2.5)
- Have available books of varying abilities to excite and inspire the students

Report Writing (All writing standards addressed)

- Break students into small groups of 5 first grade students of varying writing abilities with a 5th grade team leader
- Groups will choose from one of 4 prearranged topics Dolphin, Whale, Shark and Seal
- Students will be responsible for report complete with topic sentence and details (W2.4)
- Students will write there own report on a self selected topic by answering the question The creature about is…. because.. this allows the teacher to make sure everyone has a different topic and something appropriate for their independent level
- Students are then taught (with the help of their 5th grade buddies) the wonderful world of research. They will
- Completed reports will be published into an encyclopedia; this encyclopedia is then donated to the library where it can be used by future students.

Under the Sea experience
- Create their own 3D creature (A1.3)
- Paint, use colored paper, draw or use other mediums to construct meaning (A 2.8)
- Students choose where to place their creature, using what they have learned about habitats and animal needs (S life 2a, 2b, IE 1.0, 2.1)
- Divide classroom into different categories, complete with tide pools, seaweed, kelp, and deeper waters.
- Explain the relevance in the placement of their creature

Create Grey Whale
- All 1st grade classes measure the grey whale (MG 1.0 NS 1.0)
- blend the colors and paint the whale (Art 1.0 Creative Expression 2.0)
- gives perspective and meaning by letting them experience size and ability to compare measurement and numbers (NS 1.2 3.1)

Performance
- Sing songs such as Bozo the Clownfish, Do You Have a Spout, I once saw a Shark, Jelly Fish and Tidal Pools all sung to familiar tunes like You're a Grand old Flag, Home on the Range, and Jingle Bells (M 2.1, 2.2 LS 2.1)
- Make simple costumes, these are added to the class ocean (artistic perception 1.0))
- Improvise appropriate dance moves (D 2.1 M 3.4, 4.1)
- Perform for an audience of all other students and their parents (D 2.7, 2.8 M 5.2)

Tide Pool Trip
- Through Amtrak's "Kids and Trains" program transportation is provided to Carpinteria
- Observe the coastline during the trip, being aware of the diversity of different areas
- Inspires all to share their new found knowledge and expertise cooperatively with 5th grade buddies

Technology:
- Smart Boards- Web Cams from the Monterey Bay Aquarium looking at various fish and kelp forests
- Computer lab for typing and research,
- various DVD's, videos (Compare and contrast real with such movies as Nemo and The Little Mermaid)
- Elmo seek and finds, show ocean levels
- iPod for various music and under sea sounds
- GOOGLE (http://earth.google.com) Actually see the Channel Islands are from a scuba divers point of view
Assessment:

- Room set up as a museum with students acting as docents sharing their new found expertise in their ocean, answering questions, sharing personal expression, positively affects students learning by inspiring them to become an expert—taking place during back-to-school night; open to the public
- Report writing
- Descriptive writing used for the district writing prompt
- Trip packet log (example enclosed)

Following Enclosed:

<table>
<thead>
<tr>
<th>Sample report forms</th>
<th>pictures</th>
<th>California state standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>trip log</td>
<td>aquscope instructions</td>
<td>seek and find paper</td>
</tr>
</tbody>
</table>
Train Trip
students ride on the second level for a different point of view

Using an aquascope (using recycled coffee cans)

Special needs students are completely successful with this unit
I Once Saw a Shark

(to the tune of "Home on the Range")
I once saw a shark,
When I swam after dark,
It was big, with a frightening grin.
Its teeth were quite white,
They shined in the moonlight,
And it had a triangular fin.

Shark, you can't fool me,
'Cause I've heard from the fish in the sea.
And I've got a hunch
I'll wind up as your lunch,
Which is not something I want to be!

Tidal Pool

(to the tune of "Jingle Bells")
Barnacles, sugar kelp, sea anemones,
Animals and plant life, friends and enemies.
Look, here comes a rock crab,
Trying to stay cool.
This is what you'll find
When you study tidal pools.

Limpets on the sides, sea stars on the floor,
Kelp and tiny fish, wait, there's even more.
Algae floating by, prawns here by the bunch,
Now here comes a gull,
Looking for some lunch.

Barnacles, sugar kelp, sea anemones,
Animals and plant life, friends and enemies.
Look, here comes a rock crab,
Trying to stay cool.
This is what you'll find
When you study tidal pools.

Do You Have a Spout?

(to the tune of "You're a Grand Old Flag")
Do you have a spout?
Do you spout water out?
Do you sing to your friends in the sea?
Is a seaweed treat, a meal you'd eat,
And plankton a great specialty?

When you flip your tail,
Do you call other whales,
And do all of your friends swim by?
And when all your friends flip all their tails,
Are you proud to be a blue whale?

I'm a Seahorse

(to the tune of "Alouette")
I'm a seahorse,
Yes, I am a seahorse.
I'm a seahorse,
I live in the sea.
I suck shrimp through my long nose.
It works sort of like a hose.
My long nose,
My long nose,
Like a hose,
Like a hose.
Ah-ha...
I'm a seahorse,
Yes, I am a seahorse.
I'm a seahorse,
I live in the sea.

Samples of songs preformed for the entire school including families. Students make props and costumes, they are put in small groups to work cooperatively making up dance steps imitating those their creature might make.
Measure using standard, metric, and made up things like fifth grade feet, first grade arm span etc.

Blend colors everyone gets the chance to paint

Complete whale is 100 ft. long
School of Jellyfish

Various creatures' students choose where to put them and add anything needed for their habitat

Shark (note nothing around it)
Under the Sea

Outline examples
Writing prompt
Seek and find
Field trip log
California state standards
My sea creature: ______________

Where it lives: __________________

Three facts:

1. _____________________________

2. _____________________________

3. _____________________________
Ocean Creature Fact Sheet

Use this fact sheet to record at least four facts about your chosen creature. (Remember to list the books you use.) You can use the back of this sheet if you need more room.

My name is: 

My ocean creature is: 

Fact: 

Fact: 

Fact: 

Fact: 

Books I used:

Title: 

Author: 

Title: 

Author:
Ocean Animal Report

Which ocean animal did you choose?

Draw a picture of your sea creature:

Tell about the habitat of your animal:

What does your animal eat?
Tell about the enemies of your sea creature.

What is special or interesting about your animal?
Descriptive: Write About What You Saw at the Tidepools
I'm going to look for this creature

This is where I will look for it
This is what I Want to know about Hermit Crabs:
<table>
<thead>
<tr>
<th>No.</th>
<th>Species</th>
</tr>
</thead>
</table>
| 1.  | Rough limpet  
Lottia scabra                        |
| 2.  | Giant acorn barnacle  
Balanus nubilus                   |
| 3.  | Periwinkle  
Littorina spp.                     |
| 4.  | Rockweed  
Silvetia compressa                  |
| 5.  | Rockweed  
Fucus gardneri                     |
| 6.  | Sea lettuce  
Ulua spp.                          |
| 7.  | Sea palm  
Postelsia palmaeformis            |
| 8.  | Barnacle  
Balanus spp.                        |
| 9.  | Aggregating anemone  
Anthopleura elegansima              |
| 10. | Stalked barnacle  
Pollicipes polymerus                |
| 11. | Hermit crab  
Pagurus spp.                        |
| 12. | Ochre star  
Pisaster ochraceus                  |
| 13. | Slipper snail  
Crepidula adunca                   |
| 14. | Black turban snail  
Tegula funealbis                    |
| 15. | Dogwhinkle snail  
Nucella sp.                          |
| 16. | Peanut worm  
Phascolosoma agassizi              |
| 17. | Six-rayed star  
Leptasterias hexactis               |
| 18. | Striped shore crab  
Pachygrapsus crassipes               |
| 19. | Feather boa kelp  
Egregia menziesii                   |
| 20. | Turkish towel  
Cordracanthus spp.                  |
| 21. | Red coralline algae  
Corallina officinalis                |
| 22. | Giant green anemone  
Anthopleura xanthogrammica           |
| 23. | Neried worm  
Neris sp.                           |
| 24. | Porcelain crab  
Petrolisthes sp.                    |
| 25. | California mussel  
Mytilus californianus                |
| 26. | Tidepool sculpin  
Olivella minuscula                   |
| 27. | Crustose coralline algae  
Melobesia mediocris                  |
| 28. | Oarweed  
Lamellaria setchelli                |
| 29. | Giant kelp  
Macroystis integrifera              |
| 30. | Surfgrass  
Phyllospadix spp.                   |
| 31. | Decorator crab  
Laxorhynchus crispatus              |
| 32. | Red sea urchin  
Strongylocentrotus franciscanus     |
| 33. | Purple sea urchin  
Strongylocentrotus purpuratus       |
| 34. | Sunflower star  
Pycnopodia helianthoides            |
| 35. | Sea lemon  
Anisodoris nobilis                  |
| 36. | Red octopus  
Octopus rubescens                   |
| 37. | Leather chiton  
Katharina tunicata                  |
| 38. | Proliferating anemone  
Eliactis prolifera                   |
| 39. | Encrusting sponge  
Haliclona sp.                        |
| 40. | Black oystercatcher  
Haematopis baimani                   |
| 41. | Harbor seal  
Phoca vitulina                      |
| 42. | California sea otter  
Enhydra lutris nereis                |
| 43. | Brown pelican  
Pelecanus occidentalis              |
| 44. | Lined chiton  
Toricella lineata                   |
| 45. | Nail brush seaweed  
Endocladia muricata                  |
Make an Aquascope to Explore Tide Pools

Visiting the rocky shore offers an exciting look at ocean plants and animals in the place they call home. Though tide pool creatures survive harsh conditions, they’re easily hurt or disturbed by human visitors. Using a homemade aquascope, you can watch tide pool life right where it is and leave the animals in their tide pool homes.

Materials
Large “No. 10” can or large coffee can with both ends removed
Waterproof plastic tape
Heavy rubber bands
Clear plastic bag or food wrap
Black paint (optional)

Directions
1. Paint the inside of the can with black paint (optional but helps viewing).
2. Cover the top and bottom rim of the can with plastic tape to cover the sharp edges.
3. Stretch the plastic bag or food wrap TIGHTLY over the bottom of the can.
4. Secure the plastic bag or wrap against the can with one or more heavy rubber bands.
5. Seal the edges of the plastic against the can with waterproof tape if available.

Barnacles and other tide pool dwellers thank you for stepping carefully when you visit their homes—remember, you could be walking on someone’s head or feet! Stay on bare rocks where you won’t crush animals or rip slippery seaweeds.

The best and safest times to visit tide pools are when the tide is low and still going out. You’ll find tide times in newspapers, TV weather reports and sporting goods stores. For safety’s sake, keep your eyes out for waves, and visit tide pools with friends or family.

Leave ocean animals in their homes. Most will die if pried from the rocks, and all of them need the oxygen from seawater to breathe. Always return animals exactly as you found them. Replace any rocks or shells that you turn over—they are homes for many animals. In the Monterey Bay National Marine Sanctuary, plants and animals, rocks and shells are protected. Collecting them is not allowed, even those found high on the beach.

Monterey Bay Aquarium
LANGUAGE ARTS 1.0 Word Analysis, Fluency, and Systematic Vocabulary Development Students understand the basic features of reading. They select letter patterns and know how to translate them into spoken language by using phonics, syllabication, and word parts. Vocabulary and Concept Development 1.17 Classify grade-appropriate categories of words (e.g., concrete collections of animals, foods, toys).

2.0 Reading Comprehension Students read and understand grade-level-appropriate material. They draw upon a variety of comprehension strategies as needed (e.g., generating and responding to essential questions, making predictions, comparing information from several sources). In addition to their regular school reading, by grade four, students read one-half million words annually, including a good representation of grade-level-appropriate narrative and expository text (e.g., classic and contemporary literature, magazines, newspapers, online information). In grade one, students begin to make progress toward this goal. Comprehension and Analysis of Grade-Level-Appropriate Text 2.2 Respond to who, what, when, where, and how questions. 2.4 Use context to resolve ambiguities about word and sentence meanings. 2.6 Relate prior knowledge to textual information. 2.7 Retell the central ideas of simple expository or narrative passages.

WRITING 1.0 Writing Strategies Students write clear and coherent sentences and paragraphs that develop a central idea. Their writing shows they consider the audience and purpose. Students progress through the stages of the writing process (e.g., prewriting, drafting, revising, editing successive versions). Organization and Focus 1.1 Select a focus when writing. 1.2 Use descriptive words when writing. Penmanship 1.3 Print legibly and space letters, words, and sentences appropriately.

2.0 Writing Applications (Genres and Their Characteristics) Students write compositions that describe and explain familiar objects, events, and experiences. Student writing demonstrates a command of standard American English and the drafting, research, and organizational strategies outlined in Writing Standard 1.0. Using the writing strategies of grade one outlined in Writing Standard 1.0, students: 2.1 Write brief narratives (e.g., fictional, autobiographical) describing an experience. 2.2 Write brief expository descriptions of a real object, person, place, or event, using sensory details.

1.0 Written and Oral English Language Conventions Students write and speak with a command of standard English conventions appropriate to this grade level. Sentence Structure 1.1 Write and speak in complete, coherent sentences. Grammar 1.2 Identify and correctly use singular and plural nouns. 1.6 Use knowledge of the basic rules of punctuation and capitalization when writing. Capitalization 1.7 Capitalize the first word of a sentence, names of people, and the pronoun I. Spelling 1.8 Spell three- and four-letter short-vowel words and grade-level-appropriate sight words correctly

LISTENING AND SPEAKING 1.0 Listening and Speaking Strategies Students listen critically and respond appropriately to oral communication. They speak in a manner that guides the listener to understand important ideas by using proper phrasing, pitch, and modulation. Comprehension 1.1 Listen attentively. 1.2 Ask questions for clarification and understanding. Organization and Delivery of Oral Communication 1.4 Stay on the topic when speaking. 1.5 Use descriptive words when speaking about people, places, things, and events.

2.0 Speaking Applications (Genres and Their Characteristics) Students deliver brief recitations and oral presentations about familiar experiences or interests that are organized around a coherent thesis statement. Student speaking demonstrates a command of standard American English and the organizational and delivery strategies outlined in Listening and Speaking Standard 1.0. Using the speaking strategies of grade one outlined in Listening and Speaking Standard 1.0, students: 2.1 Recite poems, rhymes, songs, and stories. 2.3 Relate an
important life event or personal experience in a simple sequence. 2.4 Provide descriptions with careful attention to sensory detail.

**MATH Mathematics Content Standards** By the end of grade one, students understand and use the concept of ones and tens in the place value number system. Students add and subtract small numbers with ease. They measure with simple units and locate objects in space. They describe data and analyze and solve simple problems.

**Number Sense**
1.0 Students understand and use numbers up to 100: 2.4 Count by 2s, 5s, and 10s to 100. 2.5 Show the meaning of addition (putting together, increasing) and subtraction (taking away, comparing, finding the difference). 3.0 Students use estimation strategies in computation and problem solving that involve numbers that use the ones, tens, and hundreds places: 1.3 Create problem situations that might lead to given number sentences involving addition and subtraction.

**Measurement and Geometry**
1.0 Students use direct comparison and nonstandard units to describe the measurements of objects: 1.1 Compare the length, weight, and volume of two or more objects by using direct comparison or a nonstandard unit. 2.3 Give and follow directions about location.

2.4 Arrange and describe objects in space by proximity, position, and direction (e.g., near, far, below, above, up, down, behind, in front of, next to, left or right of).

**Statistics, Data Analysis, and Probability**
1.0 Students organize, represent, and compare data by category on simple graphs and charts: 1.1 Sort objects and data by common attributes and describe the categories. 1.2 Represent and compare data (e.g., largest, smallest, most often, least often) by using pictures, bar graphs, tally charts, and picture graphs.

**Life Sciences**
2. Plants and animals meet their needs in different ways. As a basis for understanding this concept:
   a. Students know different plants and animals inhabit different kinds of environments and have external features that help them thrive in different kinds of places.
   b. Students know both plants and animals need water, animals need food, and plants need light. c. Students know animals eat plants or other animals for food and may also use plants or even other animals for shelter and nesting. d. Students know how to infer what animals eat from the shapes of their teeth (e.g., sharp teeth: eats meat; flat teeth: eats plants).

**Investigation and Experimentation**
4. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will: Draw pictures that portray some features of the thing being described. Record observations and data with pictures, numbers, or written statement. Record observations on a bar graph. d. Describe the relative position of objects by using two references (e.g., above and next to, below and left of).

1.0 Students make decisions about how to set up a problem:
1.1 Determine the approach, materials, and strategies to be used. 1.2 Use tools, such as manipulatives or sketches, to model problems.

2.0 Students solve problems and justify their reasoning:
2.1 Explain the reasoning used and justify the procedures selected. 2.2 Make precise calculations and check the validity of the results from the context of the problem.

3.0 Students note connections between one problem and another.
1.0 ARTISTIC PERCEPTION DANCE Students perceive and respond, using the elements of dance. They demonstrate movement skills, process sensory information, and describe movement, using the vocabulary of dance. Development of Motor Skills and Technical Expertise

1.1 Demonstrate the ability to vary control and direct force/energy used in basic locomotor and axial movements (e.g., skip lightly, turn strongly, fall heavily). 1.2 Perform short movement problems, emphasizing the element of space (e.g., shapes/lines, big/small, high/low). Development of Dance Vocabulary

1.3 Name basic locomotor and axial movements (e.g., skip, slide, stretch, roll).

2.0 CREATIVE EXPRESSION Creating, Performing, and Participating in Dance Students apply choreographic principles, processes, and skills to create and communicate meaning through the improvisation, composition, and performance of dance. Creation/Invention of Dance Movements

2.1 Use improvisation to discover movements in response to a specific movement problem (e.g., find a variety of ways to walk; create five types of circular movement). 2.7 Perform improvised movement ideas for peers. Development of Partner and Group Skills

2.8 Work with others in a group to solve a specific dance problem (e.g., design three shapes—high, medium, and low; create slow and fast movements). 5.2 Give examples of how dance relates to other subjects (e.g., mathematics—shape, counting; language arts—beginning, middle, and end).

2.0 CREATIVE EXPRESSION MUSIC Creating, Performing, and Participating in Music. Students apply vocal and instrumental musical skills in performing a varied repertoire of music. They compose and arrange music and improvise melodies, variations, and accompaniments, using digital/electronic technology when appropriate. Apply Vocal and Instrumental Skills

2.1 Sing with accuracy in a developmentally appropriate range.

2.2 Sing age-appropriate songs from memory.

Derive Meaning

4.1 Create movements to music that reflect focused listening.

1.0 ARTISTIC PERCEPTION THEATRE Processing, Analyzing, and Responding to Sensory Information Through the Language and Skills Unique to Theatre

5.1 Apply the theatrical concept of beginning, middle, and end to other content areas. For example, act out the life cycle of a butterfly.

1.0 ARTISTIC PERCEPTION Processing, Analyzing, and Responding to Sensory Information Through the Language and Skills Unique to the Visual Arts Students perceive and respond to works of art, objects in nature, events, and the environment. They also use the vocabulary of the visual arts to express their observations.

1.1 Describe and replicate repeated patterns in nature, in the environment, and in works of art.

1.3 Identify the elements of art in objects in nature, in the environment, and in works of art, emphasizing line, color, shape/form, and texture.

2.0 CREATIVE EXPRESSION Creating, Performing, and Participating in the Visual Arts Students apply artistic processes and skills, using a variety of media to communicate meaning and intent in original works of art.

2.1 Use texture in two-dimensional and three-dimensional works of art.

2.2 Mix secondary colors from primary colors and describe the process.

2.4 Plan and use variations in line, shape/form, color, and texture to communicate ideas or feelings in works of art.

2.8 Create artwork based on observations of actual objects and everyday scenes.
4.0 AESTHETIC VALUING Responding to, Analyzing, and Making Judgments About Works in the Visual Arts
Students analyze, assess, and derive meaning from works of art, including their own, according to the elements of
art, the principles of design, and aesthetic qualities. 4.1 Discuss works of art created in the classroom, focusing
on selected elements of art (e.g., shape/form, texture, line, color) 4.4 Select something they like about their work
of art and something they would change.

5.0 CONNECTIONS, RELATIONSHIPS, APPLICATIONS Students apply what they learn in the visual arts
across subject areas. They develop competencies and creative skills in problem solving, communication, and
management of time and resources that contribute to lifelong learning and career skills. They also learn about
careers in and related to the visual arts. 5.1 Clap out rhythmic patterns found in the lyrics of music and use
symbols to create visual representations of the patterns.