

Thought for Food

By Kay Berglund

Students learn science with healthy eating.



FOOD SURROUNDS US. WE make daily decisions based on our understanding of nutrition, and nearly every magazine or television program makes claims about food in one way or another. We're bombarded with images of slim bodies attainable through diet, and that caffeinated soft drinks are the choice of mountain climbers.

As teachers, we strive to create skeptics and informed citizens; there-

fore, nutrition seems to be one of the most important and relevant topics for student learning. Yet, nutrition is a topic rarely taught in schools beyond the barest essentials of the antiquated four food groups to the recent food pyramid. With support from the parent body every year, Norwood School begins the year with a schoolwide science unit—this year it was on nutrition. The following activities were used with first- through sixth-grade students.



This unit emphasizes critical thinking and decision making. It is consistent with the *National Science Education Standards* Content Standard F: Science in Personal and Social Perspectives, Personal Health and with the American Association for the Advancement of Science's *Benchmarks for Science Literacy* Standard 6E: Physical Health and 12E: Critical Reasoning Skills.

Neophyte Nutritionists

We began this unit by asking the older students to complete a survey about nutrition topics that interest them. We used a list of topics from the Center for Science in the Public Interest's (CSPI) "Chow!" nutrition curriculum (see Classroom Materials). Using this survey as a guide, we incorporated students' interests when planning this unit.

For a pre-assessment activity, students imagined they were parents and chose a day of healthy meals for their child, giving reasons for their choices. We repeated this process at the end of the unit to look for development in their ability to assess food choices. It is important to realize that food choices are complicated and individual; we did not look for right or wrong answers as much as we looked for thoughtfulness, correct reasoning, and manageable modifications in eating decisions.

Our unit on nutrition also included a look at the USDA's food pyramid. We discussed why the USDA decided to replace the four food groups with the food pyramid, and ways in which the food pyramid might yet be improved. We looked at CSPI's "Healthy Eating Pyramid" for comparison.

Food Choices

Students participating in this unit kept a food journal for three days. They recorded everything they ate, at meals and between meals. One interesting consequence of this activity was the amount of home discussion it generated; many families became much more aware of what they were eating

when faced with this assignment. We used these journals to assess our own diets, and the children individually made several observations about ways they could improve their own diets, such as "I need to eat more vegetables," "I should drink fruit juice in the morning," and "I should switch to whole wheat bread on my sandwiches."

Food labels are another important topic. There are good activities for learning about Nutrition Facts Panels contained in "Label Power," a nutrition curriculum from the Sugar Association (see Classroom Materials).

We found their method of comparing breakfast meals interesting and effective: assembling paper bags that each contain food labels for a different breakfast. For example, one bag contained a card reading "two eggs, one glass of whole milk, two pieces of sausage, and one slice of white bread with butter," as well as the Nutrition Facts Panels for each of the listed foods.

Each group of students received a different breakfast bag. They computed the amounts of fat, calories, calcium, protein, fiber, and sodium in each breakfast, being careful to watch how their serving sizes compared to the listings on the labels (e.g., since we had two eggs, we had to double those numbers).

Next, we discussed breakfast choices and how each breakfast could be improved. In this example, we could begin by substituting skim milk for the whole milk and vegetarian sausage for regular sausage to reduce the amount of saturated fat, and replacing buttered white bread with jelly on whole wheat to decrease saturated fat and increase the amounts of fiber and minerals.



We were careful to keep things acceptably tasty because an important message is that eating in healthy ways does not have to mean eating food we don't like, or giving up food we like.

Food Advertisements

Next, students took a look at the popular media. To begin, students analyzed some commercials together in class, using videotaped advertisements. (Videotape is available from CSPI as part of their "Chow!" nutrition curriculum.) Remarkably, the children were able to pick out the dubiously truthful techniques of some advertisements, such as phrases including "part of this complete breakfast" and "tastes like *real fruit*" or scenes of people winning sports games while eating a sugar cereal.

To examine the messages that surround all of us today, my fellow science teachers and I asked students to monitor television and magazine advertisements. Because many parents carefully limit viewing hours on school nights, we recommend assigning this homework over a weekend and offering magazine perusal as an alternative. We found that a half hour of television viewing was enough for



Students created this large bar graph to distinguish between “healthy food” and “junk food.”

most students to see a few food or beverage advertisements. Children were asked to record the type of program they watched (or what magazine they chose), whether the program (or magazine) was aimed at children or adults, the time of the program, and what kind of food or beverage the spot advertised.

To analyze the type of advertisements the students found, they made a giant bar graph and divided the foods advertised into breakfast foods, other meals, snacks, and beverages. Within each category, they distinguished “healthy” foods, which offer a variety of vitamins, minerals, and other nutritional benefits, from “junk” foods, which are high in fat, sugar, or sodium without compensating beneficial nutrients. For example, advertisements for fried chicken restaurants, pizza, or candy are junk foods

while salad dressing and baked potato advertisements seem to encourage healthier eating. In the beverage category, alcohol, soda, and coffee were clearly junk food when compared with advertisements for fruit juice or skim milk.

In discussion, students applied the “healthy” and “junk” labels. This categorization was a valuable part of this lesson. We acknowledged overlap be-

tween the categories, depending on an individual’s needs and remainder of his or her diet. Some foods are debatable because nutritional benefits are unclear or because we were not familiar enough with the food to be aware of its nutrients. (Of course the advertisements themselves don’t always give a believable portrayal!) Most foods clearly fit into one of the two categories.

Based on their previous study of nutrition (and with some guidance from the teacher), students determined for themselves which category each of the advertisements fit most closely. Using tape, they placed colored tags on a bar graph on a huge sheet of butcher paper. We used two colors, one for magazine advertisements and one for television advertisements (see photograph).

Our final graph was quite dramatic. Students found that junk food advertisements far outpaced healthy food advertisements, at a rate approaching four to one in some categories. Students also noted that healthy ad-



vertisements seemed slightly more prevalent in magazines than on television. This could have been due simply to the magazines chosen by the students, or it could have reflected the impulsive, 30-second-look of television advertisements.

Further Investigations

The students suggested that future studies could include comparing programming for children to programming for adults, using a more systematic approach to magazines versus television, or looking at the time the advertisements aired. Some children noted that dinnertime advertisements were more likely to be for convenience meals or pizza delivery, while advertisements at other times might include more snack foods.

For a follow-up activity, students designed their own advertisements. Each child chose a fruit or vegetable (or some other nutritious food) and designed a healthy advertisement. Students attacked this project enthusiastically, and their conversations regarding the delicious taste of asparagus, Granny Smith apples, and pomegranates surely more than strengthened their parents' urging to finish those healthy foods.

Tasting Days

School provides a wonderful setting for the exploration of new foods. Even children who are reluctant to try new foods at home are often swayed by their peers' excitement. Creativity and choices with food are effective ways to gain children's interest.

"Tasting Days" provide students with a chance to try a food they have heard about from peers, even if this healthy food is not advertised extensively. We tried alternatives to traditional fried snack foods (baked potato chips and popcorn), made fruit salad, and had each child make up his or her own dip recipe to try with fresh vegetables (see sidebar, next page). Children love preparing their own food,

and our science room took on a party atmosphere as children peeled carrots, broke apart broccoli florets, and cut up jicama. If possible, conduct this activity in the cafeteria or home economics classroom. **If the activity must be conducted in the science room, tell children that they have permission to eat in the science room only for this activity.**

Health and safety must be emphasized: carefully check for food allergies before serving anything; have children wash hands thoroughly and wear plastic gloves before touching foods; children need to be cautioned against putting a licked, "germy" spoon back into the yogurt container; and sharp knives are not appropriate for a room full of elementary school children. Dull plastic knives are sufficient for most of the cutting tasks. Encourage the children to pull apart or break pieces of the fruits and vegetables with their hands as much as possible.

The Way to Healthy Eating

A tremendously important message of any nutrition unit must be the role of food as nurturer of our bodies. Most children have grown up hearing their parents and other adults speak of dieting and seemingly hating their own

bodies and relating to food in many unhealthy, guilt-laden ways. At the same time, our reliance on convenience foods and immediate gratification have created high-fat, high-sodium diets, leading to obesity and poor health for many people.

As young children strive to find their own body images and emulate the adults around them, we must help them avoid (as much as possible) these food pathologies. A 1992 study by the University of California at San Francisco found that almost half of nine-year-old girls were "actively" dieting. This number was supported in our classes, where approximately 25 percent of fourth- and fifth-grade students indicated "losing weight" as one of the topics in which they were most



Vegetables and Dip

This activity works best when done with many children, because many of the herbs will be used in small amounts (it is more economical when the herb jar can be shared among many children).

Children should be encouraged to use as many or as few ingredients as they like and to keep a record of what ingredients they put in, so they can duplicate their recipe. Of course, many other ingredients could also be wonderful in a dip, and the number of ingredients offered is flexible depending on your budget.

Dip Base

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|---------------|--------------------------------------|
| Nonfat yogurt | Nonfat or lowfat sour cream |
| Tomato juice | Tofu, mashed (Soft tofu works best.) |

Add-Ins

| | |
|---|----------------------|
| Salt | Black pepper |
| Tabasco sauce | Worcestershire sauce |
| Lemon juice | Turmeric |
| Herbs (oregano, basil, mixed Italian herbs, rosemary, tarragon, dill, etc.) | |

Vegetables

| | |
|------------------|--|
| Carrots | Jicama (a sweet, apple-like vegetable) |
| Red bell peppers | Cucumbers |
| Celery | Broccoli |

To create a dip, choose one or more of the dip base ingredients and mix them in a cup. Make sure you keep your cup and spoon to yourself. Add as many or as few of the other ingredients as you would like. Smell the ingredients first—you can tell a lot about what you will like by smelling. Keep a list of what you put in your dip so you can make it again at home if you like it.

Next, wash the vegetables and help cut them and break them into small pieces. Dip your vegetables in the dip and enjoy!

Classroom Materials

Many helpful resources are available from the Center for Science in the Public Interest, including a nutrition curriculum called “Chow!” aimed at students in grades 7 through 12 (adaptable for younger students). Contact CSPI-PD, 1875 Connecticut Ave., N.W., Ste. 300, Washington, DC 20009-5728; (202) 322-9110.

Dr. Health'nstein's Body Fun is an entertaining, informative CD-ROM game produced by the Cancer Research Foundation and available to teachers for \$8. Contact CRF, 200 Dangerfield Rd., Ste. 200, Alexandria, VA 22314; (703) 836-4412.

5-A-Day Adventures is a free CD-ROM available from the Dole Food Company. Send a request on school letterhead indicating your type of computer and the number of copies you would like to Dole Food Company, Ste. 476, 155 Bovet, San Mateo, CA 94402.

The Sugar Association produces many nutrition leaflets and curriculum activities, as well as a game, “Label Power,” that teaches about the new food labels. Contact the Sugar Association, Inc., 1101 15th St., N.W., #600, Washington, DC 20005; (202) 785-1122.

interested. In fact, some research has shown that dieting is one of the best ways to *gain* weight in the long run, and dieting is certainly dangerous and unwise for children, despite its prevalence among adults.

A unit on nutrition must tread a fine line, emphasizing healthy weight and healthy eating patterns without overemphasizing thinness or creating any illusions that a calorie-restricted diet is safe or healthy. “Healthy weight” is different for each body, and most people’s bodies will find a natural healthy weight on their own, if fed healthy, lowfat foods with plenty of fruits, vegetables, and grains and exercised regularly and joyfully. Studies have shown that even toddlers will maintain a healthy weight if offered a variety of tasty, healthy foods, as they naturally monitor their own intake. Clearly, our exploration of nutrition needs to go far beyond the basics of a food pyramid.

Resources

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