



## You Are What You Eat: How Food Quality Affects Your Health

Curriculum Unit 02.05.07  
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This unit: *You Are What You Eat: How Food Quality Affects Your Health* is to be used in my third grade class as a part of the Science and Social Studies curriculum. Presently the third grade curriculum emphasizes teaching our students about the community with a major emphasis on New Haven. I would also like to touch on two other broad objectives included in the 3rd grade curriculum in the unit: the purpose of local and national government, and citizenship, the responsibility of each individual to be active members of their communities. Along with these, I would like to include two science objectives: to make students aware of the principals of good nutrition, and the need for citizens to take the problems of the environment seriously.

The issue of food quality is one already impacting us and it is vital that students become aware of it. We continually read stories of dangers that exist in our food due to additives, improper food preparation and poor food choices. This unit does not seek to negate chips and Big Macs. It is safe to conclude that for most of my students major changes in their eating habits will be hard to make given our culture and society. However, they can be taught to make healthier choices. They can also begin to see that as responsible citizens it is possible for them to influence government into monitoring food quality more effectively.

The following is a brief outline of the unit objectives.

### I. What do we eat and why?

- A. Complete a food diary
- B. Influences include culture, region, and religion
- C. Corporate advertising

### II. Why do we need food?

- A. Food and water are necessities

- B. Food provides nutrients to help the body function
  - 1. Water, carbohydrates, fats, and proteins
  - 2. Vitamins and minerals
- C. Food Pyramid

III. Where does the community's food supply come from?

- 1. Local farms
- 2. Farms within the U.S.
- 3. Foreign countries

IV. How does the farmer affect food quality?

- A. Pesticide use
- B. Growth enhancing chemicals
- C. Water quality

V. How does manufacturer affect food quality?

- A. Preservatives
- B. Other Additives: Artificial flavors and colors, sugar

VI. How can we make better choices?

- A. Nutritional diet
- B. Read labels

C. Limit certain foods

VII. How can we improve food quality?

A. Be active citizens

B. Encourage the government to do more at all levels

## Introduction

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The unit is organized around a series of questions.

To introduce the unit the children will complete a food survey in which they will keep a diary of all the foods they eat and drink for up to a week (see the example of a food diary in Appendix A ). The purpose here is to provide an honest look at what students eat prior to our discussions.

It is usually a good idea to utilize a poem or story to introduce students into the beginning of a new area of study. My suggestion is *D.W. the Picky Eater* by Marc Brown. Arthur the aardvark's sister D.W. is a picky eater. When the family leaves her home while they go out to dinner, D.W. figures out that she may be missing something by being so picky. This story can easily lead to a discussion of different foods - likes and dislikes - a perfect introduction to the food diary and the unit. The idea of doing the food diary at the beginning of the unit is to insure that the students give an honest account of what they typically eat. To wait may result in students making up a diary that reflects what they think the teacher wants them to be eating.

All animals need food to stay alive. Usually the food animals eat is influenced by where they live and what food sources are available. Their size and shape also influence their food choices. Bears eat fish, berries, and whatever scraps of food they can find. Tigers have pointed teeth and can rip into the flesh of other animals they eat. The tall giraffe can reach into the trees and find leaves and other vegetation to consume.

Human beings are also influenced by these same circumstances. Most of the food consumed by the people of the world comes from plants or animals. However humans have a wide variety of foods based on the way the food is prepared and changed by processing. Plants supply most of the food people eat. While the African, Asian and Latin-American countries eat more than 2/3 of their diet from plants, the Australian, European, North American and part of South America eat a good proportion of their diet from meat. Still more than half of their diet also comes from plants. The most important foods obtained from plants are grains, fruits and vegetables. Other foods from plants include spices; nuts, herbs, coffee, tea and cocoa.

Another major influence on what people in the world eat is religion. Many religions have strict dietary habits, which also play an important part in determining the popularity of certain food items. Hindus do not eat beef

because cattle are considered sacred animals. In fact some Hindus can eat no meat at all. Orthodox Jews do not eat pork, shellfish and certain other foods. There are also strict laws governing the killing, storing and preparation of food. Some religions groups set aside days or times of fasting and feasting. Muslims may not eat or drink from dawn to sunset during Ramadan and they celebrate its conclusion with a feast. Many Christians fast during Lent, but on Fat Tuesday (the day before Lent begins) feasting occurs with worldwide celebrations throughout the Christian world - one of the most famous being Mardi Gras in New Orleans. Of course at the end of Lent there is the celebration and feasting of Easter Sunday after 40 days of abstinence and reflection.

Throughout the world people eat a variety of foods based on the customs, cultures and regions they live in. The traditional dishes are usually based on locally produced foods and usually the dishes of a certain culture will include many of the same ingredients. For example in the United States the different regions of the country may all eat chicken but there are unique ways of preparing the chicken that are distinctive to each region. There is Southern fried chicken, and barbecued chicken from places like Texas.

Within the United States alone a variety of foods are eaten. New Haven has an array of cultures represented in the population from the Irish, Jewish, and Italian to Puerto Ricans, Mexican, Native American, and numerous island nations of the Caribbean. We have people from a variety of Asian countries as well as South America. Not only is our student population varied but so is the staff. Children have the opportunity to deal with people from many backgrounds. This can be helpful in having students do research on the diversity of foods served in the community. One of the suggested activities would be to have a tasting party for students to sample ethnic foods from the divergent backgrounds in the community.

Perhaps the biggest influence on the eating habits of most students and their families is advertising. Most of us would not like to admit and usually don't realize how influenced we are by corporate logos, and jingles. Children at this age are already consumers targeted by advertisers. They are in the stores with their parents when they shop and have a major influence on the choices they make. Twenty-five years ago the only direct marketing done to children was by Disney, McDonald's, candy makers, breakfast food manufacturers, and toy makers.<sup>1</sup>

Today, phone companies, oil companies, auto companies, clothing manufacturers, and restaurant chains target children. This expansion of child directed advertising began in the 1980s. Since many parents spent less time with their children due to their work schedules they began to feel guilty and spending on children rose. The 1980s have been called "the decade of the child consumer."<sup>2</sup>

Other businessmen beside Ray Kroc of McDonald's and Walt Disney realized that a consumer's brand loyalty could begin as early as age 2. In fact many children recognize a brand logo before they learn to recognize their own names. There was the recent Joe Camel ad campaign in which studies found 6 year olds easily identified the cigarette cartoon character. Children also liked the Taco Bell talking Chihuahua but their favorite commercials were for Budweiser.<sup>3</sup> These popular commercials could already be predisposing a new generation of future beer drinkers to drink Bud. I would have students save packaging from their favorite foods and collect the slogans and jingles that we hear on commercials. The class could also keep track of logos and brand names they are familiar with.

Most of my students come to school daily with extra money to purchase snacks and, of course, they are already fast food junkies. In 1993 some of the schools in Colorado Springs began a nationwide trend when they began putting advertisements for soda and fast foods in the schools and on school buses.<sup>4</sup> Now there are

many fast food producers serving lunches to students in the schools. The American School Food Service Association estimates that about 30% of the public high schools in the United States offer branded fast foods. Schools have gone along with this as a way to find funds to finance new programs without putting a larger financial burden on local taxpayers.<sup>5</sup>

It is not hard to figure out why the fast food industry has such a strangle hold on the stomachs of America when one looks at the money spent by the industry in advertising. Below is a list of the money spent on direct media advertising by some of the major fast food corporations:

McDonald's	627.2 million dollars
Burger King	403.6 million dollars
Taco Bell	206.5 million dollars
Coke & Diet Coke	174.4 million dollars
Wrigley's Gum	117 million dollars
M&M Candies	80 million dollars <sup>6</sup>

Seventy percent of food advertising is for convenience food, candy, snacks, soft drinks and desserts. Only 2.2% is spent on advertising for fruits and vegetables, grains or beans.<sup>7</sup>

Another interesting group of statistics is that of the continuing fueling of the fast food market. In 1998 11,037 new foods were produced as follows:

Product Category	Number of new products
Candy, gum, snacks	2,065
Condiments	1,994
Beverages	1,547
Bakery foods	1,178
Dairy foods	940
Processed meats	728
Entrees prepared	678
Fruits and Vegetables	378
Soups	299
Desserts	117
Pet Foods	105
Breakfast cereal	84
Baby foods	35 8

The National Advertising Bureau says that the typical American eater visits a fast food restaurant 9 times a month.<sup>9</sup> One third of all food dollars in the United States are spent on meals away from home.<sup>10</sup> This type of eating pattern has hurt the tradition of certain foods at certain times of the year or certain meals on certain days of the week. Now every member of the family can mix and match whatever they feel like eating and the

family does not have to eat together from a regionally influenced menu.

## Why do we need food?

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At this point the unit will divert somewhat to introduce the nutritional aspects of the food we eat. While some of the information is complicated, I believe that it is a good time to begin the children's awareness about good health practices. The depth of explanation will depend on the class and what individual teachers feel makes sense within their classrooms.

Food provides the energy that we need to live our lives and perform our daily activities from running, swimming and walking to thinking and breathing. Food also provides the nutrients our body needs to build and repair tissue and to regulate the body organs and systems. Human beings get food from plants and from animals.

There are six kinds of nutrients that we need in varying proportions. They are necessary for us to live and each has a specific function. The main four are water, carbohydrates, fats, and proteins. We need lesser amounts of the other two, vitamins and minerals.<sup>11</sup>

*Water* is the most important nutrient we need because without it we cannot live. Water in our bodies carries the other nutrients where they are needed. We also need water to carry away waste products and to keep ourselves cool.

Carbohydrates are foods that are made up of carbon, hydrogen and oxygen. They come mainly from plants. There are simple and complex carbohydrates. Simple carbohydrates are sugars and they usually taste sweet and dissolve in water. Sugars or saccharides are found in fruits and some vegetables, maple sap, and honey. There are two kinds of saccharides. Monosaccharides which are simple sugars including fructose found in fruits, glucose found in our blood and galactose found in milk products. The other called Disaccharides are made two sugar molecules include sucrose (normal table sugar), Lactose or milk sugar, and maltose found in sprouting grain.<sup>12</sup>

Complex carbohydrates or polysaccharides are made of more complicated links of saccharide molecules. The two main complex carbohydrates that we eat are sugars and starches. All carbohydrates simple or complex are turned into glucose in your body. They are carried in your blood to every cell. It is like the gasoline in a car fueling the cells that make up your body. Usually it is recommended that you eat cereals, breads, potatoes, grains, peas and beans in order to satisfy the need for carbohydrates.<sup>13</sup>

If your body produces more glucose than it needs the extra is changed to glycogen and stored. When the body needs more energy it can be changed back into glucose. If you have more glucose than you can save it changes into fat and you gain weight.<sup>14</sup>

Fats are necessary for the body. They store energy, help to transport some vitamins, help to keep your skin healthy and to insulate your body from the cold and acts like a cushion around your body to keep it from being injured. Fat is the most efficient source of energy. Each gram of fat provides 9 calories of energy, while each gram of protein or carbohydrate gives 4 calories of energy.<sup>15</sup>

There are two main types of fat: saturated and unsaturated. If the fat is saturated it will usually be in the form of a solid at room temperature. Most animal fats and some plant fats contain a high level of saturated fats. This includes butter and coconuts. These fats have been found to contribute to heart disease, cancer and other health problems. 16

The more unsaturated the fat the more likely it will be in the form of a liquid or oil. Fats from plants tend to have more unsaturated fats than animals. The best sources for this fat are corn, peanut, or olive oil. It should be pointed out that both fats very often occur in the same food. A food will be labeled saturated or unsaturated by the fat it has the greatest percentage of. For example the walnut has high polyunsaturated content but it also contains saturated fat. 17

Proteins supply most of the building for the body. Muscles, skin, cartilage, hair are mostly made of protein. Proteins are large, complex molecules that contain smaller units called amino acids. Our bodies need 20 amino acids. It can manufacture sufficient amounts of 11 of them. Nine other of these necessary amino acids cannot be made by the body or cannot be supplied in sufficient amounts. These must be supplied through a proper diet. 18

The best sources for protein are cheese, eggs, fish, lean meat, and milk. These foods are called complete proteins because they contain the proper amounts of all the amino acids. Cereal grains, legumes (peanuts and other plants from the pea family) are called incomplete proteins because they lack the proper amounts of one or more of the amino acids. A combination of incomplete proteins such as rice and beans can provide the correct balance of amino acids when served together. 19

Vitamins are necessary for good health because they help to regulate the chemical reactions in the body that convert food into energy and tissues. There are 13 vitamins. They are vitamin A, the vitamin B complexes, which is a group of 8 vitamins, and vitamin C, D, E, and K. 20

Minerals are needed for the growth and maintenance of body structures and to maintain the composition of digestive juices and the fluids that are found around the cells. Unlike proteins, carbohydrates, fats and vitamins, minerals are inorganic compounds - that is they are not created by living things. Plants get minerals from the water or soil and animals get minerals by drinking water and eating plants or plant eating animals.21

The body requires calcium, chlorine, magnesium, phosphorus, potassium, sodium, and sulfur. Other minerals are needed in very small amounts. These minerals are called trace elements and they include chromium, copper, fluorine, iodine, manganese, molybdenum, selenium, and zinc. 22

The nutritional information will make more sense when students are introduced to the Food Pyramid, which was introduced in 1991 when people began to question the previous nutritional advice, which stressed meat and Milk groups. The pyramid stresses more grains, fruits and vegetables, and suggests limited amounts of meats, and dairy products, with even less of fats, sugar. The USDA website provides a copy of the pyramid for educators to use without copyright worries at [www.nal.usda.gov/fnic/Fpyr/pyramid.html](http://www.nal.usda.gov/fnic/Fpyr/pyramid.html)

## Where does the food supply come from?

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Most of the children at this age do not have an understanding of the widespread diversity of food products that are available and the number of fruits and vegetables that come from literally around the world. In Connecticut we are use to seasonal crops like apples, strawberries, blueberries, etc. Farmers also produce sweet corn, peaches, and grapes. Connecticut also has turkey farms, milk production, egg farms and poultry.

However, many if not most of the seasonal vegetables in New England are available form other parts of our country and the world year round. Packaging, preservation and the ability to transport items by air, rail and truck keep the supply of food varied and coming. Students need to realize that people from poorer nations do not have is the variety of food. Some remote areas of the United States would also not have the same variety in their stores.

One of the other things that influence our food supply is the size and location of our community. New Haven is in the middle between Boston and New York City. There are rail lines and nearby ports where food items arrive daily. The fact that we are around one of the largest concentration of population in our country makes it economically advantageous for companies to want to sell food here. An interesting activity would be to map the area in the community and list the names of all food stores in the community: from corner groceries to delis to major food chains.

Another area to investigate is some of the products we regularly see at the store which do not come from our area or from this country. Coffee or sugar fall into this category, but possibly the best example of this is the banana. While, it is one if not the most popular fruit it does not grow in the continental United States. Students could research the banana industry and find out just how they are able to get the bananas here before they rot.

It might be useful for students to contrast how New Haven gets its food supply now and lets say two hundred years ago. Initially the society was built on agriculture. Farmers grew what they needed and could be fairly independent. Now we are very much dependent on others although the ease of buying food in the local grocery store tends to hide the really dependent nature of our food supply.

As New Haven and Connecticut changed into an industrialized community there were less and less farms and more factories in the community.

How does the farmer affect food quality?

The large fast food chains also influence the farmers and how crops and livestock are handled. To keep the crops coming and be part of the machine that feeds the nation the farmer has to make many decisions about what and how they are going to grow certain crops. As with most businesses the bottom line becomes the dollar.

In 1998 20% of the retail cost “farm value” of food produced was returned to its producers. Producers of eggs, beef, and chicken received 50% to 60% retail cost. Producers of vegetables received as little as 5%. 23

Eighty percent of the food dollar in the United States goes for labor, packaging, advertising, and other value enhancing activities. As an example the cost of Kellogg’s Corn Flakes is less than 10% of the retail value. Food



companies are more likely to develop added-value products than to promote consumption of fresh fruits, and vegetables. Adding value to such foods is limited. 24

Farmers have had a more direct and detrimental affects on the food supply due to the unknown risk of heavy pesticide use. The residual affects of some of the pesticides are still present years after the application of chemicals ceased. The effect on humans, especially children, whose smaller bodies cannot handle as much of the chemicals as adults is still present. Not only are farmlands contaminated with pesticides, but also the runoff of the chemicals has found its way into the water supply often contaminating streams and rivers with potentially toxic chemicals, which in turn endanger fish they might contain.

While our government has limited or banned the use of some very potent pesticides, this has not stopped production of those chemicals. In fact many of these chemicals are sold to foreign countries that have less restrictive rules about pesticide use. This means that chemicals we ban could potentially in fruits and vegetables brought into our country through foreign importing.

Farmers may also add chemicals to the food of animals in order to increase their size or the number of eggs they lay. We now are coming to realize that many of the animals experience difficult lives before they are slaughtered. Cattle and chickens or pigs may be kept in small pens to minimize movement and keep them growing larger. Advertisers often tout the fact that hens or turkey are free-range animals.

## **How does the manufacturer affect food quality?**

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The main way that manufacturers affect our food takes place when they process it. Most of the food we eat is processed. By that we mean that something is done to the food. For example we process food if we cook it. Most of the food we eat has already had something done to it. This also goes to the notion that in modern times food processing has cut down the hours needed for food preparation. It also means we can have a greater variety of foods from allover the world. Going back to the community we can see that in an urban area like New Haven there is except when seasonal crops are available we cannot provide our own food supply. We rely on foods already baked, frozen, precooked, etc. to feed our families.

Additives are used in processed foods to preserve the food so it will stay fresh. Sometimes additives are put into food to make it smell, taste or look more pleasing. There are over 3,000 additives now used in our foods. 25

The most important additives include preservatives, antioxidants, emulsifiers, thickeners, stabilizers, flavorings, and colorings.

Antioxidants help to keep food from decaying when it is exposed to oxygen.

Without oxygen the bacteria cannot live and so the food item stays fresh. You would see this if you cut up an apple and left a slice exposed to the air. The apple would turn brown. If you put lemon on the apple slice it will stay not change color because the lemon contains natural antioxidants called citric acid and ascorbic acid. Some of the antioxidants can be poisonous in large amounts so usually processed foods contain small amounts of antioxidants.26

Emulsifiers stop ingredients from separating such as oil and water in salad dressings, margarine, and cocoa. Usually if an emulsifier is used a stabilizer is also used to stop ingredients from separating again. 27

A thickener is added to foods like pudding, yogurt, gravy, etc. and does exactly what the name implies. Many thickeners, emulsifiers and stabilizers come from things like eggs tree sap, seaweeds and wood pulp. Some are made from chemicals like polysorbates, and propylene glycol.28

In the United States food the Federal Drug Administration (FDA) regulates colorings and other additives. In the past some of the food colorings have been banned when it was determined that they were dangerous. If a color is marked with the letters F, D, C, it means that the coloring can be used on foods, drugs, or cosmetics.29

Food additives also include flavorings and enhancers. A drink that is labeled chocolate flavored may not contain any real chocolate but only an artificial flavor. Flavor enhancers are not flavors they just make the flavor stronger in foods that through processing lose their strong smells. 30

Most processed foods also usually contain sweeteners. Some foods also have added salt.

## How can we make better choices?

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We have already spoken about ways to make better choices. First we need to understand just what our bodies need to function. As we learned earlier the food pyramid allows for a healthy combination of foods. By working with the pyramid and analyzing what food choices they made students will hopefully choose to make better selections from the food groups. Labels and representations of what is healthy, all natural, fresh, no preservatives added, organic, are confusing and misleading. We are consistently told something is healthy only to have a new study shake our previous beliefs. Just how can students become wise consumers and what are the better choices?

In order for students to learn to be smart consumers they need to be able to read the labels on the foods they eat to see just what they are getting.

Since the Nutrition and Labeling and Education Act of 1990, the Food and Drug Administration, which ensures that the food supply is safe, has required that packaged foods have labels which list the serving size, total calories and calories from fat, a list of nutrients and the Percent Daily Value. The PDV tells the amount of a nutrient in the food based on the daily-required amount for the average 2000-calorie diet. By the end of the day the amount of each nutrient eaten should reach 100%. Foods in small packages or those with limited nutrients may carry a simpler label. Fresh fruits and vegetables, and single ingredient raw meats are not required to carry a label. 31

There are also a few descriptive terms we have become use to seeing on packages that can only be used if the food has those characteristics.

These include:

**Free** - the food contains none or an insignificant amount of the nutrient

**Fresh** - the food is raw, contains no preservatives, and has not been processed, heated, or frozen.

**Healthy** - food is low in fat and saturated fat and contains no more than 480 milligrams of sodium and 60 milligrams of cholesterol per serving.

**High** - food provides 20 % or more of Daily Value of that nutrient per serving

**Lean** - used on meats, fish, poultry, and seafood that contains less than 10 grams of fat, 4 grams of saturated fat, and 95 milligrams of cholesterol per serving.

**Less** - food contains 25% less of specified nutrients than a similar specified food, such as pretzels labeled "less fat than potato chips."

**Light** or **lite** means the food has been altered during processing to contain 1/3 fewer calories or ½ less fat or sodium than the regular product.

**Low** means food can be eaten frequently without exceeding the Daily Value guidelines for that nutrient.

**More** means the food contains at least 10% more of the Daily Value of the specified nutrient than does a similar specified food. An example would be grapefruit labeled "more vitamin C than orange juice."

**Source of** or **Good source of** , means a serving has 10 to 19 percent of the Daily Value of a particular nutrient.<sup>32</sup>

Since the school I presently teach in is in a low-income area not only do most of the schools 600 plus students receive free lunch from the federal lunch program, they also receive free breakfast. I suggest that as the unit begins the teacher and students begin saving labels from breakfast foods, juices, crackers etc., served at school as well as have the students bring in empty containers from products they eat at home.

This portion of the unit should be very much hands on. Students should have an understanding of what the labels convey and they should do some analysis of the contents of the foods they eat. For instance, our school offers both white and chocolate milk. Students would compare the labels and see the differences in the contents on each label. They would also be asked to compare the amounts of sugar, and fat.

Students should consider food labeling that attempts to convince us that products are healthy. They can also consider if organic products are superior and if their sometimes-higher prices are justified. If possible students would comparison shop for some items and taste test some of the foods. Just what qualifies a food to be labeled organic and how can we know that the labeling is correct.

Students will examine the food pyramid recommended by the U.S. Department of Agriculture. Students will look at their food diaries and recognize some area where they could make better choices. It might be cutting back on certain snacks or increasing the amount of milk they drink. They may decide to eat more vegetables or cut back on fast foods.

## How can we improve food quality?

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We need government to help regulate the food industry by passing effective laws and making sure that they are followed. The track record has been good in some areas and somewhat contradictory in others. In doing research on the web, I noticed that companies are aware of consumers concerns about the environment. Many include on their web sites information about how they are trying to be environmentally friendly whether by not damaging rain forests, or by limiting use of pesticides. Whether to believe their claims is another lesson for students to learn.

Still relying on government to handle all the problems with the quality of our food supply is not the whole answer. Government is sometimes unwilling to step in between the consumer and the manufacturer, or farmer. Powerful lobbies have great influence on policy issues but the public's health and trust in the food supply is something that cannot be compromised. Hopefully students will see that citizens working together they can help direct government into action.

I would hope that students would begin to understand that being a citizen requires that they actively participate in what is happening. If they have environmental concerns weather about the quality of water, the use of pesticides, or labeling on school lunches, they need to see how they can make their views heard. I would like to have students investigate, either the school food program, or a fast food restaurant they eat at and research what they do to provide nutritious and healthy food to children. They would write letters to the manufacturers and public officials about their concerns. In the case of the school system, we could try to invite someone to speak to the class about how the food program is giving them good quality food and a balanced diet.

Students need to know that they have a duty to keep informed about issues in the community and a responsibility to speak out when they see something that is wrong.

### Lesson Plan #1

Introducing the Food Pyramid

**Objective:** To have students become familiar with the food pyramid by having them categorize foods they listed on their food diaries onto a blank pyramid. To help students assess the healthiness of their food selections.

**Materials:** Copy of the food Pyramid. (You can print copies of the food pyramid for you class from the USDA website.)

Blank copy of a food pyramid

Pencil

Copy of student's previously completed food diary

## Procedure:

1. Give students a blank copy of the food pyramid. Make sure they have their food diaries.
2. Make sure each child has a copy of the food pyramid or that the classroom has one displayed so that children can see it from their seats.
3. Review the parts of the pyramid.
4. Have students begin to fill in each of the areas of the pyramid with appropriate selections. Circulate through the classroom to help students who might be having a problem.
5. Help students to summarize what they see on their individual charts by writing three or four statements about what they notice about their pyramid.

The following are suggested questions:

Are there any areas of the pyramid that you left blank?

What area did you eat the most from?

Was there one favorite vegetable that you ate more than once during the week?

Is your pyramid heavy on the bottom choices and smaller as you get to the top?

6. Collect the charts and keep them. Have the students display them if they wish. As the unit progresses give the students another diary and see if their choices improve.

## Lesson Plan #2

Cooking Experiment

(Taken from *Additives* by Nottridge, p. 8 - 9)

**Objective:** to see how additives change the look, taste and feel of food. Students will bake 2 cakes: one with additives and one without. Students will compare the cakes.

**Materials:** Ingredients for cake 1 (with additives)

$\frac{3}{4}$  cup self-rising flour

$\frac{1}{2}$  teaspoon baking powder

$\frac{1}{2}$  teaspoon salt

1 cup white sugar

$\frac{1}{2}$  cup margarine, melted

$\frac{2}{3}$  cup milk

1 teaspoon vanilla extract  
2 eggs  
2 squares melted,  
unsweetened chocolate  
Ingredients for cake 2 (without additives)  
 $\frac{3}{4}$  cup plain flour  
1 cup white sugar  
 $\frac{1}{2}$  cup margarine  
 $\frac{2}{3}$  cup milk  
2 eggs

Instructions for making the cakes: Mix the flour and other dry ingredients together. Add the rest of the ingredients except for the eggs and the melted chocolate in batch 1. Beat well for about 2 minutes. Then add the remaining ingredients and beat for one minute. Pour the mixtures into greased round cake pans and bake in an oven for about 45 minutes at 350°

**Procedure:**

1. Have students predict in their science journals what will happen to the 2 cakes will they be the same or different? How and why? You may have a short discussion with them and allow them to offer their suggestion. Then have them write their opinions down.
2. Make the cakes - if possible at school.
3. Have students look at the cakes. What looks different? Write down their observations. Have students write in their science journal what the cakes look like. Have them illustrate with a drawing of each cake.
4. Cut the cake and give each child a piece of each.

5. How does the inside look? Again they should list their observations and illustrate.
6. Have students taste each cake. Again they should record their observations.
7. Finally how does the cake feel? Is it light or heavy? Is it thick or gummy? Again write down any observations. Which cake did they prefer? Was the use of additives a good one in this case?

### **Lesson Plan #3**

#### Soda Taste Test

(The idea for this taste test was taken from *Food Politics*, by Marion Nestle p. 180)

Objective: To see if students can recognize their preferred brand of cola: Coke, Pepsi or a store brand cola.

Materials: A bottle of Coke, Pepsi, and a store brand cola

Talley sheet to record each child's stated preference

Pencil

Cups

Procedure:

1. Record each child's preference for their favorite drink between Coke, Pepsi, or the store bought cola.
2. Set up a taste test with a cup of each cola.
3. Have students one by one come and taste the samples and identify which is their favorite. Record their choices.
4. After each child has had a turn review the statistics. How many students picked out their favorite cola?
5. To those who were unable to choose their cola what does this show them?

Marion Nestle, in her book *Food Politics*, mentions that a group of students did this test to see the power of advertising. In their results 73% of the 6th and 7th graders tested could not identify their cola by taste, and 27% ranked the little known store brand as their favorite. (p. 180) I feel that similar results would probably happen with most students.

## Teacher's Bibliography

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Hoff, Mary & Mary M. Rodgers. *Our Endangered Planet: Rivers and Lakes*, Minneapolis: Learner Publications Co., 1991. Alerts the reader to the dangers of surface water pollution and the global imperative to keep those waters fresh.

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## Student's Bibliography

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Dooley, Norah. *Everybody Cooks Rice*. Minneapolis: Carolrhoda Books, Inc., 1991. Anthony is late for dinner so his sister goes from house to house trying to find him. In each house families are preparing rice in a different way. The book emphasizes the different tastes of rice when prepared by different ethnic groups. There are also recipes at the end from the Barbados, Puerto Rico, Vietnam, India, China, Haiti, and Italy.

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learn about all the foods they can eat from USDA's Food Guide Pyramid.

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(chart available in print form)

## Notes

1 Schlosser, Eric: *Fast Food Nation*, p.42

2 Schlosser, p. 43.

3 Schlosser, p. 43.

4 Schlosser, p. 51

5 Schlosser, p. 56

6 Nestle, Marion: *Food Politics*, p.22

7 Nestle, p.22

8 Nestle, p. 25

9 Nestle, p. 19

10 Nestle, p.20

11 Van Cleave, p. 6

12 Van Cleave, p. 11

13 Van Cleave, p. 13

14 Van Cleave, p. 13

15 Van Cleave, p. 17

- 16 Van Cleave, p. 18
- 17 Van Cleave, p. 18
- 18 Van Cleave, p. 27-28
- 19 Van Cleave, p. 28
- 20 Van Cleave, p. 35-36
- 21 Van Cleave, p. 43-44
- 22 Van Cleave, p. 44
- 23 Nestle, p.17 - 18
- 24 Nestle, p.18
- 25 Nottridge, Rhoda: *Additives*, p.8
- 26 Nottridge, p.10 - 11
- 27 Nottridge, p. 13
- 28 Nottridge, p. 13
- 29 Nottridge, p. 15 - 16
- 30 Nottridge, p. 19
- 31 Van Cleave, p. 145
- 32 Van Cleave, p. 164

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