Profile Sheet
Lori Fitzgerald

Original Title: Thinking Outside of the (Lunch) Box!
Can health officials and a task force please students’ palates with healthy food choices?

Primary Subject Area: Mathematics
Outside Subject Area: Language Arts

Description of student roles and problem situation:
Students become members of a task force created by the local school board and superintendent of schools. The school board has been approached by a group of community members who are concerned about the increase in childhood obesity and the lack of nutritious meal choices served at school. Experts in health and nutrition as well as school and student representation have volunteered to serve on the task force. The task force/students will be made up of: dietician, district food service manager, Health Department representative, school administrator, and student representative. The Superintendent of Schools has sent a memo to the volunteers requesting help from their areas of expertise and have asked them to propose 5 new healthy and economical lunch options to be served in the cafeteria. The School Board expects to hear a report of five possible healthy entrée choices at the next Board meeting, Feb. 18, 2010.

Teacher: Lori Fitzgerald
Grade level: 3rd grade

Adaptations for Student from Non-Western culture:
This lesson plan is actually very conducive to adapting to students from Non-Western cultures. A student can make a list of foods regularly consumed in their own culture. They can research and determine if those foods are nutritionally healthy. The teacher should encourage groups to find at least one healthy entrée possibility that is regularly consumed by that student’s culture, or at least one the student is familiar with. The student could also compare the average American diet with the average diet from their culture. Which is healthier? What are the similarities and differences?

Adaptations for ESOL Student:
Like the adaptations made for students from Non-Western cultures, the teacher should encourage/require the groups to research the ESOL student’s native culture and try to find healthy meal options from that culture. A dictionary will be provided in the student’s native language. Finally, the student can use pictures of food collected from magazines to pair with the entrees being researched.
Thinking Outside of the (Lunch) Box! Can health officials please students’ palates with healthy food choices?

**Primary Subject Area Sunshine State Standards**

Mathematics, Grade 3, Supporting Idea 6: Number and Operations  
**MA.3.A.6.2:** Solve non-routine problems by making a table, chart, or list and searching for patterns.

Mathematics, Grade 3, Supporting Idea 7: Data Analysis  
**MA.3.S.7.1:** Construct and analyze frequency tables, bar graphs, pictographs, and line plots from data, including data collected through observations, surveys, and experiments.

**Outside Subject Area Sunshine State Standards**

Language Arts, Grade 3, Strand: Writing Process; Standard 5: Publishing – The student will write a final product for the intended audience.

**LA.3.3.5.1:** The student will prepare writing in a format appropriate to audience and purpose (e.g., manuscript, multimedia); and  
**LA.3.3.5.3:** The student will share the writing with the intended audience.

**Learner Characteristics of Primary Grade Students**

**Physical:** “Primary grade children are still extremely active. Because they are frequently required to participate in sedentary pursuits, energy is often released in the form of nervous habits . . .” (p. 74).  
**Justification:** This lesson encourages and even mandates that the children move around as they collect data. This allows them to burn off some energy while engaging in active learning simultaneously.

**Social:** “Children during this age span often like organized games in small groups, but they may be overly concerned with rules or get carried away by team spirit” (p. 76).  
**Justification:** While the lesson is not technically a game, it is an interactive task which is treated by the students as a game. They have the chance to participate in group
learning and maintain some autonomy. It will be important to stress to the students that there are no wrong answers. Stress the grading criteria with the students prior to beginning so that they comprehend the “rules”.

**Emotional:** “Young children need frequent praise and recognition” (p. 76).

**Justification:** This is a great activity to praise students for their creativity and innovation. Because students will be working individually for part of the tasks and in a small group for other tasks, they will have a lot of pride in their work. They should be appreciated for their efforts.

**Cognitive:** “Because of continuing neurological development and limited experience with formal learning tasks, primary grade children do not learn as efficiently as older children do” (p. 77).

**Justification:** The text suggestion of assigning short tasks and take breaks is very important. Learning will be more effective and projects will be higher quality if the students are not forced to swallow and digest huge amounts of information or data at one time.

**Cognitive:** “. . . they may not recognize their lack of comprehension when they read difficult or unfamiliar material and may need to be prompted to think about how well they are understanding what they read” (p. 77).

**Justification:** No matter what the lesson, resource material to be used in the lesson should always be thoroughly reviewed in advance. It is important to have age-appropriate resource materials for the students. They will also need positive reinforcement and encouragement, in addition to prompts intended to get them on higher levels of thinking.

Interdisciplinary Learning Outcomes; Student Role & Problem Situation; Meet the Problem Method

Teacher: Lori Fitzgerald
Primary Subject Area: Mathematics
Class: Mathematics
Class Level: Regular
Grade Level: 3rd
Outside Subject Area: Language Arts

PBL Title
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LO #1: From a teacher-provided list of websites, students will construct a table of 20 healthy lunch entrée choices that they predict would be enjoyed and purchased by students. (Synthesis)

Mathematics, Grade 3, Supporting Idea 7: Data Analysis
MA.3.S.7.1: Construct and analyze frequency tables, bar graphs, pictographs, and line plots from data, including data collected through observations, surveys, and experiments.

LO #2: Using the results of student-constructed and conducted surveys of favorite meal preferences of students, class students will construct a bar graph of the top 10 healthy food preferences. Using the bar graph, students will examine five healthy meal options to propose to the School Board and give two justifications for choosing each entrée. (Analysis/Evaluation)

Outside Subject Area Sunshine State Standards

Language Arts, Grade 3, Strand: Writing Process; Standard 5: Publishing – The student will write a final product for the intended audience.
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LO #3: Using the top five healthy entrée proposals, students will write a summary using at least 5 bullet points and 2 accurate key facts for each bullet point, and two
justifications why the School Board should approve these recommendations. (Evaluation/Analysis)

(EXTRA) LA.3.3.5.3: The student will share the writing with the intended audience.

Description of Student Roles

Students become members of a task force created by the local school board and superintendent of schools. The school board has been approached by a group of community members who are concerned about the increase in childhood obesity and the lack of nutritious meal choices served at school. Experts in health and nutrition as well as school and student representation have volunteered to serve on the task force. The task force/students will be made up of: dietician, district food service manager, Health Department representative, school administrator, and student representative. The Task Force has been asked to propose 5 new healthy and economical lunch options to be served in the cafeteria. The School Board expects to hear a report of five possible healthy entrée choices at the next Board meeting, Feb. 18, 2010.

Meet The Problem Document

A memorandum from the superintendent of Emerald Coast School District (attached) is utilized as the “meet the problem” document. The Bay District Schools Wellness Plan is attached as a background document and reference point for the task force.
Last night at the School Board meeting, community members voiced their concerns about the lack of healthy meal choices in our school cafeterias. Neighboring Bay District Schools already has a plan of action (attached) to promote health in its schools, and the community members would like to see Emerald Coast School District move in that direction. Referencing alarming national statistics about the increase in childhood obesity as well as a list of potentially fatal diseases, the members charged the School Board to resolve this problem as early as possible. Full resolution will take some time and planning, however, one step can be taken immediately. We need to find out what healthy options students will purchase to eat in our cafeterias so that we can add these items to our menus during the evaluation period and health plan implementation. Using your areas of expertise, please research and meet to determine at least 5 healthy lunch entrees that our students will purchase and be willing to eat. We will hear your proposed entrees at the next Board Meeting, February 18, 2010.

Thank you again for volunteering your time and services. We are committed to providing high nutritional standards and improving the quality of health of our students.
BAY DISTRICT SCHOOLS WELLNESS PLAN
School Year: 2009-10
I. PHILOSOPHY
The Bay District School Board is committed to providing school environments that promote and protect children’s health, well-being, and ability to learn by supporting healthy eating and physical activity. The Board also believes a healthy staff can more effectively perform their assigned duties and model appropriate wellness behaviors for students. These guidelines encourage a comprehensive wellness approach that is sensitive to individual and community needs.

II. NUTRITION EDUCATION AND STANDARDS
Academic performance and quality of life issues are affected by the choice and availability of nutritious foods in our schools. Healthy foods support student’s ability to learn, student physical growth, brain development, resistance to disease, and emotional stability. Our goals for the 2009-10 school year will be:
A. Nutrition guidelines will require 1/3 of the Recommended Dietary Allowances for lunch and ¼ of the RDA’s for breakfast. Nutritional analysis of breakfast and lunch menus will be posted on the Bay District Schools Food Service webpage each month. All foods will be served in appropriate portion sizes consistent with USDA standards and be served in a clean and pleasant setting allowing enough time for students to eat.
B. Nutrition services policies and guidelines for reimbursable meals will not be more restrictive than federal and state regulations require.
C. A la carte offerings to students shall meet Department of Education State Rule 6-7.042 FAC Foods of Minimal Nutritional Value.
D. Vending and Snack Machines
1. Elementary - Students will not have access to beverage or snack machines.
2. Middle Schools - Carbonated beverages are not permitted in student vending machines. Additional vending machine guidelines are included below under high schools. No student snack machines will be allowed in the middle schools.
3. High Schools
   a. Snack Machines
   All snack machines shall provide only single serving snacks. All snacks in vending machines shall meet the following guidelines:
   1. Less than or equal to 35% calories from fat.
   2. Less than or equal to 30% sugar by weight.
3. All types of nuts are allowed.

b. High School Beverage Vending Machines Operated by the School:
The beverage vending machines may include:
1. Water
2. One hundred percent (100%) fruit juice.
3. Non-carbonated drinks with less than 150 calories per container
4. Diet carbonated drinks with zero calories
5. Non-fat, low-fat plain or flavored milk or yogurt in 16 ounces or less serving sizes, and other calcium containing beverages with less than or equal to 150 calories per 8 ounces.
6. One hundred percent (100%) vegetable juice.

E. School health nurses will offer “Healthy Weight Management” curriculum to Pre-K – 12 grade students.

F. All health education programs will follow Sunshine State Standards.

G. School staff members are not allowed to use food for reward or punishment.

III. PHYSICAL ACTIVITY

Physical education and physical activity shall be an essential element of each school’s instructional program. The program shall provide the opportunity for all students to develop skills, knowledge and attitudes necessary to participate in a lifetime of healthful physical activity. A comprehensive physical activity program encompasses a variety of opportunities for students to be physically active, including: physical education, recess, walk-to-school programs, after-school physical activity programs, health education that includes physical activity as a main component, and physical activity breaks within regular classrooms.

The 2009-10 goals for physical activity will be:

A. All K-5 school students will be provided 150 minutes a week of physical education. When K-5 physical education is offered it will be 30 consecutive minutes. 100% of 6-12 schools will offer physical activity programs.

B. Beginning with the 2009-10 school year, the equivalent of one class period per day of physical education for one semester of each year is required for students
enrolled in grades 6 through 8.
C. Seventy percent of K-12 schools will offer physical activity programs before and/or after school.
D. The district will offer 12 hours of physical education inservice opportunities each year for all K-12 physical education teachers.
E. All middle and high schools will offer interscholastic sports programs. Schools will offer a range of sport offerings to meet the needs of boys and girls in grades 6-12.

IV. OTHER SCHOOL BASED ACTIVITIES

A. HEALTH SERVICES
Health services will be offered through a collaborative agreement between the Bay County Health Department and the Bay District Schools according to State Statutes.
1. Primary coordination of health services shall be through a trained registered school health nurse supervisor with the support and direction of the Bay District Schools and the Bay County Health Department.
2. Bay District Schools shall collaborate with community health liaisons and resources to promote health and wellness for students, families, staff and community.
3. A coordinated program of accessible health services shall be provided to students and staff and shall include violence prevention, school safety, communicable disease prevention, health screening, including Body Mass Index (BMI), community health referrals, immunizations, parenting skills, and first aid/CPR training.

B. STAFF WELLNESS
The district and each work site shall provide information about wellness resources and services and establish a wellness representative to assist in identifying and supporting the health, safety and well-being of site staff. During the 2009-10 school year a wellness representative designee will be assigned by the principal.
1. Each school and district site shall be in compliance with drug, alcohol and tobacco free policies.
2. Each school and district site shall provide an accessible and productive work environment free from physical dangers or emotional threat that is as safe as possible and consistent with applicable occupation and health laws, policies and rules.
3. Employees shall be encouraged to engage in daily physical activity. The goal for 2009-10 will be:

Employees will be offered the opportunity to participate in healthy lifestyle programs by the Bay County Health Department.

V. EVALUATION
Each school will appoint a school wellness representative. The wellness representative will report each year by May 1, on the status of their school in regard to the district wellness goals. Each school will be provided an evaluative form for self reporting. Each school’s evaluative report will be studied and reviewed by the School Health Advisory Council for progress toward meeting the
district wellness goals. Recommendations for revisions and improvement in the District Wellness plan will be reviewed each year by the School Health Advisory Council. The Bay District School Board will be given as an informational item an annual district report on the first regular board meeting of July regarding the effectiveness of the district wellness plan.
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(EXTRA) LA.3.3.5.3: The student will share the writing with the intended audience.

**Problem Statement**

How can we, as the School Health Task Force, propose healthy menu choices to be served in our school cafeterias in such a way that

- We provide choices high nutritional standards according to government guidelines
- We take steps toward decreasing childhood obesity
- We offer choices that at least 50% of students are willing to purchase and consume
- We offer at least 5 entrée proposals by February 18, 2010

**Know Board**
At least “some” community members are concerned about the lack of healthy meal options served by our schools.

Bay District Schools already has a wellness plan in place.

Community members would like our district to move towards a wellness plan.

There is a nationwide increase in childhood obesity.

There is a nationwide increase in potentially fatal diseases.

Our task force must propose 5 healthy menu items that students will buy and consume.

Our deadline is February 18th.

Bay District’s Wellness Plan indicates that their district will provide 1/3 of the Recommended Daily Allowance nutritional guidelines for lunch and ¼ of the RDA for breakfast.

Nutritional analysis of lunch and breakfast menus will be posted on Bay District website.

A la carte items offered in Bay District cafeterias will meet Department of Education's regulations.

What menu items are being offered now?

What percentage of the items being offered now are healthy options?

How many children purchase and consume food in the cafeteria now?

What are the foods that children are buying and consuming? How many of those items are healthy?

What healthy foods would children be willing to buy and consume?

How successful is Bay District’s Wellness Plan?

What healthy foods are being served by Bay District Schools?

What percentage of students purchase and consume healthy options at Bay District Schools?

What are the nationally recognized nutritional guidelines for children of elementary age?

Are there budgetary restrictions that could impact feasibility of menu possibilities?

Do we need to consider healthy breakfast choices?

Is there anything we need to know about the future Wellness Plan that might affect the proposal?

What is the best way to survey children about the healthy choices they prefer?

**Need to Know Board**
RESOURCES

BOOKS


HUMAN RESOURCES

Kim Blackwell, Food Service Director, Bay District Schools, Panama City, FL.

GOVERNMENT DOCUMENTS & PUBLICATIONS


WEB SITES


Healthy Schools Campaign. http://www.healthyschoolscampaign.org


Capstone Performance Description

Teacher: Lori Fitzgerald
Primary Subject Area: Mathematics
Class: Mathematics
Class Level: Regular
Grade Level: 3rd
Outside Subject Area: Language Arts

PBL Title
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- We provide choices high nutritional standards according to government guidelines
- We take steps toward decreasing childhood obesity
- We offer choices that at least 50% of students are willing to purchase and consume
- We offer at least 5 entrée proposals by February 18, 2010, while realizing that this is a research based project with zero budget

Preparation for the Capstone Performance

This problem-based learning project is extensively based in research and math concepts, while integrating the practice of skills needed in collaborative groups. Much background work and data is to be collected prior to the Capstone Performance. The Task Force is not responsible for reporting the actual cost of the entrée proposals, but must be aware that there is no budget for the research.

All students in the group will explore various nutritional and healthy living websites. Individually, each student will create a list with 20 of their favorite healthy entrée proposals and include nutritional content if available. Students will look at their own lists and research for possible patterns, such as entrees with calories less than 300, chicken entrees, etc. (MA.3.A.6.2)

Students will participate in a “Task Force” meeting with their group. The meetings are somewhat non-autonomous in purpose, but groups will have full autonomy during the meeting as they make decisions regarding the presentation. Each will share his/her ideas from the lists, and as a group, the top 20 choices to present to the Board will be selected. Students will then develop a simple survey to administer to a population sample of their choice: their own grade level, one class from each grade level, etc. After all preparations for the survey are completed, students will devise a schedule and survey the selected population. Each student in the group will be responsible for surveying at least 25 students.

Using the survey data collected, students will individually create a bar graph of the top 10 choices of entrees reported by the surveyed students. (MA.3.S.7.1)

Regrouping for a second Task Force meeting, the students will share the outcomes of the survey. The group will debate and ultimately collaborate, determining the top 5 proposals for entrees, with 2 alternatives and 4 justifications as to why one
alternative is better than the other. The group will also assign roles for the Capstone Performance, using identified strengths. One person will create a bar graph of the final 5 proposed choices as well as the medium used to present the information; one person will create a summary to be used as an agenda at the meeting. (Students will also be required to individually create summaries, using their own choices and justifications as explanations.) *(LA.3.3.5.1)* One person will be the spokesperson during the presentation; one person will explain the methodology of the data collection; and the last person will explain alternatives and justifications using a visual aid of the list that was constructed in the first part of the project. The group has its choice of media for presentation of this visual. A final meeting prior to the presentation will allow the group to make last minute adjustments and practice.

**Presentation Day**

The classroom will be set up as closely to a School Board layout as possible. The room will be divided in three main parts: the “School Board”, the “Task Force”, and the interested public (other students in the class). If possible, it would be amazing to invite the actual members the students will portray, such as a dietician, Food Service Manager for the District, or the local Health Department Director. If not possible, these roles can easily be filled by interested parents and volunteers; also the school principal and the school food service manager. The performance will also be videotaped so that other classes and interested persons may watch at a later date. The whiteboard screen will be readily available along with the ELMO, as well as an easel (depending on what type of presentation format the group selects) and a podium. The presenting group will sit in front of the screen, but not blocking it. When the speakers take their turns, they will approach the podium. The remaining students in the classroom will be seated in rows on the opposite side from the “Board.” *(See diagram to follow report.)*

The students will ask the teacher in advance to present them, as if the time had come in the Board Meeting for the presentation. Prior to being introduced, a copy of the summary of the proposed entrees with facts and justifications will be placed at each seat. Students will dress in “business” attire and wear nametags with their designated roles, i.e., “My Name is Emma Hill, dietician”. It is estimated that the total time to prepare for the project will be 12 to 14 school days, while the presentation will take about 10 to 15 minutes.

After being introduced, the “Spokesperson” will thank the “Board” and introduce the members and roles of the Task Force. The two non-speaking roles participated in the presentation by creating the visual aid (bar graph), and constructing the summary/agenda. The first speaker will use the selected visual aid to propose the 5 healthy entrée recommendations, and give some facts and justifications. The second speaker will discuss the methodology or how the group collected the data, what online resources were used, and show the list/chart of the choices that were brainstormed at the beginning of the project. They are ultimately responsible for showing how the group went through the stages to come up with the final proposals. The final speaker will
discuss the alternatives and the justifications of choosing one over the other. The spokesperson will then thank the Board for its time and trust in the members, and ask them if there is anything else that will be needed. The “Board” can then discuss and vote on the proposal or the alternatives.

**Assessment: Individual Mastery and Presentation**

The project will assess two components: student mastery of the learning outcomes and student self-evaluation/reflection of the Capstone Performance. A rubric will be used.

**Capstone Performance Room Layout**
## Rubric for Assessing the Capstone Performance

**“Thinking Outside of the (Lunch) Box!” Project Rubric**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Excellent</th>
<th>Adequate</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accuracy of Information</strong></td>
<td>10 points</td>
<td>7 points</td>
<td>4 points</td>
</tr>
<tr>
<td>All information presented is 100% accurate or documentation is available to prove or disprove</td>
<td>Information is accurate 90% or more of the time. Documentation proves or disproves statements 90% or more of the time</td>
<td>Information is accurate less than 90% of the time. OR No documentation to prove or disprove is provided.</td>
<td></td>
</tr>
<tr>
<td><strong>Problem Statement</strong></td>
<td>10 points</td>
<td>6 points</td>
<td>2 points</td>
</tr>
<tr>
<td>Each solution must align with all conditions stated in the problem statement</td>
<td>One solution aligns with all conditions; the other aligns with all but one condition</td>
<td>Neither solution aligns with all conditions, but solution is offered</td>
<td></td>
</tr>
<tr>
<td><strong>Required Components</strong></td>
<td>30 points</td>
<td>20 points</td>
<td>10 points</td>
</tr>
<tr>
<td>Report must contain a) The group’s problem statement</td>
<td>The report contains a) The group’s problem statement</td>
<td>The report contains a) The group’s problem statement</td>
<td></td>
</tr>
<tr>
<td>b) A chart/list of healthy entrée proposals</td>
<td>b) 2 of the 3: chart/list, bar graph, summary of healthy entrée proposals</td>
<td>b) 1 of the 3: chart/list, bar graph, summary of healthy entrée proposals</td>
<td></td>
</tr>
<tr>
<td>c) A bar graph of healthy entrée proposals</td>
<td>c) Two different solutions (these don’t have to be exact opposites)</td>
<td>c) Two different solutions</td>
<td></td>
</tr>
<tr>
<td>d) A summary of the key presentation points</td>
<td>d) Four reasons for choosing one solution over another</td>
<td>d) Four reasons for choosing one solution over another</td>
<td></td>
</tr>
<tr>
<td>e) Two alternative proposals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) Four reasons for choosing one solution over</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>List/Chart Checklist</td>
<td>30 points</td>
<td>15 points</td>
<td>5 points</td>
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<tr>
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</tr>
<tr>
<td>Chart should provide 10 websites used during research</td>
<td>Chart provides 7 websites used during research</td>
<td>Chart provides 6 or fewer websites used during research</td>
<td></td>
</tr>
<tr>
<td>Chart should contain 20 healthy entrée proposals</td>
<td>Chart has 10 healthy entrée proposals</td>
<td>Chart has 9 or fewer healthy entrée proposals</td>
<td></td>
</tr>
<tr>
<td>Features title and column headings</td>
<td>Chart is not labeled with a title or column headings</td>
<td>Chart is missing title OR column headings</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bar Graph Checklist</th>
<th>30 points</th>
<th>15 points</th>
<th>5 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar graph features title and labels on both sides</td>
<td>Bar graph is missing title OR labels on both sides</td>
<td>Bar graph is missing both title and labels</td>
<td></td>
</tr>
<tr>
<td>10 proposed choices are graphed and labeled</td>
<td>5-9 proposed choices are graphed and labeled</td>
<td>8 or fewer choices are graphed and labeled</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Summary Checklist</th>
<th>30 points</th>
<th>15 points</th>
<th>5 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary includes top 5 healthy choices</td>
<td>Summary includes 3-4 top healthy choices</td>
<td>Summary includes 2 or fewer healthy choices</td>
<td></td>
</tr>
<tr>
<td>Summary is labeled with a title</td>
<td>Summary is labeled with a title</td>
<td>Summary does not have a title</td>
<td></td>
</tr>
<tr>
<td>Summary features 5 bullet points of the healthy proposals</td>
<td>Summary features 3-4 bullet points of the healthy proposals</td>
<td>Summary features 2 or fewer bullet points of healthy proposals</td>
<td></td>
</tr>
<tr>
<td>Summary contains 2 key facts for each proposal</td>
<td>Summary includes at least one key fact for each proposal</td>
<td>Summary is missing even 1 key fact for ONE proposal</td>
<td></td>
</tr>
<tr>
<td>Summary lists four justifications for Board to consider</td>
<td>Summary lists 3 justifications for Board to consider</td>
<td>Summary lists 2 or fewer justifications for Board to consider</td>
<td></td>
</tr>
</tbody>
</table>

| Self | 30 points | 20 points | 10 points |
| Evaluation | Answers the following questions accurately:  
1) Did I attempt to dress for my role?  
2) Did I wear a nametag indicating my role?  
3) Did I fulfill my obligations to the team?  

AND  

Writes 3 paragraphs, 5 to 7 sentences each, discussing strengths brought to the project, weaknesses to develop, and ways to improve participation in group projects | Answers 2 of the 3 questions accurately  

OR  

Writes 2 paragraphs, 5 to 7 sentences each, discussing strengths brought to the project, weaknesses to develop, and ways to improve participation in group projects | Answers 1 or less of the questions accurately  

OR  

Writes 1 or fewer paragraphs discussing strengths, weaknesses, and ways to improve participation in group projects |

<table>
<thead>
<tr>
<th>Scoring Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
<tr>
<td>D</td>
</tr>
<tr>
<td>F</td>
</tr>
</tbody>
</table>
Two Alternative Solutions and “Best” Solution Analysis

Teacher: Lori Fitzgerald
Primary Subject Area: Mathematics
Class: Mathematics
Class Level: Regular
Grade Level: 3rd
Outside Subject Area: Language Arts

PBL Title
Thinking Outside of the (Lunch) Box! Can health officials & a task force please students’ palates with healthy food choices?

Primary Subject Area Sunshine State Standards

Mathematics, Grade 3, Supporting Idea 6: Number and Operations
MA.3.A.6.2: Solve non-routine problems by making a table, chart, or list and searching for patterns.

LO #1: From a teacher-provided list of websites, students will construct a table of 20 healthy lunch entrée choices that they predict would be enjoyed and purchased by students. (Synthesis)

Mathematics, Grade 3, Supporting Idea 7: Data Analysis
MA.3.S.7.1: Construct and analyze frequency tables, bar graphs, pictographs, and line plots from data, including data collected through observations, surveys, and experiments.

LO #2: Using the results of student-constructed and conducted surveys of favorite meal preferences of students, class students will construct a bar graph of the top 10 healthy food preferences. Using the bar graph, students will examine five healthy meal options to propose to the School Board and give two justifications for choosing each entrée. (Analysis/Evaluation)

Outside Subject Area Sunshine State Standards

Language Arts, Grade 3, Strand: Writing Process; Standard 5: Publishing – The student will write a final product for the intended audience.
LA.3.3.5.1: The student will prepare writing in a format appropriate to audience and purpose (e.g., manuscript, multimedia); and

LO #3: Using the top five healthy entrée proposals, students will write a summary using at least 5 bullet points and 2 accurate key facts for each bullet point, and two justifications why the School Board should approve these recommendations. (Evaluation/Analysis)
Problem Statement

How can we, as the School Health Task Force, propose healthy menu choices to be served in our school cafeterias in such a way that
• We provide choices high nutritional standards according to government guidelines
• We take steps toward decreasing childhood obesity
• We offer choices that at least 50% of students are willing to purchase and consume
• We offer at least 5 entrée proposals by February 18, 2010, while realizing that this is a research based project with zero budget

Possible Solutions & “Best” Solution

The Task Force offers Proposal 1 for consideration. In this proposal, the School District will implement a Student Salad Bar in all schools, with a start date in two weeks.

Pros/Cons

<table>
<thead>
<tr>
<th>PROS</th>
<th>CONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government nutritional and health websites provide support that shows raw fruits and vegetables are the best choices for maintaining a healthy lifestyle and maximizing optimal nutritional health.</td>
<td>Students surveyed are elementary age; responses and results may not be accurate.</td>
</tr>
<tr>
<td>Raw fruits and vegetables available on most salad bars are low in calories and rarely, if ever, are attributed to obesity.</td>
<td>The expense of a salad bar would have to be passed on to students. May be cost prohibitive to both the district and students.</td>
</tr>
<tr>
<td>In a sample of a student population of 600 students, 392 surveyed indicated that they would purchase and consume food off a salad bar.</td>
<td>“Salads” are a turn-off to many young children.</td>
</tr>
<tr>
<td>A well-planned salad bar can offer a variety of at least 5 entrée options including fresh fruits and vegetables, lean meats, beans, whole grains; and can offer a variety within these categories.</td>
<td>Salad bars are prone to spoilage. Great care and training would be needed to ensure keeping food from spoiling and meeting guidelines set by the local government.</td>
</tr>
</tbody>
</table>
Consequences:

Implementing a student salad bar can be costly. In order to implement, the school district would have to pass the costs to the students. Only students from more affluent families would be able to purchase a salad bar meal.

Preparation of fresh foods on a salad bar would require additional food service staff which would severely impact budgets.

Proposal 2 from the Task Force suggests offering a healthy chicken and vegetables option daily. Since the Task Force was asked to offer 5 entrée options, the following menu items are recommended: grilled chicken and roasted vegetables, grilled chicken wrap in whole grain tortilla with lettuce and tomato, grilled chicken breast sandwich on whole grain bun with side salad, chicken tacos with taco trimmings, and chicken stir fry with rice and stir fried vegetables.

Pros/Cons

<table>
<thead>
<tr>
<th>PROS</th>
<th>CONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>According to government nutritional guidelines, lean chicken is a healthy food.</td>
<td>Daily offerings of chicken can be boring. This may lead to lack of purchase/interest by students.</td>
</tr>
<tr>
<td>Lean chicken is lower in calories than many entrees being served in school lunchrooms.</td>
<td>Offering a chicken entrée as a daily option would necessitate additional manpower, whether voluntary or paid, to research recipes for variety of dishes.</td>
</tr>
<tr>
<td>In our sample survey, 54% of students said they would purchase and consume chicken entrees above all other options provided.</td>
<td>Students in sample survey are elementary age. Responses and results may be unreliable.</td>
</tr>
<tr>
<td>The examples of entrees proposed by the Task Force offer at least 5 new choices. Chicken and vegetables is versatile and there are many ways to prepare in healthy ways.</td>
<td>Cafeteria food is intended to feed the masses as cheaply as possible. Preparation of this type of food (healthy) is more expensive; will increase cost of both food and labor.</td>
</tr>
</tbody>
</table>

Consequences:

Boredom with chicken every day can lead to a decrease in student purchases, resulting in a lot of wasted food.

Students may end up choosing less healthy options, therefore, efforts to provide high nutritional standards and decrease obesity are superseded.
Justification

The Task Force recommends Proposal 1. Implementing a salad bar for students offers the most flexible and most healthy option for nutritional health and decreasing childhood obesity. The variety of healthy options that can be included on a salad bar would be able to satisfy students’ need for avoiding the humdrum that can accompany healthy eating habits. The salad bar would be easy to implement relatively quickly because salad bars are already in place in most district schools for use by teachers and staff. The food service staff workers are already familiar with budgeting, food preparation, and storage. Research has indicated that student salad bars have been successful in over 100 nationwide school districts. The salad bars offer healthy options but the students have autonomy in their meal selections. Having to select from two undesirable options has led many students to purchase but not eat their meals, bring less healthy options from home, or not eat at all. Salad bars can be costly, but this can be overcome with a bit of creativity. Federal and state grants and subsidies can be sought, as well as local support. Finally, using locally grown produce and products can be less expensive as food service managers can purchase seasonal fruits, vegetables, and local products. The Task Force believes that the healthiest option should be implemented regardless of cost. The important factor is the development of lifelong, healthy eating habits of our students.
Debriefing Plan and Coaching Questions

Teacher: Lori Fitzgerald
Primary Subject Area: Mathematics
Class: Mathematics
Class Level: Regular
Grade Level: 3rd
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- We provide choices high nutritional standards according to government guidelines
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- We offer choices that at least 50% of students are willing to purchase and consume
- We offer at least 5 entrée proposals by February 18, 2010. There is no budget.

Debriefing Plan

On presentation day, the classroom will be set-up as a school board meeting. Each team of “Task Force Members” will present their information for the whole class as well as the guest audience of actual health or school/district personnel, or parents/volunteers role-playing those positions. In addition, the presentation will be taped for future use or viewing.

Rating of Solutions

Each student will receive a short form with criteria for success and ranking systems listed, similar to a high school forensics or debate ballot. Each criterion will be listed, and the students will score that component from 1 to 5, with 1 being “needs improvement” to 5 being “outstanding”. The applicable number will be circled. After all criteria have been scored, the “rater” will add the points together, giving a “total point” score. After all presentations have been scored, the rating student will go back and rank the performances from best to least, best being 1. The important issues will be listed on the ballot, and the explanation of the points is also explained. A sample scoring ballot is attached. After all ballots have been scored, the teacher will collect them from the students and tabulate the points on a “tab” sheet. The teacher will add all the points together. The two groups with the most points will be discussed in class to determine the best solution. “Tab Sheet” is also attached. The following day, the teacher will share the results of the two top point-getters. Students will discuss the presentations and compare the similarities and differences of the top two solutions. (See attached.) The teacher will lead a discussion and ask questions such as, “Is one solution better than the other?” “If not, what are the best parts? The concepts and scoring instruments will be explained prior to the exercise and reviewed on presentation day.
**Required Coaching at end of Debriefing Session**

A successful presentation will discuss these five content components:

1. Low-fat nutrition
2. Calories consumption
3. Importance of fiber
4. Nutritional content (i.e. – carbohydrates, protein, vitamins, etc.)
5. Dangers of sugar

In addition to these content concepts, a successful solution must also include an accurate table, bar graph, and summary, per the learning outcomes of the lesson.

After the presentations, the teacher will lead a discussion as the students score and rank them. The teacher will ask coaching questions (see next section) as well as have back-up samples on hand if the topics are not brought up naturally.

---

**Coaching Questions throughout Lesson**
<table>
<thead>
<tr>
<th>Type of Question</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Meet the Problem</strong></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Why does the School Board want to make sure that the Task Force find items the students will purchase?</td>
</tr>
<tr>
<td>M</td>
<td>Why do you think Bay District Schools already have a Wellness Plan in place but Emerald Coast District does not?</td>
</tr>
<tr>
<td>E</td>
<td>Why do the concerned community members really see to be the biggest problem?</td>
</tr>
<tr>
<td><strong>Know/Need to Know Board</strong></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>What are some of the potentially fatal diseases caused by poor nutrition?</td>
</tr>
<tr>
<td>M</td>
<td>Using an A-F grading scale, how do you think Emerald Coast School District schools would be graded on providing nutritious meals currently?</td>
</tr>
<tr>
<td>E</td>
<td>What problems are caused by childhood obesity?</td>
</tr>
<tr>
<td><strong>Problem Statement</strong></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>What types of healthy foods are currently served in the school cafeteria?</td>
</tr>
<tr>
<td>M</td>
<td>How do you think obesity might affect a child’s performance at school?</td>
</tr>
<tr>
<td>E</td>
<td>What might be a better request to solve the problem than provide five menu entrée choices, as requested by the School Board?</td>
</tr>
<tr>
<td><strong>Research</strong></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Which resources have the most recent data?</td>
</tr>
<tr>
<td>M</td>
<td>How do you know a web site’s content is reliable and accurate?</td>
</tr>
<tr>
<td>E</td>
<td>What has been done by other schools, if anything, to try to decrease childhood obesity and improve children’s nutrition?</td>
</tr>
<tr>
<td><strong>Generating Possible Solutions</strong></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>What support shows that Bay District Schools’ solution has solved its problems and how does their solution compare to our best solution?</td>
</tr>
<tr>
<td>M</td>
<td>Is this a problem that can be solved? Why do you feel this way?</td>
</tr>
<tr>
<td>E</td>
<td>How could parts of all groups’ solutions be combined into the “ultimate” solution?</td>
</tr>
</tbody>
</table>

*C = Cognitive, M = Metacognitive, E = Epistemic*
5 Excellent - Goes above and beyond expectations
4 Good - Is better than my expectations
3 Average - Meets my expectations
2 Fair - Could have been better at meeting my expectation
1 Needs work - Significant improvement is needed to convince me

Criterion

The problem explored these concepts: low-fat nutrition, calorie consumption, importance of fiber, nutritional content such as protein, carbohydrates, vitamins, minerals, dangers of sugar.

5 4 3 2 1

The presentation demonstrated use of reliable resources to prove that the solution offered would work effectively.

5 4 3 2 1

The presentation effectively and accurately used a chart, bar graph, and summary sheet.

5 4 3 2 1

The presentation and solution was presented in such a way that captured attention and demonstrated teamwork and effort.

5 4 3 2 1

This solution will solve or significantly help the problem.

5 4 3 2 1

Total Points: _______________

Rank of Presentation: ____________ (1 is the best)
## Tab Sheet

| Judge/Student | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|
| Group A       |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Group B       |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Group C       |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |
| Group D       |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |

Group A Total Points: _____
Group B Total Points: _____
Group C Total Points: _____
Group D Total Points: _____

**Compare & Contrast the Top Two Solutions (on the whiteboard)**

Similarities