



School Lunch, How Healthy Is It?

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by Sara Thomas

I have been teaching at High School in the Community (HSC) for five years, and throughout that time I have seen changes: soda machines replaced by juice ones, the vending machines filled with "healthier" snacks and the fried food go from fried food to... "baked" fried food. Two-thirds of my students receive free or reduced lunch. This means that for many of my students two of their main meals, breakfast and lunch, are eaten at school. In other words, two-thirds of their nutrition for the day is provided by the school system. Until this year our school system had a contract with Aramark, a large food service company. The choices offered by Aramark were not healthy, and do not meet the dietary needs of growing teenagers. Many students complained about the meal choices and our head cook was outspoken about the fact that she should be receiving better quality food to prepare for the students. I know many of the students who receive free lunch skip lunch entirely because the choices being offered are so unhealthy. On any given day students may have to choose between Hot Pockets, pizza and hot dogs, and they are lucky if they can have a side of soggy string beans. Because this is so important to many of my students, I would like them to voice their opinions about it in a constructive manner.

Due to income levels, television commercials, and lack of parental involvement many of my students are not even aware of what type of food they should be putting into their bodies. Add to that the confusion created by the media, fad diets, and ever-changing recommendations from experts (in the form of food pyramids) - how can anyone know what they should be putting in their body? I teach visual art at HSC in New Haven, Connecticut, where the only Health class is an elective, and no one is talking to students about their food choices. My students are from a variety of different geographic, socio-economic and ethnic backgrounds. Due to these differences they enter my classroom with a variety of different experiences and varying knowledge of nutrition and art. I teach a course called Digital Art where students learn to use Photoshop. This is a medium that most students have not encountered before High School, so they all have fairly similar background knowledge no matter what art courses they have taken. My most successful units have involved giving students a "client" and challenging them to go through the same process a Graphic Designer would go through to pitch a design to a client. I would like to combine this strategy with important information about health, which is lacking in the rest of our curriculum.

The first thing I would like my students to do is to describe what foods they think constitute a healthy breakfast, lunch and dinner. We will discuss as a group where these ideas of healthy meals come from - parents, media, school, etc. Students will chart the food they consume for a week, especially paying attention to the food they consume during school hours. Students will compare different dietary guide graphics to determine who creates the graphics and how you can determine whether or not they are reliable. Students

will then choose a guide to follow and create healthy school meals from that dietary guide. Their final project will be to create a tri-fold brochure aimed at convincing the Board of Education to invest in food service programs that bring more fresh, healthy foods into the cafeteria. The tri-fold brochure will contain three parts: an eye-catching print ad comparing the nutrition they currently receive with what they should be receiving, a section showing options and benefits for bringing in fresh, locally grown produce, and a section containing a recipe for a school lunch and breakfast using fresh produce.

Lesson Plan One: What Are My Options?

This curriculum unit will start with a project intended to make students more aware of their eating habits. Students will keep a food journal for an entire week. I will ask them to be extremely specific and honest in describing the foods they eat "during the school day" - breakfast, lunch and snacks. I am also curious about what they eat once at home, but I would like to discuss their food choices in two different categories: choices at school, and choices away from school. I am curious to see how these categories differ. I know that many of my students are responsible for feeding themselves and younger family members at home, since both parents are usually at work.

After we compile journals I will ask students to take some time to think about what influences their food choices. Do their parents do all of the food purchasing? Are they given money every week to buy their own food? Do they have a selection of choices at home? Does anyone in his or her family cook? Does what their friends eat influence them? What food options do they have at school? I will ask them to create a chart of different influences on their food choices, and then I will ask students to rank those choices into their top ten, with number one being the most influential. I have no idea what the results of this survey will be and am curious to have a discussion with the students about it.

Once we have discussed their current diet, I will ask students to hypothesize what they think a healthy daily diet looks like. I would like to know where their information for those assumptions comes from - to see how it correlates with their "top ten" sources. Once students have hypothesized about what they think a healthy diet looks like I will show them a variety of different "food pyramid" graphics. My objective in this exercise is to get students thinking about where reliable information comes from. If they read something in an article or see it on television, should they trust it? After all, our food pyramid and dietary guidelines in the United States have changed at least five times over the past one hundred years. I will ask them to consider: what are the reasons for these changes? I hope that they are thinking about things like: more information about how the body uses food, pressure from food companies, making the graphic easier to read, etc.

We will look at the history of the US food pyramid - why it was created, how it has changed over the years, what influences its creation, and what type of guidance it provides. I want to stress to them that the original food pyramid was created by the United States Department of Agriculture (USDA), which is an organization that was created not to promote health, but to support American food producers. I want to instill in students the need to check sources before believing information. We will decide as a class which food pyramid seems to be most appropriate for our school population.

History of the Food Pyramid

In 1916 the USDA released the first dietary guidelines, *Food For Young Children* by Caroline Hunt. It included five basic food groups: milk and meat, cereal, vegetables and fruits, fats and fatty foods and sugars and sugary foods. In 1917 they produced *How to Select Healthy Foods*, a similar guide for adults. During the depression they provided advice on which foods were economically sound choices. In 1941 they developed the Recommended Dietary Allowances, similar to what we see today on many nutrition labels. In 1943 they developed the National Wartime Nutrition Guide, a piece of propaganda to make citizens feel that by eating in a certain way they were helping the war effort.

During this period of time, the dietary guidelines moved from five groups to seven groups: milk, vegetables, fruits, eggs, meat (with cheese, poultry and fish), bread (and cereal) and butter. This was the earliest graphic I found in my research - a wheel showing those seven categories in equal pieces, on a variety of different materials. I believe that this is an important graphic to show my students when looking at "food pyramids." I would like them to see different versions of the US graphic, so that they understand that the food guidelines are constantly changing and being updated - they are not static. In 1956 they were cut back to four groups again (milk, meat, vegetable and fruit, and bread and cereal) and there was no longer the appearance of a graphic. In 1979 they produced the Hassle Free Guide, which again included five groups and fats and sweets were given their own category. In 1984 they created the food wheel - a graphic that showed the proper servings of seven different food groups. Finally, in 1992 the food pyramid, which most of my students grew up with, was introduced. It showed daily servings of five different food groups. I think it is also important to include this graphic in those that my students are comparing because I think it is the one they will be most familiar with. Most recently, within the past few years, the USDA has introduced an entirely new graphic that provides no visual guidelines, however the pyramid has stairs added to the top of it with a person climbing them, to emphasize the importance of exercise. ¹

In addition to these three specific USDA-created graphics, I will also ask my students to study some dietary graphics from other countries to realize there are other diets besides the Western diet. I would like to use this as a springboard to start a conversation about who creates these graphics, what information is used to support them, why they might be altered, why they might be different for different regions, what composition is easiest to understand, what information can you easily determine from each graphic, etc.

Seven Basic Food Groups (1943)

The Seven Basic Food Groups graphic is a circle divided into seven equal parts. Each slice of the circle is a different color and contains a different food group. There is a small line drawing of different types of food in that group in each slice as well. Written under each image is a list of different foods in that group, and the recommended daily allowance. In the center of the circle is a USDA graphic along with the slogan Eat the Basic Seven Groups a Day. ²

The Food Wheel (1979)

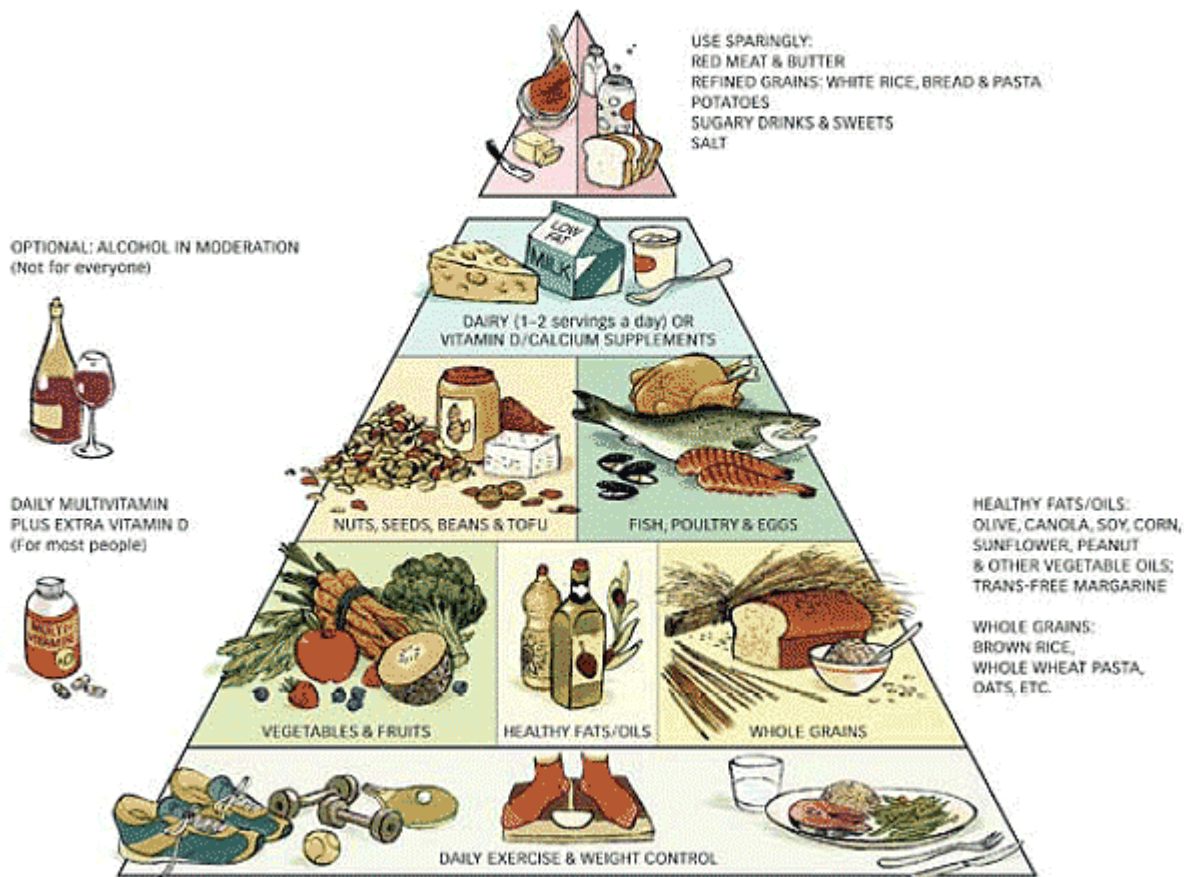
The Food Wheel is also a circular graphic with a fork and knife on each side of the circle. It is again divided into pie sections, but the size of each section varies depending on the daily recommended allowances, though

the divisions are not mathematically correct. Towards the center of each pie piece the recommended daily allowances are listed. For instance, the 6-11 servings of bread, grain and cereal take up about the same amount of space as the 2 servings of cheese, yogurt and milk. Alcohol, fats and sweets do have smaller slices than the rest. Each slice is a different color, and coming out from the slices are colored illustrations of examples of foods that constitute that food group. With this graphic I will stress to students that the choices made by the designer in breaking up the shape is extremely important. In this graphic it appears that by the fraction that each group takes up you should be consuming equal amounts of those food groups, when in reality that is not the case. ³

Food Pyramid (1992)

THE HEALTHY EATING PYRAMID

Department of Nutrition, Harvard School of Public Health



For more information, visit WWW.THE NUTRITION SOURCE.ORG

This graphic is the one my students will be most familiar with, since it has been around most of their lives. It is a different shape than the other two we've looked at. I will ask my students to think about how the pyramid graphic differs from the circles, and think about which is easier to read. The pyramid is divided into four horizontal levels, with sugars and fats at the top and grains taking up the entire base. Each group again has

an illustration of foods that represent that particular group. A line points to each division and lists examples of foods, which can be found in that group, and also lists the recommended daily allowances. The entire pyramid is black with a white line between the divisions (note that each section no longer has its own color). At the top there is a key explaining the symbols for fats and sugars, which can be found in the top layer and also throughout the other divisions. My focus for the students in looking at this graphic will be the different shape of it. ⁴

My Pyramid (2005)

08.06.09.04

The new graphic is still a pyramid, but it has been simplified. It is divided vertically instead of horizontally and each section is now a different color. There are stairs added to the left of the pyramid and a person climbing them. This is the first guide to include a reference to exercise, and the first to make no mention of specific food groups. There are no foods, no lists of food groups, and no recommended daily allowances. I would like students to talk about whether or not this is an effective graphic. A website is listed at the bottom - mypyramid.gov. This new pyramid relies on the fact that the eater has access to the Internet, where s/he can go to design a pyramid specific to him/herself. While this can be a powerful tool I would like to use this graphic as an example of keeping your audience in mind when you are designing. Does everyone who should be able to use the pyramid have access to a computer? In what way does this limit the success and usefulness of the guide? ⁵

Harvard Public School of Health's Pyramid (2001)

08.06.09.05

This graphic is very similar to Willet's Healthy Eating Pyramid, and is easily accessible online. It looks similar to the USDA's old graphic. It is a pyramid with horizontal divisions with fats and sweets at the top; however, the bottom broad category is now exercise and weight control. The recommended daily servings are very different with grains having much smaller servings and healthy fats and oils having their own division. The alcohol portion of the pyramid should be removed when making copies. ⁶

Canadian Guide

08.06.09.06

Canada's Food Guide takes a different form than most of the other food guides I've researched. It takes the form of a rainbow with only four categories. Each category contains small drawings of foods in that category. In the largest band fall fruits and vegetables, the second largest band is grains, the next is dairy and the last is sweets, fats and meats. It is easy to read and straightforward. There are no words, or recommended daily allowances, but the message is clear. ⁷

Korean Guide

08.06.09.07

The Korean Guide is in the form of a pagoda, with each tier containing drawing of different foods. There are five tiers with grains on the bottom tier, which is also the largest. The next tier is fruits and vegetables,

followed by meat and dairy. Above that are dairy products and at the very top in the smallest amounts are fats and sweets. There is writing to the right of the pyramid, which I assume lists food and dietary allowances.

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Mediterranean Guide

A copy of the Mediterranean graphic can be found at: <http://www.seve.gr/sevedetrop/defaulten.htm>. The Mediterranean Guide is a pyramid structure, but it has nine different horizontal divisions. The top of the pyramid or the smallest amount, which is recommended monthly, shows a drawing of red meat. Then there are four layers in the "weekly" column, with one food on each layer: pie, eggs, chicken and fish - in that order. It reads as though you should eat more of each food as you go down the pyramid. Then there are four divisions in the everyday portion of the pyramid. The top portion of the everyday section contains an image of dairy, the second layer contains olive oil and wine, the third layer contains fruits, vegetables and rice, the bottom layer (indicating foods that should be eaten the most) contains potatoes and grains. The food is organized much more specifically in this pyramid since it has more divisions. It also contains very different recommended foods than the United States pyramid. ⁹

After students have compared each graphic as a means of relaying information visually, I will have them compare the recommended daily allowances of each food group. We will discuss the similarities and differences and try to examine why the food recommendations might be different for different cultures. We will create a graph showing where each food group appears on the different guides for comparison. This will lead us into a discussion about what a healthy diet involves.

What is a Healthy Meal?

I will ask students to collectively choose dietary guidelines that they think are best for our school population. Walter Willet and Michael Pollan focus on a few simple guidelines which I would like students to use as their focus for planning their menu. I have combined what I feel are the most important pieces of the two, as well as what is most easily accessible in terms of the school food menus. Each of these guidelines is extremely important and will play a large part in helping them design healthier menu options for the school. Students will be broken into five groups in order to research these different guidelines. Each group will present their findings to the class, and we will use this information to discuss the current school meal menus.

Eat Fewer Bad Fats and More Good Fats

For the past ten years or so advertisements, doctors and diets have all told us that eating fat is bad. Period. Many foods now have low fat or reduced fat options. It was thought that the more fat you eat the more weight you will gain. Doctors are now finding that this is not true. Your body needs fats in order to operate, so cutting them out of your diet completely is a bad idea. However, you should focus on eating more "good" fats and less "bad" fats. Good fats are fats from plants, nuts and fish. Good fats are also usually liquid at room temperature like olive oils and nut oils. Bad fats are usually solid at room temperature, like animal fats and butter. The absolute worst kind of fat you can eat is trans fat. Trans fat is not found anywhere in nature. Margarine contains trans fats, as does any product that lists "hydrogenated" oils or fats among its ingredients. Trans fats are produced in the industrial process of converting unsaturated fats to saturated fats, or adding more

hydrogen (hence hydrogenated). This process of hydrogenating fats changes the chemical state of the fat, and allows it to remain a solid at room temperature. Margarine is a good example of this. However, the body does not get trans fat from *any* food you would eat naturally and because of this scientists are now finding that it may be one of the leading causes in obesity. Common sense should tell us not to put anything into our bodies that cannot be found in nature, but unfortunately we don't always listen to it - especially when new studies come out stating otherwise. ¹⁰¹¹

Eat More Whole Grains than Refined

Refined-grain carbohydrates came about for the same reason margarine did - convenience. Whole-wheat products include more of the entire grain in them, while anything containing refined flour contains grain, which has already been broken down for the body. While refined grains have a much longer shelf life than whole grains, they are much less healthy for you. The body breaks down whole grains first in the mouth by chewing, and then in the stomach by enzymes. Whole grain foods will keep you full for a longer period of time, and will release the energy they contain more slowly, over time, as your body breaks them down. Refined grains have already been mechanically broken down in production and therefore they travel through your body very quickly, giving you a quick rush of energy, but then your sugar level drops quickly, you experience a low, and you are hungry again a very short time later. A quick and easy experiment students can do to demonstrate this theory is try out different types of bread. I will bring in three different types of bread for students to try: white bread, wheat bread and whole grain bread. I will give each student the same sized piece of each of the three kinds of bread. I will ask students to eat the bread, holding them in their mouths as they chew, and I will prompt students to raise their hands when they taste a change in the bread - usually a sweetness which occurs once the grains are broken down into sugars. I will have students try the bread in order, white then wheat then whole grain. I will prompt them to all begin chewing at the same time, and to raise their hand once the taste of the bread changes (like a sweetness). I will record when hands are raised. The amount of time it takes for each bread piece to go through that change is astonishing. Students will also realize that the white bread practically dissolves in their mouths within seconds, while the other two take much longer to chew before they reach that state. ¹²¹³

Choose Healthier Sources of Protein

The long and short of it is that nuts, beans, fish and poultry all contain less fat than red meat. Because of this you should try to take in most of your protein through those sources, instead of red meat. ¹⁴

Eat Plenty of Vegetables and Fruits but Hold the Potatoes

I'll start by explaining hold the potatoes. Though potatoes are a vegetable they are mostly starch and are digested by the body very similar to the way the white bread is digested. It is because of this similarity to refined grains that you should eat potatoes sparingly. Fruits and vegetables are extremely important in the diet. They contain many vitamins and minerals that your body cannot get from other sources. Fruits and vegetables should be eaten fresh as often as possible because cooking and preserving them can cause them to lose some of their most valuable nutrients. This is a HUGE part of what is lacking in the food provided by the school system. ¹⁵

Eat Less Processed Food

Foods that have been processed often have chemicals added to preserve them. If you look at the nutrition

label of a food item in the grocery store it probably contains a list of chemicals that are completely foreign to you. Though most of these are present in small amounts, there is no telling what they may be doing to your body. As mentioned before with wheat, processing it changes the way your body reacts to digesting it. Processed fruits and vegetables, on the other hand, may be missing many of the nutrients that are important to your health. ¹⁶

The next task for the students will be to determine how well the meals that the school offers meet these criteria.

History of School Lunch

Private societies and associations, interested in the well being of children, started the first school lunch programs in the 1850s. Then, in 1904 Robert Hunter wrote a book entitled *Poverty*, in which he stated, "...learning is difficult because hungry stomachs and languid bodies and thin blood are not able to feed the brain." This book was influential in the creation of more school lunch programs, but they were all still supported by private source of funding. Before the 1900s people ate very differently than they do today, both the structure of their meals and the foods present at the table. Agriculture was a large part of daily life for most Americans, and they ate a large breakfast in the morning, a large dinner in the afternoon, and a light supper in the evening. All of these meals were consumed in the home and were prepared with fresh ingredients. ¹⁷ As industrialization took place, the structure of meals began to change. People began bringing lunch to work, which replaced the large afternoon dinner. It was still prepared at home, but was now eaten in public and had to be easy to transport. As for students, they would often walk home for lunch, and then walk back to school to finish the remainder of their day.

A variety of changes in society occurred. Some students began coming to school from farther away and were not able to go home for lunch, or their parents were at work during lunchtime and were unable to prepare lunch for them. ¹⁸ In the 1920s the first lunch programs began, but they were all funded by private organizations. In earlier days, schools had only been concerned with the academic education of students: now the added concern of the welfare of the child appeared. Where family and community had once been the major force in a child's life concerned with his/her welfare, schools began taking on much of this responsibility. ¹⁹ As school lunch programs were piloted their initial appeal was teaching students acceptable table manners along how to select healthy foods. Students were encouraged to spend their few pennies on healthy foods instead of on sweets at the corner store. Cooking lessons were also a part of the curriculum. ²⁰

In the 1930s the depression took a toll on farmers - no one could afford to buy crops. Therefore, children were starving and a surplus of crops was piling up. In 1935 Congress passed a law that the government would purchase up to 30% of produce and would distribute it to school lunch programs. This allowed students to receive nutritional meals, and the surplus was being consumed instead of wasted. ²¹ Schools that could demonstrate students with the most need received a larger allotment than schools where students could afford to pay. "The maximum quantity of any food that any school could receive was based upon a maximum quantity per child per month established by the USDA. This method of allocation still persists today." ²² Through the WPA federal funding was provided to staff school lunch programs, menus and manuals.

World War II had a huge effect on the lunch program because the surplus food that had been sent to schools was now being sent to troops, and the WPA programs were all cut. In their place schools were given a cash subsidy to purchase food, but it was still a drastic cut from what they had been receiving previously. ²³ In 1946 President Truman signed the National School Lunch Act, which made school lunch a permanent part of the budget. The House Committee on Agriculture Report stated, "The Need for a permanent legislative basis for a school lunch program, rather than operating it on a year-to-year basis, or one dependent solely on agricultural surpluses that for a child may be nutritionally unbalanced or nutritionally unattractive, has now become apparent." ²⁴ States with lower per capita income received more money, as did states with more school-aged children. ²⁵

"Between 1968 and 1972 the National School Lunch Program was transformed from being primarily an agricultural subsidy into one of the nation's premier poverty programs." ²⁶ Because of this shift, the focus was placed on money to buy the meals, and the quality of the meals declined drastically. Food was no longer prepared in the school cafeteria; instead, it was outsourced so that already prepared food was simply brought in, heated and served. Many of the foods which were prepared outside of the cafeteria had to be fortified in order to meet the USDA requirement of provide students with one-third of their RDAs throughout the week. Ronald Reagan cut the budget for the National School Lunch Program by almost a quarter throughout his term in office. He also made the guidelines for students to receive free or reduced lunch prices much more strict. The requirements for food servings dropped drastically and ketchup and relish became vegetables, while cake and corn chips became bread. ²⁷ In the 1990s schools began to shift to the private food-service industry, just as my school switched to Aramark. ²⁸ That is where we stand today - many school cafeterias are run by large private service corporations with intent on making money and little care for the nutritional value of the meals they serve.

Nutrition Requirements in School Lunches

These guidelines are taken directly from: <http://www.healthyschoollunches.org/background/nutrition.cfm>.

"To meet USDA requirements the average school meal, analyzed weekly must: contain no more than 30 percent of calories from fat; contain no more than 10 percent of calories from saturated fat; and provide one-third of the Recommended Daily Allowances (RDAs) for protein, vitamin A, vitamin C, iron, calcium, and calories.

"A reimbursable lunch must include at least three menu items. These items must include entrée and cow's milk as a beverage. All menu items or foods offered as part of a reimbursable lunch will contribute to meet the nutrition standards and must be included in the nutrition analysis. Foods served a la carte and foods of minimal nutritional value are not to be included in the menu analysis, unless offered as part of school lunch meal.

"Schools may use one of five types of menu planning systems to guarantee meals meet nutritional requirements: food-based menu planning, enhanced food-based menu planning, nutrient-standard menu planning, assisted nutrient standard menu planning, and alternate menu planning." ²⁹

School Lunch Budget

This information is also taken directly from: <http://www.healthyschoollunches.org>.

"Schools that choose to take part in the NSLP get cash subsidies, donated commodities, and free bonus shipments from the USDA for each meal they serve. The amount of reimbursement depends on the number of children receiving free and reduced-price lunches. (In the school year 2006-07, schools received \$2.40 for each lunch served free of charge, \$2.00 for each reduced-price lunch, and \$0.23 for full-price lunches.) Bonus foods are free to schools and can vary in type and amount. They depend entirely on the agricultural surplus available at a given time. The amount of commodity foods, called "entitlement" foods, that a district receives is based on the total number of lunches served. It amounts to 16.75 cents worth of food for each lunch served. School food authorities can also be reimbursed for snacks served to children in after-school educational or enrichment programs and for breakfasts served in non-profit breakfast programs. In order for meals to be reimbursable by the USDA, schools must offer at least two choices of fruit and/or vegetables."

Therefore, for my school the budget is \$2.40 per student and we have approximately 300 students. This means that the budget for one lunch during the week is \$720.00. I would like students to use this figure to create their healthy meals for the school.

Lesson Plan Two: Sample Menu for One Week of School

Below is a menu for one week of school taken directly from the New Haven Public Schools website.

Monday	Tuesday	Wednesday	Thursday	Friday
Cheese omelet Milk/fruit juice	French toast sticks Milk/apple juice	Buttermilk pancakes Milk/fruit juice	Toasted waffle Milk/apple juice	Egg & cheese sandwich Milk/apple juice
Chicken patty & bun Seasoned peas & carrots Chilled fruit cup milk	Italian meatball grinder Fruit juice Chilled fruit cup milk	Buffalo chicken tenders Potato wedges Chilled fruit cup milk	Steak & Cheese grinder Buttered green beans Milk/apple juice	Cheese pizza Fresh oranges Fruit juice milk

*Salads and deli sandwiches available daily.

Even looking at one week of the menu the problems are obvious! In terms of grains, everything is served on processed white rolls - there are absolutely no whole grain choices. Red meat is served two out of five days, and the other two days the protein is completely processed. The only vegetables offered all week are potato wedges (the same as the refined bread), buttered green beans (not fresh) and carrots and peas (not fresh). All of the vegetables are frozen and then cooked; none of them are fresh. There is a small selection of salad available, which all consist of iceberg lettuce with one cucumber and one slice of tomato, lots of cheese and a dollop of either tuna or chicken salad loaded with salt and mayonnaise. Fresh oranges are offered once on Friday; otherwise, the fruit allowance is satisfied by a chilled fruit cup (which consists of processed fruit from a

can soaked in syrup) or juice. I will ask students for their assessment of the value of these meals. This menu is disappointing because New Haven has local farmers markets and local resources that could easily be partnered with to provide fresh fruits and vegetables.

Students will prepare a weeklong menu using some of the healthy options they have researched. They will write recipe cards and we will cook and share breakfast recipes in class. Their recipes will include fresh ingredients we've purchase from local markets. If possible I would like to take students on a field trip to visit one of the local farmer's markets.

Alternative Programs

Once students have designed a healthy menu they will begin looking at different programs to help bring that fresh produce into the school. There are programs like this everywhere, but these are the programs I have been able to find around my school. Students will research other options and programs for school lunch. Students will need to compare graphically what they are offered with what they have decided is healthy, and will also need to provide some viable alternatives. There are a variety of different programs already started in Connecticut that students will research.

Farm-to-School pairs schools with both local farms and local wholesalers to provide fresh produce to schools.

The USDA Fresh Fruit & Vegetable Program has already been piloted in schools throughout Connecticut, and they are continuing to accept applications for future years. Through this program The Defense Supply Center in Philadelphia provides produce and a offers a wider variety of produce than just the USDA.

The 5-3-1 for Kids! is a program that is designed to simplify the dietary guidelines for children. The five represents eating a combination of five fruits and vegetables everyday. The three represents eating three servings of dairy every day. The one represents getting one hour of exercise everyday. This system has just recently been developed to help encourage young students to be aware of their health.

Cityseed is a program that runs four different Farmer's Markets throughout New Haven. Each Farmer's Market features fresh, locally grown produce. The vendors accept WIC and food stamps, making the food accessible to everyone. They run many events throughout New Haven and would be a great resource. They also offer a shareholder program in a farm that provides fresh produce every month - something our school might be able to participate in.

Lesson Plan Three: Becoming a Graphic Designer - Creating a Tri-fold Brochure

After students have completed their research, they will begin to create informational brochures to share the information they have learned. They will go through the process of a graphic designer in order to do this. The first step in working on a design project is to meet with the client to determine the client's needs. I will have

students brainstorm a list of questions that they would prepare before meeting with the client, to generate a specification sheet about the project.

The client in this case will be High School in the Community. We are "hiring" them to create tri-fold brochure to convince the local school board to participate in programs to bring better food into the school. HSC would like the brochure to have three parts: (1) a provocative print ad on the front speaking to the nature of the food available presently in the cafeteria, (2) charts and graphs comparing food now versus healthy food options - students should choose one or two options to highlight, (3) two recipe cards on the back of the brochure which are made from healthy, reasonably priced local produce as a working example. The brochure needs to be dynamic, convincing, and provide solutions. I will give the students a worksheet of the client (HSC's) expectations.

After meeting with the client the designer needs to determine the demographic of the target audience, which for this project has been given to the students by the client. They are interested in targeting board of education members - adults who make decisions for an entire school system. Next the designer needs to research they types of brochures that are effective in reaching the target audience. We will look at a series of different ads involving food choices and will discuss which ones are effective and why. There are a series of ads called "Obesity is Suicide" which show foods turned into methods of killing oneself. For instance a noose made out of sausages, or a woman who looks like she's over-dosed on pills which are really M&Ms. These ads are very striking and may be inappropriate for our audience, but I am hopeful that they will get students thinking about similar types of ads showing cafeteria food in a bad light versus its fresh alternative.

Once the target audience is determined and researched, students will begin the brainstorming process. I would like them to brainstorm a list of at least fifty words that come to mind when they think about healthy and unhealthy meals. I would then like them to choose the top fifteen words from their list, and make a list of ten words for each of those fifteen. This process of brainstorming usually gets your brain to begin thinking outside of the box. For instance, we will have discussed processed versus fresh food, cooking methods and protein choices. An effective front cover ad might show an entire factory and line of workers showing chicken parts and fat being input with a chicken patty popping out the end, versus an image of a nice fresh chicken breast under the headline: YOU DECIDE. By the time they are completing this assignment students will have the Photoshop skills to easily create such an ad with the appropriate photographs.

Once students have finished brainstorming their lists they will create thumbnail sketches for three different covers. A thumbnail sketch is a small rough draft, which includes a rough sketch of the images and blocks in any text that will be used in approximately the correct size. Students will choose their favorite thumbnail and create roughs on the computer from their thumbnails. We will need to discuss how the brochure will be folded, along with the flow of information.

Once students have completed the roughs they will complete a peer critique where each student will look at the roughs of two other students. I think that doing peer critiques in an art class is extremely important for two reasons. The first reason is that it is important to get feedback from more than one person - as the teacher I am constantly in communication with the students about their ideas, however I am only one brain and cannot always come up with the best ideas. Also, I find that students are each other's best critics, and offer extremely helpful suggestions. Before we begin the critique I always have a discussion with the students to clarify the purpose of the critique. First they should be stating specifically what they like about the artwork. Then they should be offering helpful, specific suggestions to improve the artwork. It is important that the suggestions be specific because students often want to say, "I like it" without elaborating or really giving

constructive information. It is also important that they not be negative, but instead to offer specific advice to improve a work.

Designing Information

In the center of their brochure students should compare a lunch or breakfast meal they receive now, with a healthier option and information about how to purchase more fresh fruits and vegetables. In order to complete this portion of the brochure students will need to review the healthy eating habits we discussed earlier. They will need to then use a budget of \$2.40 per student for approximately 300 students to create a healthy, balanced lunch using that budget and local produce. I think this will be very eye opening for students, but hopefully it will also be eye opening that with a little bit of ingenuity it IS possible to create healthy meals on a budget.

I would like students to create graphics to comparing the meals they are offered with much more satisfying, healthier meals they could be eating. To do this they will need to learn how to effectively represent data through graphs and charts. On page 105, in his book *Envisioning Charts*, Tufte states five simple rules for displaying data effectively. These are, "Above all else show the data, maximize the data-ink ratio, erase non-data ink, erase redundant data ink and revise and edit." ³⁰ I believe that these five steps will provide important guidelines for my students who may not have had experience representing data previously. We will tie these five rules back to the food pyramid graphics we discussed earlier. I think that the most important two rules are maximize the data ink ratio, which means all of the ink should be used to represent as much data as possible, with little ink used for frivolous information. This design will be very different from the front of their brochure that will be all ink and little data. I want to make this contrast clear to them. Also, erasing non-data ink is important because students often add unnecessary flourishes to fill space. I think by using these guidelines it will help them focus specifically on designing the data. I would like my students to follow these five rules as a mantra as they create the insides of their brochures. They will also repeat the process for recipe cards which will go on the back of the brochure.

Final Assessment

We will discuss the parameters of a tri-fold mailers so that they understand that dimensions are important. Once the brochures are complete students will send them to the Board of Education, and possibly go to a Board of Education meeting to present them. I may also have students use their products to apply for possible grants for better food in the cafeteria. Students will be graded on each part of their tri-fold brochure separately, and will be graded using a rubric.

Teacher Resources

Davis, Carole A, Patricia Britten, and Esther F. Myers. "Past, Present, and Future of the Food Guide Pyramid." *Journal of the American Dietetic Association* 101, no. 8 (2001): 881-885. An easy to read brief history of the food guidelines and graphics in the United States.

Davis, Carole, Etta Saltos, and "Dietary Recommendations and How They Have Changed Over Time." *USDA/ERS AIB*, no. 750 33-50. Another good article about food guidelines and how they have changed.

Gundersen, Gordon W. *The National School Lunch Program: Background and*

Development. Nova Science Publishers, Inc. New York: 2003. A good resource for background information on the school lunch program.

Healthy School Lunches. *Nutritional Requirements*. <http://www.healthyschoollunches.org> (accessed August 15, 2008) A great website showing how meals funded by the federal government and what the nutrition requirements are.

Lautenschlager, Julie L. *Food Fight! The Battle Over the American Lunch in School and the Workplace*. Jefferson: McFarland & Company, Inc., 2006. A good resource about how school lunch has changed over the years.

Levine, Susan. *School Lunch Politics: The Surprising History of America's Favorite Welfare Program*. New Jersey: Princeton University Press, 2008. A great history of the lunch program.

Pollan, Michael. *In Defense of Food: An Eater's Manifesto*. New York: The Penguin Press, 2008. A very easy to read book about nutritionism and how our view of food has changed from making cultural and traditional choices to worrying about specific nutrients in food.

Willett, Walter C. *Eat, Drink, and be Healthy*. New York: Free Press, 2005. A book containing a new, updated pyramid including the latest research about nutrition. It has great information about how your body uses all of the different types of food and compares specific foods.

Student Resources

5-3-1 for Healthy Kids. http://www.ctfsa.org/531/about/about_us.htm (accessed August 15, 2008)

Adbusters. <http://www.adbusters.org/gallery/spoofads> (accessed August 15, 2008) Great spoof ads on popular products that students will be familiar with - great examples of print ads.

Cityseed. <http://www.cityseed.org/> (accessed August 15, 2008) A website about the farmer's markets in New Haven.

Farm to School. *What is Farm to School?* <http://www.farmtoschool.org/aboutus.php> (accessed August 15, 2008) A website explaining the farm to school program.

Greek Mediterranean Diet. <http://www.seve.gr/sevedetrop/defaulten.htm> (accessed August 15, 2008)

Harvard School of Public Health. *Healthy Eating Pyramid*. <http://www.hsph.harvard.edu/nutritionsource/what-should-you-eat/pyramid/> (accessed August 15, 2008) A great website with information about their most updated food pyramid, which is very similar to Willett's food pyramid.

Health Canada. *Eating Well with Canada's Food Guide*. <http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/index-eng.php> (accessed August 15, 2008) Canada's food pyramid website.

Knowlden, Brandon. *Obesity is Suicide*. <http://www.diseaseproof.com/archives/obesity-is-obesity-suicide.html> (accessed August 15, 2008) Great print ads designed about overeating - very shocking.

Korean Nutrition Society. *Recommended Dietary Allowances for Koreans 7th Revision*. Seoul, Korea:Jung-Ang Publishing: 2000.

National Agricultural Library, Agricultural Research Service, U. S. Department of Agriculture. *Historical Food Guides Background and Development*. <http://www.nal.usda.gov/fnic/history/> (accessed August 15, 2008) A fantastic resource showing food pyramids from 1894 to the present. It is where most of the US food graphics in this unit can be obtained.

National Agricultural Library, Agricultural Research Service, U. S. Department of Agriculture. *Dietary Guidelines*. http://fnic.nal.usda.gov/nal_display/index.php?info_center=4&tax_level=3&tax_subject=256&topic_id=1348&level3_id=5729 (accessed August 15, 2008) A great website showing information about previous food pyramids, specifically the 1992 pyramid.

Painter, James, Jee-Hyun Rah, and Yeon-Kyung Lee. "Comparison of International Food Guide Pictorial Representations." *Journal of the American Dietetic Association* 102, no. 4 (2002): 483-489. Gives color graphics of food guides from a variety of different countries. Great for students to compare to our guides.

Tufte, Edward, R. *Envisioning Information*. Cheshire: Graphics Press. 1990. A great book about representing information visually.

United States Department of Agriculture. *DoD Fresh Fruit and Vegetable Program*. <http://www.fns.usda.gov/FDD/programs/dod/default.htm> (accessed August 15, 2008) Information about the program and applications to apply.

United States Department of Agriculture. *My Pyramid*. <http://www.mypyramid.gov> (accessed August 15, 2008) The information about the current U. S. food pyramid with a program to create your own customized, personal food pyramid.

Notes

1. Davis, Carole, Etta Saltos, and "Dietary Recommendations and How They Have Changed Over Time." *USDA/ERS AIB*, no. 750, page 33.
2. National Agricultural Library, Agricultural Research Service, U. S. Department of Agriculture. <http://www.nal.usda.gov/fnic/history/7477.tif> (accessed August 15, 2008)
3. National Agricultural Library, Agricultural Research Service, U. S. Department of Agriculture. <http://www.nal.usda.gov/fnic/history/7021.tif> (accessed August 15, 2008)
4. United States Department of Argriculture. <http://www.nal.usda.gov/fnic/Fpyr/pymid.gif> (accessed August 15, 2008)
5. United States Department of Argriculture. <http://www.mypyramid.gov> (accessed August 15, 2008)
6. <http://www.hsph.harvard.edu/nutritionsource/images/HealthyEatingPyramid-LowRes.jpg> (accessed August 15, 2008)
7. *Eating Well with Canada's Food Guide*. Health Canada. http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/order-commander/eating_well_bien_manger-eng.php (accessed August 15, 2008)
8. Korean Nutrition Society. *Recommended Dietary Allowances for Koreans 7th Revision*. Seoul, Korea:Jung-Ang Publishing: 2000.
9. Greek Mediterranean Diet. <http://www.seve.gr/sevedetrop/defaulten.htm> (accessed August 15, 2008)
10. Pollan, Michael. *In Defense of Food: An Eater's Manifesto*. New York: The Penguin Press, 2008, page 41.

11. Willett, Walter C. *Eat, Drink, and be Healthy*. New York: Free Press, 2005, page 74.
12. Pollan, Michael. *In Defense of Food: An Eater's Manifesto*. New York: The Penguin Press, 2008, page 106.
13. Willett, Walter C. *Eat, Drink, and be Healthy*. New York: Free Press, 2005, page 100.
14. Willett, Walter C. *Eat, Drink, and be Healthy*. New York: Free Press, 2005, page 123.
15. Willett, Walter C. *Eat, Drink, and be Healthy*. New York: Free Press, 2005, page 132.
16. Pollan, Michael. *In Defense of Food: An Eater's Manifesto*. New York: The Penguin Press, 2008, page 10.
17. Lautenschlager, Julie L. *Food Fight! The Battle Over the American Lunch in School and the Workplace*. Jefferson: McFarland & Company, Inc., 2006, page 10.
18. Lautenschlager, Julie L. *Food Fight! The Battle Over the American Lunch in School and the Workplace*. Jefferson: McFarland & Company, Inc., 2006, page 61.
19. Lautenschlager, Julie L. *Food Fight! The Battle Over the American Lunch in School and the Workplace*. Jefferson: McFarland & Company, Inc., 2006, page 57.
20. Lautenschlager, Julie L. *Food Fight! The Battle Over the American Lunch in School and the Workplace*. Jefferson: McFarland & Company, Inc., 2006, page 63.
21. Gunderson, Gordon W. *The National School Lunch Program: Background and Development*. Nova Science Publishers, Inc. New York: 2003, page 22.
22. Gunderson, Gordon W. *The National School Lunch Program: Background and Development*. Nova Science Publishers, Inc. New York: 2003, page 24.
23. Gunderson, Gordon W. *The National School Lunch Program: Background and Development*. Nova Science Publishers, Inc. New York: 2003, page 26.
24. Gunderson, Gordon W. *The National School Lunch Program: Background and Development*. Nova Science Publishers, Inc. New York: 2003, page 29.
25. Gunderson, Gordon W. *The National School Lunch Program: Background and Development*. Nova Science Publishers, Inc. New York: 2003, page 30.
26. Levine, Susan. *School Lunch Politics: The Surprising History of America's Favorite Welfare Program*. New Jersey: Princeton University Press, 2008, page 151.
27. Levine, Susan. *School Lunch Politics: The Surprising History of America's Favorite Welfare Program*. New Jersey: Princeton University Press, 2008, page 177.
28. Levine, Susan. *School Lunch Politics: The Surprising History of America's Favorite Welfare Program*. New Jersey: Princeton University Press, 2008, page 180.
29. Healthy School Lunches. *Nutritional Requirements*. <http://www.healthyschoollunches.org/background/nutrition.cfm> (accessed August 15, 2008)

30. Tufte, Edward, R. *Envisioning Information*. Cheshire: Graphics Press. 1990, page 105.

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