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K-5 Menu Project

1. Program Description

Flying Eagle School District (FESD) is located in northern California and contains five elementary schools. A central kitchen supplies the five schools with lunches that are cooked and served on the same day. Since the central kitchen is located too far away from each of the five schools, the foodservice manager at the central kitchen decides to hot-hold bulk food during transportation. The district is rather affluent, and that the students all pay for their lunches. Students also have the option to take their own lunch to school. The menu being used is running on a two-month cycle. The menu being displayed in this project is for May.

Each of the school has a cafeteria that can temporarily store food, serve food, and provide room for the students to have lunch. The hot, bulk food received is usually being displayed to the students in large containers placed on the service counter of the cafeteria. Serving food in bulk is aimed at helping the students to see what the items really look like, and therefor distinguish what they prefer to eat. This can potentially reduce waste. The food is being offered to the student instead of being served. Students will be able to choose different food based on their preferences within the reimbursable range established by NSLP (Connecticut State Department of Education, 2015).

Since the rules of reimbursable meals require students to choose their food items from at least three different categories, it can be combined with the idea of eating a diverse and balanced

diet, and therefore ensures that more meals satisfy the reimbursable criteria. One way to implement this idea is to displaying the “MyPlate” diagram on the Student/Parent version of the menu. This will help inform the students, as well as their parents, that they should be getting food from different categories, instead of focusing on one category. At the same time, they will be able to fulfill the requirements of reimbursable meals.

Similarly, combining the idea of reimbursable meals with a balanced diet, the reusable trays used in all these five schools are made to look like “MyPlate”, including the color scheme. Food of their particular category will be put onto the colored section specified on “MyPlate”. This can help the food-serving staff and cashier identify and manipulate reimbursable meals by looking at which colored section of the plate is covered.

In terms of marketing techniques, creative names are given to some of the items on the menu in order to increase students’ interest in the lunch items. At the same time, pictures of those items are shown on the side of the menu for clarification in case the name gets really confusing. Pictures are also shown for some food items that might be unfamiliar to the students. The reason for displaying pictures of the lunch items is that many students, as well as their parents, may not know what is being served. By knowing what the food look like in advance, the students can decide at home whether they would want to dine at school or bring their own lunch. In contrast, if there are no pictures for clarification, students might have to wait until lunch time to find out that they do not like what is being served on that day. This lack of notice might lead to food waste and also lower student satisfaction. Having picture representation is a fun and efficient way to solve these problem.

MAY

Monday	Tuesday	Wednesday	Thursday	Friday
1 MAY DAY!	2	3	4	5
Cheese Pizza Pocket Salisbury Steak 1% Fat Milk Fat Free Chocolate Milk Fruit Salad with Coconut Dressing* Lettuce Salad with Dressing	Guacamole and Tomato Sandwich Beef Chili on Buns Fat Free Milk Fat Free Chocolate Milk Dried Mango Slices <i>Caesar Salad</i>	Teriyaki Tofu Chicken Quesadilla 1% Fat Milk 1% Fat Chocolate Milk Cherry Pie Mashed Potato	Pepperoni Pizza Spaghetti&Meat Balls Fat Free Milk Fat Free Chocolate Milk Blueberry Muffin Cheesy Broccoli	Roasted Chicken Breast&Peas Vegetable Stir Fry Rice Fat Free Milk Fat Free Chocolate Milk Dried Apricot Slices Cheesy Baby Carrots
8	9	10	11	12
Bean Taco Beef Chow Mein Fat Free Milk Fat Free Chocolate Milk Apple Fruit&Vege Salad	Vege Sandwich Teriyaki Chicken Fat Free Milk Fat Free Chocolate Milk Blueberry Pie Garden Salad Mix	Hawaiian Pizza <i>Philly Cheeze Steak</i> Fat Free Milk Fat Free Chocolate Milk Nectarines Boiled Green Peas	Pasta Marinara Stir Fry Chicken&Bell Pepper Fat Free Milk 1% Fat Chocolate Milk Blackberry Tart Lettuce&Carrot Salad	Spinach Stew Teriyake Beef 1%Fat Free Milk Fat Free Chocolate Milk Banana Frence Style Bread
15	16	17	18	19
Soy Sauce Mushroom Braised Pork on Rice Fat Free Milk Fat Free Chocolate Milk Organge Cucumber Slices	Celery&Carrot Stir Fry Italian Sausage Pizza Fat Free Milk 1%Fat Free Milk Pear Kale Chips	Baked Cauliflower Chicken Taco Fat Free Milk Fat Free Chocolate Milk Plum Pie Beet Slice	Vegetable Lasagna Orange Chicken Fat Free Milk 1% Fat Chocolate Milk Apricot Dice Brown Rice	Bok Choy Stew Onion&Pork Stir Fry Fat Free Milk Fat Free Chocolate Milk <i>Date Cake</i> Black Beans
22	23	24	25	26 MEMORIAL DAY!
Cabbage&Tomato Stew Beef Steak 1%Fat Free Milk Fat Free Chocolate Milk Apple Pie Corn Bread	Pene in Alfredo Sauce Chicken Patty Burger Fat Free Milk 1% Fat Chocolate Milk Grapes Kale Salad	Cheeze Pizza Roast Pork Fat Free Milk Fat Free Chocolate Milk Mandarin Carrot Salad	Macaroni&Cheese Barbecue Chicken Legs Fat Free Milk 1% Fat Chocolate Milk Seasonal Fruit Salad Boiled Corn Kernels	Patato&Beef Stew* Beef Stew and Gravy* Fat Free Milk Fat Free Chocolate Milk Raspberry Pie Soy Bean Salad

*Holiday Special Meal



Date Cake



Caesar Salad



Philly Cheese Steak



3. Working Menu

School/Site Name:	Flying Eagle School District			Menu/Week:	5/1-5/5		
Component	Weekly Requirement	Monday	Tuesday	Wednesday	Thursday	Friday	Week Total
Milk	5 cups(1)						
At least 2 varieties	Fat Free Milk, or Fat Free Chocolate Milk, or 1% Fat Milk, or 1% Fat Chocolate Milk	1% Fat Milk Fat Free Chocolate Milk	Fat Free Milk Fat Free Chocolate Milk	1% Fat Milk 1% Fat Chocolate Milk	1% Fat Milk 1% Fat Chocolate Milk	1% Fat Milk 1% Fat Chocolate Milk	5 cups of Milk
Meat/Meat Alternative	8-10oz equivalent (1)						
Weekly minimum:8oz Weekly maximum:10oz	Daily Minimum:0.25oz Daily Average: 1oz	Low Fat Cheese: 1/2oz serving & Beef Steak: 2oz serving	Ground Beef: 1oz serving	Medium Firm Tofu: 1oz serving & Low Fat Cheese: 1/4oz serving & Chicken Cubes: 1/2oz serving	Low Fat Cheese: 1oz serving & Pepperoni 1/2oz serving & Meet Balls 1/2oz serving	Low Fat Cheese: 1/4oz serving & Chicken Breast: 2oz serving	10oz of Meat/Meat Alternatives
Grain	8-9oz equivalent (1)						
Weekly minimum:8oz Weekly maximum:9oz whole grain or at least half whole grain	Daily Minimum:0.25oz Daily Average: 1oz whole grain or at least half whole grain	Whole Wheat Pizza Dough: 1oz serving	Whole Wheat Bread Slice: 1 1/2oz serving & Whole Wheat Bun: 1 1/2oz serving	Whole Wheat Quesadilla Wrapper: 1/2oz serving & Whole Wheat Pie Crusting:1oz serving	Whole Wheat Pizza Dough: 1oz serving & Whole Wheat Spaghetti: 1oz serving & Muffin Dough: 1/2oz	Brown Rice:1oz Serving	10oz of Whole Grain
Vegetable-weekly minimum	3 3/4 cups(3/4)						
Dark Green	1/2cup(1cup leafy greens=1/2cup)	Chopped Lettuce: 1/4 cup serving	Chopped Lettuce: 1/4 cup serving		Chopped Broccoli: 1/2cup serving	Cabbage: 1/4 cup serving	1 1/2 cup of Dark Green Vegetable
Red Orange	3/4 cup	Tomato Sauce: 1/4 cup serving	Tomato Sauce: 1/4 cup serving & 1/8 cup Chili Pepper		Tomato Sauce: 1/2 cup serving	Baby Carrots: 1cup serving	2 1/8 cup of Red/Orange Vegetable
Legumes	1/2cup					Green Pea: 1/2cup serving	1/2 cup of Legume
Starchy	1/2cup			Mashed Potato: 1cup serving			1 cup of Starchy Vegetable
Fruit	2 1/2cups (1/2)						
Weekly minimum 2 1/2cups	Daily Minimum: 1/8 cups Daily Average: 1/2cups	Chopped Peach: 1/2 cup serving	Dried Mango Slices: 1/2cup serving (counts as 1cup of Fruit)	Cherry: 1/2cup serving	Blueberry: 1/2cup serving	Dried Apricot Slices: 1/2cup serving (counts as 1cup of Fruit)	3 cups of Fruit

4. Nutrient Analysis

Day: Mon Date: 5/2		Portion	Cal	Na+ (mg)	Sat Fat (g)	Trans Fat (g)
1	Guacamole and Tomato Sandwich	4oz	198kcal	336mg	2g	0g
2	Beef Chili on Buns	2oz	199kcal	512mg	1g	0g
3	Fat Free Milk	1cup	102kcal	107mg	0g	0g
4	Fat Free Chocolate Milk	1cup	158kcal	153mg	0g	0g
5	Dried Mango Slices	1/2cup	159kcal	3mg	0g	0g
6	<i>Caesar Salad</i>	1/2cup	98kcal	140mg	2g	0g
Total Combination Highest Cals (2,4-6)			622kcal	808mg	3g	0g
Total Combination Lowest Cals (3,5,6,6)			461kcal	390mg	8g	0g

Day: Mon Date: 5/3		Portion	Cal	Na+ (mg)	Sat Fat (g)	Trans Fat (g)
1	Teriyaki Tofu	1oz	165kcal	900mg	0g	0g
2	Chicken Quesadilla	2oz	215kcal	660mg	8g	0g
3	1% Fat Milk	1cup	102kcal	107mg	0g	0g
4	1% Fat Chocolate Milk	1cup	158kcal	153mg	0g	0g
5	Cherry Pie	each (small)	212kcal	258mg	3g	0g
6	Mashed Potato	1cup	97kcal	275mg	0g	0g
Total Combination Highest Cals (2,4-6)			678kcal	1345mg	11g	0g
Total Combination Lowest Cals (1,3,6)			461kcal	1556mg	0g	0g

Day: Mon Date: 5/4		Portion	Cal	Na+ (mg)	Sat Fat (g)	Trans Fat (g)
1	Pepperoni Pizza	1oz	200kcal	422mg	5g	0g
2	Spaghetti&Meat Balls	2oz	134kcal	249	1g	0g
3	Fat Free Milk	1cup	83kcal	103mg	0g	0g
4	Fat Free Chocolate Milk	1cup	90kcal	98mg	0g	0g
5	Blueberry Muffin	1each	225kcal	178mg	2g	0g
6	Cheesy Broccoli	1/2cup	242kcal	426mg	6g	0g
Total Combination Highest Cals (1,4-6)			757kcal	1124mg	13g	0g
Total Combination Lowest Cals (3,5,6)			550kcal	707mg	8g	0g

Day: Mon Date: 5/5		Portion	Cal	Na+ (mg)	Sat Fat (g)	Trans Fat (g)
1	Roasted Chicken Breast&Peas	3oz	141kcal	341mg	1g	0g
2	Vegetable Stir Fry Rice	1cup	156kcal	1031mg	1g	0g
3	Fat Free Milk	1cup	83kcal	103mg	0g	0g
4	Fat Free Chocolate Milk	1cup	90kcal	98mg	0g	0g
5	Dried Apricot Slices	1/2cup	214kcal	10mg	0g	0g
6	Cheesy Baby Carrots	1cup	233kcal	700mg	8g	0g
Total Combination Highest Cals (2,4-6)			693kcal	1839mg	9g	0g
Total Combination Lowest Cals (3,5,6)			530kcal	813mg	9g	0g

Week 5/1-5/5 Averages

Nutrients	Menu	Menu		
	Average	Meet?	Average	Meet?
	High	Y/N	Low	Y/N
Calories	688kcal	N	516kcal	N
Sodium	1097mg	Y	749mg	Y
Sat Fat	9g	Y	6g	Y
Trans Fat	0	Y	0	Y

Adjustment to Meet Targets			
Previous Meal (5/3)	Targets Not Met	Adjusted Meal(s)	New Amounts for Target(s) Not Previously Met
Teriyaki Tofu		Teriyaki Tofu with 1	
Chicken Quesadilla	Highest	Chicken Quesadilla	
1% Fat Milk	Calorie	1% Fat Milk	
1% Fat Chocolate M	&	1% Fat Chocolate M	Highest Calorie:
Cherry Pie	Lowest	Cherry Pie	711kcal Lowest
Mashed Potato	Calorie	Mashed Potato	Calorie: 529kcal

5. Summary

One of the biggest challenges of this project is meeting the calorie requirements established in NSLP. Since the calorie value for the two milk items are quite low and fixed around 100kcal, the rest of the items seems to have a larger share of responsibility in terms of contributing to the calorie requirements, especially when it comes to the fruits and vegetables. Keeping the calorie value of each item rather unified around 120-150kcal seems to help solve the problem a little bit. However, the problem of May 3rd, which was having a very high “Total Combination of Highest Calorie” of 711kcal, and a low “Total Combination of lowest Calorie” of 529kcal, was still not completely solved. Since the highest-calorie-option can take in more items and that the lowest-calorie-option can only take in mostly the vegetable and fruits, having high calorie items on the will satisfy the lower boundary, but at the same time, exceed the higher boundary. Ununified distribution of calorie amount the different items was also tried, but was harder to manipulate since food differs from day to day.

However, it is always much less challenging to stick to only one side of the boundary. It will be a good idea if the recommendation can state only the lowest calorie limits, and leave the higher calorie limit to a suggestion, which can then be practiced by reminding the students to take only what they can eat instead of taking too much. This way, menu designing will have more flexibility.

For this project, without the concern of budget, food items, transportation, and service method can be designed to be fancier and more expensive. More appealing options are often available under the budget free condition. In this way, creativity, food waste reduction, and the idea of reimbursable meal can be combined into the plan more easily and flexibly. For example, bulk transport of food under hot-held conditions can help increase student satisfaction and also

reduce waste. Yet, it might cost a lot of money to keep the food in right temperature with food safety rules being tightly followed. This will not be the best way for transportation if the school district is not affluent. More expensive food items are also allowed to be introduced into the menu due to the budget-free condition.

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