DOCUMENT RESUME

ED 231 505 PS 013 575

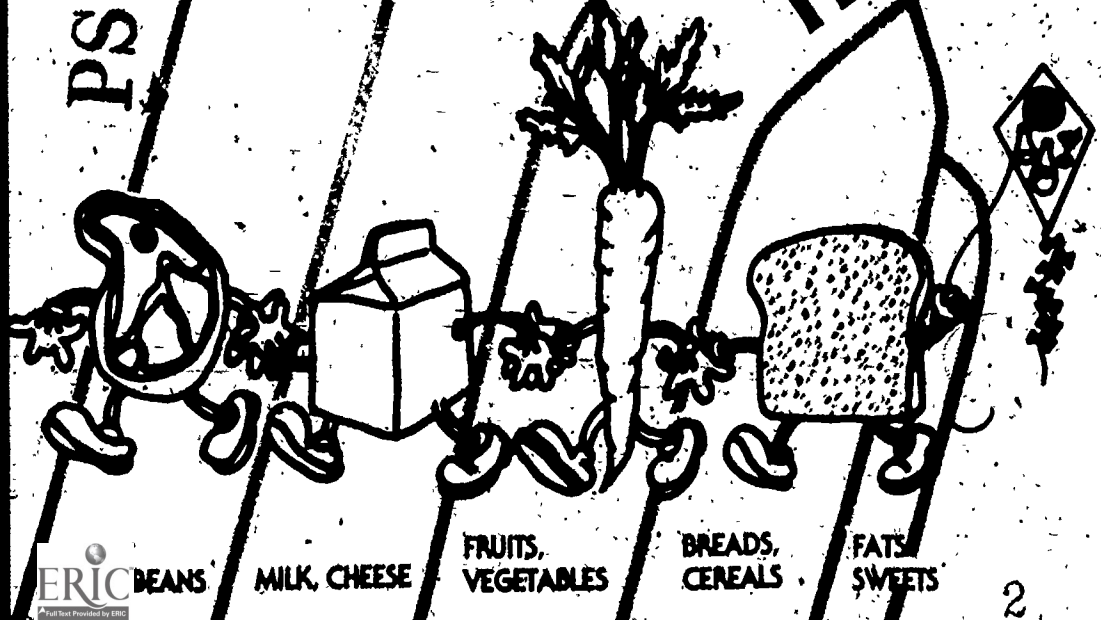
TITLE Integrated Nutrition Education: Senior High.
INSTITUTION Illinois State Board of Education, Springfield.
SPONS AGENCY Department of Agriculture, Washington, D.C.
PUB DATE Jul 81
NOTE 171p.
PUB TYPE Guides - Classroom Use - Guides (For Teachers) (052)

EDRS PRICE MF01/PC07 Plus Postage.
DESCRIPTORS Drug Abuse; *Health; High Schools; *High School Students; *Instructional Materials; Integrated Curriculum; *Learning Activities; *Nutrition Instruction; State Curriculum Guides
IDENTIFIERS Illinois

ABSTRACT

Designed for implementation across the school year in existing curriculum areas, 18 nutrition activity units for high school students are provided. Each activity unit consists of a list of coordinated curriculum areas, a statement of objectives, guidelines for teachers, a list of learning activities, and bibliographic citations. Various supplements to each unit are included; these provide factual information, nutrition charts, materials for students (such as tests and opinion surveys), and other materials. Among other objectives, it is intended that the student learn to (1) analyze his or her own diet and become able to make choices to improve it; (2) recognize the effects of alcohol, drugs, and too much sugar on health; and (3) become aware of the vital role of protein in the body and recognize several ways to obtain this nutrient. Activities focus on basic nutrition as well as health-related aspects of nutrition. Included in appendices are lists of nutritive values in common portions of food; revised recommended dietary allowances; and free, low-cost nutrition education materials. (RH)

INTEGRATED NUTRITION EDUCATION SENIOR HIGH



Funded by Public Law 95-166, the Nutrition Education and Training Act, (NET) with a grant from the United States Department of Agriculture, through the Illinois State Board of Education.

FOREWORD

The Illinois State Board of Education is pleased to make available this publication of suggested curriculum activities on the topic of nutrition education.

This publication has been developed as a guide to assist educators in the planning and implementing of nutrition education activities into the existing curriculum areas. It is not exclusive of all available nutrition education activities that could be implemented but is representative of many varied activities.

This publication was developed by the Colorado NET program which extended permission to reproduce the contents for our state's use. We are appreciative of their assistance.

Donald G. Gill
State Superintendent of Education

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INTRODUCTION

The White House Conference on Food, Nutrition, and Health, held in 1969, emphasized the need of a nutrition education program that begins in early childhood and continues through the secondary school, to help children acquire positive attitudes toward food and to help older children assume responsibility for their diet and to prepare them for adulthood and their future role as parents.

Health problems which are affected by nutrition are common throughout our country. These include obesity, heart disease, dental caries, high blood pressure, kidney disease, and diabetes. There is still much to be learned about the specific role of nutrition both in the development and treatment of these diseases. However, we do know that sound nutritional practices can prevent many of these health problems.

Changing socio-economic conditions and new food technology both affect the diet of our country. Poverty limits the possibility of obtaining a balanced diet. Changes in life-style cause changes in food consumption patterns as more meals are eaten away from home. The increasing amount of new food products on the market, - many of them "convenience" foods - leads to uncertainties about their nutrient content. These conditions also point out the need for further nutritional education.

All evidence seems to indicate that young people cannot be expected to select by instinct a diet that meets their nutritional needs. Good food habits are the result of a learning experience, whether at school, at home, or elsewhere. We challenge every teacher to make their contribution in making that learning experience a positive one.

These lessons have been written and activities designed to make it possible for teachers in every field to have an occasional lesson on a nutrition topic. H.E.L.P.'s (Here's Extra Learning Possibilities) are included with each lesson which should assist the teacher to achieve the desired lesson objective.

We hope both you and your students have fun while pursuing together the overall objective of optimum health.

ILLINOIS NUTRITION EDUCATION AND TRAINING ACT CONCEPTS

The Nutrition Education and Training Program in Illinois has identified these concepts as most important nutrition messages for students to comprehend. Please introduce and then summarize learning activities with one or more of them. If displayed on a large chart in the room, the concept(s) related to each activity can be easily pointed out by the students.

Physiological Facts

Nutrition is the way the body uses food. We eat food to live, to grow, to keep healthy and well, and to get energy for work and play.

Nutrients

Food is made up of different nutrients that work together and interact with body chemicals to serve the needs of the body. Many kinds and combinations of food can provide a nutritionally adequate diet.

Food Handling

The way food is handled influences the amounts of nutrients in food, its safety, quality, appearance, taste, acceptability, and cost.

Life Cycle

All persons throughout life have need for the same nutrients, but in varying amounts. The amount of nutrients needed is influenced by age, sex, activity and state of health.

Social/Psychological Aspects of Food

Food can be chosen to fulfill physiological needs and at the same time satisfy social, cultural, and psychological wants.

Food Technology

The nutrients, singly and in combinations of chemical substances simulating natural foods, are available in the market; these may vary widely in usefulness, safety of use and economy.

Nutrition and Society

Food plays an important role in the physical and psychological health of the society or a nation just as it does for the individual and family.

References:

Ullrich, Helen D. and Briggs, George M., "Improving Education Concerning Nutrition: The General Public," 1969 White House Conference on Food Nutrition and Health, pp. 175-187.

Mayer, Jean, ed. U.S. National Policies in the Seventies, San Francisco, W. H. Freeman and Company, 1973.

These concepts evolved from the Interagency Committee on Nutrition Education, 1964.

NUTRITION EDUCATION OBJECTIVES AND RELATED CONCEPTS

The following information is provided to show the interrelationship which exist between the nutrition education concepts deemed important by the Illinois program and the objectives sought by the activities suggested in this guidebook.

OBJECTIVE	PAGE	RELATED CONCEPT
September		
The student will learn to analyze his/her own diet and how to make choices to improve it.	6	Physiological Facts; Nutrients; Life Cycle; Social/Psychological Aspects of Food
Lunch can be fun and nutritious when you are creative and plan ahead.	17	Food Handling; Nutrients; Physiological Facts; Life Cycle; Social/Psychological Aspects of Food
October		
The student will recognize the effect of alcohol and drugs on his/her health.	20	Physiological Facts; Nutrients; Life Cycle
The student will become aware that too much sugar in the diet can cause health hazards.	30	Physiological Facts; Nutrients; Life Cycle; Food Handling; Social/Psychological Aspects of Food
November		
The student will become aware of the vital role of protein in their body and recognize the several ways to obtain this nutrient.	34	Physiological Facts; Nutrients; Life Cycle; Food Handling; Food Technology; Nutrition and the Society
The student will become more aware of the beverage choices he/she makes and realize that the role of milk in the diet lasts for a lifetime.	40	Physiological Facts; Nutrients; Life Cycle
December		
The student will realize that he/she has control over his/her diet by the choices he/she makes, both at home and eating out.	47	Physiological Facts; Nutrients; Life Cycle; Food Handling; Social/Psychological Aspects of Food

OBJECTIVE	PAGE	RELATED CONCEPT
The student will become more aware of food additives in the food he/she consumes and be better able to distinguish those that are helpful from those that might be harmful.	50	Physiological Facts; Nutrients; Food Handling; Food Technology
January		
The student will learn that the pregnant teenager has special dieting needs.	54	Physiological Facts; Nutrients; Life Cycle
The student will learn how to lose or gain weight by controlling the number of calories he/she consumes.	69	Physiological Facts; Nutrients; Life Cycle; Social/Psychological Aspects of Food
February		
To examine the patterns of diet-related diseases in the student's family and to evaluate the potential risk of heart disease and identify how persons can reduce the risk of coronary heart disease.	75	Physiological Facts; Nutrients; Life Cycle
The student will learn how to read a food label for nutritional information, will understand the relationship between food processing, energy consumption, nutritional value of food and resultant cost, and will become familiar with some history of food labels.	80	Physiological Facts; Nutrients; Life Cycle; Food Handling; Food Technology; Nutrition and the Society
March		
The student will learn the importance of vitamins in the diet and sources of each.	89	Physiological Facts; Nutrients; Life Cycle; Food Handling; Food Technology
The student will realize that home-grown vegetables are more delicious as well as healthier for him/her and his/her family.	102	Nutrients; Food Handling; Food Technology
April		
To help the student achieve a more nutritious diet, in spite of the fast meals he/she often consumes.	113	Physiological Facts; Nutrients; Life Cycle; Food Handling; Social/Psychological Aspects of Food

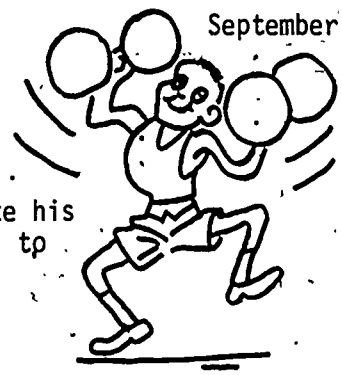
OBJECTIVE	PAGE	RELATED CONCEPT
To help the student learn more about natures most perfect protein food... the egg.	116	Physiological Facts; Nutrients; Life Cycle
May		
The student will become aware of the U.S. Senate's dietary goals and how they could affect his/her diet. He/she will also learn how many major American diseases are diet related.	118	Physiological Facts; Nutrients; Life Cycle; Food Handling; Food Technology; Nutrition and the Society
The student will nutritionally analyze the offerings of fast food restaurants and recognize the part they play in a well-balanced diet.	131	Physiological Facts; Nutrients; Life Cycle; Food Handling; Social/Psychological Aspects of Food

RMF 3337k

THE BASIC FOUR FOOD GROUPS
OR
"STAY FIT WITH FOUR!"

Health
History
Home Economics
Social Studies

September



Objective: The student will learn to analyze his own diet and how to make choices to improve it.

To The Teacher:

Today we are bombarded by food. We live in a land of plenty, yet many of our citizens are malnourished because of poor food choices. The Four Food Groups were established to make it easier to choose a balanced diet. The following activities are designed to help the student make better food choices.

Activities:

1. Read and discuss "The Four Food Groups - Their History" (HELP #1)* with your class. Go over the charts showing the latitude of choices available. Emphasize the section "Updating the Four Food Groups."
2. With Activity 1 as background, the students will analyze the food habits of his own family. Without trying to make any change, simply keep a record of the amount and kind of food each family member eats for a period of one week. (Record sheet - Appendix 1.) Compare the results with the recommended quantities of food in the moderate cost family plan (HELP #2). How does your family's diet compare with the recommended diet?
3. After checking your family's diet, complete HELP #3 - Changing Food Habits - A Home Experience.
4. The teacher may select a variety of candies, cookies, or crackers, and arrange the food on a tray. Let each student select one. Discuss student choices to help students recognize personal values in food choices. Sample questions and activities:

   What did you select?
   Why did you select it?
   Let's make a list of the reasons people make the choices they do.
   If these are the reasons people choose the foods they do, what must we consider when trying to change food choices?
   Why do we need to change food choices?
5. Values Which Influence Choices (HELP #4).
6. Find pictures of the interiors of grocery stores 50-60 years ago. List the mechandizing changes that have occurred. Determine how these changes have influenced our eating habits. Then picture a.

grocery store in 2030. How has it changed from the supermarket of today? Imagine what our eating habits will be.

7. S-T-R-E-T-C-H Your Imagination! Imagine you are going to have your last meal tomorrow. Describe briefly the eating environment, the meal you would have, and the people (anyone in the world - alive or dead) with whom you would choose to eat. Discuss with entire class.
8. Post a large world map on the bulletin board. Ask students to bring labels from imported and domestic foods to pin-point on map. How dependent are we on imported foods? From which food groups do your choices of imported foods come?

SOURCES:

* This material borrowed from the Energy, Food and You curriculum guide, a program of the Washington State Offices of Environmental Education (N.W. Section) and Health Education.

Illinois Teacher of Home Economics, Vol. XIX, No. 4, March/April 1976). Page 204.

Instructional Patterns for Maximizing Human Potential. California State Department of Education. 1978.

Nutrition Today, Newton, David E. and Walch, Weston J. Portland, Maine 04104.

THE FOUR FOOD GROUPS

Their History

Many countries use some kind of food group system to teach the basic principles of nutrition. The number of groups and the composition of the groups vary according to local food habits, agricultural practices, and nutritional needs. Puerto Rico, for example, uses a six food group system whereas the United States uses a four food group system. The use of a food group system alone will not guarantee nutritional adequacy of the diet. Careful food selection within the groups is important, too.

In the early part of this century, much attention was focused on the major nutritional deficiency diseases--pellagra, scurvy, beri-beri--that were then responsible for so much misery and death. Interest in these widespread diseases and the limitation of the scientific technology at the time led to a great deal of information being amassed on 10 of the approximately 50 nutrients now known to be essential to the human body. These nutrients: protein, carbohydrates, fat, niacin, thiamin, riboflavin, vitamins A and C, and the minerals iron and calcium--are sometimes called "leader" nutrients because for a long time it was felt that, if needs were met for these 10 nutrients, the other 40 would "follow" and an individual would almost assuredly be well nourished. Food group systems were then formulated on the basis of needs for these 10 nutrients.

Unfortunately, as the science of nutrition develops and we know more, and with our food habits becoming increasingly influenced by food processing methods, advertising, and relative affluence, the assumption that the other 40 nutrients will "follow" the 10 "leaders" can no longer be made with assurance. As knowledge of trace mineral needs grows (trace minerals are minerals needed by the body in very small quantities), so does concern about where people are going to get them in a diet that is composed increasingly of refined foods. For example, chromium, a mineral important for normal glucose metabolism, is many times higher in whole wheat than in refined white flour. And contrary to what many people think, enrichment and fortification of processed and refined foods with these lesser known nutrients is not the answer since relatively little is known yet about human needs for elements like chromium, selenium, manganese, cobalt, and others, and the margin of safety before toxic levels are reached is, in many cases, small.

In addition, nutrients interact with one another in ways that are only beginning to be understood. A diet with a high concentration of molybdenum and zinc will, for example, increase the need for copper.

Excerpted from: Environmental Nutrition Newsletter, July-August 1978

Using the four food groups

Every food contains certain nutrients. Because of this, foods can be put into groups according to the type and amount of nutrients present. The Four Food Groups were chosen because of the significant nutrient contribution each can make to the total diet.

This material borrowed from the Energy, Food and You curriculum guide a program of the Washington State Offices of Environmental Education (N.W. Section) and Health Education.

Serving Sizes

Food Portion Size	Food Group	Minimum Daily Recommended Servings
Milk - 8 oz. cup *Hard Cheese - 1 1/2 oz. *Cottage Cheese - 2 cups *Yogurt - 1 cup	Milk Group	Children under 9...2 to 3 Children 9 to 12...3 or more Teenagers.....4 or more Adults.....2 or more Pregnant Women....3 or more Nursing Mothers....4 or more

*Foods having the amount of calcium equivalent to 8 oz. milk

Cooked meat, fish, poultry - 2 oz. Eggs - 2 Hard Cheese - 2 oz. Cooked dried beans or peas - 1 cup Peanut Butter - 4 Tablespoons	Meat Group	2 servings for everyone 3 servings for pregnant women

*Foods having amount of protein equivalent to 2 oz. meat, fish and poultry.

Fresh vegetable - 1 cup *Fresh fruit - medium-sized apple, banana, tomato, potato or half a medium-sized grapefruit or cantaloupe *Cooked fruit or vegetable - 1/2 cup Juice - 1/2 cup	Fruit and Vegetables Group	4 servings for everyone

Refer to additional sheets on good sources of vitamin C and vitamin A.

1 slice bread 1/2 cup cooked cereal 1 cup ready-to-eat cereal 1/2 cup cooked rice, 1 pasta a small plain roll or muffin 1/2 hot dog, hamburger roll or bagel 6 saltine crackers	Grain Group	4 servings for everyone

Other Types of Food Sources-

Additional Foods

Other foods may be added if individual Calories and nutrients are needed. These foods contain some nutrients, but cannot replace the Four Food Groups. These foods include sweets, fats, dressings, sauces, unenriched grains, flavorings, condiments (spices, etc.).

Combination Foods

These are foods which have two or more ingredients in one serving.

Fabricated Foods

It is difficult to place these foods in any particular food group unless you know the exact ingredients. Check the label of the food and see what is listed. Look at nutrition labeling and see what nutrients are present in the food.

Here are some examples of what different food choices within the Four Food Groups can mean for your diet:

Choosing	a fresh orange or orange juice instead of a vitamin C fortified orange-flavored drink will	Give you more thiamin, folic acid (a B vitamin), and potassium.
Choosing	whole grain breads and cereals instead of refined will	Give you more magnesium, chromium, folic acid, vitamin B-6, pantothenic acid (a B vitamin) and vitamin E.
Choosing	dark green leafy vegetables like collards, kale, dandelion or mustard greens instead of string beans or corn will	Give you more vitamins A, C, and E, folic acid, calcium and iron.
Choosing	liver once in awhile instead of another meat will	Give you more vitamins A and C; thiamin, riboflavin; niacin; folic acid; vitamins B-6 and B-12; copper; zinc; molybdenum; and manganese.

The Four Food Groups, Milk, Meat, Fruits and Vegetables, and Grains, are a guide to help individuals plan their diets. It is important to remember:

- These are the minimum number of servings. Individuals may have to include additional Calories according to their needs.
- The Four Food Groups are recommendations for healthy people.
- The variety of foods for the whole day, and not one group alone, supplies an individual with the proper amount of nutrients.

Four Food Groups

Underlined nutrient is most abundant in that particular group.

Milk Group	Main Nutrients Contributed
whole, lowfat, skim, evaporated and chocolate milk, buttermilk, non-fat dry milk, cottage cheese, ice cream, yogurt	protein, calcium (primary contribution), riboflavin, vitamin D (if fortified), vitamin A and D (in lowfat, skim or non-fat milks)
Meat Group	
meat, poultry, fish, eggs, shellfish, legumes (dry peas and beans, peanuts, nuts, soybeans)	niacin, iron, thiamin, protein
Fruit and Vegetable Group	
all fruits & vegetables* canned, frozen, fresh, dried; all citrus fruits**, potatoes *Need dark green leafy vegetable or orange-colored vegetable every other day. **Need citrus fruit or other source rich in vitamin C daily.	vitamin A, vitamin C, fiber, iron, calcium, some protein, thiamin, riboflavin, niacin
Grain Group	
all whole grain or enriched, fortified breads and cereals, macaroni, white or whole grain flour, spaghetti, noodles, tortillas, grits	iron, thiamin, niacin, carbohydrate

UPDATING THE FOUR FOOD GROUPS

Nutritionists devised the Basic Four in the mid-fifties to translate a myriad of nutrient recommendations into simple food choices that most people could understand. Much planning and thought went into the food guides, and what emerged was a food classification system.

Although the Basic Four was designed for good nutrition, today it condones the major problems in our food supply. Half of all adult Americans have blood cholesterol levels above the value suggested in the National Heart, Lung, and Blood Institute's (NHLBI) handbook for physicians, yet the Basic Four says nothing about the diet high in saturated fat and cholesterol that is so closely linked to this problem. NHBLI also estimates that 60 million Americans have definite or borderline high blood pressure, yet the Basic Four does not address the sodium content of the American diet, which experts say contributes to this startling rate of high blood pressure. At the same time, though few Americans have nutrient deficiencies, the Basic Four focuses on the vitamin, mineral, and protein content of the diet.

The Basic Four does provide a simple approach to nutrient adequacy, and the importance of nutrients should not be dismissed. Modifying the Basic Four's message is really all that is needed.

USDA is planning to take a second look at the Basic Four. In the meantime, Nutrition Action offers its own version.

-Patricia Hausman

	ANYTIME	IN MODERATION	NOW AND THEN
GROUP I BEANS, GRAINS & NUTS FOUR OR MORE SERVINGS/DAY	Barley Beans Bread & rolls (whole grain) Bulghur Lentils Oatmeal Pasta Rice Whole grain cereal (except granola)	Granola cereals Nuts Peanut butter Soybeans White bread and Cereals	
GROUP II FRUITS & VEGETABLES FOUR OR MORE SERVINGS/DAY	All fruits and vegetables except those listed on right Unsweetened fruit juices Unsalted vegetable juices Potatoes, white or sweet	Avocado Fruits canned in syrup Salted vegetable juices Sweetened fruit juice Vegetables canned with salt	French fries Olives Pickles
GROUP III MILK PRODUCTS CHILDREN: 3 TO 4 SERVINGS OR EQUIVALENT ADULT: 2 SERVINGS (Favor ANYTIME column for additional servings)	Buttermilk Farmer or pot cheese Lowfat cottage cheese Lowfat milk with 1% milkfat Skim milk ricotta Skim milk	Frozen lowfat yogurt Ice milk Lowfat milk with 2% milkfat Lowfat (2%) yogurt, plain or sweetened Regular cottage cheese (4% milkfat)	Hard cheeses: blue, brick, camembert, cheddar, (note: part-skim mozarell and part-skim ricotta a preferable but still rich fat) Ice cream Processed cheeses Whole milk Whole milk yogurt

	ANYTIME	IN MODERATION	NOW AND THEN
GROUP IV POULTRY, FISH, EGG & MEAT PRODUCTS TWO SERVINGS: (Favor ANYTIME column for additional servings. If a vegetarian diet is desired nutrients in these foods can be obtained by increasing servings from Groups I & III.)	POULTRY Chicken or turkey (no skin) FISH Cod Flounder Haddock Halibut Perch Pollock Rockfish Shellfish, except shrimp Sole Tuna, water-packed EGG Egg whites	FISH Herring Mackerel Salmon Sardines Shrimp Tuna, oil-packed RED MEATS Flank steak Ham* Leg of lamb* Loin of lamb* Plate beef* Round steak* Rump roast* Sirloin steak* Veal*	POULTRY & FISH Deep fried and breaded fish or poultry RED MEATS Bacon Corned beef Ground beef Hot dogs Liver Liverwurst Pork: loin Pork: Boston butt Salami Sausage Spareribs Untrimmed meats EGG Egg yolk or whole egg
MISCELLANEOUS NOTE: Snack foods should not be used freely, but the middle column suggests some of the better choices.	FATS (none) SNACK FOODS (none)	FATS Mayonnaise Salad oils Soft (tub) margarines SNACK FOODS Angel food cake Animal crackers Fig bars Gingerbread Ginger snaps Graham crackers Popcorn (small amounts of fat and salt) Sherbet	FATS Butter Cream Cream cheese Lard Sour cream SNACK FOODS Chocolate Coconut Commercial pies, pastries and doughnuts Potato chips Soda pop

*Trim all outside fat.

"Anytime" foods contain less than 30 percent of calories from fat and are usually low in salt and sugar. Most of the "now and then" foods contain at least 50 percent of calories from fat—*and* a large amount of saturated fat. Foods to eat "in moderation" have medium amounts of total fat and low to moderate amounts of saturated fat *or* large amounts of total fat that is mostly unsaturated. Foods meeting the standards for fat, but containing large amounts of salt or sugar, are usually moved into a more restricted category, as are refined cereal products. For example, pickles have little fat, but are so high in sodium that they fall in the "now and then" category.

Important:

To cut down on salt intake, choose varieties of the foods listed here that do not have added salt, such as no salt cottage cheese, rather than the regular varieties. This guide is not appropriate for individuals needing very low-salt diets.

This material borrowed from the Energy, Food and You curriculum guide, a program of the Washington State Offices of Environmental Education (N.W. Section) and Health Education.

MODERATE-COST FAMILY FOOD PLAN

Sex-age group	Weekly quantities of food[1] for each member of family																	
	Milk, cheese, ice cream[2]	Meat, poultry, fish[3]		Eggs	Dry beans, peas, nuts		Flour, cereals, baked goods[4]		Citrus fruit, tomatoes		Dark-green and deep-yellow vegetables		Potatoes		Other vegetables and fruits		Fats, oils		Sugars, sweets	
	Qt.	Lb.	Oz.	No.	Lb.	Oz.	Lb.	Oz.	Lb.	Oz.	Lb.	Oz.	Lb.	Oz.	Lb.	Oz.	Lb.	Oz.	Lb.	Oz.
Children:																				
7 months to 1 year	6	1	4	6	0	0	0	12	1	8	0	2	0	8	1	8	0	1	0	2
1–3 years	6	1	12	6	0	1	1	0	1	8	0	4	0	12	2	12	0	4	0	4
4–6 years	6	2	4	6	0	1	1	12	2	0	0	4	1	0	4	0	0	6	0	10
7–9 years	6	3	0	7	0	2	2	0	2	4	0	8	1	12	4	12	0	10	0	14
10–12 years	6½	4	0	7	0	4	2	12	2	8	0	12	2	4	5	8	0	10	0	14
Girls:																				
13–15 years	7	4	8	7	0	2	2	12	2	8	0	12	2	4	5	12	0	12	0	14
16–19 years	7	4	4	7	0	2	2	8	2	8	0	12	2	0	5	8	0	10	0	12
Boys:																				
13–15 years	7	4	12	7	0	4	4	0	2	12	0	12	3	0	6	0	0	14	1	0
16–19 years	7	5	8	7	0	6	5	0	3	0	0	12	4	4	6	4	1	2	1	2
Women:																				
20–34 years	3½	4	4	6	0	2	2	4	2	8	0	12	1	8	5	12	0	8	0	14
35–54 years	3½	4	4	6	0	2	2	0	2	8	0	12	1	4	5	4	0	8	0	12
55–74 years	3½	4	4	6	0	2	1	12	2	4	0	12	1	4	4	4	0	6	0	8
75 years and over	3½	3	12	6	0	2	1	12	2	4	0	12	1	0	3	12	0	6	0	8
Pregnant	7	4	4	7	0	2	2	4	3	8	1	8	1	8	5	12	0	8	0	12
Nursing	10	5	0	7	0	2	2	12	5	0	1	8	2	12	6	4	0	12	0	12
Men:																				
20–34 years	3½	5	8	7	0	4	4	0	2	12	0	12	3	0	6	8	1	0	1	4
35–54 years	3½	5	4	7	0	4	3	8	2	12	0	12	2	8	5	12	0	14	1	0
55–74 years	3½	5	0	7	0	2	3	4	2	12	0	12	2	4	5	8	0	12	0	14
75 years and over	3½	5	0	7	0	2	2	12	2	8	0	12	2	0	5	4	0	10	0	12
Total																				

[1] Food as purchased or brought into the kitchen from garden or farm.
[2] Fluid whole or its calcium equivalent in cheese, evaporated milk, dry milk, ice cream (see p. 3).
[3] Bacon and salt pork should not exceed ½ pound for each 5 pounds of meat group.
[4] Weight in terms of flour and cereal. Count 1½ pounds bread as 1 pound flour.

Changing Food Habits--A Home Experience

Identify two specific aspects of your own food habits and associations that you would like to concentrate on changing during the next two or three weeks. When you feel that you have made progress on this project, you may ask for this evaluation sheet again.

The two food habits I would like to change are:

1. _____
2. _____

Pretest		Post-test
Will it?		Did it?
_____	1. Improve my health.	_____
_____	2. Help me get along better with my family.	_____
_____	3. Improve my appearance.	_____
_____	4. Make me feel better about myself.	_____
_____	5. Give me extra willpower to change.	_____
_____	6. Make me realize that I can do something if I want to.	_____
_____	7. Other _____	_____

Post-test

1. What was the hardest part of this experience?
2. What was the easiest part of this experience?
3. What did you learn about your own food habits?
4. Do you think you really will be able to make any long-term changes?

From Instructional Patterns for Maximizing Human Potential. California State Department of Education. 1978.

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VALUES WHICH INFLUENCE CHOICES

- Recognition of the values which influence a person's choice of foods can help in the understanding of why the student makes certain choices. Give each student a set of five different colored three-by-five-inch filing cards upon each of which is written one of the following words: Tradition, Taste, Cost, Convenience, Nutrition. These are called "value cards."[1]

  The teacher then suggests situations in which the students might find themselves. For each situation, the students rank the value cards in order from the value most important to them to the value least important to them. Each student then holds up the two value cards which are most important to him or her. The teacher may need to emphasize that there are no right or wrong answers to avoid students copying their friends' responses. Discussion about why certain value choices were made can follow each situation. Five situations allow for adequate discussion.

  Sample: You are planning the foods to serve at your girlfriend's/boyfriend's birthday party.

  1. Taste — Most important
  2. Convenience
  3. Cost
  4. Tradition
  5. Nutrition — Least important

Many possible situations could be used. Examples are:

1. You are planning the foods to cook for your young brothers and sisters on the nights that your mother works late.
2. You are deciding what foods to serve to your friends who are coming to your house after the football game.
3. You are deciding what foods to choose for lunch in the school cafeteria.
4. You are planning foods to have for a quick and easy breakfast.
5. You are planning foods to eat while trying to lose weight.

Discussion could center around such questions as:

Why do these values vary from situation to situation?

Are food values really important to each person? Why?

What might cause a person to revise his or her values (e.g., change in income, life-style, marriage, and so forth)?

Why do food values vary from person to person?

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[1]Reprinted by permission of the Editor from Illinois Teacher; Volume 1, XIX, number 4, March/April 1976, p204-5.

"BROWN BAGGIN"
"THE LUNCH BOX BLUES"

Art
English
Health
Home Economics
Home Room

September

Objective: Lunch can be fun and nutritious when you are creative and plan ahead.

To The Teacher:

Lunch for many young people has lost its appeal. The old peanut butter 'n jelly sandwich is tired and ready for a replacement.

This lesson will give students a new outlook on the badly maligned, noon-day meal, which should serve as 1/3 of a persons' daily intake of calories and nutrients.

Activities:

1. Make a list of popular foods that need special handling when carrying such as, meat, moist fillings made with mayonnaise, cream based sweets, milk products, and custards. Discuss how to wrap, package and care for these foods (and others) so that they remain fresh, attractive and safe when carried to school, picnics, or on camping trips.
2. Make posters for school hallways showing how to "brown bag it", safely and nutritiously. (Check with nearby elementary schools to see if they can use these posters. Donate them.)
3. Creativity and imagination makes packaging a lunch more fun. Compile a list of personal and creative touches that add appeal to your carried lunches.

   Example: For variety take two kinds of sandwiches rather than just one; use a different colored or holiday napkin; or bring a theme lunch; add a couple of surprises such as, gum, cartoons, or an article you want to read during your midday break.

4. Plan a theme lunch (HELP#1) The Lunch Bunch. Choose the theme, the appropriate lunch box or decorated bag as well as the food that compliments your theme. Be sure to include each of the basic four foods. For example: the athlete; a duffle bag as a lunch box with hero sandwich, hard boiled eggs, milk shake and fresh fruit. The executive; carry a brief case with tossed vege-

table salad, choice of dressing, sliced turkey and cheese on rye. Top off with V-8 and a celery stir stick. Decorate your brown bag for Wonder Woman or Superman, or use an international theme with appropriate foods. Check out others' lunches to get new lunch ideas! Give a prize to the top three for creativity, and for the most nutritious meals. Then rate your lunch. (See "Rate Your Lunch" below.)

RATE YOUR LUNCH

	Top Score	Your Score
Lunch Box with ventilation, or bag with thermos if necessary. Creatively decorated.	20	____
CONTENTS		
1) Nutritious & hearty sandwich, main dish, soup (should contain meat, egg, fish or cheese)	20	____
2) Vegetable - salad or relish	20	____
3) Fruit - raw, cooked or juice	20	____
4) Milk product - beverage, milk pudding, custard, cream soup or cheese	20	____
TOTAL	100	TOTAL ____

5. Have a contest for the most original "create a new sandwich" such as the "Basic 4 Special" or the "Super Hero."
6. Write a booklet for student brown baggers giving hints on "how to" make a delicious, nutritious, fun and interesting lunch. Suggest five various menus - one for each day of the week that will spark the imagination!

SOURCES:

Food Conservation & Safety, 4-H Members Manual, Colorado State University, Sept. 1979, Pgs. 29-34.

"Safe Brown Bag Lunches," U.S. Government Printing Office, 1977-720-103/3051-31, December 1975.

HELP#1

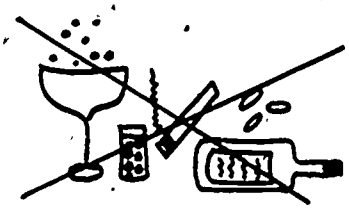
THE LUNCH BUNCH

MIX 'N MATCH

BREADS	FILLINGS	BEVERAGES	VEGGIES	FRUITS & DESSERTS	SOUPS
Hamburger Roll	Sardine	Unsweetened	Salad	Granola	Vegetable
Pita (Pocket Bread)	Cottage Cheese & Pineapple	Apple Juice	Lettuce	Oatmeal Cookie	Consomme'
Whole Grain	Peanut Butter n' Raisin	Orange	Cauliflower	Sunflower Seeds Peanuts-other nuts	Chicken
Bagel	PB & Honey & Banana	Grape	Broccoli	Raisins or other dried fruit	Hot Spiced Tomato
Muffin	Ham & Cheese	Grapefruit	Cucumbers	Fruit Cup (No sugar added)	
Nut Bread	Turkey	Tomato or V-8	Green Peppers	Pineapple (No sugar added)	
French Bread	Cheddar Cheese & Bean Sprouts	Pre-frozen Milk Shake	Tomatoes	Fresh Fruit	
Hard Rolls	Heroes-Meats & Cheeses	Milk	Radishes	Fruit Cup	
Tortilla	Cheese Slices	Iced Tea?	Carrots	Pineapple	
	Eggs		Celery	Strawberries	
	Tuna			Grapes	
				Apples (Sauce)	
				Pears	

"DRUG-A-BLUES"
or
"DO YOURSELF A FAVOR - DON'T"

Business
English
Health
Social Studies
Drama



October

Objective: The student will recognize the effect of alcohol and drugs on his health.

To The Teacher:

Alcohol and drug abuse has increasingly become a teenage problem. Students need to realize the effect of alcohol and drugs on their bodies. People who drink alcohol to excess, whether or not they are considered "alcoholics", are highly vulnerable to gross nutritional deficiencies. Alcoholic beverages, smoking, and even aspirins are antagonistic toward vitamin stores in our body.

Alcohol does not mix well with a wide variety of medication, such as antibiotics; anticoagulants; antidiabetic drugs, including insulin; antihistamines; high blood pressure drugs; and sedatives. Alcohol combined with antihistamines, tranquilizers, or anti-depressants causes excessive drowsiness that can be especially hazardous to someone driving a car, operating machinery, or performing any task that requires mental alertness.

Drugs can also effect the way the body uses food. They act in various ways to impair proper nutrition; by hastening the excretion of certain nutrients, by hindering absorption of nutrients, or by interfering with the body's ability to convert nutrients into usable forms.

Activities:

1. Read and discuss with the class the article, "Drink, Drank, Drunk." (HELP #1)

2. Have the class fill out the "Opinion Survey" (HELP #2) and "Let's Call It Quits". (HELP #3). Discuss answers.

3. Have the school nurse or other qualified individuals speak to the class on alcohol and drug abuse programs available in your community.

4. Divide the class into groups and debate the following statements:
   a. The legal age for drinking alcoholic beverages should be 21.
   b. Marijuana should be legalized.
   c. The sale of drug paraphenalia should be prohibited.

5. From magazines and newspapers collect ads for alcoholic beverages and tobacco. Bring to class and discuss the image they project. Why (or why not) do you consider these ads effective? Are they truthful? Discuss.

6. Dramatize the pressure students might feel regarding smoking and drinking by using the open-ended conflicts suggested in the sheet for this activity (HELP #4). Present them to the class and ask for volunteers to role-play the situation. Students may want to have more than one set of actors to a particular scene to see how different people would handle the problem.

7. Have a mock trial in class. One student will be the defendant having been charged with driving under the influence of alcohol and causing an accident resulting in injury to a passenger in the other car. The class might determine the details of the accident together. Then appoint a prosecuting and defending attorney, judge and jury. Have someone contact the police department or an attorney to find what the maximum penalty might be if in a real trial a guilty verdict is handed down.

Additional Information: (HELP #5) Facts on Alcoholism

SOURCES:

National Council on Alcoholism. Denver, Colorado.

Nutrition curriculum developed by Garfield School District No. RE-2. East Central BOCS.

"DRINK, DRANK, DRUNK"

The good news: teenage alcoholism is rare. The bad news: drinking, including plenty of outright drunkenness, is the norm among teens today in most parts of the country. The latest national picture shows that at least three out of four teenagers today drink beer, wine or liquor. One-third of the young people who drink get into trouble - partly because they get drunk easily, and partly because they are prone to flaunt their drinking - but there's no indication that young people are getting into more serious trouble today than teenagers did a generation ago.

It may seem that teenagers are drinking more than ever because there are 25 percent more teenagers today than there were a dozen years ago; six million more young people are probably drinking today. Their visibility has been heightened, too, in more than twenty states where the legal age for drinking has been dropped from twenty-one to eighteen or nineteen.

Dr. John Weir, director of a program to help teenagers overcome alcohol-related problems in Marin County, California, believes that most teenagers who drink do so moderately and "handle their liquor well." He is concerned, however, about the problems when teenage drinking becomes an important part of their social scene. For although teenagers drink less frequently than adults, those who do get drunk more often than adults. In the past, the majority of teenagers said they drank to feel more adult. Today, almost half say they drink to have a good time. The dramatic new finding about today's teenagers is that more than twice as many as in 1965 say they get drunk. Some say they don't stop drinking until the supply runs out or they pass out.

The latest national survey of teenage drinking, involving 13,000 students, was carried out by the Research Triangle Institute, a social research group near Raleigh, N.C. It estimates that 24 million high school students drink; two-thirds take small amounts of alcohol from once a week to once a month and have no serious alcohol-related problems. Another eight percent drink more heavily at least once a week. But aside from getting drunk very often, they manage to stay out of serious trouble. Three percent of the young people across the nation drink heavily and get into a lot of trouble. Many teenagers get together now specifically to get drunk.

Youngsters do not seem to be aware of the dangers of drinking. The risk that a teenager will get into an auto accident triples after two or three beers. Few teenagers realize that one can of beer -- their favorite alcoholic beverage - contains as much as one glass of wine or a cocktail, or that light beer contains as much alcohol as regular beer. A recent study by the U.S. National Highway Safety Traffic Administration reports that two-thirds of the teenagers surveyed said they could drink up to four beers and still drive safely. Some think they can drive even better after drinking, and fifteen percent believe they can put down at least eight beers without effect.

Over the years, many theories have been advanced explaining why young people drink. In a National Institute on Alcohol Abuse and Alcoholism study, one finding occurred repeatedly: Although friends play a major role in what and how much teenagers drink, parents set the stage for whether or not their children will drink at all. In fact, 81 percent of families who drink have children who drink; 72 percent of families who abstain have children who abstain.

Learning what it feels like to drink is part of the mystical adult culture that most young people try on for size. The first drink is typically taken at age thirteen

in the home, according to Dr. Howard T. Blane, Professor of Psychology and Education at the University of Pittsburgh, who analyzed over 30 years of teenage drinking for the National Institute.

Some of the most intriguing information from the Research Triangle study is a breakdown of youthful drinking by ethnic group and geography. The South consistently has the highest proportion of non-drinkers and infrequent drinkers; more than half the teenagers there have never had a drink. Black youths drink less than any other group, and have the lowest rate of heavy drinkers. White youths drink twice as much as blacks, and more than Spanish Americans and Asian Americans. American Indian youth show high rates of drinking and large numbers of heavy drinkers.

Boys outnumber girls two-to-one as heavy drinkers, and run into twice as much trouble. In a school district with 10,000 junior and senior high school students, about 300 young people - 200 boys and 100 girls - probably will have considerable difficulty because of alcohol.

In most studies, researchers ask students to report whether or not they have ever been drunk in the past year, experienced problems because of drinking, have been in a car while drinking or drunk, or have been picked up by the police for drinking. (Trouble with police varies widely, from being arrested for drinking at a school dance to driving while drunk.)

The incidence of serious trouble with alcohol - being intoxicated more than four times or running into other trouble at least three times a year - is placed at 2.5 percent by the students, not much less than the researchers' estimate. These problem drinkers manage to put down six times as much alcohol as their drinking classmates. They get drunk at least once a month, compared with problem drinkers who become intoxicated two or three times a year. Use of marijuana and other drugs is reported more often by students who have been intoxicated than students who don't drink to excess.

Police and parents report that drinking problems become more severe during vacations when young people stay up later. Drunken behavior starts to rise at graduation time and continues during the summer as young people have more free time.

Fights and vandalism go up four-fold when teenagers drink. Richard A. King, Police chief of Fairfax County, VA, says, "After a big beer party, I saw a street that looked as though it had been struck by a hailstorm because some young people ran up and down the block knocking out auto and house windows with boards." Two years ago, he joined School Superintendent S. John Davis in an open letter asking parents and teenagers to make certain things didn't get out of hand at graduation. He credits that letter with lessening alcohol-related problems that summer.

Young people with the least number of drinking problems come from opposite ends of the spectrum. Jewish teenagers start to drink early in life and drink often, but only take moderate amounts and have a low rate of alcohol abuse. Only the children from Protestant sects which preach abstention have less trouble; they are at least eight times less likely to take even one drink or drink frequently than all others. However, according to Dr. Thomas C. Harford of the National Institute, problem drinking is sometimes disproportionately high among youths from temperance communities. Some specialists believe that for these children, drinking is an obvious form of teenage rebellion.

The heaviest drinking and the greatest problems take place in children of families with a drinking double standard. In the Research Triangle survey, parents of more than half the boys and three-fourths of the girls who drink excessively disapprove of teenage drinking, but drink themselves.

Most teenagers are interested in learning how to drink responsibly, not how to abstain. Alcohol education programs with this approach are growing in schools and community organizations across the country. Dr. Weir points out that when many teenagers first come to his program in Marin County they do not see their problems as being alcohol-related; they tend to blame their troubles on "being hassled by the authorities." Once they have information on how alcohol works, many teenagers realize that their drinking causes problems, says Dr. Weir. Changes in drinking behavior come about rapidly, before drinking itself becomes the problem.

Changes in regional drinking practices are taking place. Dr. Patricia O'Gorman, who heads the Prevention and Education Program of the National Council on Alcoholism, says she gets calls for help from communities in the West and the South concerned about such new developments as girls breaking out a bottle of wine at a pajama party. In the Boston area, Dr. Henry Wechsler found that drinking to intoxication among high school students was higher than the national average; by the time they were seniors, Boston girls drink about as much as boys, with 70 percent of both sexes drinking to intoxication. Dr. Blane of Pittsburgh predicts that "with the homogenization of American culture, more young people in the South will start to drink."

Some people shouldn't drink at all. If a pregnant woman, for example, consumes more than two drinks a day there will be a definite danger to her unborn baby. A teenage mother, whose pregnancy is already risky because of her age, should not take alcohol at all. People on medication, particularly any which affects the central nervous system, and people with any ailment, especially metabolic or liver disorders, should check with their doctor before they drink.

OPINION SURVEY

YES	NO	?	
			1. Alcoholism is an illness.
			2. I never drink anything but beer. Can I be an alcoholic?
			3. At least a third of all alcoholics are on "skid row".
			4. An alcoholic is drunk most of the time.
			5. Doctors know the cause of alcoholism.
			6. Alcoholism can be cured.
			7. Alcoholism is hereditary.
			8. Alcoholics come from all social classes, professions, and backgrounds.
			9. Is alcohol a stimulant?
			10. Does loss of judgment and the ability for self-criticism occur before there are obvious symptoms of intoxication?
			11. I only drink to calm my nerves or when I'm depressed. Can I be an alcoholic?
			12. Can women become alcoholics?
			13. The alcoholic is a sick person who often can be helped and is worth helping.
			14. Alcoholics are weak-willed people.
			15. Alcoholism is a progressive illness.

National Council on Alcoholism, United Way Service Center, 1375 Delaware Street, Denver, Colorado

ANSWERS

1. Yes - According to the American Medical Association and the World Health Organization, alcoholism is an illness or disease, and the alcoholic is a sick person.

2. Yes - Because beer contains alcohol, many people have become alcoholics who ONLY drink beer.

3. No - According to Dr. Ruth Fox, only 3% of the total alcoholic population is on skid row. Most persons suffering from alcoholism are found in homes, offices, places of business, and in every profession.

4. No - The amount of drunkenness has no relation as to whether or not a person is an alcoholic. It is not when nor how often nor how much one drinks that determines if he has a drinking problem. It is whether he is able to control his drinking when he DOES drink.

5. No - No one knows the cause of alcholism, but there is a great deal of research being done to find the cause or causes.

6. No - At the present time, there is no known cure for alcoholism. The illness CAN BE ARRESTED at any point if the alcoholic can learn to live a worthwhile life without drinking at all.

7. No - According to the American Medical Association, alcoholism is probably NOT inherited. Although many alcoholics have alcoholism in other family members, it is more likely to be an environmental influence.

8. Yes - Alcoholics come from ALL walks of life.

9. No - Alcohol is NOT a stimulant - it is a depressant.

10. Yes - Judgment and self-criticism are the FIRST senses which are affected by alcohol.

11. Yes - Drinking to calm nerves and/or to relieve depression are BOTH signs of alcoholism.

12. Yes - Women often become alcoholics. In some parts of the country, particularly in cities, about half of the alcoholics are women.

13. Yes - The National Council on Alcoholism says that the alcoholic is a sick person who CAN be helped and IS WORTH HELPING. There are a half-million or more living success stories who are members of ALCOHOLICS ANONYMOUS.

14. No - Alcoholics are NOT weak-willed people. The will-power does NOT work on the compulsion to drink.

15. Yes - Alcoholism IS a progressive disease and is usually fatal.

AN ALCOHOLIC IS A PERSON WHOSE DRINKING DISTURBS ANY IMPORTANT AREA OF HIS LIFE - Such as relationships with other people, his job, or his health.

LET'S CALL IT QUITS

	Circle One	
1. Smoking is a habit.	Yes	No
2. Smoking is a cause of lung cancer and heart disease.	Yes	No
3. Smoking affects others who do not smoke.	Yes	No
4. Smoking is expensive.	Yes	No
5. Smoking can cause hazards.	Yes	No
6. Breaking a habit is hard.	Yes	No
7. Breaking a habit takes will power.	Yes	No

8. List three reasons why people smoke:

   a. ___ ___

   b. ___ ___

   c. ___ ___

9. List three reasons why people do not smoke:

   a. ___ ___

   b. ___ ___

   c. ___ ___

10. What would you base your decision on regarding why you would or would not smoke? (Write a short paragraph.)

11. How could you help others with a smoking problem?

12. Have you ever tried smoking? Yes No

WHAT IS YOUR ANSWER?

Each of the situations below presents a problem that often confronts a teenager. How do you deal with it?

1. You are out with a group of friends and they all are drinking. You prefer not to, but you don't want your friends to think you're a baby. What do you do?

2. You are out with a date whom you really like and would like to go out with again. However, your date has obviously had enough to drink. How do you tell him/her without causing hurt feelings?

3. You have a good friend who is a lot of fun on dates, but his/her smoking turns you off. How do you tell him/her?

4. Your parents do not smoke and have taught you the health hazards of smoking. How do you react when they find out that you smoke regularly?

FACTS ON ALCOHOLISM

Alcoholism is the most neglected health problem in the United States today. It ranks with cancer and heart disease as a major threat to the nation's health. Death from cirrhosis of the liver, one of the many known physical conditions which are part of alcoholism, have increased 67% in the last 20 years.

Alcoholism is a complex, progressive disease in which use of alcohol interferes with health, social and economic functioning. Untreated, alcoholism results in physical incapacity, permanent mental damage and/or premature death. The onset of the disease varies widely and may develop from the first to the twentieth year of drinking.

Some 100 million persons over the age of 15 in this country are consumers of alcohol. Of these, there are an estimated 10 million suffering from the disease of alcoholism.

There is no "typical" person with alcoholism. Among men, drinking problems occur most frequently in their early 20's, and among women most frequently in their 30's and 40's. Each year, about 100,000 drinkers develop alcoholism. The number of known women alcoholics has doubled since World War II. Less than 3% of the people with alcoholism are found on Skid Row.

Between six and ten percent of employees have alcoholism. The total cost to the nation is 25 billion dollars a year due to absenteeism, health and welfare services, property damage and medical expenses. Lost work time alone, because of alcoholism, has been computed at 9.36 billion dollars annually. The human loss to individuals, families, and communities is incalculable.

Of all fatal accidents occurring on the roads today, 50% involve alcohol. Two-thirds of these fatal accidents involve an alcoholic. 53% of fire deaths. 45% of drownings. 22% of home accidents. 36% of pedestrian accidents. 55% of arrests are linked to misuse of alcohol. Alcoholism accounts for 37.4% of admissions to state and county mental hospitals.

Violent behavior attributed to alcohol misuse accounts for 64% of murders, 41% of assaults, 34% of rapes, 29% of other sex crimes, 30% of suicides, 56% of fights or assaults in the home, and 60% of child abuse. When alcoholism is treated, associated violent behavior is known to decrease.

Alcoholism is treatable. Effective business and industry employee alcoholism programs show recovery rates of 65-80%. Air Force and Navy rehabilitation programs report 70-80% recovery rates. Leading clinical therapists report recovery rates of 50-70%.

Alcoholics Anonymous has an estimated one million world membership. 79% of the people sober between one and five years will remain in the AA fellowship. Of the people sober more than five years, 91% will not drink and will remain in the fellowship.

Education, early detection, research efforts, and community treatment facilities are the greatest forces operating today for the prevention, control, and reduction of alcoholism.

National Council on Alcoholism, 2727 Bryant Street, Suite 310, Denver, Colorado 80211

SUGAR! SUGAR!

"No Trick Nor Sweet"

Art
Drama
English
Health
Math
Science

October

Objective: The student will become aware that too much sugar in his diet can cause health hazards.

To The Teacher:

The consumption of sugar in the United States has reached unbelievable proportions. We now eat as much sugar per week as our forefathers did in one year's time 200 years ago!

This all time high consumption of the sweet white stuff is hazardous to our health! It is proven that sugar leads to tooth decay, and obesity which, in turn, leads to America's overwhelming problems of heart disease, diabetes and high blood pressure.

More frightening, because sugary foods are so readily available, is that young people are eating high caloried, low nutrient sugar laden foods and snacks rather than nutritious ones. It is the intent of this lesson to make them aware of how much sugar they personally consume and to educate them to the fact that they are responsible for changing their own eating habits for health's sake.

Activities:

How Much Sugar Do I Eat?

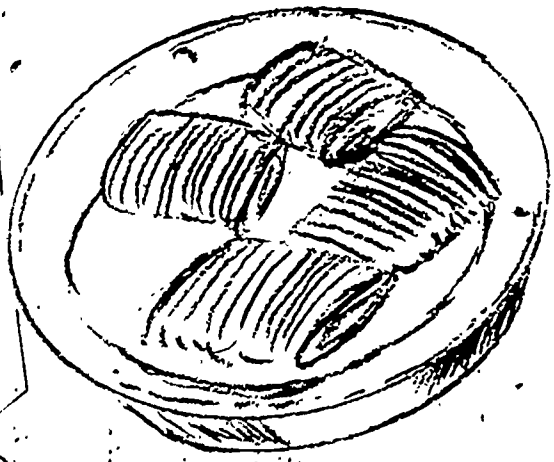
1. Using (HELP #1) The Amount of Sugar in Foods, determine how much sugar you consume in one day's time. Multiply the amount by seven days per week and 52 weeks per year to find out how much you consume a year!
   a. Class discussion. Compare your findings with those of the rest of the class. Are you high, low, or average in your consumption of sugar? Where would you like to be and why?
   b. What's wrong with sugary foods? If there is anything wrong with them, why are they made so available? What types of snacks would be more nutritious in vending machines than candy bars? What desserts without sugar can you list?
2. Write an opinion paper on one of the following:
   a. I plan to decrease the amount of sugar I eat, (tell how).
   b. Americans must cut the amount of sugar in their diets, (why)?
3. Sugar Causes Tooth Decay. In class discussion, prepare questions for your dentist on the question of sugar - does it really cause tooth decay?

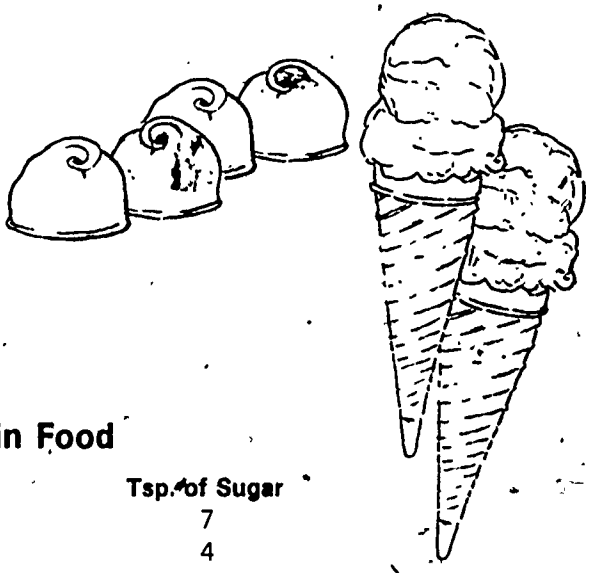
a. Then each student will interview his or her own dentist and compare notes with the class. (While at the dentist's office, ask for any pamphlets or articles he has or recommends on the subject - you might make your next appointment as well.)
b. Or invite a dentist to speak to the class on tooth decay and sugar in our diets. The questions you prepared for the interview can be asked at this time.

4. Write an article for the school newspaper on proper dental care and correct diet for healthy teeth.
5. Substitute healthful treats for Halloween rather than the usual high calorie sugared ones. Make a list of them.
6. Make a poster picturing healthful Halloween treats. Hang in the school hallways to help others become aware that there are such things as healthful treats.
7. Find out more about the development of bones.
   a. Using reference materials, find out about the growth of the human bone structure. How long do our bones keep growing? How important is nutrition to bone growth? What kind of maintenance do bones require? Share your information with the class in oral discussion.
   b. Design an attractive bulletin board with a Halloween Theme - show what nutrients are most important for healthy development of bones and teeth. A picture of a skeleton should be easy to find at this time of year.
8. Help others become aware. . .
   a. Write a Halloween play for elementary-aged children about how correct eating habits are important for the normal development of bones and teeth. Make arrangements to present it to a nearby elementary school.
   b. Prepare a commercial for prime-time Saturday morning cartoon - watching-kids. Feature a nutritious Halloween treat rather than a highly sugared sweet. Emphasize to viewers that for health reasons they should choose your product.
   c. Read (HELP #2) Change Your Snack Habits. Add one thing to the list that will help you personally cut your sugar consumption.
   d. Share recipes for healthful snacks and drinks to serve at parties and get togethers; such as, Halloween, after football, skiing, or anytime the group gets together.
   e. Make a cookbook for teens with health food snacks - all low sugared.

SOURCES:

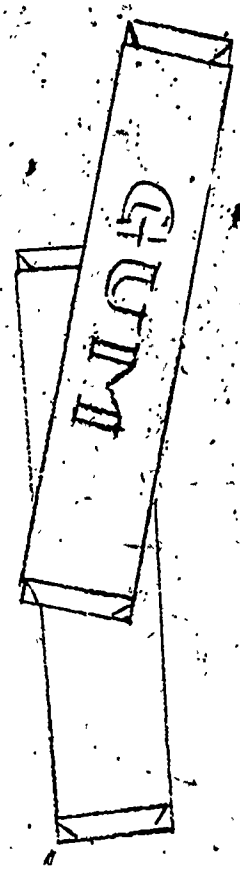
"Sugar, Sugar Everywhere", Booklet 4, Project Outside/Inside, Somerville Public Schools, Somerville, Mass. 1978. (HELP #1)

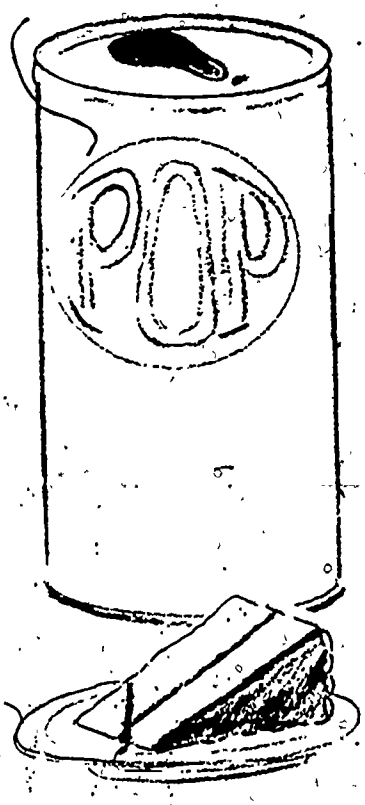


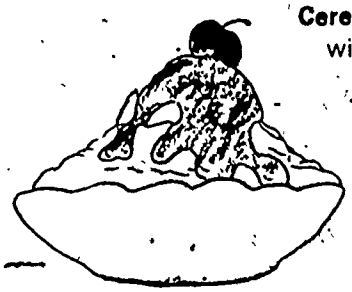


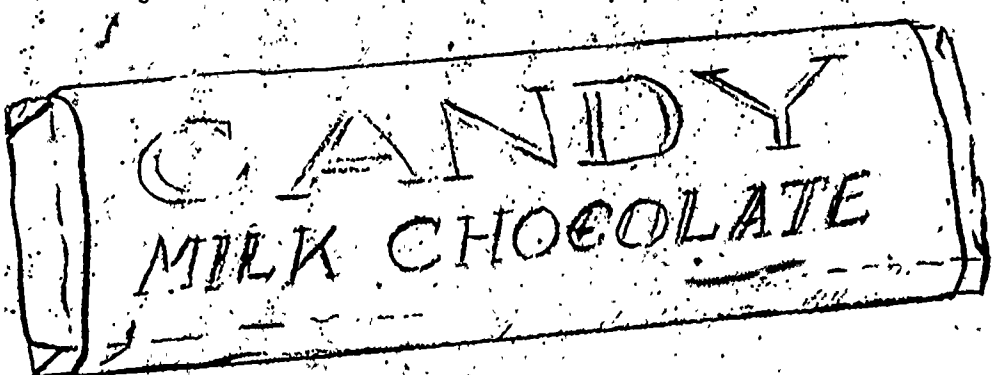
Teaspoons of Sugar in Food

Candy	Serving	Tsp. of Sugar
chocolate bar	1 average-size	7
chocolate fudge	1½ "	4
chocolate mints	1 medium	3
marshmallow	1 average	1½
chewing gum	1 stick	½
Cakes and Cookies		
chocolate cake	1 slice	15
angel food cake	1 slice	6
donut, plain	3 "	4
brownie	2 " x 2 " x ¾ "	3
Ice Cream		
ice cream	½ cup	6
sherbet	½ cup	8
Pie		
apple	1 slice	12
pumpkin	1 slice	10
Beverages		
soft drink	1 12-oz. bottle	9
chocolate milk	1 cup	7
Spreads and Sauces		
jam	1 tablespoon, level	3
maple syrup	1 tablespoon, level	2½
honey	1 tablespoon, level	3
chocolate sauces	1 tablespoon, level	4½
Cereals		
with 40-60% sugar	¾ cup	3½









CHANGE YOUR SNACK HABITS

1. Keep in mind that snacks are a part of your regular nutrition - not just an addition to your regular food intake.
2. Make a list of good foods to snack on - stay away from high-cal-high sugar foods as well as too many salty or fatty snacks.
3. If you make desserts - add less sugar than called for - or use natural sweeteners such as fruit or juices.
4. If cookies are a must. . .have oatmeal, raisin or peanut butter - lots better for you than chocolate covered ones or handfuls of candy.
5. Go easy on those soft drinks - they only supply lots of calories.
6. Remember eating too much sugar can become a habit - you can break this by changing your eating habits and eliminating a little sugar every day.
7. Think of alternatives to eat in situations where you usually consume those high cal snacks - a hamburger with no bun is better than a bag of french fries or potato chips. A salad is better than a malted milk shake!
8. Experiment. . .try new herbs or lo cal dressings on your salads - try fresh fruit slices instead of rich desserts! Take the monotony out of food - do something different.
9. Be sure to stay a step ahead of yourself - keep good quality snacks on hand so when the hungries strike, you are ready!
10. Insert one of your own ideas that will work for you.

PROTEIN: MEAT AND ALTERNATIVE SOURCES
or
TURKEY OR TOFU?

Geography
History
Home Economics
Social Studies

November

Objective: The student will become aware of the vital role of protein in their body and recognize the several ways to obtain this nutrient.

To The Teacher:

One of the most important facts about protein is that it is the only substance which supplies the material of which our bodies are made. Skin, hair, eyes, nails, muscles, blood, heart, lungs, brain, and nerves are all protein. It also is necessary for the formation of antibodies to fight infection.

Since we can't store protein we need a daily supply. Our cells are constantly breaking down and being replaced. Every cell in our body is replaced every 160 days. We must have the building blocks of protein to keep us alive.

When we eat protein, our body uses what it needs and turns the rest into fat to be used when energy is needed. Once converted into fuel, protein cannot be changed back no matter how much we need it. Most of us have no problem with protein deficiency. In fact, Americans consume far more than is required. A diet rich in meat can put a strain on the kidneys and add excessive quantities of saturated fat to the diet. Thus, we should investigate alternative sources for part of our protein consumption.

All proteins are made up of amino acids. There are 20 primary amino acids required by the human body. We can produce 12 of them within our bodies, but eight we cannot - these must be supplied by food. Foods that contain all eight are called "complete" protein foods. Soybean protein and most protein of animal origin - meat, poultry, eggs, milk and cheese - fall into this category. Foods that contain some-but not all- of these eight are called "incomplete" protein foods and are usually from plant sources. However, we can pair-up some of these foods that will supply all eight essential amino acids when eaten together. These are called "complementary" proteins. Examples of complementary pairs are grains and legumes, legumes and milk, rice and sesame or sunflower seeds.

Read accompanying article "Protein" for additional information. (HELP #1)

Activities:

1. Thanksgiving emphasis:

   Our founding fathers had turkey at the first Thanksgiving we are told. What other sources of protein did they have? What did they eat on the long journey from England? Were there any diet-related diseases common among them? Did they bring any foods from England unknown here at the time? What new food items did they find in the new world that they did not have in England? How did they prepare their food? (Bake, boil, fry, etc?)

2. In recent years the large numbers of malnourished children in developing countries has taken on frightening significance. New studies indicate that intelligence in children in linked with malnutrition, particularly protein malnutrition. This is true with their mothers as well. Choose a developing nation and research their food supply - particularly protein. Has the U.S. Foreign Policy helped their situation?

3. There has been much discussion in recent years concerning the wastefulness grain-fed beef. According to one source (Bird, 1972) beef provides 4.9 oz. of protein for $1, while for the same money, corn meal provides 11.8 oz. and soy flour 51.6 oz. Have the students research this problem and discuss the issue.

4. Have students research the soy bean for protein content and other nutrients. How many food products can they find that are derived from soy beans? Bring some samples to class for taste testing.

5. Have students record the amount of dairy products and meat they and their family consume for two weeks. Convert the amounts into grain equivalents using the following figures:

1 lb. dairy products	=	3 lbs. grain
1 lb. poultry	=	3 lbs. grain
1 lb. pork	=	3 lbs. grain
1 lb. beef	=	3 lbs. grain

   Assuming a person in the world's poorer countries eats 400 pounds of grain per year, both directly and indirectly, how long would your diet have supported that person if converted to grain? How could that grain have reached that person? How is food distributed on a world-wide scale? What are the food distribution problems of various countries? *

* This material borrowed from the Energy, Food, and You curriculum guide, a program of the Washington State Offices of Environmental Education (N.W. Section) and Health Education.

PROTEIN

Protein, an essential nutrient for the body, is made up of a large number of compounds called amino acids. Proteins differ from carbohydrates and fats by containing nitrogen as well as carbon, hydrogen and oxygen.

Plants are able to make their own protein directly from the soil, air and water, whereas humans must get their protein supply from animal and plant sources which must first be broken down during digestion to its simplest form, amino acids. These amino acids are then sent from the small intestine into the bloodstream and eventually to all of the cells.

In the nucleus of the cell, the function of these amino acids is determined by the genetic code. They are eventually grouped into combinations and patterns in order to produce specific proteins. These proteins now make up all the enzymes, hormones and antibodies in the body as well as patterns of amino acids which are used to build and repair tissues.

Function of Protein

Protein is essential for growth, repair and maintenance of body tissue. Protein supplies new tissues when the body heals from wounds or recovers from surgery and burns. New tissue mass develops as muscle mass increases during rigorous athletic training. Hemoglobin, essential for carrying oxygen to the cells and carbon dioxide to the lungs, is composed principlely of protein.

The body's ability to resist disease is maintained in part by antibodies which contain protein.

Protein is important in regulating the water balance of the body (the intercellular and intracellular exchange of fluids across the semipermeable membranes.)

Protein is involved in the clotting of blood. When you cut yourself, the injured blood cells react immediately by releasing a protein which together with other special proteins, forms a fiber that plug the cut and stops the bleeding.

Protein helps develop strong bones and teeth, and provides a protective coating for hair, skin and nails.

Individual and heredity traits and characteristics are carried by the genes in our body, which are partially made of protein.

Protein forms a part of the enzymes and hormones which regulate body processes.

Essential" Amino Acids

If all proteins were the same, there would be no controversy about preferable protein sources for humans. But proteins are not identical. The proteins our bodies use are made of varying combinations of 22 amino acids. Eight of these amino acids cannot be synthesized by the body and must be obtained from our food. These are called essential amino acids (EAA). The relative quantities of EAA in egg protein most nearly match the pattern of EAA needed by our body's cells. In order for the cell's "protein assembly center" to most efficiently utilize the protein we eat, all eight EAA must be eaten simultaneously and in the same proportion as the EAA of egg protein. Many foods contain all of the EAA's, but often there is a disproportionately small amount of one of the EAA's, thus limiting the usefulness of that protein source. This problem can be overcome by eating a variety of protein sources in one meal. The EAA deficiency of one food can be offset by the EAA's contained in another food.

THE EIGHT ESSENTIAL AMINO ACIDS

1. methionine (meh-THIGH-O-neen)
2. threonine (THREE-O-neen)
3. tryptophan (TRIP-toe-fane)
4. isoleucine (eye-so-LOO-seen)
5. leucine (LOO-seen)
6. lysine (LYE-seen)
7. valine (VAY-leen)
8. phenylalanine (fee-nul-AL-uh-neen)

Protein Quality

All sources of protein do not have the same quality. That is, they do not contain all the essential amino acids (complete protein) in the correct proportions (high quality protein).

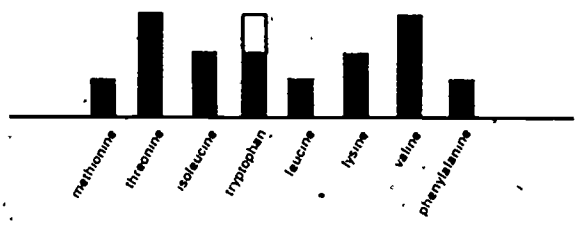
Complete Protein contains all eight essential amino acids. Complete sources of protein are found in animal products - eggs, meat, fish, poultry, milk and milk products. These foods are also considered high quality sources of protein because their amino acid proportions most nearly equal the amino acids needed by the body. The egg, considered to be the most perfect protein, is designated as the "reference" protein, against which other proteins are measured.

Incomplete Protein does not contain all of the eight essential amino acids, or the essential amino acids are not in the necessary proportions. Generally plant proteins are incomplete and therefore low quality protein. Higher quality protein may be obtained from plants through combining or "complementing" them.

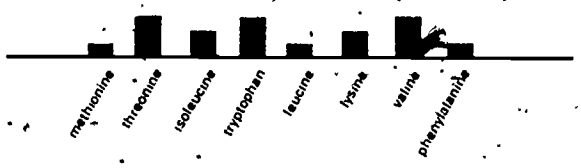
Limiting Amino Acids

The amino acids found in the shortest supply effect the utilization of the rest of the essential amino acids. Tryptophan, lysine and methionine are considered the essential limiting amino acids. If any of these three is in short supply, all the rest of the essential amino acids will be in short supply. Example: "If you eat a protein containing 100 percent of the utilizable pattern's requirement for tryptophan and leucine, but only 50 percent of the necessary lysine, then as far as your body is concerned, you have only eaten 50 percent of all the essential amino acids." Diet For a Small Planet, p. 67.

If your protein source is missing this amount of e.g. trytophan (limiting amino acid).....



Then your protein source becomes this



The protein in the body uses the essential amino acids at the level of the "limiting amino acid" and uses the leftover amino acids for energy.

Combining Protein Sources

Because plant protein is of lower quality, it is important to put together in the right proportions, a combination of plant proteins which will complement (make up for) their amino acid deficiencies and/or be used as a supplement in the diet. You don't have to find out the amino acid pattern of every food in order to compare deficiencies. It is easier to think of groups of foods. Each group has a specific amino acid in greater proportions than in another group of food. By combining two or more groups in the correct proportions, you are able to complement, or remove, the amino acid deficiencies. Example: Grains are low in lysine and high in methionine; whole legumes are the opposite. In a particular proportion, almost any two members of these two families will complement each other adequately.

It is important to remember that the whole diet must be balanced. If we carefully combine our plant proteins, but neglect other sources of nutrients from the rest of the food groups, our diet will not meet all our nutritional needs. Two efficient methods for combining the main groups of protein (grains, legumes, nuts and seeds) are:

1) Complementing Protein - combining plant proteins in the same meal which have mutually complementary amino acid patterns. Such protein mixes do not result in a perfect protein (only eggs are considered perfect) that is fully utilizable by the body, but these combinations can increase the protein quality.

Examples of Complementing Protein

legumes + grains	grains + nuts and seeds
legumes + nuts and seeds	nuts and seeds + legumes
grains + legumes	nuts and seeds + grains

Legumes include - any dried beans (pinto, black, red, white, kidney, soybeans, peanuts; fava, limas)
- any dried peas (chick peas, split peas)
- lentils

grains include - oatmeal, wheat, rye, buckwheat, bulgar, sorghum, millet, barley, cornmeal, rice

seeds include - pumpkin, sunflower, sesame

nuts include - walnuts, pistachios, almonds, cashews, Brazil, filberts, pecans

yeasts include - Brewers, torula, active dry

2) Supplementing Protein - Since animal protein contains all the essential amino acids, combining any animal protein with plant protein will improve the quality of the plant protein. Examples of supplementing protein:

animal products + grains

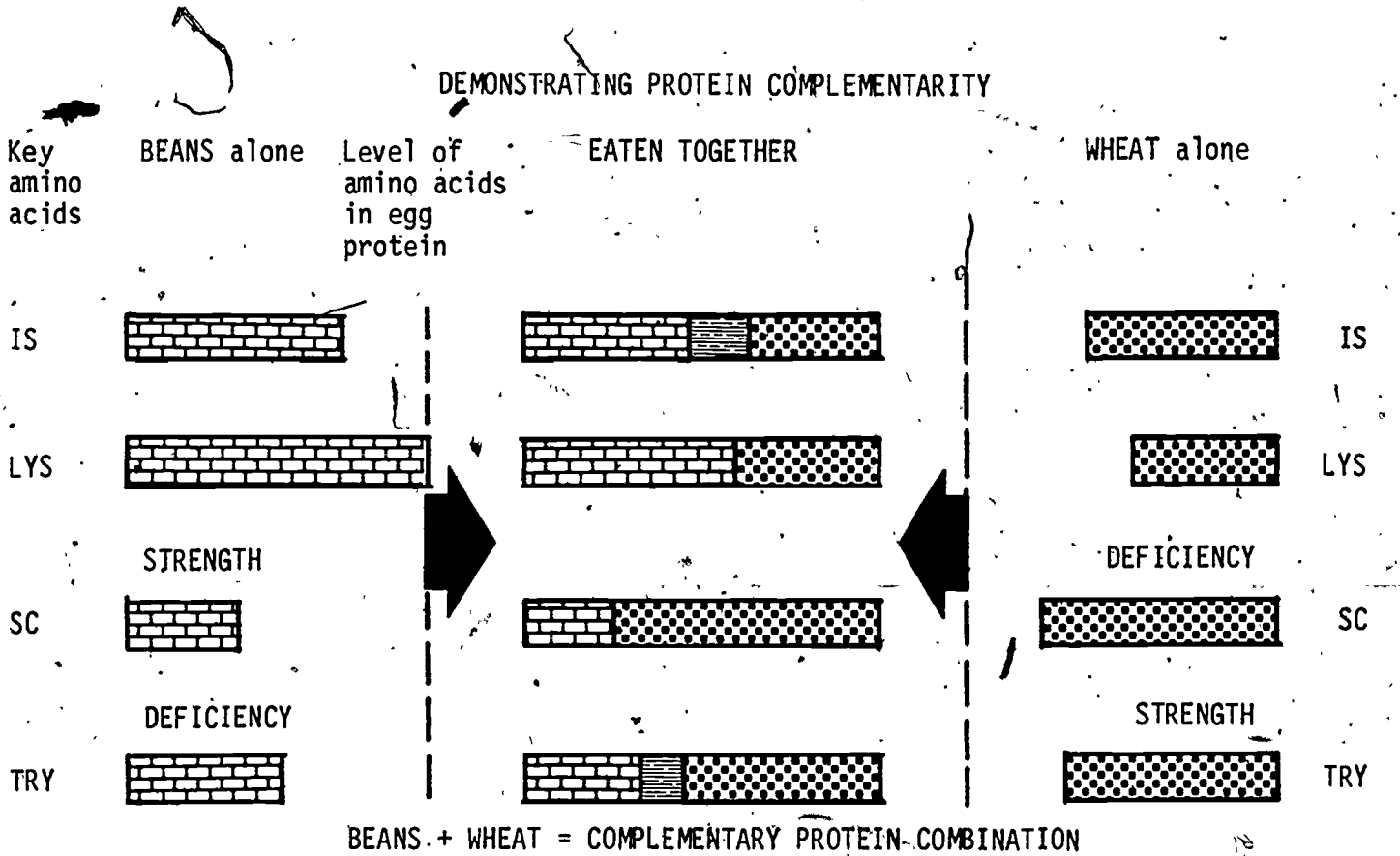
animal products + nuts and seeds

animal products + legumes

Protein Quantity - refers to the amount of food consumed and its protein content. When combining plant proteins, it is important to ensure the required amounts and simultaneous presence of the essential amino acids. Refer to Diet For A Small Planet, and Laurel's Kitchen.

Protein and Athletes

Contrary to what most people think, athletes do not need to significantly increase their intake of protein alone. Naturally, caloric needs increase according to energy expenditure, but this increase requires calories from a variety of foods and not mainly from high protein sources. The primary function of protein is to build and repair body structures, enzymes and hormones. Protein is not normally used as a source of energy. Fats and carbohydrates are the primary energy sources. If an athlete takes in more protein than their body requires, it will be used for energy or converted to fat for storage. Athletes increase their muscle mass with training and conditioning, not just with an increase of protein.



BEANS + WHEAT = COMPLEMENTARY PROTEIN COMBINATION

Source: Amino Acid Content of Foods and Bological Data on Proteins. Food and Agricultural Organization of the U.N., Rome, 1970.

This material borrowed from the Energy, Food, and You curriculum guide, a program of the Washington State Offices of Environmental Education (N.W. Section) and Health Education.

MILK-A LIFELINE FOR A LIFETIME
or
HAVE A DRINK-OF WHAT?

Health
Home Economics
History
Math
Social Studies

November

Objective: Student will become more aware of the beverage choices he makes and realize that the role of milk in the diet lasts for a lifetime.

To The Teacher:

No one food supplies all the nutrients the body needs for full growth and health, but milk is the most nearly perfect food. Our need for it continues throughout our life.

Today's teenager is faced with many choices. Alcohol, coffee, tea, colas and other soft drinks are all readily available. Peer pressure can have a great influence on teenagers' decisions. We can help them realize that the choices they make now can and will affect their health in later years.

Activities:

1. Discuss the list of beverages in HELP #1

2. Read and discuss the article "Beware of Coffee, Tea, and Cola Beverages if you Value Good Health". (HELP #2)

3. Nutritionists recommend the following amounts of calcium be included in the diet daily: a teenage girl-1.3 grams; a teenage boy-1.4 grams; adult-0.8 grams.
One quart of milk supplies 1.15 grams of calcium. Using the table in the back of the book-Nutrient Content of Foods-calculate how much of the following foods one would have to ingest to get 1 gram of calcium:

   a. enriched white bread (59 slices)
   b. cooked white rice (59 cups)
   c. cooked brown rice (14 cups)
   d. potatoes (111 average size)
   e. carrots (21 cups)
   f. oranges (15 medium size)
   g. green beans (16 cups)
   h. beef (99 pounds)

i. apples (125)
j. bananas (125)
k. cheddar cheese (7 oz.)
l. cottage cheese (37 oz.)

This illustrates the difficulty one has in getting needed calcium from foods other than milk.

4. Have each student record his intake of milk over a 3 to 5 day period. Are they getting enough? (Tell them not to forget the milk used in other foods - gravy, cream soups, puddings, etc.)

5. Since tea-drinking is so prevalent in England and so many of our first settlers were English colonists, why do Americans drink more coffee? What causes the fluctuating price of coffee today? The coffee-break is an American institution today just as firmly established as the British "tea". List as many terms relating to beverages as you can, either individually or as a class. Example: coffee-break; coffee-cake; two-fers; etc.

6. S-T-R-E-T-C-H Your Imagination. Imagine that you are the owner of a large coffee plantation in Columbia. You have become enlightened to the plight of your workers. (Have students also explain why the enlightenment is so unlikely). You now wish to grow a high-protein food for local consumption while continuing to employ your workers. Draw up a plan to make the conversion. List the problems you will incur trying to make the conversion from cash-crop to a protein-rich local food source.

SOURCES:

Abrams, H. Leon, Jr. "Beware of Coffee, Tea, and Cola Beverages If you Value Good Health". Consumers' Research Magazine, May, 1977

Beverages

Many beverages common in the American diet today such as alcohol, coffee, tea and cola drinks add little nutritive value except for water. However, milk and fruit and vegetable juices contribute fair amounts of minerals, vitamins, fats and protein. This needs to be considered when choosing a beverage.

Alcoholic Beverages

Alcoholic beverages include these that are produced by fermentation only, such as beer, ale and most wines, and those that are distilled, such as whiskey. Their main contribution is limited to calories.

Coffee

Coffee is made from the coffee bean. It contains no known nutrients but does contain caffeine. Coffee quickens the respiration process, raises blood pressure, stimulates the kidneys and excites the functions of the brain. It can temporarily relieve depression and fatique. When excessively consumed it can aggravate heart and artery disorders and irritate the lining of the stomach. Because of the stimulation to the kidneys, iron and many vitamins are pumped through and out of the body before they can be properly utilized.

There are several coffee substitutes available. They are a powdered vegetable preparation and usually have a barley or chicory-root base. They do not contain caffeine.

Tea

Tea is probably the most popular beverage in the world. Tea, like coffee, contains caffeine. It also contains tannin (or tannic acid) and oils that give it a distinctive taste. Sometimes cream or milk and sugar is served with coffee and tea which increases their caloric value. However, neither coffee or tea can replace the need for milk.

Cocoa

Cocoa and chocolate contain starch, cocoa butter, and the stimulant theobromine. Chocolate drinks are usually considered more wholesome than coffee or tea because theobromine is a milder stimulant than caffeine and only a small amount of cocoa or chocolate is used in making a beverage. Usually the cocoa or chocolate is combined with milk which adds many nutrients.

Carbonated Beverages

These beverages are high in sugar content and have no nutritional value at all. To keep the sugar in suspension and keep it from crystallizing, all soft drinks contain acid, usually orthophosphoric or citric, which eats tooth enamel and can suppress the appetite and impair the stomach. Some soft drinks, especially cola, contain large amounts of caffeine. (For effects of caffeine see Coffee)

Fruit and Vegetable Juices

These juices are excellent sources of minerals and vitamins. Juices from dark-green and yellow vegetables are especially high in Vitamin A. Many delicious and nutritious drinks can be made by combining these juices with milk and/or ice cream.

BEWARE OF COFFEE, TEA, AND COLA BEVERAGES IF YOU VALUE GOOD HEALTH

H. LEON ABRAMS, JR.

Associate Professor of Anthropology and Sociology. E.C.J.C.
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Coffee. tea. all beverages that have the word cola as part of their trade name. and some additional popular. beverages contain caffeine. Caffeine is a powerful stimulant that can be injurious to your general health In order to determine whether or not a beverage contains caffeine. read the contents on the label or can (except for 3 widely sold soft drinks. which have a special governmental exception from the labeling rule that applies to other products. and need not show the presence of caffeine as an ingredient) The drug caffeine is a natural ingredient of the coffee bean. the leaves of tea. cola (kola) nuts. and the mate plant Not many persons are familiar with mate or yerba mate in our country It is native to South America and is a very popular drink throughout Argentina and Southern Brazil Mate beverage is used much as we use coffee and tea

Cola nuts come from a tree that is native to tropical Africa but is now grown commercially in the West Indies. Brazil. India. and many tropical regions. In regions where cola trees are grown. many people chew the fresh nuts. which are actually seeds from the pods of the tree In chewing the fresh nut. they get a lift from its stimulating property. namely caffeine Cola nuts are shipped to all parts of the world where they are used primarily in the production of cola drinks They give the cola beverages their distinct flavor. the cola flavor. as well as the stimulating qualities which come from the caffeine they contain Cola beverages are very modern. they became of great commercial value only during the present century with the development and world-wide sale of cola soft drinks

Coffee is also a native of Africa It came out of the hills of Ethiopia around the year 1000 A.D. and entered the Middle East from there. probably around the 15th century or earlier The Islamic religion. founded by Mohammed. forbids the drinking of alcoholic beverages. and that may be one reason why coffee became a popular drink in the Arabic World From the Middle East it was introduced to Europe around the middle years of the 17th century.

Tea. one of China s many gifts to the Western World. was introduced to Europe in the early 1600 s and soon became the major stimulating drug beverage of England It was the major habituating drink used by the American colonists until the Boston Tea Party. The American colonists were so angry with the English that they switched to coffee. it has been our major stimulating beverage ever since

These drug beverages are of relatively recent origin. in the history of man. It was during the 1600's that sugar began to become more plentiful. and its addition to these beverages made them more enjoyable to drink During the past century. the consumption of stimulating beverages—and of sugar—has increased drastically

Coffee. tea. the cola beverages. and cocoa (chocolate) belong to the family of xanthine stimulants These are powerful stimulating alkaloids. The most widely used xanthine beverages are coffee. tea. and cola beverages. which contain caffeine. and cocoa (chocolate) which contain theobromine. a drug stimulant closely related to caffeine Caffeine. in coffee. is a trimethylxanthine Even once-daily use of some of these potent alkaloids is certain to exert some pharmacological action on one's body chemistry. There is no doubt that a certain degree of psychic dependence. that is. habituation. develops from the use of xanthine beverages. This also applies to the person who uses them in moderation. though regularly

Caffeine is a powerful stimulant that acts on the central nervous system. It is habit forming. and many people develop a dependence on it throughout the day As a stimulant. caffeine peps you up. it gives you a lift. and makes you feel more energetic and better. in general That is why so many people say that they cannot get moving in the morning until they have a cup of coffee or tea. Then all during the day they keep on reinforcing this stimulation by drinking more coffee. tea. or cola drinks. Examples are the traditional "coffee breaks" at work Many offices keep coffee ready for use whenever a person desires it. In this way. many people consume much more caffeine than they should. or realize.

When your central nervous system is excited by caffeine. you feel fine. but then as the effects wear off. you get a let-down feeling such as drowsiness. tiredness. lethargy. and fatigue often followed by depression. Just take a litte more coffee. tea. or cola drink and your energy is restored Fine. but did you ever stop to think what effect this constant stimulation to your central nervous system is having on your general health? Eventually. it can be disastrous

in research upon the causes, cures, and prevention of degenerative diseases, discovered many years ago that caffeine is a major cause in upsetting one's body chemistry, and that it may be a contributing factor in causing degenerative diseases. Among the better known degenerative diseases are heart trouble, circulatory diseases, including high blood pressure, arthritis, cancer, certain lung diseases, cataracts, diabetes, and senility. Caffeine may upset the normal functions of the endocrine glandular system and one's metabolism (the body's life maintaining physical and chemical processes).

Although most people do not recognize that caffeine drinks are really drug beverages, they are usually aware that they should not be given to small children. Caffeine greatly stimulates small children. Mothers find that small children need no stimulation or excitement as they have enough from just the experiences of growing up. People usually do not recognize that caffeine beverages also excite or stimulate adults too, their excitement is less noticeable.

People who drink coffee or tea usually say that they drink it because they like the taste. However, note that when these same people are given decaffeinated coffee or tea, they say they do not like it. Actually, what they are saying is that it does not give them the stimulation they are seeking, which comes from caffeine. They have become dependent on caffeine without realizing it and are not aware that the constant drinking of caffeine containing beverages is damaging to their health. Often these caffeine-containing beverages, coffee, tea, and cola drinks, are combined with sugar or artificial sweeteners which may further contribute to disturbing normal body chemistry.

The average cup of coffee or tea contains from 100 to 150 milligrams of caffeine. It is surprising to most people to learn that coffee and tea contain about the same amounts of caffeine. Actually, while tea leaves contain just a little more caffeine than coffee beans, the finished product, a cup of tea or coffee, ends up with about the same amount of caffeine content. Besides these powerful alkaloids, tea also contains a high amount of tannin, which is a toxic material, whereas coffee contains specific oils which may cause gastrointestinal irritation. On the average, a bottle of any of the cola drinks contain from 35 to 50 milligrams of caffeine.

If taken in large enough amounts, the stimulant caffeine could even be lethal. Huge doses of caffeine given to animals in experiments caused the animals to go into convulsions which were followed by death. For humans, a fatal dose of caffeine is considered to be 10 grams, but it would be most unusual for anyone to take that much at one time, though caffeine is an ingredient of many medicines, and of foods also. However, there have been many cases in which caffeine has been implicated in either causing or contributing to serious diseases in humans.

In the June 26, 1971 issue of the famous British medical journal, THE LANCET, Dr Philip Cole of the Harvard School of Public Health reported finding a relationship between coffee drinking and cancer of the lower urinary tract and the bladder.

The effect of drinking too much coffee or tea is given the name caffeinism. In the Dec. 18, 1967 edition of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, a case of this disorder is reported. Symptoms are insomnia, loss of appetite, loss of weight, irritability, feelings of flushing or chilliness, sometimes there is a low fever, or even conjunctivitis. The article further reported that these symptoms, or some of them, are common among people who drink much coffee, and this was noted particularly in certain occupation groups such as waitresses, people who have night jobs, theater people, and people who drive long distances at night. Another article in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Oct. 25, 1971, reported the case of a woman who suffered from extreme swelling in her feet. She drank around eighteen cups of coffee each day. When she stopped drinking coffee, the swelling disappeared. Later, when she began drinking large amounts of iced tea, the swelling returned. When she stopped drinking tea, again the swelling went away. This woman suffered for ten years from this painful swelling until it was discovered that caffeine was the cause of her illness. Another person who drank 15 to 18 cups of coffee a day suffered serious illness, with fever and loss of weight.

In the JOURNAL OF CLINICAL PHARMACOLOGY AND THERAPEUTICS, Vol. 10, 1969, the results of a study on the effects of caffeine conducted by members of the Department of Pharmacology of Stanford University are reported. They selected a group of thirty eight housewives who drank five cups or more of coffee each day and another group of eighteen housewives who did not drink coffee. They gave coffee to part of the group and decaffeinated coffee to the others. Those housewives who were not coffee drinkers showed no effects from drinking coffee that has had the caffeine removed. However, when these non-coffee drinkers were given regular coffee, they suffered adverse results such as feeling very nervous, being jittery, and some had upset stomachs. When decaffeinated coffee was given to the coffee drinkers, they became irritable, but when they received regular coffee, they perked up and felt fine. The experiment demonstrated how people develop a dependence on caffeine. Dr. Melvin E. Page has noted that when coffee drinkers give up coffee entirely or switch to decaffeinated coffee they often suffer from a headache from one to three days.

In the January 26, 1973 issue of MEDICAL WORLD NEWS, the results of heavy coffee drinking, as found by a group of doctors and scientists at the Boston University Medical Center, are reported. The researchers found that there seemed to be a relationship between heavy coffee drinking (more than five cups per day) and certain types of heart trouble.

Other studies have shown that coffee (caffeine) may increase the amount of fatty substances in the blood (an undesirable effect). In the Pharmacological Basis of Therapeutics, 3rd ed., 1965, Dr. J. Murdoch Ritchie reports that the xanthines (caffeine) in large doses may eventually cause cardiac irregularities. Sometimes arrhythmias are found in people who drink caffeine-containing beverages excessively.

A study carried out by Dr. R. S. Paffenberger of the University of California, at Berkeley, followed some 25,000 men from their college years to middle age. Dr. Paffenberger found that the coffee drinking habit was most

A study carried out by Dr R S Paffenberger of the University of California, at Berkeley, followed some 25,000 men from their college years to middle age. Dr. Paffenberger found that the coffee drinking habit was most closely linked to ulcers His findings showed that coffee drinkers had a 72 percent higher chance of developing ulcers than did those who never used coffee.

To sum up, coffee, tea, and cola drinks or any beverages that contain caffeine are not desirable for those who wish to maintain sound health Serious degenerative diseases can be a result of overuse of coffee, tea, and all caffeine-containing beverages Excessive drinking of these beverages upsets the general body chemistry system, which, in time, over the years, will finally call for a day of reckoning Sometimes one can stop drinking caffeine beverages and fully restore good, sound health In other cases, only limited repair can be achieved However, at any stage that one stops drinking caffeine-containing beverages, the individual is doing his body a favor and is helping to restore sound health The evidence clearly seems to indicate that people who use coffee, tea, and cola beverages may possibly be running a much greater chance of suffering from various diseases already mentioned — high blood pressure, heart attacks, fatty accumulations in the blood vessels, stomach ulcers, diabetes, and other degenerative diseases — than people who do not use them

Anyone wishing to be on the safe side would be wise to discontinue the use of coffee, tea, cola drinks, and all beverages and sweets that contain caffeine

It would be particularly important to keep cola drinks away from children, especially young children Some experts are expressing uncertainty about the harm done by caffeine, but there is no doubt that children should be kept from using coffee and the popular caffeine-containing soft drinks. According to one report many children consume an amount of caffeine that is known to have deleterious effects on the central nervous system of adults With children the matter is of special importance because their brains are still developing and are thus much more likely to be affected.

Consumers' Research Magazine May 1977

TEEN COOKING
or
"WOULD SANTA FIND A SNACK AT YOUR HOUSE?"

Art
Consumerism
Home Ec.
Social Studies

December

Objective: The student will realize that he has control over his diet by the choices he makes, both at home and eating out.

To The Teacher:

Teenagers today eat fewer meals with their families than in former years. The American family has many interests and this trend plus commuting fathers and working mothers often means that teenagers are on their own for meals. Too often a "meal" consists of snack foods and a coke or a quick stop at a drive-in restaurant. In December, it is even harder to manage a good meal when there are so many holiday parties and activities to squeeze in an already tight time schedule. The following activities will help the student realize the control he has over his diet and help him think "nutrition" when choosing what he eats.

Activities:

1. Xerox and hand out "Food Diary" (HELP #1). After completion, discuss in class.

2. Have each student choose a prepared food in the supermarket such as a TV dinner, pudding mix, cake mix, canned soup, etc. Compare prices for preparing a similar article at home. Perhaps from past experience the class can comment about the taste comparison. What are major ingredient differences? (Check cookbooks for ingredients in home-made version.) Determine nutritional differences if possible. Discuss with the students the situations when the prepared food is useful, particularly in view of their time schedule. How could a little fore-thought and planning result in the same convenience with homemade food?

3. Assume that you have arrived home for an early dinner before having to leave again for a meeting. Your parents are gone and you are on your own. Using the Basic Four* as a guide, what would you find in your kitchen cabinets and refrigerator to prepare yourself a balanced meal?
*Note to teacher: A chart of the Basic Four is in the back of this book.

4. Plan a Christmas Party for a group of friends. Plan your refreshments with the knowledge that probably few of them will have had dinner before the party. Avoiding the usual Christmas cookies and candies, what will you serve that will not be mere junk food and empty calories?

Can you plan a party menu that will supply at least 1/3 of the required daily nutrients? Design an invitation to the party incorporating any or all of your food plans. (Class might plan a class-time party at school and invite faculty members to share their nutritional holiday fare.)

5. Have each student list five foods he has never tasted homemade. Share lists in class. Choose from these lists and make some of these things in class (or bring from home), and have students compare flavor, appearance, price, etc., with commercial product.

6. S-T-R-E-T-C-H Your Imagination! Suppose you found a package of dried thin noodles (with a soup base packet enclosed) in your kitchen cupboard. What could you add to this to make yourself a bowl of soup that would contribute needed vitamins to your diet? Visualize what is usually in the fresh vegetable drawer of your refrigerator. Carrots? Cabbage? Green Pepper? Mushrooms? Use your imagination and your nutritional knowledge and come up with your own original recipe to share with the class.

SOURCES:

Katz, Deborah and Goodwin, Mary T., Food: Where Nutrition Politics and Culture Meet. Center for Science in the Public Interest. 1976

FOOD DIARY

Snacking is the favorite pastime of many teenagers. A snack can be anything from a piece of fruit or cheese to a sugar-frosted donut. Ideally a snack should contribute to the daily requirement of nutrients and should not be merely empty calories.

To find out how much, how often, and when you eat, keep a 24 hour diary listing everything you eat.

TIME	FOOD	PLACE	ACTIVITY

After completing your diary, analyze the results. When are you most likely to want a snack? Are you really hungry, or does the snack fill a psychological need? Do you need to improve the nutritional quality of your snacks?

FOOD ADDITIVES
or
"IS ALL FOOD REALLY FOOD?"

Consumerism
Home Economics
Industrial Arts
Social Studies

December

Objective: The student will become more aware of food additives in the food he consumes and better able to distinguish those that are helpful from those that might be harmful.

To The Teacher:

Intentional food additives are substances purposely put into foods to give them some desirable characteristic: color, flavor, texture, stability, or resistance to spoilage. Incidental food additives are defined as those which get into foods by accident, such as pesticides and other pollutants.

The 1958 Food Additives Amendment to the Food, Drug and Cosmetic Act requires that if food processors wish to add a substance to food, they must submit a petition to FDA, accompanied by extensive information on chemistry, use, function, and safety. If a careful review shows the substance is safe, the FDA will authorize its use under specified conditions.

The Delaney Clause of the Additives Amendment states that "no additive shall be deemed safe if it is found to induce cancer when ingested by man or animal".

Activities:

1. Three government agencies bear most of responsibility of regulating the food industry:
   a. USDA - United States Department of Agriculture
   b. FDA - Food and Drug Administration
   c. FTC - Federal Trade Commission
   Explain the functions of each.

2. Share the information sheet "Terms, History, and Law" (HELP#1) with your class.

3. Have a supply of food packages or labels available for student use. Have them list all additives indicated on the label.

Refer then to (HELP #2)* Common Food Additives - and determine why this additive was used. What would be the effect on the product if it were eliminated?

4. Appoint an ice-cream committee to prepare home-made ice cream for the class. Analyze the home recipe for nutrients, and compare with a standardized commercial recipe. Contact an ice cream manufacturer for ingredients used.

5. What "additives" did our grandmothers commonly use in preparing food for the family? Do we still use these today? With the help of the class, make a list on the board and indicate the purpose of the additive. (Example: salt-preservation; Cinnamon-flavor).

6. Explain how the value of spices in medieval times led to world exploration. Have students research the origin of several different spices (e.g. salt, pepper, oregano, chili, cinnamon, sage, thyme, nutmeg, basil, vanilla, cloves, ginger, mustard, etc.) Include in the investigation how they would have heard about a particular spice, and how they would have located its origin and arrange for its transportation as if they were in the 15th century. Where do our spices come from today? Pinpoint on a world map.

7. Industrial Arts classes might design and construct a spice rack to hold the common sizes of spice containers.

SOURCES:

* This material borrowed from the Energy, Food, and You curriculum guide, a program of the Washington State Offices of Environmental Education (N.W. Section) and Health Education.

Food Additives developed by Bethune School District R-5, East Central BOCS.

Curriculum Articulation: Nutrition, developed by Adams County School District 14.

Food Additives: "Substance or mixture of substance other than a basic foodstuff which is present in a food as a result of any aspect of production, processing, storage, or packaging.

Intentional: Prevent spoilage, improve nutritive value, enhance flavor, stabilize, thicken.

Incidental: No function, pesticide residues, substances that migrate.

Delaney Clause: Provision which prohibits the use of any food additive found to induce cancer when ingested by man or animal, or if its found after tests which are appropriate for the evaluation of the safety of food additives to induce cancer in man or animals.

GRAS List: Phrase "generally recognized as safe." This term is used in the law to provide that substances so considered are not "food additives" and therefore need no clearances as "food additives." This list is currently reviewing the safety of all of these substances that FDA now agrees may be considered GRAS, except those food biological origin consumed for their nutrient properties. These lists of substances already recognized in 1958 as suitable for food by publication in FDA food Standards, by publication in certain State regulations, and lists of substances known to have been used in food for some years without reported adverse effects. As provided for by the law, some substances could be considered generally recognized as safe merely bacause of a history of use in food. Food additives are over 100 years old. They began when the first meat was smoked, first fish salted. Additives, then, were used to flavor food and to preserve food in which salt and pepper were taken for granted as safe.

COMMON FOOD ADDITIVES

CHEMICAL	SOURCES	FOODS IN WHICH USED	FUNCTION
Adipic acid	synthetic	gelatin desserts	flavor
Amino acids	natural & synthetic	breads, cereals	nutrition supplement
Butylated hydroxyanisole (BHA)	synthetic	pastries, crackers, potato chips	antioxidant
Butylated hydroxytoluene (BHT)	synthetic	cereals, nuts, soup mixes	antioxidant
Calcium propionate Sodium propionate	synthetic	baked goods	mold inhibitor
Calcium silicate	natural	powders & crystalline substances, baking powder	anticaking agent
Carageenan	natural (from plants)& synthetic	liquid diet foods, cottage cheese.	stabilizer, thickener
Citric Acid	natural from citrus fruits & synthetic	candies, soft drinks, jams, gelatin desserts	flavor
EDTA (ethylenediamine tetra acetic acid)	synthetic	margarine, cheeses, salad dressings	sequestrant (prevents rancidity by combining with metallic catalysts of oxidation)
Gelatin	natural (from bones) & synthetic	icings, flavored milk, cheese spreads	stabilizer, thickener
Guar gum, (Gum arabic	natural & synthetic	instant breakfast drinks, syrups, gravies	stabilizer, thickner
Lecithin	natural (from egg yolk & soybeans)	salad dressings, ice cream, cakes	emulsifier
Maltol	synthetic	soft drinks, jams, gelatin desserts	flavor intensifier
Methyl salicylate	synthetic	grape, mint and nut flavors	flavors
Mono and di-glycerides	synthetic	shortenings, ice cream, baked goods	anti-staling agents, emulsifiers
Monocalcium phosphate	natural	baked goods	leavening agent
Monosodium glutamate	synthetic	prepared meats, fish, soup mixes, canned foods, cheese spreads	flavor intensifier
Phosphoric acid	natural & synthetic	candies, soft drinks, jams, gelatin desserts	flavor
Polysorbates	synthetic	sherbet, soft drinks	emulsifier
Potassium Iodide	natural	table salt	nutrition supplement
Propylene glycol monostearate	synthetic	whipped toppings, ice cream, salad dressings, candy, frosting, cakes	emulsifier
Saccharin	synthetic	low-calorie foods	artificial sweetner
Sodium aluminum phosphate	natural	baked goods	leavening agent
Sodium sulfite	synthetic	sliced apples, potatoes, fruits & vegetables	anti-browning agent
Sorbic acid, potassium sorbate	synthetic	cheese, chocolate, syrups, jellies, cakes, dried fruits	mold inhibitor
Sorbitan monostearate	synthetic	baked goods, salad dressings, ice cream	emulsifier
Tocopherols	natural from vegetable oils	cereals, butter, fats, meat products, potato chips	antioxidant
Vitamins	natural & synthetic	butter, milk, breads, flours, juices, cereals, macaroni products	nutritional supplement

This material borrowed from the *Energy, Food, and You* curriculum guide, a program of the Washington State Offices of Environmental Education (N.W. Section) and Health Education

PRE-NATAL NUTRITION
or
"BE GOOD TO YOUR BABY-GIVE IT A HEALTHY MOTHER"

English
Health
Home Economics
Science
Social Studies

January

Objective: The student will learn that the pregnant teenager has special dietary needs.

To The Teacher:

Poor nutrition is a way of life for many of today's teenagers. There are many contributing factors to this situation - changing lifestyles, stress, habit, time, peer pressure, etc.

We must help teenagers realize that nutrition affects appearance, scholarship, personality, and their own growth and development. Their diet today may have long range effects as well - not only on their own health, but also that of their children.

Pregnant teenagers in particular have special nutritional needs. They have to provide enough nutrients for their own still growing and developing body, as well as that of the fetus growing within them. Nutritional deficiencies can have long range and long lasting results.

Activities:

1. Give pre-test "We Are What We Eat" (HELP #1)
2. Read and discuss with class the article "Eating For Two". (HELP #2)
3. Introduce diet and drugs relationship to fetal development with the activity "Wha'daya Know?" (HELPs #3, 4, and 5)
4. Write a short essay on one of the following topics:
   a. Pregnant teenagers are considered a high risk medical group. Discuss at least 4 possible reasons for this fact.
   b. How we eat today can greatly affect our future health and that of our offspring. Discuss the residual effect that today's diet may have on an individual's future.
   c. Your best friend has just found out she's pregnant. She doesn't want anyone to know and so plans to diet in order to stay slim. Advise her of three possible consequences of this action. (For evaluation, see HELP #6)

5. Read and discuss in class "Alcohol and Birth Defects". (HELP #7)

6. Ask the girls in the class to list everything they have swallowed for the past three days. Have the boys critique the list in terms of what kinds of preparation girls are making for their future motherhood role.

7. Have students develop a Bill of Rights for an unborn child, listing everything that child has a right to expect of its parents so it might have the best possible chance of having no birth defects.

SOURCES:

Witti, Fritz P. "Alcohol and Birth Defects". FDA Consumer, May, 1978.

We Are What We Eat - And So Are Our Children, Nutrition curriculum developed by Karvel School District RE-23. East Central BOCS. Developed with NET program funds.

Name_____ HELP #1

Date_____

WE ARE WHAT WE EAT

TRUE/FALSE: Read each statement carefully. Place a T in the blank if true and an F in the blank if false. (5 points each)

____1. Affects from poor diet habits as a teenager can be corrected by good diet habits as an adult.

____2. Weight gain during pregnancy should be strictly controlled to less than 10 pounds.

____3. Heavy smoking during pregnancy could cause less oxygen to reach the fetus.

____4. During pregnancy, the best snacks are those high in calories for energy.

____5. Drugs will not affect fetal development as long as usage is stopped during pregnancy.

____6. Education and psychological maturity will affect the risk involved in a pregnancy.

____7. Additives and preservatives approved by the FDA will not have any effect on the development of a fetus.

____8. A lasting effect that can result from a person's diet is hemophilia.

____9. A deficiency of a nutrient needed by the fetus can easily be detected by comparison of that infant to an infant that experienced good prenatal nutrition.

____10. A nutrient dense food is one high in the nutrient we call "calories."

MATCHING: For each term or phrase listed in the left column there is a description in the right column that is related to how that term might affect prenatal development. Write the letter of the correct match in the blank beside each term. (5 points each)

1._____ protein
2._____ iodine
3._____ tetracycline and streptomycin
4._____ morphine and heroin
5._____ estrogen
6._____ zinc
7._____ iron, calcium and phosphorous
8._____ milk
9._____ iron, calcium, protein
10._____ brussel sprouts, cabbage and papaya

A. deficiency related to missing limbs, cleft lip, curved spine
B. related to normal blood and bone development
C. nutrient most critical to normal fetal development
D. use during pregnancy can cause hearing loss, staining of teeth and cataracts in the fetus
E. rich in vitamin C for healthy teeth, gums, bones; strong body cells
F. recommend 4 eight-ounce cups daily
G. use can cause infants to be born as narcotic addicts
H. hormone that may be linked to birth defects of the heart
I. deficiency can cause severe mental retardation, visual and hearing loss and possible link to cerebal palsy
J. nutrients often missing in teenage mothers-to-be diets

66

ANSWER KEY

True/False

1. F
2. F
3. T
4. F
5. F
6. T
7. T
8. F
9. F
10. F

Matching

1. C
2. I
3. D
4. G
5. H
6. A
7. B
8. F
9. J
10. E

EATING FOR TWO

There are two good reasons for concern about the food habits of teenagers. Teenagers are casting off the habits of childhood while still trying to find their own identities. As a result, good food habits may be lost for a while.

One out of every four mothers has her first child when she is less than 20 years old. The teenage appetite is often huge, but appetite alone is not enough to insure that the teenager will get all of the nutrients he or she needs.

During their teens, boys and girls grow at a faster rate than at any other time except in infancy. A boy's nutritional requirements during the time he is becoming a man are higher than at any other time in his life.

Those of a girl becoming a woman are exceeded only during pregnancy and lactation (the period following birth when the mother's breasts are manufacturing milk). So, a pregnant teenage girl has even greater nutrient needs.

Unfortunately, pregnant teenagers are the most negligent about nutrition. Junk foods and fad diets are a large part of their eating habits. To add to the problem some teenagers cut down on their food intake drastically when they discover they are pregnant so they won't "show".

Malnourished mothers have a tendency to produce underdeveloped babies. A baby can suffer from malnutrition even before it is born! A baby weighing less than 5 1/2 lbs. at birth has fewer brain cells and a more difficult time his first year of life.

This is why pre-natal care is so important - especially for teenagers who are producing more babies each year. Recent statistics released by the March of Dimes shows that the number of mothers under the age of 16 has increased 80% during the last 15 years.

Research has shown that pregnant teenagers' diets are usually lacking in iron, calcium, vitamins A and C, and protein. Of all these, protein is the most important for the normal growth and development of the fetus.

The pregnant teenager of average build should expect to gain about 25 lbs., and most of this during the latter half of her pregnancy. It is especially important to make wise food choices that are rich in nutrients and not high in calories. Vitamins and mineral supplements will be recommended by most doctors.

A GUIDE FOR DAILY EATING

MILK - 1 quart whole or skim milk or other milk forms such as buttermilk, yogurt, cottage cheese, etc.

LEAFY GREEN VEGETABLES - 2 servings (each 1 cup raw or 3/4 c. cooked) of broccoli, collard greens, spinach, asparagus, escarole, chicory, bok choy.

YELLOW VEGETABLES - 1 serving of carrots, squash, sweet potatoes, parsnips, turnips.

GRAIN PRODUCTS - 3 servings, preferably whole grain, but at least "enriched" cereals, breads, rice, crackers, etc.

PROTEIN - 3 to 4 servings (2-3 oz. each) of meat, poultry, liver, fish, eggs, dry beans, nuts or peanut butter, cheese, soybean curd, etc.

WHA' DAYA KNOW?

Purpose: To motivate students to learn more about the relationship between specific nutrients and drugs and the effect they have on fetal development.

Procedure:

1. Using the information in H.E.L.P. # 5 and 6 prepare slips of paper containing one of the following:
   a. a nutrient/a possible effect of a nutrient deficiency.
   b. a type of drug/a commonly used example of the drug/an effect that drug can have on a developing fetus.

   You will need to have slips of paper with each piece of information but each piece of information should be on a seperate slip.

2. Allow each student to draw one slip of paper. Instruct the students that they must try to find the people with the other slips of matching information. They are to try and do this using only the knowledge they presently have about nutrients and drugs. (Example -- the person with HORMONES should find those with the slip ESTROGEN and the slip LINKED TO BIRTH DEFECTS OF THE HEART.)

3. When students believe they have found their matches, hand out the listening guides (H.E.L.P. # 5 and 6). Go over the listening guides providing answers to the blanks. When finished allow the students to regroup with their correct matches.

4. Questions you might raise: What did you know about drugs when you first tried to find yourmatch? Were you surprised to find that you had made a correct/incorrect match? What fact about a drug or nutrient did you find most surprising?

5. Examine the medicines in your medicine cabinet at home. See how many of them contain one of the drugs listed in the commonly used examples.

DIET AND FETAL DEVELOPMENT

Deficient Nutrient	Critical Trimester	Function of Body	Possible Effect of Deficiency
IODINE	1. first	1. synthesize thyroxin for nervous system development.	1. Mental retardation 2. 3.
IRON PHOSPHOROUS	1. 2.	1. related to normal blood and bone development.	1. Inadequate bone and blood development.
	1. presently unknown	1. breakdown of carbohydrates 2. stimulation of appetite 3. other functions not totally known	1. low birth weight: less growth 2. depressed appetite in neonate 3. 4. 5.
	1. critical during all periods of development	1.	1. decreased growth, vigor 2.
	1.	1.	1. 2.

This is a listening guide. It serves as both an assignment and as a tool to help you take complete notes that are well organized so that you can study them easily at a later time. As you listen to the lecture and discussion you will gain information that will help you to fill in each numbered blank.

DIET AND FETAL DEVELOPMENT

Deficient Nutrient	Critical Trimester	Function of Body	Possible Effect of Deficiency
IODINE	1. first	1. synthesize thyroxin for nervous system development.	1. Mental retardation 2. CEREBAL PALSY 3. VISUAL AND HEARING LOSS
IRON CALCIUM PHOSPHOROUS	1. FIRST 2. SECOND	1. related to normal blood and bone development.	1. Inadequate bone and blood development.
ZINC	1. presently unknown	1. breakdown of carbohydrates 2. stimulation of appetite 3. other functions not totally known	1. low birth weight: less growth 2. depressed appetite in neonate 3. CLEFT LIP 4. MISSING LIMBS 5. CURVED SPINE
PROTEIN	1. critical during all periods of development	1. GENERAL GROWTH AND DEVELOPMENT	1. decreased growth, vigor 2. MENTAL RETARDATION
****	1.	1.	1. 2.

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***FILL IN AS NEW RESEARCH BECOMES AVAILABLE

LISTENING GUIDE

This is a listening guide designed to help you take complete notes that are well organized and thus easy to study at a later time. As you listen to the lecture and discussion you will gain information that will help you to fill in each numbered blank.

DRUGS AND FETAL DEVELOPMENT

TYPE OF DRUG	COMMONLY USED EXAMPLES	EFFECT ON FETUS
1. NARCOTIC	1. 2. 3. 4.	1. decreased breathing 2. born as narcotic addicts a. b. c.
2. BARBITUATES	1. 2.	1. 2.
3. LOCAL ANESTHETICS	1.	1.
4. TRANQUILIZERS (i.e. sleeping pills)	1.	1. crosses the placenta but no effect is presently known
5. ANTIMICROBIAL AGENTS	1. 2.	1. no effect so far has been demonstrated
	3. streptomycin 4. tetracycline 5. aureomycin 6. terramycin	2. some hearing losses 3. staining of teeth; some evidence of congenital cataracts. 4. retarded bone growth
6. STEROIDS	1.	1.
7. ANTIHISTAMINES	1.	1.
8. HORMONES	1.	1. believed to be some link to birth defects, especially of the heart.
9. MISCELLANEOUS Ethyl Alcohol	1.	1. 2.
Salicylates	1.	1. 2.
Smoking	1.	1. 2.

LISTENING GUIDE

This is a listening guide designed to help you take complete notes that are well organized and thus easy to study at a later time. As you listen to the lecture and discussion you will gain information that will help you to fill in each numbered blank.

DRUGS AND FETAL DEVELOPMENT

TYPE OF DRUG	COMMONLY USED EXAMPLES	EFFECT ON FETUS
1. NARCOTIC	1. Morphine 2. Demerol 3. Heroin 4. LSD	1. decreased breathing 2. born as narcotic addicts a. hyperirratability b. vomitting c. can be fatal
2. BARBITUATES	1. Phenobarbital 2. Seconal	1. fetal depression 2. less responsive
3. LOCAL ANESTHETICS	1. Novocaine	1. crosses placenta no known effect
4. TRANQUILIZERS (i.e. sleeping pills)	1. Librium	1. crosses the placenta but no effect is presently known
5. ANTIMICROBIAL AGENTS	1. Erythromycin 2. Penicillin	1. no effect so far has been demonstrated
	3. streptomycin 4. tetracycline 5. aureomycin 6. terramycin	2. some hearing losses 3. staining of teeth; some evidence of congenital cataracts. 4. retarded bone growth
6. STEROIDS	1. Cortisone	1. cleft palate
7. ANTIHISTAMINES	1. Dramamine	1. no adverse effects
8. HORMONES	1. Estrogen	1. believed to be some link to birth defects, especially of the heart.
9. MISCELLANEOUS Ethyl Alcohol	1. Wine, beer, cocktails	1. neonatal depression 2. low birth weight
Salicylates	1. aspirin	1. hemorrhaging 2. fetus will overdose if mother does
Smoking	1.	1. 2.

Short Answer/Essay

Points to look for in evaluating essays

a. Negligent of nutrition; junk foods/calorie counting
poor diet results in poor fetal environmnet
physically immature; body is still growing
psychologically immature; stress may further tax their body
lack of education; may be unaware of developmental requirements of pregnancy

b. Physical growth will affect reproductive abilities
habits and attitudes may become so set they can't be changed, even if necessary for healthy pregnancy
additives and preservatives retained by body may affect future health and fetal development
develop a dependency on certain drugs
cause irreversible body damage

c. Unless extreme care is used, important nutrients will be eliminated when calories are reduced
the early months of pregnancy are critical of fetal development; a reduction of calories in the diet can result in irreversible fetal damage
maternal health may be damaged as the fetus will first meet deficiencies by using the mother's nutrient resources

Alcohol and Birth Defects

There is very strong evidence that consumption of alcohol by pregnant women can cause birth defects in their offspring Scientists now are seeking answers to such questions as how much alcohol is it safe to drink and at what point in pregnancy is the risk greatest In the meantime, the National Institute on Alcohol Abuse and Alcoholism has warned that there is a definite risk to the fetus if a pregnant woman drinks three ounces or more of alcohol a day

by Fritz P Witti

The more a pregnant woman drinks, the greater her risk of giving birth to an abnormal baby, say the Nation s top experts on alcohol and health

Thousands of malformed and mentally defective babies, these experts say, are born yearly in the United States because their mothers drink too much alcohol during pregnancy. And, they suspect, thousands of other youngsters face learning and behavioral problems in childhood and youth because of brain dysfunction resulting from heavy drinking by their mothers during pregnancy

The malady, suspected for centuries, was discovered and given a name—the Fetal Alcohol Syndrome—within the past 10 years The symptoms shown by children suffering fetal alcohol syndrome may include slow growth before and after birth, small head, facial irregularities such as narrow eye slits, and a sunken nasal bridge, defective heart and other organs, malformed arms and legs, genital abnormalities, and mental retardation There are also behavioral problems, such as hyperactivity, extreme nervousness, and a poor attention span

Although convinced that alcohol and birth defects are linked, scientists have been unable to pin down precisely the timing and degree of risk. Just how much beer, wine, or distilled spirits is it safe to drink during pregnancy? At what point in pregnancy is the risk to the unborn child greatest? They can't answer these questions on the basis of present knowledge

The answers are being sought through intensive clinical research and animal testing. In the meantime, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) warns that there is a definite risk in drinking three ounces or more of alcohol a day—that's six drinks or more Drinking one to three ounces of alcohol a day—two to six drinks—may be risky and caution is advised

The risk of the full fetal alcohol syndrome appears to start at three ounces of alcohol a day, but we are not certain that parts of the syndrome won't show up at consumption of from one to three ounces," says Dr. Ernest P Noble, director of the Institute. "There is a possibility that symptoms short of the full syndrome could be caused by lesser doses of alcohol on a regular basis, or by a single high dose during one night or weekend of heavy drinking during a critical time in the development of the fetus"

He points to recent statistical evidence that suggests alcohol consumption during pregnancy may be significant in the development of more subtle but much more frequent abnormalities of attention, behavior, and learning called minimal brain dysfunction. It is estimated that minimal brain dysfunction affects five to seven million youngsters of the schoolage population of the United States. There are indications that a substantial portion of those millions are affected because of the mother's consumption of alcohol during pregnancy.

Because of the uncertainty about how much alcohol is dangerous during pregnancy, the official notice on the subject issued by the NIAAA in June 1977 was labeled a "caution" But Dr Noble says he personally would recommend that to be certain of their infants' safety women should stay away from alcohol during pregnancy. That personal view is shared by Dr. Gerald L. Klerman, Administrator of the Alcohol, Drug, Abuse, and Mental Health Administration.

Early this year Dr. Klerman told a Senate Subcommittee on Alcoholism and Drug Abuse that there may be critical periods during pregnancy when a single episode of drinking may have as strong an effect as regular consumption of alcoholic beverages Consequently, he said, damage could be done during the first month of pregnancy, when many women are not yet aware of their condition and the fetus is especially delicate

Some researchers have observed that mothers who drink an ounce or less of alcohol a day have a higher rate of stillbirths and their babies weigh less Two mixed drinks each containing one ounce of whiskey (distilled spirits) equals about one ounce of alcohol, as do two five-ounce glasses of still (not fortified) wine or two 12-ounce glasses of regular beer The alcohol content in distilled spirits, such as whiskey, can be determined by dividing the "proof" number on the label by half. One hundred proof whiskey, for example, is about 50 percent alcohol; so two ounces of the whiskey contain about one ounce of alcohol

Thousands of malformed and mentally defective babies are born yearly in the United States because their mothers drink too much alcohol during pregnancy.

The NIAAA estimates that one or more of the symptoms of fetal alcohol syndrome may be present in more than 5,000 babies in the United States this year. A conservative estimate is that the syndrome affects one in every 2,000 babies born each year. Only two other birth defects that involve both mental and physical impairment occur more frequently. They are Down's syndrome, which affects one baby in 600, and spina bifida, which affects one in 1,000. Down's syndrome is a cause of mongoloidism and spina bifida is a malformation of the spine.

Social drinking is traditional and widespread in the United States so there is a great potential for alcohol caused birth defects among the 48 million women of childbearing age (15-44) who will give birth to more than three million children in 1978.

Although it now has a name, there is nothing new about the concern of society for the effect of alcohol on unborn children. Warnings about alcohol consumption during pregnancy, and even at conception, date back to ancient times.

In the Book of Judges (13:3-5) an angel visits the wife of Manoah to tell her that she will bear a child but warns. Now therefore beware, I pray thee, and drink no wine nor strong drink... She later gave birth to Samson, of great strength and long hair fame.

20/May 1978/FDA Consumer

In a historical survey, Dr. Henry L. Rosett and researcher Rebecca H. Warner of Boston University found that Carthage and Sparta had laws prohibiting the use of alcohol by newly married couples to prevent conception during intoxication.

In the eighteenth century the College of Physicians in England called gin a "cause of weak, feeble and distempered children" and asked Parliament to control the distilling trade.

Throughout the 19th century there were reports of a high frequency of mental retardation, stillbirths, and deaths among the children of alcoholics. In 1899, William Sullivan, physician to a Liverpool prison, observed that several alcoholic women who had borne infants with severe and often fatal complications gave birth to healthy children when, because of imprisonment, they were forced to abstain from alcohol during pregnancy.

In the United States the fetal alcohol syndrome was first noted in 1972 by scientists at the University of Washington in Seattle. They found a pattern of symptoms which led them to review clinical records of infants born to chronic alcoholic mothers. They found that 11 of the 12 children born to alcoholic women exhibited a distinct pattern of abnormalities. A follow-up study of 12 offspring of alcoholic women found that all but one were in the borderline or retarded range of intelligence. By the spring of 1978, hundreds of cases had been reported from medical centers in the United States and elsewhere.

But scientists were troubled because many of the studies were retrospective, the syndrome being noted in newborn babies before the records of the drinking patterns of their mothers were investigated. Scientists prefer the evidence of prospective studies in which the pattern of drinking is noted first and detailed information on the outcome is obtained later. Three such studies supported by the NIAAA are now under way in the United States. Only preliminary information is now available, but some of the early data is highly significant.

These findings confirm that babies born of women who consume between one and two ounces of absolute alcohol a day (two to four drinks) can show abnormalities of growth, congenital malformations, and behavioral characteristics associated with alcohol consumption during pregnancy. The studies are looking for answers in such areas as the rate of fetal alcohol syndrome and similar symptoms in human populations, safe limits for alcohol consumption during pregnancy, the role of episodic versus continuous drinking in the development of the syndrome, the prospects of prevention efforts for pregnant women and women of childbearing age, and the possibility of using drugs to safeguard the fetus.

Some other questions being asked and examined:

What effect do different patterns of drinking have on the fetus at various times during pregnancy? What about the effects of different kinds of alcoholic beverages? And their interaction with caffeine, smoking, and other drugs? Or the general nutritional status of the mother?

In addition to the data being gathered on drinking mothers and their offspring, animal studies in which conditions can be controlled are being stepped up. According to the NIAAA these studies already have shown that alcohol is the cause of a pattern of malformations.

Fritz Witti is a feelance writer.

FDA Consumer/May 1978/23

Product Warning Labels Considered

Labels warning of possible health consequences of alcohol consumption during pregnancy may be required on some products containing alcohol, though perhaps not all FDA will soon propose regulations requiring certain oral drugs and foods which contain alcohol to carry a caution label against use during pregnancy For prescription drugs, this information will be contained in the physician labeling, while for nonprescription or over-the-counter drugs, the warning will be placed on the product label for consumers

In November 1977 FDA Commissioner Donald Kennedy asked the Bureau of Alcohol, Tobacco, and Firearms, (BATF) in the Treasury Department to require a warning about fetal alcohol syndrome on alcoholic beverage labels. Said Commissioner Kennedy

"FDA is very concerned about the clear evidence that excessive alcohol consumption by pregnant women causes in some cases, birth defects in the children they bear This is a problem, not only for women who habitually abuse alcohol, but also for those who consume alcohol in moderation but might occasionally imbibe more than two drinks a day"

BATF asked for comments on the idea of warning labeling in a FEDERAL REGISTER notice January 16, 1978 By the March 17 comment deadline, the Bureau had received some 3,000 responses which were described by a BATF spokeswoman as overwhelmingly opposed to such labeling At that time, the Bureau was considering whether to name a panel of experts to evaluate the responses and recommend a course of action

Pending before the Senate Subcommittee on Alcoholism and Drug Abuse is a bill that would require alcoholic beverages to carry a label saying "Caution—Consumption of alcoholic beverages may be hazardous to your health, may be habit-forming, and may cause serious birth defects when consumed during pregnancy"

The animals in these studies are not given massive doses of alcohol Although animals can metabolize or "burn up" alcohol faster than humans, they must not be given an overdose because they, just as humans, will die if given too much There always are reservations in applying the findings of animal studies to humans, but certain biological and chemical facts cannot be discounted

For example, alcohol passes easily through membranes, in humans and animals Therefore, alcohol consumed by a pregnant woman flows through her blood system to the placenta and then to the unborn child

The alcohol courses through the bloodstream of the unborn child in the same concentration as in its mother's If the mother is drunk, so is the baby The problem for the fetus is complicated because its liver, the key organ for removing alcohol from the blood is not fully developed

The adult liver can metabolize (convert or eliminate) about a half ounce to an ounce of alcohol in an hour If more is consumed within the hour, the liver processing function becomes "overloaded" and the excess alcohol continues to circulate in the system, causing a rise in blood alcohol content

Because the undeveloped liver of the fetus works slowly, most of the alcohol that has reached it will be lost eventually by diffusion back across the placenta in a return to the mother's system But that can't occur until the mother's blood alcohol goes down. Therefore, the fetus "holds" the alcohol until the concentration in its mother decreases

Fortunately, prevention of fetal alcohol syndrome, unlike Down's syndrome and certain other birth defects, requires no medical or scientific breakthroughs The surest preventive, of course, is for a woman who is pregnant to avoid alcohol completely Short of that, following the guideline of no more than two drinks per day and generally keeping aware of drinking patterns during pregnancy can help a mother to avoid potential harm to her unborn child

For women who have a serious drinking problem, timely assistance from health professionals can be effective, according to Dr Rosett of Boston University He reports that in a survey of all patients registered at the Boston City Hospital Prenatal Clinic, nine percent reported heavy drinking He defined "heavy" as five to six drinks on some occasions and a minimum of 1 1/2 drinks a day when monthly consumption is divided by 30

Within a group of 42 of the clinic patients who said they drank heavily, 15 were able to abstain or reduce alcohol intake before the last three months of pregnancy Rosett found that infants born to those 15 had fewer abnormalities than 27 infants whose mothers had continued heavy drinking

Additional clinical experience supported the initial observation that "reduction of alcohol use during pregnancy benefits the baby," Rosett said

Dr. Noble has placed the fetal alcohol syndrome high on the list of research priorities at the National Institute, which is committed to "aggressively seek out and study all aspects of life that may be adversely affected by alcohol."

Until the answers are in on the key questions of exactly how much or when alcohol is safe to drink during pregnancy, medical authorities agree that it is wise to be cautious.

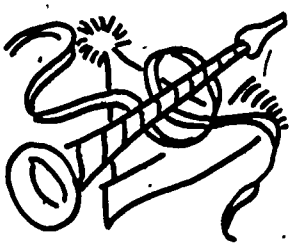
Fritz Witti is a freelance writer

FDA Consumer/May 1978/23

PERSONALIZED WEIGHT CONTROL
or
A NEW YOU FOR THE NEW YEAR

Art
English
Math
Social Studies

January



Objective: The Student will learn how to lose or gain weight by controlling the number of calories he consumes.

To The Teacher:

A simple equation can be written for how to gain and lose weight. Energy in (Food) = Energy Used (Activity & Maintenance) + Storage (Fat)

Now that the holidays are over, let's start the new year out with a resolution to achieve our ideal weight, not only for the sake of good looks, but also better health.

No single food is fattening and no single food is weight-reducing.

Calories count no matter what the food is. Food supplies energy to the body. Energy is measured in calories. When we consume more calories than we expend, the excess calories are stored as body fat. When we use more calories than the body requires for maintenance and activity, weight is lost.

A calorie is the amount of heat required to raise the temperature of 1 kilogram of water (about 1 quart) 1 degree centigrade. A calorie is not a nutrient. It is the measurement used to determine the energy value of nutrients. The substances in food that contain calories are carbohydrate, protein, and fat. Equal amounts of carbohydrate and protein supply an equal amount of calories. Fat provides a little more than twice the calories that carbohydrates and protein do. (Fats supply 9 calories per gram; carbohydrates and protein supply 4 calories per gram). They supply you with nutrients other than calories too. A nutrient is a substance that is necessary for the functioning of the human body. Nutrients are used by the body in three ways: to provide growth and repair; to furnish energy and heat; and to regulate bodily processes.

Nutrient Density is the ratio of a specific nutrient in a given amount of food to the total calories. In other words, "How many calories do I consume to get this many nutrients?"

Example: 1 medium baked potato = 98 calories, 2 g. protein, 23 g. carbohydrates and 1 g. fat.
15 potato chips = 162 calories, 2 g. protein, 15 g. carbohydrates, and 11 g. fat.

The baked potato has a much greater nutrient density than the potato chips. Thus, by choosing wisely, we can eat more nutritious foods - and cut our calorie intake at the same time.

Activities:

1. "Count Your Facts Before You Count Your Calories" (HELP #1)
2. How Much Do We Pay for Empty Calories? (HELP #2)
3. Have the students keep a record of their food intake for a week to see how many calories they consume daily. Appendix 1. (Each student will need two sheets).
4. After one week, have the students go over their record and make suggestions for changes that would enable them to achieve their ideal weight and/or improve the nutritive quality of their diet.
5. Referring to the Table of Nutritive Values in Common Portions of Food in the back of this book, students will show how a typical uncontrolled diet can be trimmed of many calories that add excess body weight.

Example:

Breakfast

From		To	
1/2 glass (4 oz) orange juice	50	1/2 glass (4 oz.) orange juice	50
1 scrambled egg	120	1 boiled egg	78
2 slices bacon	100	1 slice bacon	50
2 slices white bread	126	2 slices whole wheat bread (60 cal./slice)	120
2 pats butter	100	Lo-cal Margarine (2 pat @ 17 cal/pat)	34
2 c. coffee each with sugar (2 lumps) & cream (2tbsp)	220	2 c. coffee, with no calorie sweetener & non-dairy cream 11 cal. per tbsp.	22
Total Calories	716	Total Calories	354

Have the students take a typical meal, and then show how calories can be trimmed. Remember that substituting one food for another only works if you watch the size of the portions. Second helpings defeat the whole purpose.

6. Have students write "Dear Abby" letters with their concerns about weight. Have pairs of students trade letters and respond with ways to cope. Have three pairs form a group and discuss problems and solution.

7. Form five groups. Have each group research American attitudes and pre-occupations with weight. Have them bring magazine and newspaper articles and ads dealing with the weight problems of Americans:
   a. high calorie and low nutrient density foods and note the people in them.
   b. reducing device ads
   c. image of beauty in ads
   d. popular diets

   Discuss: What is beautiful? What body sizes and shapes have been used by artists throughout history to represent beauty? (Use Art History books or survey the collection at your local art museum). Who appears to set the standards in the past and present? How are women portrayed in art, ads and fads? How are men portrayed?

SOURCES:

Katz, Deborah and Goodwin, Mary. Food: Where Nutrition, Politics and Culture Meet. Center for Science in the Public Interest, Washington D.C. 1976

Nutrition Curriculum developed by Garfield School District No. RE-2. East Central BOCS.

Hamilton, Eva Mary and Whitney, Eleanor. Nutrition: Concepts and Controversies. West Publishing Company, St. Paul, Minnesota 55165

COUNT YOUR FACTS BEFORE YOU COUNT YOUR CALORIES

	True	False
1. Toasting reduces the calories in bread.		
2. One can eat and drink whatever he pleases if a vitamin and mineral capsule is taken each day to assure a supply of essential nutrients.		
3. It's natural to get fatter as you get older.		
4. In order to lose weight one should eliminate carbohydrates from the diet.		
5. Food eaten before you go to bed is more likely to cause weight gain than if the same food were eaten for breakfast.		
6. Calories in snacks need not be counted, only calories in meals.		
7. Because it is a high protein food, meat does not cause weight gain.		
8. In order to be low-calorie, the ingredients in a recipe have to be changed drastically.		
9. It makes no difference whether a person eats fast or slow.		
10. It is better to lose weight as rapidly as possible whatever reducing diet one follows.		
11. Fat should be eliminated in a reducing diet.		
12. Overweight is usually a glandular problem.		
13. Exercise increases the appetite.		
14. One should drink less water while dieting.		
15. Meal-skipping helps reducing.		
16. A diet "pill" is an easier way of losing weight than dieting.		
17. One should expect to feel weak and fatigued during weight reducing.		

COUNT YOUR FACTS BEFORE YOU COUNT YOUR CALORIES ANSWER SHEET

1. False. Burning the bread does not burn away the calories.

2. False. This is a basic fallacy in fad dieting. A well-balanced diet of protein, carbohydrate and fat, along with vitamins and minerals, is essential to healthy nutrition whether or not one is dieting.

3. False. One may get the impression that it is natural because so many people grow fatter as they get older. Metabolism and physical activity often decrease faster than the appetite. Fat begins to accumulate as a person takes in more food day after day than his body uses. This is a common occurrance, but is undesirable.

4. False. Carbohydrates are necessary for providing needed energy to carry out daily activities. It is unlikely that a diet eliminating carbohydrates can provide for a long term weight reduction program or a life-time change in eating habits.

5. False. The energy requirements of the body must be met whether awake or asleep. Food eaten at bedtime will not put on weight if the calories supplied do not exceed the daily caloric requirements for the given body weight.

6. False. All calories count! Snacks must be considered along with other meals.

7. False. Any excess in the calories above our body requirements, regardless of the food source, result in storage fat deposited in the body.

8. False. All ingredients should be considered when determining the caloric value of a dish. High calorie recipes can be reduced in calories by substituting low calorie ingredients without altering the satisfying quality.

9. False. Most overweight people eat too fast. They consume large amounts of food without even realizing it. One should always eat slowly and chew food well. This gives the blood sugar regulatory mechanisms of the body a chance to act on our appetite-regulating centers. This reduces appetite and hunger during the meal and allows us to be satisfied with less food.

10. False. When weight is lost rapidly, it almost always is a loss of water from the tissues, and not stored fat. This is not a permanent loss and is rapidly regained when normal eating habits are resumed. The desired loss of weight by a moderately overweight person is five to eight pounds per month.

11. False. Some fat is necessary both for its nutrient value as well as for its satiety value in preventing hunger.

12. False: In only a very small percentage of the obese population is overweight due to metabolic or glandular disorders and these can often be corrected medically. In most cases fat accumulates because the food intake is greater than the energy expenditure.

13. False. Regular moderate exercise serves to regulate body weight. It does not increase the appetite. Exercise is an excellent way to use up calories and keep the body physically fit.

14. False. Water intake does not interfere with the loss of fat while dieting. An average of six glasses of water should be included in the daily diet.

15. False. Skipping meals is not a good way to reduce. It usually results in overeating. When the daily food intake is divided into small portions and eaten at intervals, continued weight loss is more likely to occur.

16. False. No pill can take the place of dieting. They merely suppress the appetite while you are learning to adjust to eating less. Faulty eating habits must be corrected in order to achieve a permanent weight loss. Do not use any dieting drug unless it is prescribed by your physician for you.

17. False. A very rapid loss of weight as in a "crash" diet, will often cause weakness. However, a moderate rate of weight loss on a well-balanced, but low calorie, diet will not cause weakness or fatique.

How Much Do We Pay for Empty Calories?

OBJECTIVE: To calculate the portions of the personal and family budget spent on foods with nutritive value, and on empty calorie foods.

BACKGROUND INFORMATION: Burros, Marian; "The Real Cost of Convenience Cooking," FFPNFP.

PROCEDURE:

1. Have students determine whether the family makes a sound investment in food. (Food is one of the major investments a family or an individual makes.) The student could volunteer to purchase the food for the family or check off the food and prices when the groceries are brought home. (Be sure to add extra items purchased during the week.)

COST OR ESTIMATED VALUE OF GROCERIES FOR MY FAMILY FOR ONE WEEK

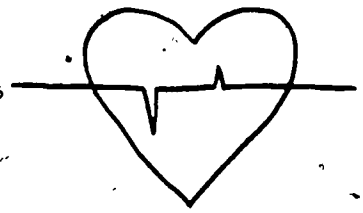
Vegetables and Juices	$ _____	
Fruit and Juices	_____	
Milk, Cheese, Yogurt	_____	
Protein Foods	_____	
Bread and Cereal	_____	
Other Staple Items	_____	
TOTAL		$ _____
Sweets, Cookies, Candy	$ _____	
Cake, Pastries	_____	
Presweetened Cereal	_____	
Soft Drinks	_____	
Other Empty Calorie Foods	_____	
		$ _____

2. Processed foods are an expensive addition to the family's food bill. Calculate the portion of your family's food budget spent on relatively unprocessed basics, and the portion on highly processed items. (TV dinners, fancy frozen vegetables, casserole kits--such as Tuna Helper)
3. DISCUSS: What major factors influenced the purchase of good food? What major factors influenced the purchase of poor food? How much money is spent on nutritious foods? How much on empty calorie foods?
4. Have students keep track of their own food purchases for a week. Calculate the portion spent on nutritious, wholesome foods and the portion spent on empty calories. Add up class totals.
5. Have students prepare bar graphs of above information.

Reprinted from Food: Where Nutrition Politics and Culture Meet. which is available from the Center for Science in the Public Interest, P.O. Box 7226, Washington, D.C. 20044, for $4.50.

HAVE A GOOD HEART
or
KEEP THE BEAT GOING

English
Math
Science



February

Objective: To examine the patterns of diet-related disease in student's families.
To evaluate potential risk of heart disease; to identify how persons can reduce the risk of coronary heart disease.

To The Teacher:

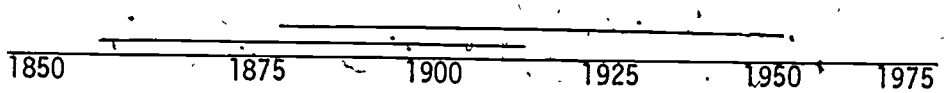
In general, prior to the 20th Century, infectious diseases caused many premature deaths; today, degenerative diseases are the major cause of death. This lesson will help show the students how diet can affect the life-span of an individual. Discuss the Nutrition and Diet-Related Disease sheet (HELP #1) and "Way To A Man's Heart" (HELP #2) and give each student a copy.

Activities:

1. Ask the students to chart their family trees, indicating each family member as far back as information is available. List the name, date of birth, date of death and cause of death. Place an asterisk by diet-related disease. Are patterns evident? What are possible environmental or genetic causes?

2. Have each student calculate the life span of each family member, and transfer the information to a time line.

Example:



3. Based on individual data, have students compile a summary chart for the class. Determine major causes of death, and average life span for each 25 year period.

Birth Date	Causes of Death Major Causes	Average Age
1800		
1825		
1850		
etc.		

87

4. Divide the class into groups of 4-6. Discuss both personal and class findings:
   a. Average age of death of males and females
   b. Major causes of death in each 25 year period
   c. What factors have changed from the earliest date to the present
   d. Has the average age of family members increased or decreased over the years? Why?
   e. How many relatives died of diet-related disease before 1945 or 1950 and since 1945 or 1950?*

5. Have class list the major causes of heart disease, compose a "contributing Factor" chart such as the following:

Contributing Factor	Mother	Father	Me	How She/He/I Can Change
Heredity				
Overweight				
Hypertension				
Diet High in Saturated Fats				
Diet High in Cholesterol				
Lack of Exercise				
Diabetes				
Cigarette Smoking				
Family History of Heart Attacks in Middle Age				

In class, have students form small groups and discuss how their parents could alter diet and life-style to decrease risk of heart disease. Which changes are most difficult? Why? What habits can students be developing to lower risk of heart disease.

Sources:

*Katz, Deborah and Goodwin, Mary. Food: Where Nutrition, Politics and Culture Meet. Center for Science in the Public Interest, Washington, D.C. 1976.

"Way To A Man's Heart". American Heart Association.

Nutritional and Diet Related Disease

In 1972 George Briggs, Professor of Nutrition at the University of California (Berkeley), in a statement before the U.S. Senate Select Committee on Nutrition and Human Needs, estimated that malnutrition and food abuse account for about $30 billion a year, or about 30% of health care costs in America. Malnutrition can result from eating either too few or too many nutrients. Today many Americans are suffering the consequences of overeating. The following are some of the diseases associated with poor diets.

DISEASE	MAJOR DIETARY CONTRIBUTING FACTORS	PREVENTIVE DIETARY MEASURES
Coronary heart disease	*dietary cholesterol *saturated fat *excessive calories	*carefully controlled caloric intake *dietary fat intake limited to 30-35% of calories *decreased amount of saturated fat *strict limitation of cholesterol
High blood pressure (Hypertension)	*excessive calories/ obesity *excessive dietary salt	*carefully controlled caloric intake *reduced salt intake
Diabetes mellitus	*excessive calories/ obesity *excessive sugar consumption	*carefully controlled caloric intake *avoidance of refined sugar
Obesity	*excessive calories and lack of physical activity (with result that caloric intake exceeds expenditures)	*carefully controlled caloric intake
Dental caries	*excessive sugar consumption *consumption of forms of foods high in sugar that stick to the teeth	*avoidance of highly refined sugar *increased fruit, vegetable, and legume consumption
Cirrhosis of the liver	*excessive use of alcohol	*avoidance or reduction to small amounts of alcohol intake
Cancer of the colon	*high-fat and low-fiber diets	*dietary fat intake limited to 30-35% of calories *increased intake of whole grain (or bran), raw fruit and vegetables
Constipation Diverticulosis of the colon	*inadequate intake of fiber	*increased intake of whole bran, raw fruit and vegetables
Nutritional anemia	*inadequate intake of dietary iron, folic acid, or B-12 (Vitamin B-12 intake apt to be low only in strict vegetarians)	*adequate intake of iron, vitamin B-12, and folic acid)

Reprinted from *Food Where Nutrition Politics and Culture Meet* which is available from the Center for Science in the Public Interest, P.O. Box 7226, Washington, D.C. 20044, for $4.50.

WAY TO A MAN'S HEART

To help you follow a fat-controlled, low cholesterol diet here is some information about cholesterol and different types of fat in foods

CHOLESTEROL is a waxy material used in many of the body's chemical processes. Everyone requires it in correct amounts for good health, but too much cholesterol in the circulation encourages the development of heart and blood vessel diseases.

We get cholesterol in two ways: It is manufactured by the body from all foods; and we get it directly from foods of animal origin.

Egg yolks and organ meats are very high in cholesterol, and shrimp is moderately high in this substance. These foods are restricted in this diet There is no cholesterol in foods of plant origin such as fruit, vegetables, grains, cereals, and nuts, and these foods are recommended

SATURATED FATS tend to raise the level of cholesterol in the blood and are therefore restricted in this diet. These are fats that harden at room temperature, and they are found in most animal products and some hydrogenated vegetable products:

Saturated animal fats are found in beef, lamb, pork, and ham; in butter, cream, and whole milk; and in cheeses made from cream and whole milk.

Saturated vegetable fats are found in many solid and hydrogenated shortenings; and in coconut oil, cocoa butter, and palm oil (used in commercially prepared cookies, pie fillings, and non-dairy milk and cream substitutes).

POLYUNSATURATED FATS, which are recommended in this meal plan, are usually liquid oils of vegetable origin. Oils such as corn, cottonseed, safflower, sesame seed, soybean, and sunflower seed are high in polyunsaturated fat. They tend to lower the level of cholesterol in the blood by helping the body to eliminate excess, newly-formed cholesterol.

Olive oil and peanut oil are also vegetable products, but they are low in polyunsaturated fats. You might want to use them for flavor occasionally, but they do not take the place of polyunsaturated vegetable oils. Your daily intake of salad dressings, cooking fats, and margarines should emphasize the recommended polyunsaturated vegetable oils for their cholesterol-lowering effect

TOTAL FAT is low in chicken, turkey, fish, and lean veal, and they are recommended.

HYDROGENATION changes liquid fats to solid fats. *Completely* hydrogenated (hardened) oils resemble saturated fats and should be avoided or used in moderation, but most margarines and shortenings containing *partially* hydrogenated oils also contain acceptable amounts of polyunsaturates.

Questions and answers about this diet

HOW IS THE HEART AFFECTED BY EXCESSIVE CHOLESTEROL AND FAT IN THE DIET?

A certain amount of cholesterol must always be present in our systems to maintain life and health; but when we eat too many foods rich in cholesterol and saturated fats, surplus cholesterol enters the bloodstream, and contributes to the buildup of atherosclerosis.

In atherosclerosis, cholesterol deposits become embedded in the lining of the artery walls. These deposits accumulate over many years, narrowing, roughening, and scarring the channel through which the blood flows. Eventually an artery may close off completely, either because the deposits have grown together, or because a blood clot plugs up the narrowed passageway.

Wherever an artery is completely closed, there is damage to the part of the body that depends on the blocked artery for some of its blood supply. If the blockage occurs in a major artery serving the heart muscle (coronary artery) the result is a heart attack.

WHO GETS ATHEROSCLEROSIS? AT WHAT AGE IS IT MOST LIKELY TO CAUSE TROUBLE?

Atherosclerosis begins to develop early in life. It is commonly found in the arteries of young men in their twenties and late teens. Most people have it in a mild form, however, and live to an old age without troublesome symptoms. In others the disease progresses rapidly, and they are likely to have heart attacks in the prime of life.

It is not fully understood why some people are more susceptible than others to the serious results of atherosclerosis, but scientists have identified some of the factors that increase the risks: high levels of cholesterol in the blood; overweight;

cigarette smoking, lack of exercise, high blood pressure; diabetes; and family inheritance of a tendency to heart disease.

There is much encouraging evidence that most people—including those who inherit a *tendency* to heart disease—can substantially reduce their risk of having a heart attack if they follow a diet to control blood cholesterol levels; avoid cigarette smoking, maintain a normal weight; exercise regularly; and get medical treatment if they have high blood pressure or diabetes.

A fat-controlled, low cholesterol diet is the subject of this leaflet. For information about additional ways to reduce the risk of heart attack, ask your Heart Association

WHAT IS INVOLVED IN FOLLOWING THIS DIET? MUST I MAKE DRASTIC CHANGES, AND CUT OUT ALL CHOLESTEROL AND SATURATED FAT?

The plan in this leaflet calls for moderate, not drastic changes in your diet. It is not advisable or even possible to eliminate saturated fats and cholesterol completely, for they appear to some extent in many essential foods.

There are four goals to keep in mind in following this plan:

- **To meet your daily need for protein, vitamins, minerals, and other nutrients.**
- **To control calories and maintain a desirable weight.**
- **To avoid eating excessive amounts of food containing saturated fat and cholesterol, by lowering your total intake of such foods.**
- **To eat less total fat and to substitute margarine and polyunsaturated fats wherever possible.**

You may have to change some of your long-standing eating habits, but you won't have to give up all of your favorite dishes. This is what will be involved:

To control your intake of cholesterol-rich foods:

- **Eat no more than three egg yolks a week, including eggs used in cooking.**
- **Limit your use of shrimp and organ meats.**

To control the amount and type of fat you eat:

- **Use fish, chicken, turkey, and veal in most of your meat meals for the week; use moderate-sized portions of beef, lamb, pork, and ham less frequently.**
- **Choose lean cuts of meat, trim visible fat, and discard the fat that cooks out of the meat.**
- **Avoid deep fat frying; use cooking methods that help to remove fat—baking, boiling, broiling, roasting, stewing.**
- **Restrict your use of fatty "luncheon" and "variety" meats like sausages and salami.**
- **Instead of butter and other cooking fats that are solid or completely hydrogenated, use liquid vegetable oils and margarines that are rich in polyunsaturated fats.**
- **Instead of whole milk and cheeses made from whole milk and cream, use skimmed milk and skimmed milk cheeses.**

Ask your Heart Association for the companion piece to this diet leaflet—RECIPES FOR FAT-CONTROLLED, LOW CHOLESTEROL MEALS (50-020-B).

WHO SHOULD FOLLOW THIS MEAL PLAN?

This plan is mainly for adults from their twenties on who have a family history of heart disease, or who may have increased their risks through a regular diet high in saturated fat and cholesterol. Children and adolescents, especially from susceptible families, can also benefit from this meal plan by forming tastes for food early in life that may protect them from heart disease when they reach adulthood.

The *types* of food recommended in this leaflet are suitable for most people from childhood through maturity. The *amounts* of food specified in the food lists, however, are recommended mainly for the average adult. Nutritional needs differ during growth periods of infants, children, and adolescents, and during pregnancy and breast feeding; at these times, the amounts of food to be eaten should be regulated by a physician.

SOURCE:

American Heart Association

THE LABEL AND THE LAW
or
ARE YOU READING WHAT YOU EAT?

Art
Foreign Language
Home Economics
Math
Social Studies

February

Objective: The student will learn how to read a food label for nutritional information; will understand the relaship between food processing, energy consumption, nutritional value of food and resultant cost; and will become familiar with some of the history of food labels.

To The Teacher:

Food labels have a great deal of information to offer. Just as George Washington "couldn't tell a lie," neither can a food label. They serve as one of our consumer protection guides. All consumers need to know how to read them and choose their diet accordingly. The suggested activities are designed to make the student more aware of what he consumes.

Activities:

1. Pretest - Give the Quiz - "Truth in Labeling" (HELP #1)
2. Read and discuss with the class "A Guide to Food Labeling" (HELP #2) after they have completed the pre-test.
3. Divide the class into small groups. Each group will identify one basic food that can be purchased in a variety of forms ranging from raw commodities to highly processed. For example, potatoes may be purchased raw in the produce department, or frozen in slices, french fries, or hash brown, as dehydrated mashed potatoes, as potato chips, and as mashed and reconstituted chips. They should then collect labels from these various products (either copying at the store or bring the actual label to class). (Or teacher could have done this earlier.) Make a list of the major nutrients in that food and then calculate how many calories they would consume to obtain 100% of the U.S. RDA of these nutrients from each product. Also calculate the cost of a serving of each and judge which sources are most economical from the standpoint of calories and cost.

For example: On package

No. of servings in container _____

No. of calories in each serving _____

No of gms. of protein in each serving _____

Number of (or types of) other nutrients _____

Cost _____ Wt. in ounces _____

Cost per serving _____

Additives listed: _____

_____

_____

_____

4. Do the following calculations:

_____ X _____ = _____

No. of serv. Calories per Servings — Total Calories In Box

_____ X _____ = _____

No. of serv. — Gms of protein/serv (or other nutrient) — Total Protein in in box (or other nutrient)

Cost / total protein (or other nutrient) = Cost per gram of protein (or other nutrient) e.g. carbohydrates, vitamins, minerals, fats

In relation to above calculations, discuss the following:

Does processing (and the use of energy resources) generally:

--increase, decrease, or keep the same, the nutritional value of food?

--increase or decrease the caloric value?

--increase or decrease the cost?

(For items not packaged, students should consult the list in the back of this book - Nutritive Values in Common Portions of Food or a textbook on food.*

5. Design a label for a food of your choice, giving all necessary information, plus any other you feel desirable on a label. (See "A Guide To Food Labeling" (HELP #2.) Discuss what makes a container attractive to a potential buyer: shape, color, type of print, etc. Will your product be competing for adult consumption of for children? How will this affect the packaging?
6. Try to obtain foods packaged in another country. Compare their label information to the U.S. labels.
7. Plan a field trip to a local grocery store and use the Supermarket Scavenger Hunt. (Or use as homework assignment.) (HELP #3)
8. S-T-R-E-T-C-H Your Imagination! There will soon be a new industry in your community that will manufacture boxes for a new cereal. They are promoting a local contest and ask citizens to design a cereal container that will not only advertise the cereal, but your community as well. Design your entry with a name for the cereal, the container, the label with all necessary information and appropriate pictures or drawings if desired.

SOURCES:

*This material borrowed from the Energy, Food and You curriculum guide, a program of the Washington State Offices of Environmental Education (N.W. Section) and Health Education

Nutrition Labeling. Developed by Nancy Glaim. East Central Board of Cooperative Services.

Nutrition Unit developed by Limon School District RE-4J.

TRUTH IN LABELING

Place a T in front of the statements that are true and an F in front of the statements that are false.

_____Nutrition labeling makes nutrition information available to everyone who wants to use it.
_____The USRDA is listed in cupfuls.
_____The nutrition label shows percentages of the USRDA.
_____The nutrition information panel tells how many servings or portions are in the container.
_____The nutrition label lists the types of fats that are good for you.
_____Calories per serving must be shown on the nutrition information label.
_____Nutrition labeling is required on all foods.
_____Nutrition labeling forces everyone to eat things that are good for them.
_____Nutrition information can help you shop for more nutritious food and plan more nutritionally balanced meals for you and your family.
_____The only foods not required to list all ingredients are standardized foods.
_____The grade of the product must appear on the label.
_____The USRDA is the same for all individuals.

Matching:

_____FDA	a. a list of foods found to cause cancer.
_____Gras List	b. Federal Dietary Allowance
_____Enriched	c. food generally recongnized as safe.
_____Fortified	d. preservatives.
_____Imitation	e. Food and Drug Administration
_____Additives	f. a product similar to an existing one.
_____USRDA	g. specific nutrients added to milk.
	h. a list of amounts of 19 vitamins and minerals suggested for daily consumption.
	i. specific nutrients added to bread, flour, etc.

Circle the foods which have a standard of identity:

salad dressing	jam	evaporated milk
cereal	asparagus	pie filling
instant pudding	candy	spaghetti
condensed soup	catsup	bread

ANSWER KEY

True or False:

T
F
T
T
F
T
F
F
T
T
F
F

Matching:

e
c
i
g
f
d
h

Circle:

Salad dressing
jam
evaporated milk
condensed soup
catsup

This material borrowed from the *Energy. Food. and You* curriculum guide, a program of the Washington State Offices of Environmental Education (NW Section) and Health Education.

HELP #2

A GUIDE TO FOOD LABELING

Federal law requires all food labels to show certain information. The labels must be easily read and understood and must not contain any false or misleading information.

Information required on the label	Example
The product name	Apricots
The variety, style, and packaging medium	Apricot halves, in heavy syrup
Net content or net weight (This includes the packing medium such as water, syrup, etc.)	Net weight 15 oz
Name, place of business, zip code of the manufacturer, packer or distributor	Distributed by Thomas & Company 1234 Cannery Lane Seattle, Wa 98773

A list of ingredients, in order of decreasing weight unless a standard of identity has been established for that food. If the ingredients listed are green beans, water, sugar, salt, the amount of green beans inside weighs the most of all the ingredients. Artificial colors and flavors, and chemical preservatives *must* be declared on the labels of all food containing them, except butter, cheese, and ice cream. If the colors or flavors are artificial, they must be designated as such.

NUTRITION LABELS AND U.S. RDA

U.S. RDA stands for United States Recommended Daily Allowances. These are the amounts of vitamins, minerals, and other nutrients from food that a person should eat every day to stay healthy.

What are U.S. RDA's?

U.S. RDA's are selected from tables of Recommended Dietary Allowances published by the Food and Nutrition Board of the National Academy of Sciences-National Research Council.

The U.S. RDA's represent the amounts of nutrients needed every day by healthy people, *plus an excess of 30 to 50 percent* to allow for individual variations. Thus, many adults need only two-thirds to three-fourths of the U.S. RDA for several nutrients, and children only about half.

The U.S. RDA's replace the Minimum Daily Requirements (MDR's) which were previously used on the labels of vitamin and mineral supplements, breakfast cereals, and some special foods. Unlike the allowances, the MDR's represent the minimum amount needed to maintain health.

Actually there are three U.S. RDA's. The best known, and the one that will be used on most nutrition information panels and on most vitamin-mineral supplements, is for adults and children over 4.

The second one is for infants and children under 4. It will be used on baby foods and on vitamin-mineral supplements for infants and small children. The third is for pregnant women or women who are nursing their babies.

Nutrition Labeling

Nutrition labeling was developed by the Food and Drug Administration. It is voluntary for most foods. However, if a nutrient is added, even to replace those lost in processing, or if a nutritional claim is made for the food in the labeling or in an advertisement, the product must have nutrition labeling. Example: enriched rice (food claims to be enriched) or low calorie peaches (food has a nutritional claim of being low in calories).

At the top, the nutrition labeling panel is identified as NUTRITION INFORMATION. All nutrient information listed on the panel is *on the basis of a serving.* The label tells the size of a serving and number of servings in the container. Immediately below are listed the number of calories and the amounts of protein, carbohydrates, and fat in a serving.

The lower part of the nutrition label gives the percentages of the U.S. RDA of protein and seven vitamins and minerals in a serving of the product. A label may say, for example, Percentage of U.S. Recommended Daily Allowances

(U.S. RDA)

Protein	30	Riboflavin	15
Vitamin A	35	Niacin	25
Vitamin C	10	Calcium	2
Thiamine	15	Iron	25

This means that one serving of that food contains 30 percent of the U S Recommended Daily Allowance for 300 protein. 35 percent of the U S RDA for vitamin A. 10 percent of the US RDA for vitamin C. and so on

Some labels will list other vitamins and minerals as well as polyunsaturated and saturated fats. cholesterol and sodium If sodium is listed. it must be by milligrams of sodium per 100 grams (Salt is about 40% sodium)

Cholesterol too is optional information If listed, it must be shown in two ways as milligrams of cholesterol per serving and as milligrams of cholesterol per 100 grams of the food When information on fat is shown, it must be accompanied by the phrase. Information on fat content is provided for individuals. who on the advice of a physician. are modifying their total dietary intake of fat"

Information which is not required on food labels:

- Recipes
- Brand name to further identify the product
- Storage and cooking recommendations
- Unit pricing — price per pound or other unit of measurement
  Unit pricing is not required by law for the State of Washington,
  it is a city ordinance and the only two cities to enforce the ordinance are Spokane and Seattle. See page on unit pricing
- Open dating — a voluntary program which gives the consumer some idea of the quality and freshness of a product The code is given in the form of a calendar date Washington State requires open dating for all perishable products

There are several types of open date labeling

Expiration Date — the last day a product should be consumed Example Yeast has an expiration date

Quality Assurance Date — The date after which the product is not likely to be at optimum quality Use product before (date) or used product by (date) Example Bread will go on sale the day after its quality assurance date

Pack Date — The date of final packaging or processing. Example Usually seen on canned goods.

Grading is established by the U S Department of Agriculture. and defines various grades or levels of quality (the usefulness. desirability. and value of a product) Each food or food group has its own characteristics that affect quality Grading is voluntary and any manufacturer may obtain the service for a fee. Some states may have their own mandatory grading requirements

Inspection.

The United States Department of Agriculture (USDA) is responsible for inspecting all meat and poultry which is sold across state lines and which goes into commerce in those states that do not have a state inspection program equal to the federal program. The inspection program checks wholesomeness and proper labeling All meat and poultry must be inspected before being graded.

Universal Product Code

A series of 10 digit numbers, reproduced on a package. There is also a code symbol directly above the series of numbers which is interpreted by a machine The first five numbers are the manufacturer s number, assigned to each manufacturer by Distribution Code, Inc., a private, non profit agency staffed by representatives of retailers and manufacturers The last five numbers represent specific products within the manufacturer's line. In addition to the 10 digit numbers. there is a digit at the front of the code describing the basic type of item.

For instance

0 is used for all prepacked standard weight grocery items

2 is used for all grocery random weight items. such as produce. meat cheese

3 is used for all items under National Drug Code and Health Related Items Code controlled by the Food and Drug Administration

4 is being held to handle drug and health-related items. if further expansion of the code is required.

5 is reserved for use with consumer coupons

6 is reserved for use with 12 digits when and if required.

9 is reserved to accommodate codes up to 30 digits in length

Other numbers. not noted. are being held in readiness for use in other marketing systems — beyond the supermarket.

Terms related to nutrition labeling

FDA — (Food and Drug Administration) The federal governmental agency that is responsible for laws to protect the consumer s food. make sure drugs are safe and effective. develop standards for packaging and labeling. devised the U S RDA. approves additives for safety. and inspects plants that manufacture foods. drugs. and cosmetics

USDA — (United States Department of Agriculture) The federal agency aimed at guaranteeing a safe, adequate supply of food. grading food. educational information on growing and eating food. and federal meat and poultry inspection service

Imitation Food — A food which is nutritionally inferior to a food product for which it is a substitute. Example Many products are now using soybeans to make products resemble beef or chicken If we look at the ingredients. it will indicate soybean as the first ingredient. So, a product called "Chicken O" must also have on the product label "Imitation Chicken."

Restored — Food items that have had nutrients added to them to replace those nutrients that may have been decreased or destroyed during processing or storage Nutrients are restored to the level assumed to be found naturally in the food before it was processed

Enriched — Refers to food such as breads. cereal products. grains that have lost certain nutrients in the processing. A food becomes enriched when specific nutrients. thiamin riboflavin. niacin. and iron are added or returned to the refined food product Addition of other nutrients lost in processing is optional

Fortified — Refers to the addition of nutrients beyond a level that is normally found in the food Example Vitamin D added to milk

SUPERMARKET SCAVENGER HUNT

The purpose of this exercise is to require students to do some careful label reading in local supermarkets. The following page has 48 items to find. It can be xeroxed and cut to give each student 12 items. (The number is flexible - you could assign more or less, depending on the size of the class.) Each student would be required to find what the list describes within 24 or 48 hours and bring evidence to class. In no case should students be required to purchase items at a store for the scavenger hunt. They could bring the item from home, purchase it if it is usable in their household, or simply bring written evidence of the item's existence.

The idea of challenging the findings of other persons is important to the scavenger hunt. For example, one item says to "find the brand of hot dogs with the worst ingredient list." This would require the searcher to read the labels on several brands of hot dogs and make a decision as to which is worst. That list should then be copied. Other people with the same item to find might reach another conclusion. Disagreements should be discussed.

Find one food other than a spice that costs more than $5 per pound	Find some cherry flavored food that contains no cherries	Find some food that contains TVP	Find some food that is not enriched fortified and contains no additives	Find the main ingredient in the chocolate coating on ice cream bars	Find a food package with a picture on it that looks better than the contents of the package
Find two break fast cereals that do not contain sugar	What company makes Jello and what company is its largest competitor in selling flavored gelatin?	Find two packaged food items that do not list ingredients	Find an example of a tie-in display	Find five different foods that have water as the main ingredient	Find one example of the lowest shelf space given to basic foods
Find a food that contains real chocolate – baking chocolate chocolate chips candy or syrup are not allowed	Find a maple syrup that contains maple syrup	Find one merchandising technique used to encourage shoppers to stay in the store longer	Find the brand of peanut butter with the fewest additives	Find a candy display aimed at small kids	Find one example of prime shelf space given to luxury items
Find an example of multiple pricing	Find a package with nutrition information printed on it	Find a Universal Product Code	What is the main ingredient of a Hostess Twinkie?	Find a product that contains an emulsifier Name both the food and the emulsifier	Find a product that contains a preservative Name both the food and preservative
Find two products that are labelled as fortified or enriched	Find a freshness code dated next year	What is the most commonly found main ingredient in baby foods?	Find a cracker that does not contain artificial color or flavor or enriched flour	Find a food with the word "creme" in its brand or on the label	Survey the vending machines in your school What is the main ingredient sold through them?
What is the difference between Mayonnaise and Kraft s Miracle Whip?	In someone s pantry (not at a grocery) find 3 differnt foods made by the same company	Find a food in which the ingredient list is the most impossible to read Do not use a food used in the filmstrips	Find a food package that is designed to make it look like there is more inside	Find the worst frozen dinner	Find the price difference between brand name aspirin and store brand aspirin
Find a bread that is not made with enriched flour & contains no additives	Find a main dish with water as the main ingredient	Find the best brand of frozen fruit pies	Find a food containing Hydrolyzed Vegetable Protein	Find the soup that gives the most food per dollar	Find the best brand of corn beef hash
Find the product with an ingredient list the most like non dairy creamer	Find the most expensive way to buy corn	Find the brand of hot dogs with the worst ingredient list	Identify the chemical used to give hot dogs a pinkish color	Translate into plain English the ingredient list on Top Job cleaning liquid	Find a pickle that has no chemical additives

VITAMINS - AN ALPHABET FOR HEALTH
-or-
DON'T BLOW IT! GET 'EM ALL!

Consumerism
English
Health
Home Economics

March

Objective: The student will learn the importance of vitamins in the diet and sources of each.

To The Teacher:

Vitamins are organic substances in foods which are essential in small amounts for body processes. They occur both in plant and animal tissues and are of two types:

1. Water soluable: B complex and C
2. Fat soluable: A, D, E, and K

They have important functions:

1. Affect growth and reproduction
2. Influence the condition of the skin, hair, eyes, teeth, gums and nerves
3. Improve resistance to infections
4. Work with other nutrients for body regulation

The following activities are designed to help the student become more aware of the vitamins necessary to maintain optimum health, their source, and deficiency symptoms.

Activities:

1. Give the Vitamin Pretest. (HELP #1)

2. Read and discuss with class "A Primer on Vitamins." (HELP #2)

3. Vitamin Bingo. (HELP #3)

4. Have students plan visual aids for teaching younger children about vitamins.

5. Have students compare cans of pure fruit juice and fruit-flavored drinks for Vitamin C content. Also compare taste and cost. Test various fruits for Vitamin C content.

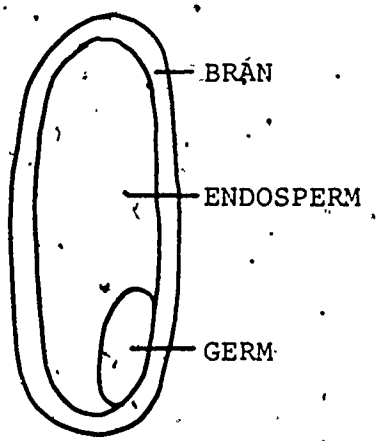
Test for Vitamin C (ascorbic acid)

Procedure: Mix 2 cups water with 2 Tbsp. cornstarch. Boil the mixture 3 minutes and cool. Take slices from a variety of fruits. Place each different fruit slice in a waterproof cup. Add 1 drop of iodine solution to 1 tsp. of the water-cornstarch mixture. Place the whole of this new mixture on the fruit in one cup. Repeat the last two steps for each cup of fruit.

Observation: If the iodine-cornstarch-water mixture turns clear when it is placed on the fruit, vitamin C is present in the fruit.

6. Plan a class debate on the controversy regarding Vitamin C and the common cold.

7. Draw picture of a kernel of wheat on board. Point out various nutrients contained in the wheat kernel.



The wheat kernel consists of three main parts:

1. BRAN - the outer covering of the wheat kernel, it is made up of four layers which are rich in minerals, protein and Vitamin B.

2. GERM - the portion of the kernel that contains life and will germinate under proper conditions. It is rich in Vitamin B complex, Vitamin E, protein, fat and minerals.

Both the bran and germ contain organic phosphates and calcium.

3. ENDOSPERM - the largest part of the kernel, consisting mainly of cellulose, starch and gluten. It has no vitamins and little mineral content. White flour is made principally from endosperm.

To receive full nutritional value from wheat, it is obvious that the <u>whole</u> kernel must be consumed.

Compare labels from cereals, breads, and grain products. Compare whole grain products with ready-to-eat cereal. What happens to the grain of wheat in the milling process to turn out white flour? Is "enriched" bread as nutritious as whole wheat?

NUTRITIONAL VALUE - In the milling process, bran and germ are removed from the flour which also removes about twenty-five vitamins and minerals. When the flour is "enriched", four vitamins are put back in - three in smaller amounts than what was removed. Then the flour is bleached by forcing a gas through it to whiten it further. This also inactivates any trace of vitamin E that might have remained.

SOURCES:

"A Primer on Vitamins," FDA Consumer, May, 1974.

The Story of Vitamins and Their Role in Proper Nutrition. Hoffman-LaRoche Incorporated.

"V" is For Vitamins. Developed by Bennett School District 29-3; East Central Board of Cooperative Services.

VITAMIN PRETEST

Directions:

Answer each question by circling the word true or false in the right column.

1.	Vitamins are found in most foods with some foods richer in vitamins than others.	true	false
2.	Vitamins can be divided into two groups: fat soluble and water soluble vitamins.	true	false
3.	The B vitamins (Thiamine, Riboflavin and Niacin) are essential for proper digestion of foods.	true	false
4.	If you are not eating enough foods rich in vitamin K your blood may not clot after a wound occurs.	true	false
5.	Vitamin A prevents an eye disease called night blindness.	true	false
6.	The common cold can be prevented by taking vitamin C.	true	false
7.	Vitamin B_{12} shots are often prescribed for people who need more energy.	true	false
8.	Vitamin D is useful in treating arthritis.	true	false
9.	Vitamin E has been shown to improve acne, prevent sterility and increase sexual drive.	true	false
10.	Natural vitamins (those found in foods) are better nutritionally for you than synthetic vitamins (those) synthesized in the lab).	true	false
11.	If you eat one of those cereals which has all the vitamins you need every day or take a multiple vitamin pill, it's alright to eat anything you like the rest of the day.	true	false
12.	Eating a variety of foods every day can supply most Americans with all the needed vitamins.	true	false
13.	Vitamin A is destroyed during mild cooking but is not destroyed when a fat containing A turns rancid.	true	false
14.	Vitamin D is generally not destroyed during storage and cooking.	true	false
15.	Vitamin E is destroyed when fats containing E begin to turn rancid or when the fat is used in deep fat frying.	true	false

16. Vitamin C is easily lost when food is submerged in water during cooking. true false

17. Vitamin C is not destroyed when exposed to air or heat. true false

18. Thiamine (B_1) is easily destroyed by exposure to heat or oxygen. true false

19. Riboflavin (B_2) is easily destroyed by light. true false

20. Niacin (B_6) is one of the most stable B vitamins and is lost mostly by leaching into cooking water. true false

21. Fortified milk, fish liver oils, egg yolk and exposure to sunshine are all good sources of vitamin D. true false

22. Citrus fruits, tomatoes, strawberries and leafy green vegetables are all good sources of vitamin A. true false

23. Vegetable oils and whole grain cereals are best sources of vitamin E. true false

24. Lean meat, fish and poultry, enriched and whole grain breads and cereals, liver and milk are all good sources of the B vitamins. true false

25. Butter, whole milk, liver, eggs and yellow and green leafy vegetables are good sources of vitamin C. true false

VITAMIN PRETEST ANSWER KEY

1. true
2. true
3. true
4. true
5. true
6. false
7. false
8. false
9. false
10. false
11. false
12. true
13. false
14. true
15. true
16. true
17. false
18. true
19. true
20. true
21. true
22. false
23. true
24. true
25. false

HELP #2

A PRIMER ON VITAMINS

Vitamins are essential to human life, but their true role in the body and in nutrition is often misunderstood. This primer on vitamins explains what vitamins are and how they work. It is part of FDA Consumer's continuing efforts to present scientific information about areas regulated by FDA.

by G. Edward Damon

Vitamins are organic compounds which are necessary in small amounts in the diet for the normal growth and maintenance of life of animals, including man.

They do not provide energy, nor do they construct or build any part of the body. They are needed for transforming foods into energy and body maintenance. There are 15 or more of them, and if any is missing, a deficiency disease becomes apparent.

Vitamins are alike because they are made of the same elements - carbon, hydrogen, oxygen, and sometimes nitrogen. (Vitamin B12 contains cobalt, an essential mineral.) They are different because their elements are arranged in different combinations, and each vitamin performs one or more exclusive functions in the body.

In the early 1900's it was thought that three compounds were needed in the diet to prevent beriberi, pellagra, and scurvy. They originally were believed to be a class of chemical compounds called amines and were named from the Latin vita, or life, plus amine: Vitamine. Later, the "e" was dropped when it was found that not all of the substances were amines.

At first no one knew what they were chemically, and they were identified by letters. Later, what was thought to be one vitamin turned out to be many, and numbers had to be added; the vitamin B complex is the best example.

Then, some vitamins were found unnecessary for human needs and were eliminated from the list, which accounts for the gaps in the numbers. The present trend is to use the chemical names and eliminate the confusion of the past.

Vitamins are measured in extremely small amounts, because it takes very little to be effective in generating the needed chemical reactions. Vitamins were described in I.U.'s - International Units - but today this form of measurement has been replaced by the term "equivalents". Others are expressed by weight only, in milligrams or micrograms.

To illustrate the small amounts needed by the human body, let's start with an ounce of vitamins, which is 28.3 grams. One gram, then, is about 35/1000 of an ounce; a milligram is 1/1000 of a gram, and a microgram is 1/1000 of a milligram.

To look at it from another direction, the recommended allowance of vitamin B12 for adults is 6 micrograms a day. Just 1 ounce of this vitamin would satisfy the daily needs of 4,724,921 people!

Getting enough vitamins is essential to life. But the body has no use for excess vitamins. Many people believe, however, in insurance. So it is easy to understand why they, fearful of not eating a well-balanced diet, take extra vitamins.

So-called average or normal eaters probably never need supplemental vitamins, although many think they do. People eating known deficient diets require them, as do those recovering from a specific illness or vitamin deficiencies that have been identified by a physician.

Every adult consumer interested in nutrition and good health should become familiar with the initials U.S. RDA. "United States Recommended Daily Allowances" were established by FDA for use in nutrition labeling. They are the amounts of vitamins, minerals, and other nutrients from food that a person should eat every day to stay healthy.

The accompanying table lists the U.S. RDA's for vitamins used in nutrition labeling of foods, including foods that are also vitamin supplements. The table is not complete because it lists only vitamins. Minerals and other nutrients are part of the complete table.

VITAMIN A - RETINOL

Vitamin A is one of the oil soluble vitamins (A, D, E, and K), and is stored principally in the liver.

This vitamin is necessary for new cell growth and healthy tissues and is essential for vision in dim light.

In addition to night blindness and other eye injuries, vitamin A deficiency causes a dry rough skin which may be more susceptible to infection. Too much vitamin A causes headache, nausea, and irritability. More severe ailments include growth retardation in children, enlargement of the liver and spleen, loss of hair, rheumatic pain and disturbance of the menstrual cycle.

Children and young people who have been given large doses of vitamin A have developed an intra-cranial pressure that mimics a brain tumor so realistically that unnecessary surgery has been performed.

Vitamin A is found most abundantly in liver, fortified margarine, eggs, butter, and whole milk. Green and yellow vegetables and yellow fruits are the best sources of carotene, which the body converts to vitamin A.

VITAMIN B1 - THIAMINE

This vitamin is water soluble as are all in the B group. Thiamine is required for normal digestion. It is necessary for growth, fertility, and lactation, and the normal functioning of nerve tissue.

Vitamin B1 deficiency causes beriberi, a dysfunctioning of the nervous system. Other deficiency problems are loss of appetite, body swelling, growth retardation, cardiac problems, nausea vomiting, spastic colon, and pain in the calf and thigh muscles.

Thiamine is found abundantly in pork, beans, peas, nuts, and in enriched and whole-grain breads and cereals.

VITAMIN B2 - RIBOFLAVIN

Riboflavin helps the body to obtain energy from carbohydrates and protein substances. A deficiency causes lip sores and cracks, as well as dimness of vision. This vitamin is found abundantly in leafy vegetables, enriched and whole-grain bread, liver, cheese, lean meat, milk and eggs.

NIACIN

This vitamin has been called B5 as well as PP (pellagra preventive). Both terms are obsolete.

It is necessary for the healthy condition of all tissue cells. A niacin deficiency causes pellagra, which was once the most common deficiency disease next to rickets. Pellagra is characterized by rough skin, mouth sores, diarrhea, and mental disorders.

Niacin is one of the most stable of the vitamins, the most easily obtainable, and the cheapest.

The most abundant natural sources are liver, lean meat, peas, beans, whole-grain cereal products, and fish.

PANTOTHENIC ACID

Once called B3, pantothenic acid is needed to support a variety of body functions, including proper growth and maintenance of the body.

A deficiency causes, among other things, headache, fatigue, poor muscle coordination, nausea, and cramps.

Pantothenic acid is found abundantly in liver, eggs, white potatoes, sweet potatoes, peas, and peanuts.

FOLIC ACID (FOLACIN)

Folic acid helps to manufacture red blood cells and is essential in normal metabolism which is, basically, the converting of food to energy. A deficiency causes a type of anemia.

The most abundant sources are liver, navy beans, and dark green leafy vegetables. Other good sources are nuts, fresh oranges, and whole wheat products.

VITAMIN B6 - (PYRIDOXINE-PYRIDOXAL-PYRIDOXAMINE)

This vitamin is involved mostly in the utilization of protein. As with other vitamins, B6, is essential for the proper growth and maintenance of body functions. Deficiency symptoms include mouth soreness, dizziness, nausea, and weight loss, and sometimes severe nervous disturbances.

Pyridoxine is found abundantly in liver, whole-grain cereals, potatoes, red meat, green vegetables, and yellow corn.

VITAMIN B12 - CYANOCOBALAMIN

Vitamin B12 is necessary for the normal development of red blood cells, and the functioning of all cells, particularly in the bone marrow, nervous system, and intestines.

A deficiency causes pernicious anemia, and if the deficiency is prolonged, a degeneration of the spinal cord occurs.

Abundant sources are organ meats, lean meats, fish, milk, and shellfish. B12 is not present to any measurable degree in plants, which indicates that strict vegetarians should supplement their diets with this vitamin.

BIOTIN

Once called vitamin H, biotin is now the sole descriptive term for this vitamin which is actually a member of the B complex. It is important in the metabolism of carbohydrates, proteins, and fats.

Most deficiency symptoms involve mild skin disorders, some anemia, depression, sleeplessness, and muscle pain. As with many vitamins, deficiency is very rare.

Abundant sources include eggs, milk, and meat.

VITAMIN C - ASCORBIC ACID

This least stable of the vitamins promotes growth and tissue repair, including the healing of wounds. It aids tooth formation, bone formation, and repair. When used as a food additive, vitamin C acts as a preservative.

A lack of this vitamin causes scurvy, one of the oldest diseases known to man. The signs of scurvy include lassitude, weakness, bleeding, loss of weight, and irritability. An early sign is bleeding of the gums. Long before the 16th century, American Indians knew that scurvy could be cured by a tea made with spruce or pine needles.

Abundant sources are citrus and tomato juices, strawberries, currants, and green vegetables such as lettuce, cabbage, broccoli, kale, collards, mustard and turnip greens, and potatoes. You can get all the vitamin C your body can use, for example, by drinking 5 or 6 ounces of orange or tomato juice a day.

VITAMIN D - CALCIFEROL

Vitamin D aids in the absorption of calcium and phosphorus in bone formation.

Vitamin D deficiency causes nausea, weight loss, weakness, excessive urination, and the more serious conditions of hypertension and calcification of soft tissues, including the blood vessels and kidneys. Bone deformities and multiple fractures are also common.

Abundant sources are canned fish such as herring, salmon, and tuna; egg yolk, and vitamin D fortified milk. People who spend part of their time in the sun need no other sources of vitamin D, since it is formed in the skin by the sun's ultraviolet rays. Foods which are fortified with vitamin D are intended mainly for infants and the elderly who lack outdoor exposure to sunlight. The daily dietary requirement of vitamin D is very small, and any excess is stored in the body.

VITAMIN K

There are several scientific names for vitamin K, which is essential for clotting of the blood. One type is found naturally in food. Another is made in the intestinal tract, and a third is made synthetically.

A deficiency causes hemorrhage and liver injury. Vitamin K is found in spinach, lettuce, kale, cabbage, cauliflower, liver, and egg yolk.

Even though the widely seen and identified vitamin deficiency diseases of 30 years ago have all but disappeared, the American consumer is approached from all sides with misinformation about the almost universal "need" for supplemental vitamins.

Is there really a need? Each person can answer this only after learning what vitamins do and do not do, plus their presence in foods.

If some vitamins have additional value in preventing or treating conditions of ill health, these values will be discovered by professionally trained and dedicated clinicians. And they will then become known to the public.

G. Edward Damon is a writer in FDA's Bureau of Foods. One previous article he wrote for FDA Consumer was "A Primer on Food Additives," May 1973.

VITAMIN BINGO:

Directions:

Vitamin Bingo may be played by one or one hundred players. Each person takes a chart and a handful of markers (corn, etc.) When everyone is ready to start, the teacher reads prepared questions. For example, the teacher may say to cover all foods rich in vitamin A or the teacher may ask "what is the sunshine vitamin"? and the block containing vitamin D should be covered. Vitamin Bingo may be called when five successive squares have been called.

Questions:

1. What is the vitamin need for healthy tissues and healthy skin and normal vision, especially in dim light? (Vitamin A)

2. What are foods rich in vitamin E? (vegetable oils, whole-grain cereals, nuts and legumes)

3. What are foods rich in vitamin A? (liver, butter, fortified margarine, whole milk, yellow and green leafy vegetables)

4. What is the vitamin needed for clotting of the blood? (Vitamin K)

5. What is the vitamin needed for healthy skin, gums and tissues and healing wounds? (Vitamin C)

6. What foods are rich in the vitamin B Complex? (lean meat, fish, poultry, enriched and whole grain bread and cereals, milk)

7. What is the vitamin needed for absorption of calcium and phosphorous to make strong bones and teeth? (Vitamin D)

8. What foods are rich in vitamin K? (leafy green vegetables, liver and egg yolk)

9. What foods are rich in vitamin C? (citrus fruits, tomatoes, strawberries and cabbage)

10. What is the vitamin needed for normal functioning of the digestive and nervous system. (Vitamin B)

11. What foods are rich in vitamin D? (fish, liver, oils, fortified milk and canned fish)

12. What is the vitamin needed for generally regulating all the body's functions. (Vitamin E)

VITAMIN BINGO

Vitamin A	Vegetable Oil	Poultry	Vitamin K	Whole grain bread and cereal
Fortified margarine	Squash	Spinach	Oranges	Eggs
Carrots	Grapefruit	Lean meat	Citrus fruits	Fish liver oils
Enriched bread and cereals	Citrus juices	Vitamin C	Yellow vegatables	Vitamin E
Exposure to sunlight	Soft drinks	Swiss Chard	Whole-wheat bread	Leafy green vegatables
Whole milk	Cauliflower	Fish	Cabbage	Vitamin K
Vitamin B	Strawberries	Vitamin D	Tomatoes	Butter
Broccoli	Candy	Liver	Egg yolk	Skim milk

THE WEARIN' OF THE GREEN. . .
VEGETABLES, THAT IS

March

Art
English
Health
Home Economics
Industrial Arts
Math

Objective: The student will realize that home-grown vegetables are more delicious as well as healthier for him and his family.

To The Teacher:

Fresh vegetables are not eaten as regularly as the processed ones but with some basics in gardening, students can become more interested and knowledgeable about growing their own to supply their family's needs. We'll also touch on preserving and cooking vegetables so that they retain their nutrients, color, flavor and texture.

The following resources will be necessary for this lesson. Plant and Seed catalogs; books on gardening such as, The Basic Book of Organic Gardening, R. Rodale, Editor; A Child's Garden, Chevron Chemical Company; and the HELPs included with this lesson.

Initial Discussion

1. The advantages of growing your own garden - health, personal exercise, no preservatives and economical.
2. Students are to check on the following in their own homes; then share their findings in class:
   a. Try to determine the approximate amount of vegetables that your family consumes yearly.
   b. List the vegetables in order of popularity in your family.
   c. Determine which vegetables your family purchases fresh, preserved, frozen or other.
   d. List vegetables your family would especially enjoy from a family garden.
   e. Does anyone in the family garden? Want to help with a garden? Have knowledge regarding freezing or canning vegetables?
3. Is fabricated and over processed as good as fresh? Using the potato for an example check into:
   a. The history of the potato (list your sources).
   b. Compare the nutrients and calories contained in a fresh baked potato - a bag of french fries and a bag of potato chips. (If possible, visit a potato chip factory to see how they are made. Give your reactions after your visit.)

4. Guest speaker. Invite a local gardener to speak about how he (she determines the amount of vegetables to grow, which ones, the amount of room required, when to plant and additional tips for gardeners.
5. Check with seed catalogs and gardening books. Make a plan for your own garden. Include a drawing showing the size of the garden, what will be planted, and where, when you will begin your garden, what help you can expect from family and friends. Estimate the approximate cost of your garden and the yield you expect. Guess at how much you'll save by growing your own.
6. Cooking vegetables:
   a. What methods are used in cooking vegetables? Which methods seem to be best for preserving, nutrition, texture and flavor? Discuss your favorite vegetable dishes with your classmates. What makes them so good?
   b. Discuss and cook, if possible, different forms of vegetables, frozen, canned and dehydrated - following package directions.

   See (HELP #3) Drying Fruits and Vegetables

   c. Discuss methods of processing fresh garden vegetables for eating direct from the garden; preparing for canning, freezing or drying, and safety measures to be taken.
   d. Bring in a sample of food that you have oven or sun dried.
   e. Construct a drying tray from information given in (HELP #3)
   f. Construct a soil screen for a large wheelbarrow from plans given with this lesson. (HELP #4)
   g. Tool repair for gardening or making extra money. See plans given with this lesson. (HELP #5)

SOURCES:

This material borrowed from the Energy, Food and You curriculum guide, a program of the Washington State Offices of Environmental Education (N.W. section) and Health Education.

"Drying Fruits and Vegetables," Pat Kendall, Colorado State University Extension, Fort Collins, Colorado. Revised 7/1/77.

A LIST OF COMMON GARDEN VEGETABLES

Their Companions and Their Antagonists

VEGETABLE	LIKES	DISLIKES
Pole beans	Corn, Summer savory	Onions, beets, kohlrabi, sunflower
Bush beans	Potatoes, cucumbers, corn, strawberries, celery, summer savory	Onions
Beets	Onions, kohlrabi	Pole beans
Cabbage family (Cabbage, cauliflower, kale, kohlrabi, broccoli, brussels sprouts)	Aromatic plants, potatoes, celery, dill, camomile, peppermint, rosemary, beets, onions	Strawberries, tomatoes, pole beans
Carrots	Peas; leaf lettuce, chives, onions, leek, rosemary, sage, tomatoes	Dill
Corn	Potatoes, peas, beans, squash cucumbers, pumpkin	
Cucumbers	Beans, corn, peas, radishes, sunflowers	Potatoes, aromatic herbs
Tomato	Chives, onion, parsley, carrot, asparagus, marigold, nasturtium	Kohlrabi, potatoes, fennel, cabbage
Peas	Carrots, turnips, radishes, cucumbers, corn, beans, most vegetables and herbs	Onions, garlic, gladiolus, potato
Onion (including garlic)	Beets, strawberries, tomato, lettuce, summer savory, camomile (sparsely)	Peas, beans
Lettuce	Carrots, radishes (lettuce, carrots and radishes make a strong team grown together), strawberries, cucumbers	
Radish	Peas, nasturtium, lettuce, cucumbers	
Potato	Beans, corn, cabbage, horseradish (should be planted at corners of patch), marigold, eggplant (as a lure for Colorado potato beatle)	Pumpkin, squash, cucumber, sunflower, tomatoes, raspberry
Pumpkin	Corn	Potato
Spinach	Strawberries	
Sunflower	Cucumbers	Potato

PLANNING CHART FOR VEGETABLES

To help you in planning your vegetable garden, here is a chart with seed amounts, probable yields, and distances needed for a family of four.

Vegetables	Row Length (feet)	Space Between Rows (inches)	Inches Apart In Row After Thinning	Plants Or Seed Needed	Probable Yield
Beans (bush)	25	18-24	2 - 4	1/4 lb.	12 lbs.
Beans (pole)	25	24-36	8 - 12	1/4 lb.	14 lbs.
Beets	20	12-18	2 - 4	1 pkt.	20 lbs.
Broccoli	25	30	18 - 24	12 plants	20 heads
Carrots	15	12-18	2	1 pkt.	15 lbs.
Cauliflower	25	30	18 - 24	12 plants	12 heads
Cucumbers	25	36-48	12 - 18	1 pkt.	15 lbs.
Lettuce (head)	15	18-24	12 - 15	18 plants	18 heads
Lettuce (leaf)	25	12	8	1 pkt.	75 plants
Onions (green)	12	12-18	1 - 2	1/8 oz.	10 bunches
Peas (sugar)	50	18-24	2	1/4 lb.	14 lbs.
Peas (edible podded)	25	18-24	2	1/4 lb.	1/2 bu.
Potato (white)	25	30	12	25 sets	25 lbs.
Pumpkins	3 hills	60	36	1/3 pkt.	10 fruits
Radishes	25	6-12	1	1 pkt.	250 roots
Spinach	25	18-24	4	1 pkt.	12 lbs.
Squash (summer)	25	36-48	24 - 36	1/2 pkt.	50 fruits
Sweet Corn	50-2 rows	36	12	1 pkt.	50 ears
Swiss Chard	25	24	6	1/2 pkt.	20 lbs.
Tomatoes	25	36-48	24 - 36	12 plants	75-100
Watermelons	25	72	72	1/2 pkt.	8 fruits

Service in Action

colorado state university extension service

Drying fruits and vegetables—drying charts and yields

Pat Kendall[1/]

No. 9.310

Table 1: Drying chart for fruits and vegetables.

1. Spread food in single layers on trays unless otherwise noted
2. If drying in the oven, start foods at 130°F (54.4°C) and gradually increase temperature to 150°F (65.5°C). Reduce to 140°F (60°C) when nearly dry
3. Stir foods on drying trays—once or twice a day when sun-drying, every half hour when oven drying.

(For more information on drying fruits and vegetables see Service in Action sheets 9 308, 9:309, 9 312)

FRUITS

FOOD	PREPARATION AND PRETREATMENT	DRYNESS TEST
Apples	Wash, peel and core. Cut in slices or rings 1/8" to 1/4" (3.1-6 3 mm) thick. During preparation coat cut portions with strong ascorbic acid solution to hold color (2 1/2 teaspoons/cup or 12.5 ml/.24 1 water) Blanch in steam 5 to 10 minutes. Or sulfur 30 to 60 minutes depending on size of pieces. Arrange slices on trays not more than two layers deep.	Pliable, springy feel, creamy white; Moisture not visible when cut and squeezed.
Apricots	Wash, peel if desired, cut in halves or slices, remove pits, treat with mild ascorbic acid solution (1 teaspoon/cup or 5 ml/.24 1 water) Steam 3 to 5 minutes, or sulfur 1 to 3 hours depending on size of pieces and ripeness of fruit. The riper the fruit, the more slowly it absorbs sulfur dioxide. Spread on trays cut side up.	Pliable and leathery
Berries	Wash, leave whole or cut strawberries in half. No treatment necessary for soft berries. Steam firm berries 1/2 to 1 minute. Crack or split tougher skins by dipping 15-30 seconds in boiling water, then cold water. Drain thoroughly. Spread in thin layers, not more than 2 berries deep, on cloth to keep berries from sticking.	Hard. No visible moisture when crushed.
Cherries	Wash, leave whole or stem and remove pit. Drain pitted cherries for about 1 hour No further treatment is necessary. Dip whole cherries in boiling water 15-30 seconds to crack skins, cook immediately, drain (Do not dip pitted ones.) Sulfur sun-dried cherries 20 minutes.	Leathery but sticky.
Grapes	Wash and leave whole, on stems if desired, removing all defective fruit and cutting those closely packed into small bunches. Or remove from stems. No treatment necessary. Or dip in boiling water to crack skins as for cherries. Use seedless varieties	Pliable, dark brown.
Peaches	Peel, cut in halves or slices, remove pits. During preparation, coat with mild ascorbic acid solution as for apricots to prevent browning. Sulfur outdoors 1 to 3 hours, according to size of pieces. Or steam 8 to 15 minutes. Spread in single layer, pit side up, to retain juices	Pliable and leathery
Pears	Pare. Cut in half lengthwise and core. Cut in quarters or eighths or slices 1/8" to 1/4" (3.1-6.3 mm) thick. Treat with ascorbic acid solution as for apricots. Sulfur 1 to 4 hours depending on size of pieces. Or, steam 5 to 10 minutes, depending on size.	Leathery, springy
Plums and Prunes	Cut in halves and remove pits or leave whole. Dip whole fruit in boiling water 30-45 seconds to crack skins. Cool and drain. Steam-blanch halves 15 minutes. Sulfur plums for 1 to 2 hours depending on size of pieces. Prunes do not need to be sulfured.	Pliable and leathery

1/Pat Kendall, CSU extension assistant professor, foods and nutrition (revised 7/1/77)

Issued in furtherance of Cooperative Extension Work in Agriculture and Home Economics Acts of May 8 and June 30, 1914, in cooperation with the United States Department of Agriculture. Lowell Watts, Director of Extension Service, Colorado State University, Fort Collins, Colorado 80523. By law and purpose, the CSU Cooperative Extension Services is dedicated to serve all people on an equal and nondiscriminatory basis.

Table 1 continued: Drying chart for fruits and vegetables.

VEGETABLES

FOOD	PREPARATION AND PRETREATMENT	DRYNESS TEST
Beans, lima	Shell. Steam 10 to 20 minutes or hold in boiling water 6 minutes. Drain. Spread ½" to ¾" (12.7-19.0 mm) deep on trays.	Beans shatter when hit with a hammer.
Beans, snap	Wash, drain, trim, cut in 1-inch (2.5 cm) pieces. Steam 5 to 10 minutes until tender but firm. Spread ½" (12.7 mm) deep on trays.	Brittle, dark green to brownish.
Beets	Trim off all but 1 inch (2.5 cm) of tops and roots. Steam whole about 30 to 60 minutes depending on size or until cooked through. Cool and peel. Cut in ¼" (6.3 mm) cubes or slice ⅛" (3.1 mm) thick. Spread not more than ¼" (6.3 mm) deep on trays.	Brittle, dark red.
Carrots, Parsnips	Steam whole about 20 minutes or until tender but firm. Scrape or peel. Slice crosswise ⅛" (3.1 mm) thick or dice in ¼" (6.3 mm) cubes. Or prepare before steaming 3 to 4 min. Spread not more than ½" (12.7 mm) deep on trays.	Very brittle, deep orange.
Chili peppers, green	Loosen skins by rotating over flame or scald in boiling water. Peel and split pods. Remove seeds and stem. No treatment necessary or steam 10 minutes.	Crisp, brittle, medium green in color.
Chili peppers, red	Wash. String whole pods together with needle and cord or suspend plants in bunches, root side up where air can get to them. Dry at room temperature, in sun or in oven.	Pods are shrunken, dark red, flexible.
Corn (any good table variety)	Harvest during milk stage. Husk. Sort ears on basis of maturity. Steam ears until milk is set and no fluid escapes when cut across—3 to 5 minutes. Cut corn from cobs. Spread ½" to ¾" (12.7-19.0 mm) deep on trays.	Hard, brittle
Herbs, for seasoning	Gather when leaves are mature but before flowers develop. Wash thoroughly. Hang stems over wire and dry in bundles indoors with good air circulation	Readily crumbled.
Onions	Remove outer leaves. Slice ⅛" to ¼" (3.1-6.3 mm) thick.	Brittle. Crush slices for onion powder.
Peas, green	Steam shelled peas 4 to 5 minutes or dip in boiling water 3 minutes. Stir frequently during first hours of drying.	Peas shatter when hit with a hammer.
Peppers, sweet green	Wash. Split, remove core and seeds. Cut in ½" (12.7 mm) strips or rings. No treatment necessary or steam 10-20 minutes. Spread rings 2 layers deep—strips not more than ½" (12.7 mm) deep.	Pliable
Tomatoes	Steam or dip in boiling water to loosen skin, chill, peel, cut in ¾" (19 mm) sections or slice.	Slightly leathery.
Summer squash	Wash, trim, cut into ¼" (6.3 mm) slices. No treatment necessary or steam 2-½ to 3 minutes.	Brittle.

Table 2: Approximate yields of dried foods.

Food	Amount	Yield
Apples	12 lbs. (5.4 kg)	1¼ lbs. (3 pts.)(.56 kg)
Beans, lima	7 lbs. (3.2 kg)	1¼ lbs. (2 pts.)(.56 kg)
Beans, snap	6 lbs. (2.7 kg)	½ lb. (2½ pts., 1-inch)(.23 kg)
Beets	15 lbs. (6.8 kg)	1¼ lbs. (3.5 pts.)(.56 kg)
Carrots	15 lbs. (6.8 kg)	1¼ lbs. (2-4 pts.)(.56 kg)
Corn	18 lbs. (8.1 kg)	2½ lbs. (4-4½ pts.)(1.13 kg)
Onions	12 lbs. (5.4 kg)	1½ lbs. (11½ pts., sliced)(.68 kg)
Peaches	12 lbs. (5.4 kg)	1-1½ lbs. (2-3 pts.)(.45-.68 kg)
Pears	14 lbs. (6.3 kg)	1½ lbs. (3 pts., quarters)(.68 kg)
Peas	8 lbs. (3.6 kg)	¾ lb. (1 pt.)(.34 kg)

Service in Action

colorado state university extension service

HELP #3

Drying fruits and vegetables—

sun drying, oven drying and room drying

Pat Kendall 1/

no. 9.309

Quick Facts

- Successful drying depends on heat, air dryness and air circulation.
- Fruits and vegetables should be prepared and pretreated before drying.
- Drying trays may be constructed of wood, stainless steel screening, and other materials.
- Food should be protected from insects and dust by fastening screening or net over the tops of trays.
- Oven drying is faster than sun drying but can only be done on a small scale.
- Gas or electric ovens may be used to dry foods, but the temperature and ventilation must be maintained.
- In dry climates, some foods may be dried in a warm room.

Sun Drying

Successful sun drying depends on heat, air dryness and air circulation. The high plains area of Colorado has an excellent climate for sun drying due to low humidity and light rainfall. Foods require from 12 hours to 10 days of sun drying, depending on size of the food, heat of the sun and amount of moisture in the air.

Fruits and vegetables should be washed, peeled, cored and pretreated. (See Service in Action sheets 9.308, 9.310, 9.312 for pretreatment methods.) Cut vegetables in small pieces so they will dry quickly. Slice fruits thinly and uniformly.

Spread prepared foods on drying trays and place trays facing the sun, either flat or raised on one side. Enclose trays on both sides with netting to protect food from insects. Trays also should be lined with cheesecloth to separate food from metal if screens are used.

Trays should be raised off the ground, placed on a roof or hung to protect them from dust and animals or insects.

Food also may be dried on clean sheets laid on tables, benches or a low roof. Avoid sun-drying foods near a well traveled road or on days when air pollution levels are high.

Food should be stirred gently several times each day so it will dry evenly, and trays should be brought indoors at nightfall to protect the food from dew.

At the end of the first day, begin testing food for dryness after it has cooled. If not fully dried, place food in the sun for a second or third day or until fully dry.

Oven Drying

Oven drying is faster than sun drying. Fruits dry in 6 to 24 hours; vegetables require 3 to 15 hours. In addition, the food is not exposed to insects or dust. However, oven drying is done on a small scale and is more expensive than sun drying.

Prepare fruits and vegetables as indicated in Service in Action sheet 9.308. (See also Service in Action sheet 9.310.)

Either a gas or an electric oven may be used for controlled oven drying. An oven can take up to approximately 6 pounds (2.7 kg) of fruits or vegetables.

Oven drying needs close watching. Never go off and leave food drying in an oven. The gas pressure may change in a gas oven. Be careful that gas flames do not extinguish or trays do not catch fire during drying.

Proper temperature and ventilation are very important in oven drying. A too-low temperature at the beginning may cause food to sour, a too-high temperature may cause fruit and vegetable cells to burst or the product may harden on the surface, making drying difficult.

Regulate oven temperature by means of the oven thermostat and by propping open the oven door during drying. The open door also allows moist air to escape. Older gas ovens may need an 8 inch (20.3 cm) opening. Newer gas ovens and electric ovens usually need about a 1-inch (2.5 cm) opening at the top. The temperature should be maintained at 140° to 150°F (60°-65.6°C).

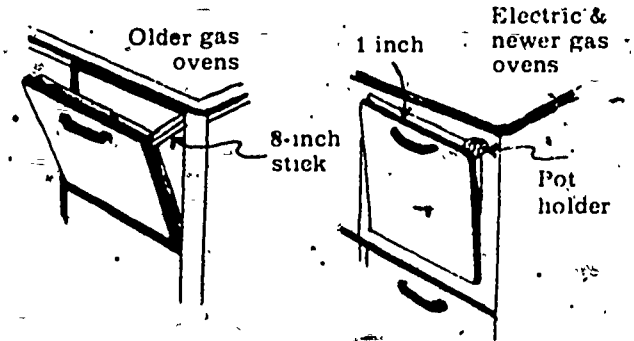


Figure 1: Oven door positions.

Locate the lowest oven rack about 3 inches (7.5 cm) from the oven floor.

Metal screens on drying trays should be covered with a thin, open-weave fabric so food won't stick or discolor. Then food should be spread evenly on drying trays. Lighter loads dry faster. When using a gas oven

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1/ Pat Kendall, CSU extension assistant professor, foods and nutrition (revised 7/1/77)

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with floor corners cut out, avoid spreading food into the corners of trays to prevent scorching.

Stack two or three loaded trays together on an oven rack. Insert blocks between trays so that air can circulate between them.

Place an oven thermometer on the lowest tray and check the oven temperature frequently to be sure it remains near 150 F (65.5°C). Top and bottom trays dry fastest. Shift trays every half hour and turn trays front to back. Stir food often if it is more than one layer deep; turn over large pieces of fruit about half way through the drying period.

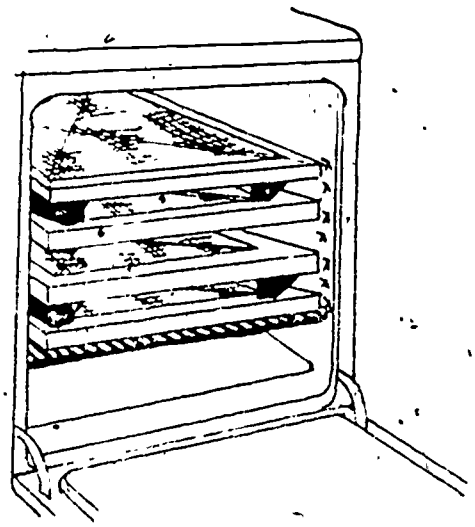

Figure 2: Tray arrangement for oven drying.

While drying, food should be moist to the touch and cooler than the air around it. If the food is near air temperature and not moist to touch it is too dry.

Remove a few pieces of food occasionally and allow to cool before testing for dryness. Hot food always will appear softer and less dry than when cold. Test for dryness by squeezing a handful of food. If no moisture is left on the hand and if foods spring apart when released, the produce is dry.

Pieces of food around edges of trays may dry first and should be removed first. Food scorches easily toward the end of the drying time. Therefore, it may be wise to turn off heat when drying is almost complete and open the door wide for an additional hour or so.

Room Drying

In dry climates, some foods can be dried satisfactorily in a warm room such as the attic or kitchen. Hang herbs rootside up, cover them with paper bags if they need to be protected from dust. String apple rings, pumpkin rings and red chili peppers on cords and hang near the ceiling.

Trays of fruits and vegetables that have been half-dried in the sun or oven can finish drying in a warm room. Stack trays with 6 inches (15.2 cm) of air space between them. Open screened windows to allow free circulation of air and force a draft across food with an electric fan.

Solar Heaters and Dehydrators

Solar and thermostatically controlled heaters and dehydrators also may be used to dry foods. Both can be purchased or home constructed at various costs. Cold frames, used by gardeners for large sets, work well as solar dryers. Thermostatically controlled dehydrators usually consist of a controlled source of heat and a forced air circulation to carry away moisture. Because of initial investment, such dehydrators are best reserved for persons who dry large amounts of food.

Drying Trays

Selection or construction of trays for drying can be a simple or involved project depending on the amount and type of food to be dried and the end-product desired by the drier. Good air circulation without reaction between food and trays are prime considerations in selecting drying trays. For small amounts of food and trial runs, cheesecloth stretched over oven racks, cake racks, broiler racks and cookie sheets can be used.

For larger and more dedicated projects, shallow wooden trays with slatted, perforated or woven bottoms should be considered. These can be used outdoors for sulfuring and sun drying or indoors for oven or room drying. Wooden fruit crates can be used or tray frames can be constructed from soft lumber. Tray bottoms can be made from thin wooden slats or dowels placed ¼" to ½" (6.35-12.7 cm) apart, strong curtain netting or stainless steel screening.

Galvanized screening should not be used as it has been treated with zinc and cadmium which can cause a dangerous reaction in contact with acid foods. Other metals also are not advisable as they may discolor and corrode with use. If used, they should be lined with cheesecloth to separate the food from the metal. A cheesecloth lining also helps keep sugar-rich foods from sticking to the trays and pieces of food from falling through.

To insure cleanliness, wash trays in hot, sudsy water with a stiff brush, rinse in clear water and airdry thoroughly after each use. A light coat of fresh vegetable oil will help protect the wood and make it easier to clean.

Trays for sun drying should be no larger than can be handled easily. Suggested size is 14" x 24" x 1" (or 1½") (35.6 cm x 60.9 cm x 2.5 cm).

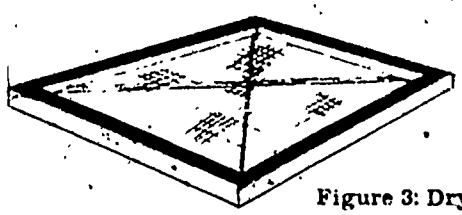

Figure 3: Drying tray.

If trays are used in an oven, they should be 1½ inches (3.8 cm) smaller in length and width than the oven dimensions to allow for circulation of air.

Blocks of wood one inch (2.5 cm) or more in height will separate trays for good air circulation.

For sun drying, polyester voil, organza, cheesecloth or screening should be placed on both sides of the tray after they are filled to protect food from insects.

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How to Dry Fruits and Vegetables at Home. Farm Journal Editors. 1975. Countryside press, Philadelphia, PA.

Putting Food By. Hertzberg, Vaughan, Greene. 1973. Stephen Greene Press. Brattleboro, VT. 05301.

ACTIVITY TITLE: Build a soil screen for a large wheelbarrow

CONCEPT: Energy can be saved by growing your own food.

SUBJECT AREA: Industrial Arts

GRADE LEVEL: 7-12

OBJECTIVE:
1) To learn to use tools.
2) To learn to measure, cut, and assemble accurately.
3) To build a useful piece of equipment.

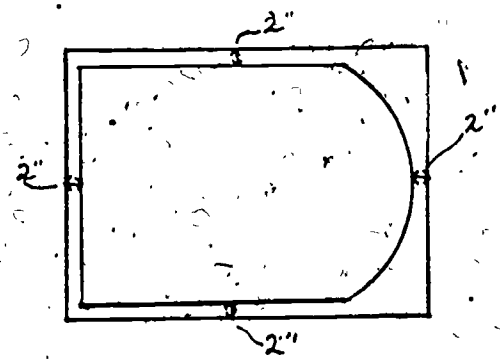
MATERIALS:
3/8 or thicker all-weather plywood 32" by 42"
hardware cloth 1/2" mesh 36" by 44"
40 - three inch flooring nails
8 - six inch galvanized box nails or like
two pieces 38 inches long of 2x4
two pieces 32 inches long of 2x4
15 feet of bailing wire

Tools: hand saw, power scroll saw, hammer, wirecutters, brace and bit

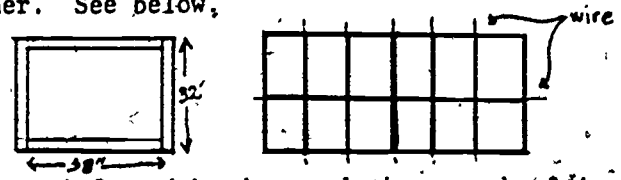
ACTIVITY:
1. Lay plywood piece flat on the floor and place wheelbarrow upside down on top of it. There should be a two inch overlap of plywood at each edge of the wheelbarrow. See below.
2. Trace a line around the wheelbarrow at the very outside edge.
3. Using the brace and bit, drill a hole just inside the line that the scroll saw blade will fit through. Cut out the plywood on the line.

Note: smaller pieces of plywood can be used but will not be as sturdy.

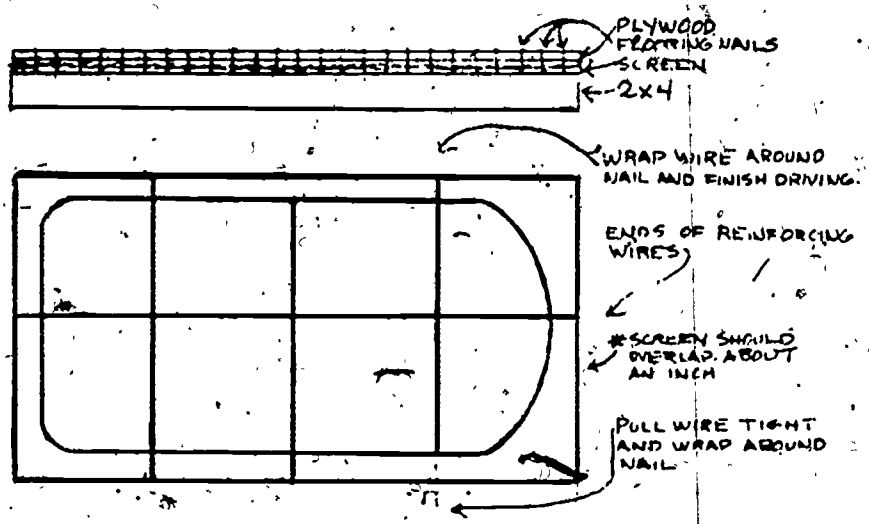
The wheelbarrow lip should fit through the plywood rim.



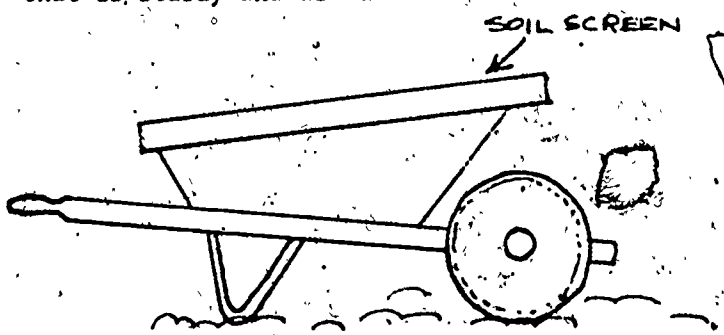
4. Take the 36" by 44" strip of hardware cloth and reinforce it by weaving strips of bailing wire through it at equal intervals. Nail the 2x4 pieces together. See below.



5. Lay the reinforced hardware cloth over the 2x4 frame, and then nail the plywood edge on over that. Nail it every 2 inches around the perimeter, as shown.



6. Drive a nail part way into the 2x4 close to each reinforcing wire. Wrap one end of the wire around the nail and finish driving it in. Then, pull the wire tight with the claw on the hammer and twist it around the nail at the other end. Secure the nail. When this is completed, hammer the screen down all around the edges and you may put some thin strips over it to make it smooth. You now have a screen, designed to fit your wheelbarrow, that is sturdy and useful.



ACTIVITY TITLE: Tool Repair

CONCEPT: Recycling waste can conserve energy, resources and generate money.

SUBJECT AREA: Industrial Arts, Horticulture

GRADE LEVEL: 10-12

OBJECTIVE: To learn simple repair techniques in order to have more tools to use.

ACTIVITY:

1. Collect broken tools:

   a. Ask students to donate broken tools from home, friends, etc.

   b. Put an ad in the local paper and state that you are collecting old tools for educational purposes.

   c. Look through junk stores and garage sales for fixable items.

   d. Investigate the garbage dump.

2. Buy or make appropriate handles for items that you have received and fit them to the parts.

3. For more serious repairs, the use of the school shop equipment may be needed. Most repairs can be made using pliers, hammer, drill, files, and a saw. Cost will run, on the average, 25% of the cost of a new item.

Example of repair item: Garden spade with broken handle.

Burn out the remainder of the handle and drill out the rivet that holds it. A new handle comes with a rivet taped to it. Don't buy it or buy it for less if a rivet is not supplied. Line up the new handle and shove it as far as you can into the hole of the blade. Then, place the handle on a woodblock and drive the blade down with another woodblock until you get a tight fit. Drill through the rivet hold and insert the rivet and peen the end out.

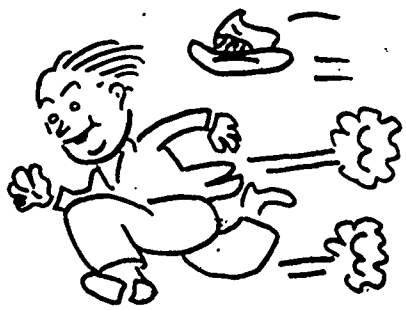
BIBLIOGRAPHY & RESOURCES:

"Old Garden Tools Get A Fresh Start," Sunset (April 1969) Second Hand Tools
"Cultivation," in Encyclopedia of Organic Gardening.
"How to Use the Right Tool," in Sunset Western Garden Book.
J. Jeavons, How To Grow More Vegetables.

EATING ON THE RUN
or
"GULP, SLURP, 'BYE"

Consumerism
Drama
History
Home Economics

April



Objectives: To help the student achieve a more nutritious diet, in spite of the fast meals he often consumes.

To The Teacher:

We must help the students see how they can manage a nutritious diet in spite of the fact that they may not eat dinner with the family every night. Stress the fact that they will soon be either in college or out on their own as a "swingin' single" and thus even more responsible for their diet. Don't let April Showers dampen their enthusiasm for good food.

Activities:

1. Xerox and have each student complete "Eat and Run" (HELP #1). Discuss what might be best choices after all students have completed their papers.

2. The above mealtime situation probably occurs many times each month in today's family. Have the students make up a list of grocery staples they or their family food shopper might buy and have on hand for such occasions. Keep good nutrition guidelines in mind as well as economy. (Use Basic Four chart in back of this book for a reference.) How could the student help in keeping nutritious supplies on hand? (Example: offer to make a trip to the grocery store; keep a "running" grocery list taped on cabinet and add to it as supplies are used, etc.)

3. How did people in pioneer days manage with no grocery store? Research their food supply. Was their diet usually balanced? What sort of "convenience" foods did they have? What did they eat when they went on a day's journey by horseback or by wagon?

4. T.V. food commercials promote the idea that any cooking beyond boiling water takes the skills of a magician and Julia Child put together. Divide the class into groups to plan and present a short "commercial" that promotes family cooperation in planning and preparing a nutritious meal.

5. Create a 3-day survival diet at the lowest possible cost to meet nutritional needs, in one of the following situations:
   a. You are a student with very little money, living with three other students.
   b. You are finished with school, living in a rooming house with no kitchen privileges.
   c. You are backpacking and camping.

EAT AND RUN

You had a meeting after school and another to go to in the evening, leaving you only 30 minutes at home for dinner. The family has already had dinner. What do you do? Many choices are available. Some of them are listed below. Space is provided for other solutions as well. Rank them according to what you would probably do in this situation.

_____ Eat leftovers

_____ Stop and get a hamburger

_____ Open a can of soup

_____ Skip dinner

_____ Grab a handful of cookies to eat on the way

_____ Eat a piece of fruit

_____ Complain that your family didn't wait for you

_____ Ask Mom to fix something for you

_____ Cook dinner for yourself and skip the meeting (or be late)

_____ _____

_____ _____

WHICH CAME FIRST...

THE CHICKEN OR THE EGG?

Art
English
Health
Home Economics
Social Studies

April

Objective: Learn more about nature's most perfect protein food... the egg.

To The Teacher:

The egg has been called the most complete protein. It is an excellent source of other nutrients as well...vitamins A, B2, D, iron and phosphorus.

Why then are we eating less eggs? Probably due to the fact that they are synonomous with breakfast and more working mothers are opting for the convenience of ready-to-eat cereals for the family; and partly due to the attention which has been focused on the egg's high cholesterol content.*

This lesson focuses on the versatile egg and the ease with which young people can prepare delicious egg dishes.

Activities:

1. Using References: Write a report on Easter Egg decorations. Be sure to list sources and share the information with the class.

2. Invite a member of the community who is known for decorating Easter eggs to speak to the class and to demonstrate decorating techniques.

3. Have an egg decorating contest. Award a prize to the student bringing the most unusual decorated egg.

4. Using References. What is the structure of the egg - name the parts, draw a chart and label each part. What nutrients does each part contain?

5. At The Market. There is consumer information on the carton. What information does it give the wise buyer? What are the various grades of eggs? What do the grades tell you about the product? Give some general tips on purchasing eggs at the grocery.

6. Share the information about buying eggs with the class in discussion.

7. Develop your own class room "egg cookbook". Don't forget to include recipes for using up hard boiled Easter eggs - they should be plentiful supply at this time. (They make very good snacks).

8. Prepare an ethnic egg dish for your family. Then have your family rate your cooking and the recipe. (Make up the rating sheet in class beforehand).

9. Some questions about eggs...
   a. Why are eggs restricted in the diets of many people?
   b. Eggs are a vital part of many recipes. Name some of the functions they serve and give an example of a recipe for each.

Answers given below.

a. Too much cholesterol
b. Adds flavor color and nutrition, thickens mixtures (custards) coats food for breading (fried chicken), stabilizes emulsions (mayonnaise).

SOURCES:

* Brewster & Jackson, The Changing American Diet, Center for Science in the Public Interest 1755 So. St. N.U. Washington, D.C. 20009, 1978, p. 20. Copies available for $2.50.

"THE AMERICAN WAY OF EATING MAY BE HAZARDOUS TO YOUR HEALTH"
or
"EAT, DRINK, & BE MERRY AND YOU'LL KILL YOURSELF"

Art
Home Economics
Math
Science
Social Studies

May

Objective: The student will become aware of the U.S. Senate's dietary goals and how they could affect his diet. They will also learn how many major American diseases are diet-related.

To The Teacher:

In order to stay healthy and to grow properly, every human being needs to eat properly. What does it mean to "eat properly?" You've probably learned that Americans are encouraged to eat a variety of certain foods - milk, eggs, meats, cereals, fruits and vegetables - to maintain good health.

Now we have the word from the U.S. Senate that "The American way of eating may be hazardous to your health." That sounds pretty drastic! Remember the Surgeon General's report on smoking? The Senate Select Committee on Nutrition and Human Needs hoped that it would jar the public into better nutritional habits. They think that the way we eat is "as big a health hazard as smoking." Thus, was published its report "Dietary Goals for the United States." (These goals are summarized in the beginning of this book.) Senator George McGovern, the Committee Chairman, summed it up:

> "The simple fact is that our diets have changed radically within the last 50 years, with great and often very harmful effects on our health. Too much fat, too much sugar or salt, can be and are linked directly to heart disease, cancer, obesity and stroke, among other killer diseases. In all, six of the ten leading causes of death in the United States have been linked to our diet."

You may not understand at this point exactly how these goals would affect the American teenager's diet. The Agricultural Research Service of the U.S. Department of Agriculture has developed sample diets for all age groups along the lines of the Senate report. Suggestions for the daily diet for persons 12 through 19 years old are listed in "Come & Get What?" (HELP #1)

Activities:

1. Have the students keep a dietary record of <u>everything</u> they eat for

a week. When these records are complete the students will compare their diets with the proposed goals for a boy or girl their age in the chart in HELP #1. The students will determine where their diet varies from the desired goals.

2. Divide the class into groups of three or four. Each group will research a diet-related disease prevalent in America - (heart disease, diabetes, high-blood pressure, etc.) - and report to the class their findings. They should also plan a day's menu that would be suitable for a person suffering from that disease. (What should the person include in his diet? What should be avoided? Why?)
3. Read "The Great American Eating Revolution" and stop at intervals to discuss. (HELP #2)
4. Using a long sheet of butcher paper, have the students create a mural depicting the "American Way of Eating." Display in school cafeteria.
5. Have students complete questionnaire "How Long Will You Live?" (HELP #3) Discuss changes that could be made to increase life expectancy. Encourage them to have their parents take the test also. Maybe some family eating habits should be changed!
6. S-T-R-E-T-C-H Your Imagination! The student will pretend he is an archeologist living in the year 3000. Write a few paragraphs describing what he might find in the archeological ruins of a food place of the 1980's: a fast-food restaurant, a school cafeteria, a supermarket, etc. Describe where it is, what it looks like, and what items he might find there. What conclusions would he draw about the American Way of Eating in the 1980's based on his findings?
7. Describe the role of food as a status symbol.

SOURCES:

Newton, David, Nutrition Today, Walsh, Weston J. Publishers.

Nutrition Curriculum developed by Garfield School District RE-2. East Central Board of Cooperative Services.

"Nutrition: How America Stacks Up." Current Consumer, March 1978.

COME AND GET WHAT?

Food[1] and unit per day	Girls 12-19	Boys 12-14	Boys 15-19
Skim milk (cup)	2.5	3.3	3.2
Eggs (# per week)[2]	3.9	3.8	3.4
Mature beans, peas, cooked (tbsp)	2.2	2.6	2.4
Meat, poultry, fish boned cooked lean (oz)[3]	2.4	3.7	4.3
Vegetables & fruit (cup)	2.5	2.3	2.6
Cereal, pasta (oz)[4]	3.8	3.7	3.0
Bread or equivalent in bakery products (slices)	8.7	11.5	13.9
Margarine, oil (tbsp)	3.1	4.4	4.5
Sugar, sweets (tsp)	4.9	7.5	7.0

1. The assortment of meats, vegetables, & other groups of foods is based on food consumption of U.S. households in 1965-66.
2. Includes some egg used in baking, cooking as well as egg menu items. 3. All fat trimmings, drippings are discarded. 4. One serving is approx. 1 oz. of dry cereal.

COULD YOU LIVE WITH THAT?

"Nutrition: How America Stacks Up." Current Consumer, March 1978.

"THE GREAT AMERICAN EATING REVOLUTION"

The typical American mother today doesn't know what her family is eating. As far as eating is concerned she doesn't manage the household, she just re-stocks supplies and fixes the meals that account for only one-third to one-half of her family's daily food intake.

If you disagree with that image, perhaps your family is an exception to this increasingly fragmented pattern of eating. Or, you may be like the hundreds of housewives who have been interviewed by Dr. Paul A. Fine - and learned that what they thought was happening in their families was a far cry from what really happened every day. Recently, Doctor Fine reported his findings at an American Medical Association symposium on food habits and purchasing patterns.

In 15 years of interviewing housewives for food industry clients, psychologist and communications consultant Fine has demonstrated that frequently housewives are prisoners of a myth.

When asked to describe their families' eating patterns, they respond with the classical picture of breakfast, lunch and dinner - three meals a day. It's what every good mother is supposed to provide.

Doctor Fine sends the women home with instructions to take notes for a week. They are told to observe what and when every family member eats, whether it be a meal or a single potato chip. It is a myth-shattering experience for the mothers.

Far from the three-a-day pattern, an urban American family's eating goes more like this:

* On different schedules for work and school, Dad and the children arise at different times and prepare individual breakfasts - sometimes with Mom's help, sometimes without. Mom herself may work, and if so, she has to prepare her own breakfast, make school lunches, get dressed to leave the house, and try to make sure that each of the children eats something. Common breakfast items include prepared cereals, "instant" liquid meals, toast, fruit juices, coffee or milk. Traditional breakfast items such as bacon, pancakes, or eggs take too long to prepare; they now make occasional appearances at more leisurely Sunday breakfasts.
* Coffee breaks are an American institution. Dad consumes untold cups of coffee between breakfast and lunch, sometimes with sweet rolls or other snacks. Mom, at work, at home, or out shopping, does the same. Vending machines provide candy, snacks, and soft drinks for the children in school.
* Lunch is a function of the food service establishment: factory or office lunchroom, school cafeteria, restaurant, snack shop. Dad and the children may carry a lunch from home, but almost surely will supplement their sandwich with some additional items such as soft drinks, potato chips, candy bar, or coffee.
* Dad has afternoon coffee breaks, but the big event is the arrival of the children home from school. Snacking begins almost immediately and continues until dinner. Mom may strive to maintain a "no-snack" period of an hour before dinner, but frequently fails. Snacks may include potato and corn chips, candy, soft drinks, fruit, cold meat, refrigerator leftovers, sandwiches or combinations of several items into mini-meals. Although some of the snack items may be nutritionally excellent, they trouble Mom because they presumably "kill the appetite" for dinner.
* Dinner remains the one meal at which the family can eat together. But time is a factor; the meal must be prepared, served, and eaten in about an hour to accommodate all the things the family members have to do - homework, bowling, Boy Scouts and Girl Scouts, or TV. With the assistance of pre-prepared and frozen foods, Mom can make the meal in 10 to 20 minutes and the family can consume it in about the same length of time.
* Eating may begin almost as soon as dinner ends, and continues until bedtime.

Recognizing that a significant change has occurred in American eating patterns is only the first step - for nutrition scientists, educators, and economists as well as mothers.

A flood of questions follows: Why has the change occurred? Is the new pattern good or bad for individual or family nutrition? If mothers have so little control over what their families eat, who will take the responsibility for good nutrition?

One fact stands out immediately when the emerging American eating pattern is examined: Responsibility for providing food is shifting from the family to the food service institution and the food manufacturer.

Eating away from home has been a developing trend for years in the United States. More than just "eating out," it reflects the number of meals that Americans eat in lunch rooms, cafeterias, restaurants, etc., in connection with work, school, and other away-from-home activities. In the early 1970's, nearly 40 percent of Americans' food money went for food served away from home. (This does not mean that 35 to 40 percent of food was eaten away from home; the figure would be less because a dollar buys less food in a restaurant than in a grocery.)

Of the food consumed at home, a significant percentage is of the snack and pre-prepared convenience variety. These foods make up a large share of the thousands of food items in the average supermarket today. Most of them were not on the shelves, or even in the laboratory, 15 years ago. Staples such as meat, dairy products, bread, and fruits and vegetables are still the foundation of the $120 billion annual food business, but snacks and convenience foods are one of the areas of fastest growth.

Why? Economists and sociologists as well as nutritionists disagree, as in the following arguments:

* Snacking, meals away from home, foods that require only short, simple preparation are merely representative of changes in a society that is growing wealthier, more mobile, better educated, with more leisure time. The traditional meal pattern was adapted to an agricultural, slower-paced America. When the food industry produces more and more snack and convenience foods, it is merely responding to changes it detects; industry is only providing consumers what they want.
* On the contrary, critics cry, industry not only responds to change but induces it. The modern corporation lives on an annual increase in profits. To live, it must expand, and to expand it must produce always newer products and persuade consumers to buy them.

Disagreement is just as sharp regarding the nutritional effects of the fragmented meal patterns.

From one point of view, the "new" pattern is a return to what was probably man's original manner of eating. Primitive man, as still seen in hunter-gatherer tribes today, literally ate all day long. He ate when he found something to eat. Some nutritionists say this is the pattern for which man's metabolism is adapted, so long as the food provides adequate nutrition and caloric intake is controlled.

The nutritional point at issue usually is not the meal pattern so much as the foods consumed. From housewives, consumer advocates, and from some nutritionists come an increasing number of references to "junk food" in relation to snacks and prepared products.

What is a "junk food"?

Doctor Fine put the question to housewives:

* "Anything sweet."
* "Anything that a child eats before dinner."
* "Anything that's not good nutritionally."

The last response comes closest to the criticism offered by nutritionists and consumer advocates. They are concerned that pleasant but nutritionally inadequate food will find too large a place in the American diet, in the disquise of snack foods, "fun" foods, and foods inappropriately used by the consumer as meal replacements. By nutritional definition, a "junk food" is one that offers little if any essential nutrients except calories, and is used to replace more nutritional foods. Example: an enriched snack cake. When eaten by a child as lunch, it could be classified as "junk" food. When eaten by the same child as part of a nutritionally adequate lunch, it provides calories that the child needs for energy and becomes a useful food.

Although "junk" is a relative description as applied to foods, its wide application by consumers reflects their fears and misunderstandings regarding the changing food supply. The number of snack and pre-prepared foods in the supermarket is overwhelming. The housewife who tries to shop for nutritional value may throw up her hands in despair. How can she make rational choices of manufactured highly processed complex food mixtures, which may not even resemble the traditional foods on which her knowledge of nutrition is based?

Pre-prepared foods include the venerable TV dinner, which may or may not be nutritionally adequate as a complete meal. There are frozen entrees, complex luncheon spreads, heat-and-serve tacos, chow mein, lasagna, etc., and warm-up snacks for breakfast.

Are they nutritionally sound? Often they are, if used in proper context of meal planning. What the housewife wants to know is: How does a pizza rank as a replacement for meat? What should I serve with a TV dinner? Do three snacks equal a meal?

Even greater problems are just around the corner for her. Food scientists and technologists are able to make a large and growing variety of foods that never existed in nature. Soy protein can be pressed or spun out into fibers, flavored, and colored to imitate beef, pork, chicken, or fish. Man-made fruit drinks, milk, and dairy products are among the imitations of traditional foods already marketed. Food technology may soon begin to produce foods that resemble nothing ever eaten previously.

Are man-made foods nutritionally sound? The question is difficult and complex. If a product is marketed as a substitute for meat, should it be supplemented with nutrients to make it the nutritional equivalent of meat?

If a new food product resembles no traditional food, how should it be used by the consumer? This question has vast implications for the food manufacturer.

Let's pretend that you are a food manufacturer. You have just succeeded in producing a new, very pleasant food product. You advertise it and market it as a snack, because it contains little nutritional value other than calories. Suddenly, you find that it is being used by consumers as elements of meals. What is your responsibility? Fortify the product, and risk changing its unique flavor and color characteristics? Label the product as being nutritionally inadequate? Or can you educate the consumer, through advertising and label information, to use the product within an appropriate nutritional context?

Education of the consumer appears to be an important future function for industry, nutrition scientists, and educators and government regulatory agencies. Simultaneously, there will be increasing emphasis upon assurance of nutritional quality in processed foods by responsible manufacturers, as well as by nutritional "guidelines" established by federal agencies such as the Food and Drug Administration.

We will have to become better informed and more consistent readers of food-package labels. More and more labels will be giving us more and more information regarding the nutrient composition of the product in the package. The information will be simply stated, but we'll have to be well-informed to use it meaningfully.

The pattern of snacking, mini-meals, use of pre-prepared and convenience foods and eating away from home is one that seems likely to persist into the foreseeable future. Doctor Fine calls it the mainstream pattern of American eating, where most foods are processed, intensively advertised, and mass marketed.

Doctor Fine also believes he sees a sizable minority of people moving out of the mainstream. Some are choosing to return to Italian, Greek, black, or other ethnic patterns of their ancestors, to food they identify as "solid" and "real." Others are moving toward new patterns: gourmet cooking and eating, "health" and "organic" styles.

The movement-away from the mainstream may represent disenchantment with a frantic, mobile American life-style as much as dissatisfaction with mass-produced and mass-marketed foods. Whereas mainstream eating is marked by fast-paced preparation and consumption of foods outside the family, the alternative choices are equally marked by relatively greater care in food choice, preparation, and consumption. In other words, food may be used as a vehicle to regain eating as a family function.

In summary then, what's ahead for the average American family?

Continuing reliance upon convenience foods in snack and pre-prepared forms, to conform to a fast-paced urban life-style. More emphasis by industry upon nutritional composition of foods and upon education of consumers through advertising and information on food-package labels. More pressure upon the consumer to be well-informed about nutrition.

And, probably among the younger adults, a small but significant movement toward patterns of eating that return the family to a position of more importance.

HOW LONG WILL YOU LIVE?

If you think your health is your doctor's responsibility, think again! If you would rather die than change your ways, you will. If you believe that what you don't know can't hurt you, you have not been paying attention. To live longer, you must learn more and do more. Only you can give yourself a better chance at long life and good health. You can analyze your own health history and predict your future by developing your LifeScore: the facts that dictate the odds for or against your being healthy tomorrow. Assuming you do not suffer from a serious chronic condition, LifeScore is one way of illustrating how your habits and health history affect the probability of good health, and it can be used to estimate your life expectancy. LifeScore also gives a good indication of how healthy you will be while you are around. After all, will life be worth living if you get short of breath with the slightest effort, or fatigue makes every day a struggle?

You may have filled out other medical questionnaires. LifeScore is different. It is shorter because it deals only with facts known to have an impact on health, not with every piece of information that might be of interest to a doctor at some point in the future. By taking it today, studying the results and making plans to change your minus signs to plus signs wherever possible, you may make this short test the start of a longer, healthier life.

LIFESCORE

I. HABITS

1. Exercise

To qualify as a minute of conditioning, it must be a minute with the heart rate at 120 beats per minute or more. Beware of overestimating activities in which there may be a lot of standing around, e.g., tennis. As a rule, golf, bowling, baseball and volleyball do not result in conditioning. If you have: less than 15 minutes of conditioning per week, score

		Your Score
15 minutes or less	0	_____
15 - 29	+2	_____
30 - 44	+6	_____
45 - 74	+12	_____
75 - 119	+16	_____
120 - 179	+20	_____
180 or more	+24	_____

2. Weight

Look at the weight table attached to determine how many pounds overweight you are. If you are:

		Your Score
0 - 5 pounds overweight; score	0	_____
6 - 15 pounds	-2	_____
16 - 25 pounds	-6	_____
26 - 35 pounds	-10	_____
36 - 45 pounds	-12	_____
46 or more	-15	_____

LIFESCORE (continued)

3. Diet

		Your Score
If you eat a well-balanced diet, score	+4	_____
If you avoid saturated fats and cholesterol, score	+2	_____

4. Smoking

One cigar is considered to be the equivalent of one cigarette. If you smoke only a pipe, enter -4. If you smoke:

		Your Score
0 cigarettes per day, score	0	_____
1 - 9	-10	_____
10 - 19	-13	_____
20 - 29	-15	_____
30 - 39	-17	_____
40 - 49	-20	_____
50 or more	-24	_____

5. Drinking

Cocktails are assumed to contain 1½ ounces of hard liquor. If you are pouring doubles, multiply accordingly. One pint equals 16 ounces or about 10 cocktails. One 8-ounce beer is the equivalent of one cocktail. Six ounces of wine also is the equivalent of one cocktail. If you drink:

		Your Score
0 - 1 cocktails per day, score	0	_____
2 - 3	-4	_____
4 - 5	-12	_____
6 - 8	-20	_____
9 or more	-30	_____

6. Seat Belts

The actual time you wear a seat belt while driving is probably one-half your first guess (unless that guess was zero). Take a minute to come up with a more accurate estimate. If you wear a seat belt:

		Your Score
Less than 25 percent of time, score	0	_____
About 25 percent	+2	_____
About 50 percent	+4	_____
About 75 percent	+6	_____
About 100 percent	+8	_____

LIFESCORE (continued)

7. For Women Only

Contraception -- If you have had a hysterectomy, tubal ligation or have reached menopause, skip this section.. If you use:

		Your Score
Nothing and would not have an abortion, score	-10	
Mechanical method and would not have an abortion, score	0	
Birth control pills and would not have an abortion, score	+4	
Nothing, but would have an abortion, score	+4	
Birth control pills and would have an abortion, score	+5	
Mechanical method and would have an abortion, score	+10	
Bad Bonus: If you smoke and use birth control pills, score	-10	
Total Habits		

II. IMMUNITY (age 13 and up)

If you are not current on:		Your Score
Tetanus (booster every 10 years), score	-4	
Diphtheria (booster every 10 years for those with high risk of exposure only), score	-2	
Immunity Total		

III. PERSONAL HISTORY

		Your Score
Tuberculosis - If you have been in close contact for a year or more with someone with tuberculosis, score	-4	
Radiation - If you have had radiation (x-ray) treatment of tonsils, adenoids, acne or ringworm of the scalp, score	-6	
Asbestos - If you work with asbestos regularly and do not smoke, score	-2	
Vinyl Chloride - If you work regularly with vinyl chloride, score	-4	
Asbestos - If you work with asbestos regularly and do smoke, score	-10	
Urban Environment - If you live in a city, score	-6	

LIFESCORE (continued)

		Your Score
For Men and Women (risk of venereal disease) - If sexual activity has been frequent and with many different partners, score	-1	
If you began regular sexual activity before age 18, score	-1	
If you are Jewish, score	-1	
Personal History Total		

IV. FAMILY HISTORY

		Your Score
Heart Attacks (myocardial infarction) For each parent, brother or sister who had a heart attack before age 40, score	-4	
For each grandparent, uncle or aunt who had a heart attack before age 40, score	-1	
High Blood Pressure (hypertension) For each parent, brother or sister with high blood pressure requiring treatment, score	-2	
For each grandparent, uncle or aunt with high blood pressure requiring treatment, score	-1	
Diabetes - For each parent, brother or sister with juvenile-onset diabetes, score	-6	
For each grandparent, uncle or aunt with juvenile-onset diabetes, score	-2	
For each parent, brother or sister with adult-onset diabetes and required treatment with insulin, score	-2	
For each grandparent, uncle or aunt with adult-onset diabetes and required treatment with insulin, score	-1	
Cancer of the Breast (women only) If your mother or a sister has had cancer of the breast, score	-4	
Glaucoma - If you have a parent, grandparent, brother, sister, uncle or aunt with glaucoma, score	-2	
Gout - If you have a parent, grandparent, brother, sister, uncle or aunt with gout, score	-1	
Ankylosing Spondylitis (a type of arthritis) If you have a parent, grandparent, brother, sister, uncle or aunt with ankylosing spondylitis, score	-1	
Family History Total		

I. Habits	
II. Immunity	
III. Personal History	
IV. Family History	
Total	
Now Add	200
To Obtain Your LifeScore	

Be sure to get the plus and minus signs right so that you add or subtract correctly

LIFESCORE (continued)

A LifeScore of 200 is about average. A LifeScore above 210 indicates a positive life-style, which gives you an excellent chance of enjoying health beyond the average life expectancy of 69 years for men and 77 years for women. A LifeScore below 185 means your chance of a healthy future is clearly decreased. If your LifeScore is below 170, consider your life to be in danger. Below 150, make out a will and get your affairs in order.

To determine how long you're going to live, make these simple calculations. For men, the formula is:

$$\frac{\text{LifeScore}}{} \div 200 \times 70 \text{ years} = \frac{}{\text{Life Expectancy}}$$

For women:

$$\frac{\text{LifeScore}}{} \div 200 \times 75 \text{ years} = \frac{}{\text{Life Expectancy}}$$

HOW MUCH SHOULD YOU WEIGH

Men of Ages 25 and Over
(In indoor clothing, including shoes)

Height (with 1 inch heels)		Small Frame	Medium Frame	Large Frame
Feet	Inches			
5	2	112-120	118-129	126-141
5	3	115-123	121-133	129-144
5	4	118-126	124-136	132-148
5	5	121-129	127-139	135-152
5	6	124-133	130-143	138-156
5	7	128-137	134-147	142-161
5	8	132-141	138-152	147-166
5	9	136-145	142-156	151-170
5	10	140-150	146-160	155-174
5	11	144-154	150-165	159-179
6	0	148-158	154-170	164-184
6	1	152-162	158-175	168-189
6	2	156-167	162-180	173-194
6	3	160-171	167-185	178-199
6	4	164-175	172-190	182-204

Women of Ages 25 and Over
(In indoor clothing, including shoes)

4	10	92-98	96-107	104-119
4	11	94-101	98-110	106-122
5	0	96-104	101-113	109-125
5	1	99-107	104-116	112-128
5	2	102-110	107-119	115-131
5	3	105-113	110-122	118-134
5	4	108-116	113-126	121-138
5	5	111-119	116-130	125-142
5	6	114-123	120-135	129-146
5	7	118-127	124-139	133-150
5	8	122-131	128-143	137-154
5	9	126-135	132-147	141-158
5	10	130-140	136-151	145-163
5	11	134-144	140-155	149-168
6	0	138-148	144-159	153-173

WEIGHT-HEIGHT TABLES

AGE	AVERAGE WEIGHT POUNDS	RANGE IN WEIGHT POUNDS	AVERAGE HEIGHT INCHES	RANGE IN HEIGHT -INCHES
		BOYS		
13	95.6	77.4-113.8	60.5	57.3-63.7
14	107.9	87.8-128.0	63.0	59.6-66.4
15	121.7	101.1-142.3	65.6	62.5-68.7
16	131.9	113.0-150.8	67.3	64.5-70.1
17	138.3	119.5-157.1	68.2	65.6-70.8
		GIRLS		
13	100.3	82.3-118.3	60.6	58.0-63.2
14	108.5	91.3-125.7	62.3	59.9-64.7
15	115.0	98.8-131.2	63.2	60.9-65.5
16	117.6	101.7-133.5	63.5	61.3-65.7
17	119.0	103.5-134.5	63.6	61.4-65.8

* From "Basic Body Measurements of School Age Children," office of Education, U.S. Department of Health, Education, and Welfare.

McDONALD'S MEETS McGOVERN
or
DOES FAST FOOD = JUNK?

Business
Health
Home Economics
Journalism
Math
Music
Social Studies

May

Objective: The student will nutritionally analyze the offerings of fast food restaurants and recognize the part they play in a well-balanced diet.

To The Teacher: -

The "fast food" way of eating has become a way of life for us! Eight years ago there were an estimated 30,000 fast food restaurants across the country. Today there are at least 140,000.* They have not only increased in number, but also in variety. Besides the ever-present hamburger and hot dog, we can now choose roast beef, fried chicken, fish and such ethnic offerings as pizza, chili, and tacos.

Quickness and convenience are a large part of the appeal of these restaurants. There is no preparation or clean-up, service is usually fast and prices are reasonable. The quality of the food is also consistent. A Big Mac or a Whopper may not excite Julia Child as a gourmet offering, but it is the same whether you buy it in Denver or Durango.

The social structure of America has changed in recent years. There are more women working outside the home, which means there is less time to prepare home-cooked meals and more money available for eating out. A recent Gallup poll showed that 33% of adults eat out every day and 28% of those adults eat at a fast-food place. Many teenagers are employed by these restaurants and they eat many of their meals there.

What are we really eating? Is it possible to choose a nutritious meal or are we getting junk food to tide us over until the next "real" meal? It is generally accepted that a well-balanced diet consists of three meals a day, each supplying approximately 1/3 of the nutrients needed by the body to maintain good health. Calories should be in proportion to the nutrients. Too many calories with too few nutrients is junk food.

Use HELP #1 to analyze the dietary offerings of fast food and compare them with the U.S. Dietary Goals. In this comparison note the following points:

1. The entrees supply plenty of protein - from 1/3 to 3/4

* Consumer Reports, September, 1979.

of RDA. But getting enough protein isn't a problem in most American diets. We get twice as much as needed - about 250 pounds per year per person.

2. Our problems tend to be too much fat, too many calories, too much salt and not enough of some vitamins and minerals. The fast-foods don't help us solve these problems. Fat content is high and responsible for most of the calories. Levels of calcium, magnesium and vitamins A, B6 and C are very low.

3. Salt (sodium) is abundant in all the fast foods - entrees, fries and even shakes. A meal might provide 1000 - 2000 mg. sodium. That may be excessive for someone who needs to control sodium intake.

Don't forget that a major contributor to the high calorie content of a fast-food meal is the beverage selection. If you order a shake, you might expect to get at least 25% of the RDA of calcium. Most are 10-12 oz. and contain 350-500 calories. A 10-12 oz. glass of whole milk provides about 50% of a woman's RDA for calcium and only 190-225 calories, a much better nutrient per calorie choice. An 8 oz. soft drink has about 140 calories and no nutrients other than sugar. Unsugared iced tea or water contribute no calories at all.

Conclusion: Fast foods are not junk foods. Any of the fast food entrees plus fries and a shake will provide about 1/3 of the nutrients you need in a day. As a weekend or occasional treat they are fine. But when they become a habit, one should consider the nutritional gaps and the caloric excesses.

Activities:

1. The students will choose a meal using the charts in HELPS #1 and #2. Assuming that this meal is lunch, they will then plan a breakfast and dinner menu that will give a balanced diet for the day. (Use the Basic Four Chart and the chart of nutrient content of common foods in the back of this book.)

2. The student will assume he is on a weight reducing diet, but still wants to go with his friends to eat out. Have the class discuss what can be ordered at various restaurants that will not completely "blow" the diet. (Use the Fast Food Calorie Counter, HELP #2.)

3. The local fast-food eatery, McWhoppers, has decided to add a few items to its menu that will make a more nutritious meal. Divide the class into groups and have each group decide what these additions will be. Have them also plan an entire advertising campaign of newspaper ads, posters, radio spots, musical jingles and promotional activities at the restaurant itself. These will be presented to the class. It might be interesting to take the best ideas to some local fast-food restaurants and discuss with the managers the possibility of

actually doing this. Present it with the idea that it will probably increase their business.

SOURCES:

Energy, Food and You curriculum guide, a program of the Washington State Offices of Environmental Education (N.W. Section) and Health Education.

Weight Control. Developed by Shirley Cox, Lincoln County Home Extension Agent; East Central Board of Cooperative Services.

McDonald's Meets McGovern

ACTIVITY:

1. Review metric units of weight so that students are familiar with milligrams, grams, and kilograms.

   1 kilogram (kg) = 1,000 grams (gm or g)
   1 gram (gm) = 1,000 milligrams (mg)
   1 milligram (mg) = 1,000 micrograms (µg)

   Refer to the accompanying chart entitled "Nutritional Analyses of Fast Foods" and point out that the headings of various nutrients are in units of weight.

2. Review the synopsis of the U.S. Dietary Goals recommended by the U.S. Senate Committee on Nutrition and Human Needs, 1977. (See Appendix VII, p. 156)

3. Choose one food from the chart "Nutritional Analyses of Fast Foods" and compile the number of Calories that come from the fat content of the food. Remember that 1 gram fat = 9 Calories. For example:

   McDonald's Quarter Pounder with Cheese:
   29 grams fat x 9 Calories = 261 Calories

4. Using the sample example, find what percentage of the total Calories comes from fat. (See also page 291).

   $$\frac{\text{Fat Calories}}{\text{Total Calories}} \quad \frac{261}{518} = 50\%$$

5. Now compare the percentage of fat with the recommended percentage given in the Dietary Goals for the U.S. (Caution: The Goals specify recommendations for overall consumption, not for individual foods, yet the specific examples may indicate patterns of consumption).

   Recommended Amount of Energy from Fat = 30%
   Computed Actual Amount of Energy from Fat = 50%
   Excess = 20%

6. Follow the same procedure for carbohydrates and proteins for selected foods. Remember that 1 gram carbohydrates = 4 Calories.

   McDonald's Quarter Pounder with Cheese:
   34 grams carbohydrate x 4 Calories = 136 Calories

   $$\frac{\text{Carbohydrate Calories}}{\text{Total Calories}} \quad \frac{136}{518} = 26\%$$

   Recommended Amount of Energy from Carbo. = 58%
   Computed Actual Amount of Energy from Carbo. = 26%
   Deficiency = 32%

7. Again refer to the Chart "Nutritional Analyses of Fast Foods" to see; a) which companies do not state the amounts of cholesterol in their products; b) which foods eaten in one meal might total up to the recommended amount for one day. The Dietary Goals (see #4) recommend lowering cholesterol consumption to about 300 mg. per day.

8. Refer to the chart again to see; a) which companies do not list the amounts of sodium contained in their products; b) what percentage of the recommended 3 grams do various foods represent. e.g.

Burger King Cheeseburger = 562 mg = .562 grams sodium

$$\frac{.562 \text{ grams}}{3.0 \text{ grams}} = 19\%$$

McDonald's Big Mac = 962 mg = .962 grams sodium

$$\frac{.962 \text{ grams}}{3.0 \text{ grams}} = 32\%$$

9. Using Appendix 2 in the back of this book, look up (use the correct gender/age group) the RDA for Protein, Vitamin A, and the B Vitamins, etc. Compare these with the amounts present in foods selected from the "Nutritional Analyses of Fast Foods" chart. For example:

	Calories (kcal)		Protein (g)		Vit. A (IU)		Vit. B_1 (mg)		Vit. B_2 (mg)		Niacin (mg)		etc.	
RDA for Males 15-18	3000		54		5000		1.5		1.8		20			
		% RDA		% RDA		% RDA		% RDA		% RDA		% RDA		% RDA
Dairy Queen Banana split	540	18	10	19	750	15	.60	40	.60	33	.8	4		
Dairy Queen Chocolate Malt	840	28	22	40	750	15	.15	10	.85	47	1.2	6		

Compare the percentages for Calories with the percentages of B vitamins, etc., provided.

10. Discuss which other ingredients of banana splits, chocolate malts, hamburgers, etc., do not appear on any of these charts. For example, various preservatives, colorings, stabilizers, etc. Discuss why these ingredients are not shown on such lists as the RDA. Individual students may want to write to the fast food companies to obtain a complete list of the ingredients of the products they have already partially analyzed.

NUTRITIONAL ANALYSES OF CERTAIN FAST FOODS

Food		Cholesterol	Calories	Protein	Fat	Carbohydrates	Calcium	Iron	Vit A	B Complex			Vit C	Sodium	Phosphorus
										B_1 Thiamine	B_2 Riboflavin	Niacin			
	Weight Grams	Milli-Grams	Calories	Grams	Grams	Grams	Milli-Grams	Milli-Grams	International Grams	Milli-Grams	Milli-Grams	Milli-Grams	Milli-Grams	Milli-Grams	Milli-Grams
Burger King Cheeseburger	?	?	305	17	13	29	141	2.0	195	.01	.02	2.20	9	562	229
Burger King Hot Dog	?	?	291	11	17	23	40	2.0	0	.04	.02	2.00	0	841	117
Dairy Queen Banana Split	383	?	540	10	15	91	350	1.8	750	.10	.10	8	1.8	?	250
Dairy Queen Chocolate dipped cone (1g)	234	?	450	10	20	58	300	0.4	400	.12	.01	tr.	tr	?	200
Dairy Queen Chocolate Malt (1g)	588	?	840	22	28	125	600	5.4	750	.15	.85	1.2	6.0	?	600
Dairy Queen Choc Sundae (1g)	248	?	400	9	9	71	300	1.8	400	09	43	4	tr.	?	250
Kentucky Fried Dinner 3 pcs chicken, pot gravy, cole slaw, roll	425	285	830	52	46	56	150	4.5	750	.38	.56	15	27	2285	?
McDonald's Big Mac	187	75	541	26	31	39	175	4.3	327	35	37	8.2	2.4	962	215
McDonald's Quarter Pounder with cheese	193	94	518	31	29	34	251	4.6	683	35	.59	15.1	2.9	1209	257
McDonald's Cho Shake	289	29	364	11	9	60	338	0.2	318	.12	.89	0.8	2.9	329	292
McDonald's French Fries	69	10	211	3	11	26	10	0.5	52	15	03	2.9	11.0	113	49

? means information not provided by source (companies)

Source. *Dietetic Currents*, Vol. 5 #5, Sept.-Oct., '78, Ross Laboratories, Columbus, Ohio 42318.

This material borrowed from the *Energy, Food, and You* curriculum guide, a program of the Washington State Offices of Environmental Education (N.W. Section) and Health Education.

THE FAST FOOD CALORIE COUNTER

Each day fast-food chains sell millions of meals and snacks, yet even customers who are well informed about calories in general often are unable to estimate or find out the caloric content of what they eat in fast-food restaurants. The following list will help fill this information gap.

BURGER KING	CALORIES
Cheeseburger	305
French Fries	220
Hamburger	230
Hamburger, Double	325
Shake, Chocolate	365
Whopper	630
Whopper Junior	285

COLONEL SANDERS' KENTUCKY FRIED CHICKEN	
Dinner (Fried Chicken, Mashed Potatoes, Coleslaw, Rolls):	
2-Piece Dinner--Original	595
Crispy	665
3-Piece Dinner--Original	980
Crispy	1,070

DAIRY QUEEN/BRAZIER	
"Bosn's Mate" Fish Sandwich	340
"Brazier" (hamburger)	250
"Brazier" Barbecue	280
"Brazier" Cheeseburger	310
"Brazier" Chili Dog	330
"Brazier" Dog	270
"Brazier" French Fries	200
"Brazier" Onion Rings	300
Big "Brazier"	510
Big "Brazier" Cheeseburger	600
Big "Brazier" Deluxe	540
Super "Brazier" Chili Dog	570
Super "Brazier" Dog	500
Super "Brazier"/The "Half-Pounder"	850
Ice Creams	
Banana Split	580
Buster Bar*	390
Dairy Queen Cones*	
Small	110
Medium	230
Large	340
Dairy Queen Dipped Cones*	
Small	160
Medium	310
Large	450

--next column

DAIRY QUEEN/BRAZIER - cont.	CALORIES
Dairy Queen Malts*	
Small	400
Medium	580
Large	840
Dairy Queen Sundaes*	
Small	190
Medium	300
Large	430
Dilly Bar*	240
DQ Sandwich*	190
Hot Fudge "Brownie Delight" Sundae	580
Parfait	460

*11 other flavors have fewer calories than chocolate; figures for chocolate given, since it's the most popular flavor.

DUNKIN DONUTS	
Donuts (including rings, sticks, crullers)	240
Donuts, Yeast-Raised (add 5-10 calories for glaze)	160
Fancies (includes coffee rolls, Danish, etc.)	215
Munchkins, Yeast-Raised	26
Cake, including Chocolate Cake	240

McDONALD'S	
Apple Pie	265
Big Mac	557
Cheeseburger	309
Egg McMuffin	312
Fillet-O-Fish	406
French Fries	215
Hamburger	260
Hamburger, Double	350
Hot Cakes with Butter	272
Muffin	136
Pork Sausage	235
1/4 Pounder	420
1/4 Pounder with Cheese	521
Scrambled Eggs	175
Shake, Chocolate	360
Shake, Strawberry	340
Shake, Vanilla	320

PIZZA HUT	CALORIES
1/2 of an 10" pizza (3 slices)	
Thin Crust	
Beef	490
Pork	520
Cheese	450
Pepperoni	430
Supreme	510
Thick & Chewy	
Beef	620
Pork	640
Cheese	560
Pepperoni	560
Supreme	640
1/2 of 13-inch Cheese Pizza	
Thick Crust	900
Thin Crust	850
1/2 of 15-inch Cheese Pizza	
Thick Crust	1,200
Thin Crust	1,150

TACO BELL	
Beans (Whipped) Burrito	345
Bell Burger	243
Enchirito	391
Frijoles	231
Taco	146
Tostado	206

WHITE CASTLE	
Cheeseburger	198
Fish Sandwich	200
French Fries	210
Hamburger	165
Milk Shake	213
Onion Rings	341

ARTHUR TREACHER'S	
Chips (per serving)	274
Coleslaw	122
Fish (2 pieces)	344

BASKIN-ROBBINS	
One scoop	
Ice Creams, all flavors	between 133 & 148
Sherberts and Ices	139

BURGER CHEF	CALORIES
Big Chef	535
French Fries	240
Hamburger	250
Shake, Chocolate	310
Super Chef	530

RUSTLER STEAK HOUSE	
Baked Potato	231
Dressing (Blue Cheese)	151
Dressing (French)	122
Dressing (Italian)	166
Dressing (Thousand Island)	150
Jello, Cherry	75
Pickle	2
Potato Chips	82
Pudding, Chocolate	144
Roll (Butter)	40
Roll (Rustler)	120
Roll (Twisted)	182
Rib Eye	369
Rustler's (Strip)	1,086
Salad	17
Steak (Chopped) 4 oz	327
Steak (Chopped) 8 oz	653
T-bone	1,532

GINO'S	
Apple Pie	198
Cheeseburger	336
Coke (regular)	117
Coke (giant)	181
Dinner Roll	51
Fry (regular)	195
Fry (giant)	274
Hamburger	289
Kentucky Fried Chicken (1 piece)	290
Orange (giant)	217
Root Beer (regular)	140
Root Beer (giant)	190
Shake, Vanilla (regular)	338
Shake, Vanilla (giant)	524
Sirloiner	514
Sirloiner (Cheese)	609

LONG JOHN SILVER'S	
Fish & Chips, Coleslaw	
2-Piece Dinner	955
3-Piece Dinner	1,190

DIET WEEK

APPENDIX I

NAME _____ GRADE _____ ROOM _____

DATE _____ DAY OF WEEK _____

BREAKFAST	LUNCH	DINNER	SNACKS

Food Group Servings:

Milk/Dairy _____
Meat/Fish _____
Fruit/Veg. _____
Bread/Cereal _____

Number of sugary snacks: _____

DATE _____ DAY OF WEEK _____

BREAKFAST	LUNCH	DINNER	SNACKS

Food Group Servings:

Milk/Dairy _____
Meat/Fish _____
Fruit/Veg. _____
Bread/Cereal _____

Number of sugary snacks: _____

DATE _____ DAY OF WEEK _____

BREAKFAST	LUNCH	DINNER	SNACKS

Food Group Servings:

Milk/Dairy _____
Meat/Fish _____
Fruit/Veg. _____
Bread/Cereal _____

Number of sugary snacks: _____

DATE _____ DAY OF WEEK _____

BREAKFAST	LUNCH	DINNER	SNACKS

Food Group Servings:

Milk/Dairy _____
Meat/Fish _____
Fruit/Veg. _____
Bread/Cereal _____

Number of sugary snacks: _____

These materials were developed through funds from the Nutrition Education and Training Program (PL 96-166) and are available to anyone without regard to race, creed, color.

Nutritive Values in Common Portions of Food*

APPENDIX 2

Pct = Percent
Cal = Calorie
Gm = Gram
Mg = Milligram
IU = International Unit
Tr = Trace, or an insignificant quantity
— = No value imputed, but possibly present

*From *Nutritive Value of Foods*, Home and Garden Bulletin 72, Revised Sept 1961. Adapted from the more comprehensive tables in *"Composition of Foods — Raw, Processed, Prepared," Agriculture Handbook No. 8, Revised Dec. 1963.* Both are for sale by the Superintendent of Documents, Washington 25, D.C.

FOOD AND APPROXIMATE MEASURE OR COMMON WEIGHT	WATER	FOOD ENERGY	PROTEIN	FAT	TOTAL CARBOHYDRATE	CALCIUM	IRON	VITAMIN A VALUE	THIAMINE	RIBOFLAVIN	NIACIN VALUE	ASCORBIC ACID
	Pct	Cal	Gm	Gm	Gm.	Mg	Mg	IU	Mg.	Mg.	Mg	Mg.
MILK AND MILK PRODUCTS												
Buttermilk, from skim milk, 1 cup	90	90	9	Tr	13	298	01	10	.009	044	02	2
Milk cow												
Fluid whole, 1 cup	87	160	9	9	12	288	1	350	08	42	1	2
Fluid, nonfat (skim) 1 cup	90	90	9	Tr	13	298	1	10	10	44	.2	2
Evaporated (undiluted) 1 cup	74	345	18	20	24	635	3	820	10	84	5	3
Condensed (undiluted), 1 cup	27	980	25	27	166	802	3	1,090	23	117	5	3
Cheese, 1 ounce												
Cheddar (1 in cube)	37	70	4	5	Tr	128	.2	220	Tr	08	Tr	0
Cheddar processed	40	105	7	9	1	219	3	350	Tr	12	Tr	0
Cottage, from skim milk, uncreamed	79	25	5	Tr	1	26	1	Tr	01	08	Tr	0
Cream	51	105	2	11	1	18	1	440	Tr.	07	Tr	0
Swiss	39	105	8	8	1	262	.3	320	Tr	11	Tr.	0
Cream, 1 tablespoon												
Light	72	30	Tr	3	1	15	Tr	130	Tr	.02	Tr	Tr.
Heavy	57	55	Tr	6	Tr	11	Tr	230	Tr	02	Tr.	Tr
Beverages, 1 cup												
Cocoa (all milk)	79	235	9	11	26	288	9	390	09	45	4	2
Malted milk	78	280	13	12	32	364	8	670	17	56	.2	2
Desserts												
Custard baked 1 cup	77	285	13	14	28	278	10	870	10	47	.2	1
Ice cream plain												
1/8 of quart brick	62	145	3	9	15	87	.1	370	03	13	.1	1
8 fluid ounces	62	295	6	18	29	175	1	740	06	.27	1	1
EGGS												
Eggs, raw large												
1 whole	74	80	6	6	Tr	27	11	590	05	15	Tr.	0
1 white	88	15	4	Tr	Tr	3	Tr	0	Tr	09	Tr.	0
1 yolk	51	60	3	5	Tr	24	.9	580	04	07	Tr.	0
FRUITS												
Apples raw 1 medium (2 1/2 in diam about 3 per lb)	85	70	Tr	Tr	18	8	4	50	04	02	1	3
Apple juice fresh or canned 1 cup	88	120	Tr	Tr	30	15	15		04	01	2	2
Applesauce canned sweetened 1 cup	76	230	1	Tr	60	10	1.3	100	05	03	1	3
Apricots												
Dried cooked unsweetened fruit and liquid 1 cup	76	240	5	1	62	63	5.1	8,550	01	13	2.8	8
Avocados raw 1/2 peeled fruit	74	185	2	18	6	11	6	310	12	21	1.7	15
Bananas, raw 1 medium (6 by 1 1/2 in, about 3 per lb)	76	85	1	Tr	23	8	7	190	05	06	.7	10
Blackberries, raw 1 cup	84	85	2	1	19	46	1.3	290	05	06	5	30
Blueberries, raw 1 cup	83	85	1	1	21	21	1.4	140	04	08	.6	20
Cantaloupes raw 1/2 melon (5 in diam)	91	60	1	Tr	14	27	8	6,540	08	06	1.2	63
Cherries 1 cup pitted												
Canned red sour	76	230	2	1	59	36	8	1,680	07	06	4	13
Cranberry sauce sweetened 1 cup	62	405	Tr	1	104	17	6	40	03	03	1	5
Dates fresh and dried pitted and cut 1 cup	22	400	4	1	130	105	5.3	90	16	17	3.9	0
Fruit cocktail canned solids and liquid 1 cup	80	195	1	1	50	23	1.0	360	.04	03	1.1	5
Grapefruit raw sections, 1 cup	89	75	1	Tr	20	31	8	20	07	03	3	72
Grapefruit juice												
Canned unsweetened 1 cup	89	100	1	Tr	24	20	1.0	20	07	04	.4	84
Frozen concentrate, 6-ounce can	62	300	4	1	72	70	8	60	29	12	1.4	286

FOOD AND APPROXIMATE MEASURE OR COMMON WEIGHT	WATER	FOOD ENERGY	PROTEIN	FAT	TOTAL CARBOHYDRATE	CALCIUM	IRON	VITAMIN A VALUE	THIAMINE	RIBOFLAVIN	NIACIN VALUE	ASCORBIC ACID
	Pct.	Cal	Gm	Gm.	Gm.	Mg	Mg.	I.U.	Mg.	Mg.	Mg.	Mg.
FRUITS — continued												
Grapes, 1 cup												
American type (slip skin)	82	65	1	1	15	15	.4	100	05	.03	.2	3
Grape juice, bottled, 1 cup	83	165	1	Tr	42	28	.8	—	10	05	.6	Tr.
Lemon juice, fresh, 1 cup	91	60	1	Tr	20	17	5	40	08	.03	.2	113
Lime juice, fresh, 1 cup	90	65	1	Tr	22	22	5	30	05	03	.3	80
Oranges, 1 medium (3 in. diam.)	86	75	1	Tr	19	67	3	310	16	06	.6	70
Orange juice:												
Fresh, Florida, 1 cup	90	100	1	Tr	23	25	5	490	22	06	9	127
Canned, unsweetened, 1 cup	87	120	2	Tr	28	25	10	500	17	05	.6	100
Frozen concentrate, 6-ounce can	58	330	5	Tr	80	69	8	1,490	.63	10	2.4	332
Peaches:												
Raw, 1 medium (2 in. diam., about 4 per lb.)	89	35	1	Tr	10	9	5	1,320	02	05	10	7
Canned in syrup, 1 cup	79	200	1	Tr	52	10	8	1,100	02	06	14	7
Pears:												
Raw, 1 pear (3 by 2 1/2 in. diam.)	83	100	1	1	25	13	5	30	04	07	.2	7
Canned in syrup, 2 medium size halves and 2 tablespoons syrup	80	90	Tr	Tr	23	6	2	Tr	01	02	2	2
Pineapple:												
Raw, diced, 1 cup	85	75	1	Tr	19	24	7	100	12	04	.3	24
Canned in syrup, 2 small or large slice and 2 tablespoons juice	80	90	Tr	Tr	24	13	4	50	09	03	.2	8
Pineapple juice, canned, 1 cup	86	135	1	Tr	34	37	7	120	12	04	5	22
Plums, raw, 1 plum (2 in. diam.)	87	25	Tr	Tr	7	7	.3	140	02	02	.3	3
Prunes, cooked, unsweetened, 1 cup (18-18 prunes and 1/3 cup liquid)	66	295	2	1	78	60	4.5	1,860	08	18	1.7	2
Prune juice, canned, 1 cup	80	200	1	Tr	49	36	10.5	—	02	03	1.1	4
Raisins, dried, 1 cup	18	460	4	Tr	124	99	5.6	30	18	13	.9	2
Raspberries, red, raw, 1 cup	84	70	1	1	17	27	1.1	160	04	11	1.1	31
Rhubarb, cooked with sugar, 1 cup	63	385	1	Tr	98	212	1.6	220	06	15	.7	17
Strawberries:												
Raw, 1 cup	90	55	1	1	13	31	1.5	90	04	10	1.0	88
Frozen, 10-ounce carton	71	310	1	1	79	40	2.0	90	06	17	1.5	150
Tangerines, 1 medium (2 1/2 in. diam., about 4 per lb.)	87	40	1	Tr	10	34	.3	350	05	.02	.1	26
Watermelons, 1 wedge (4 x 8 in.)	93	115	2	1	27	30	2.1	2,510	13	.13	.7	30
CEREAL—BREAD												
Biscuits, enriched flour, 1 biscuit (2 1/2 in. diam.)	27	140	3	6	17	46	.6	Tr.	06	06	7	Tr.
Bran flakes, 1 ounce	3	85	3	1	23	20	1.2	0	11	.05	1.7	0
Breads, 1 slice:												
Boston brown, unenriched	45	100	3	1	22	43	.9	0	05	.03	6	0
Rye (1/3 rye, 2/3 wheat)	36	55	2	Tr	12	17	4	0	04	02	.3	0
White, unenriched, 4 percent non-fat milk solids	36	45	1	1	9	14	.1	Tr.	01	01	.2	Tr.
White, enriched, 4 percent nonfat milk solids	36	45	1	1	9	14	4	Tr	04	04	4	Tr.
Whole wheat	36	55	2	1	11	23	5	Tr.	06	03	.7	Tr.
Cakes:												
Angel food, 2-inch sector	32	110	3	Tr	24	4	1	0	Tr	06	.4	0
Doughnuts, cake-type, 1 doughnut	24	125	1	6	16	13	4	30	.05	05	.4	Tr.
Gingerbread, 1 piece (2 by 2 by 2 in.)	31	175	2	6	29	37	1.3	50	06	06	.5	0
Plain cake and cupcakes, 1 cupcake (2 3/4 in. diam.)	24	145	2	6	22	26	2	70	01	03	.1	Tr.
Sponge, 2-inch sector (1/12 of cake, 8 in. diam.)	32	120	3	2	22	12	.5	180	02	.06	.1	Tr.
Cookies, plain and assorted, 1 3-inch	3	120	1	5	18	9	.2	20	01	01	.1	Tr.
Cornbread or muffins made with enriched, degermed corn meal, 1 muffin (2 3/4 in. diam.)	33	150	3	5	23	50	8	80	09	11	.8	Tr.
Corn flakes, 1 ounce	4	110	2	Tr	24	5	4	0	12	02	.6	0
Crackers:												
Graham, 4 small or 2 medium	6	55	1	1	10	6	.2	0	.01	.03	.2	0
Soda, plain, 2 crackers (2 1/2 in. diam.)	4	50	1	1	8	2	2	0	Tr.	Tr	.1	0
Farina, enriched, cooked, 1 cup	90	100	3	Tr	21	10	7	0	11	.07	1.0	0

FOOD AND APPROXIMATE MEASURE OR COMMON WEIGHT	WATER	FOOD ENERGY	PROTEIN	FAT	TOTAL CARBOHYDRATE	CALCIUM	IRON	VITAMIN A VALUE	THIAMINE	RIBOFLAVIN	NIACIN VALUE	ASCORBIC ACID
	Pct.	Cal.	Gm.	Gm	Gm.	Mg.	Mg.	I.U.	Mg.	Mg.	Mg.	Mg.
CEREAL—BREAD—Continued												
Macaroni, cooked, 1 cup												
Unenriched	64	190	6	1	39	14	6	0	02	02	.5	0
Enriched	64	190	6	1	39	14	1 4	0	.23	14	1 9	0
Muffins, made with enriched flour 1 muffin (2 3/4 in. diam.)	38	140	4	5	20	50	.8	50	08	11	7	Tr.
Oatmeal or rolled oats												
Cooked, 1 cup	86	130	5	2	23	21	1 4	0	19	05	3	0
Pancakes, baked, wheat with enriched flour 1 cake (4 in. diam.)	50	60	2	2	9	27	4	30	05	06	.3	Tr.
Pies, 4-inch sector (9 in. diam.)												
Apple	48	345	3	15	51	11	4	40	03	02	5	1
Custard	58	280	8	14	30	125	8	300	07	.21	4	0
Lemon meringue	47	305	4	12	45	17	6	200	04	10	2	4
Mince	43	365	3	16	56	38	1 4	Tr	09	05	5	1
Pumpkin	59	275	5	15	32	66	6	3,210	04	.13	6	Tr.
Pretzels, 5 small sticks	8	20	Tr	Tr	4	1	0	Tr	Tr	Tr	Tr	0
Rice, enriched cooked 1 cup												
Converted long-grain parboiled	73	185	4	Tr	41	33	1 4	0	19	02	2.0	0
White or milled	73	185	3	Tr	41	17	1 5	0	19	01	1 6	0
Rice, puffed, 1 cup	4	55	1	Tr	13	3	.3	0	06	.01	.6	0
Rolls, plain, enriched, 1 roll (12 per pound)	31	115	3	2	20	28	7	Tr	11	07	.8	Tr.
Spaghetti, unenriched, cooked, 1 cup	72	155	5	1	32	11	6	0	02	02	4	0
Waffles, baked, with enriched flour 1 waffle (4 1/2 by 5 5/8 by 1/2 in.)	41	210	7	7	28	85	1 3	250	13	19	1 0	Tr.
Wheat flours												
Whole 1 cup stirred	12	400	16	2	85	49	4 0	0	66	14	5.2	0
All purpose or family flour												
Unenriched, 1 cup sifted	12	400	12	1	84	18	9	0	07	05	1.0	0
Enriched, 1 cup sifted	12	400	12	1	84	18	3 2	0	48	29	3 8	0
Wheat germ 1 cup stirred	11	245	18	7	32	49	6 4	0	1.36	46	2.9	0
Wheat, shredded, 1 large biscuit, 1 ounce	7	100	3	1	23	12	1 0	0	06	03	1 2	0
VEGETABLES												
Asparagus												
Cooked, 1 cup cut spears	94	35	4	Tr	6	37	1 0	1,580	27	32	2.4	46
Beans, lima, immature, cooked 1 cup fresh	71	180	12	1	32	75	4 0	450	.29	16	2.0	28
Beans, snap, green cooked, 1 cup	92	30	2	Tr	7	62	.8	690	08	11	.6	16
Beets, cooked, diced, 1 cup	91	50	2	Tr	12	23	8	40	04	07	.5	11
Broccoli, cooked, flower stalks, 1 cup	91	40	5	Tr	7	132	1.2	3,750	14	.29	1 2	135
Brussels sprouts, cooked 1 cup	88	45	5	1	8	42	1 4	680	10	18	1 1	113
Cabbage, 1 cup												
Raw, shredded	92	25	1	Tr	5	49	4	130	05	05	.3	47
Cooked	94	35	2	Tr	7	75	.5	220	07	07	5	56
Carrots												
Raw, grated, 1 cup	88	45	1	Tr	11	41	8	12,100	06	.06	7	9
Cooked diced, 1 cup	91	45	1	Tr	10	418	9	15,220	08	07	7	9
Cauliflower, cooked, flower buds, 1 cup	93	25	3	Tr	5	25	8	70	11	10	7	66
Celery, raw, diced 1 cup	94	15	1	Tr	4	39	.3	240	03	03	3	9
Collards, cooked, 1 cup	91	55	5	1	9	289	1 1	10,260	.27	37	2.4	87
Corn, sweet												
Cooked, 1 ear (5 in. long)	74	70	3	1	16	2	5	310	09	06	1 0	7
Canned, solids and liquid 1 cup	81	170	5	2	40	10	1 0	690	.07	12	2.3	13
Cucumbers, 10 ounce raw, pared (7 1/2 x 2 in.)	96	30	1	Tr	7	35	6	Tr	07	09	4	23
Endive, raw 2 ounces	93	10	1	Tr	2	46	1 0	1,870	.04	06	3	6
Kale, cooked 1 cup	91	30	4	1	4	147	1 3	8,140	—	—	—	88
Lettuce, Boston 1 head, raw (4 in. diam.)	95	30	3	Tr	6	77	4 4	2,130	14	13	6	18
Mushrooms, canned solids and liquid, 1 cup	93	40	5	Tr	6	15	1 2	Tr	04	60	4 8	4
Mustard greens, cooked 1 cup	93	35	3	1	6	193	2.5	8,120	.11	19	.9	88
Okra, cooked, 8 pods	91	25	2	Tr	5	78	4	120	11	.15	.8	17
Onions, raw												
Mature, 1 onion (2 1/2 in. diam.)	89	410	2	Tr	10	30	6	40	04	.04	2	11
Young green, 6 small onions without tops	88	20	1	Tr	5	20	.3	Tr	02	02	.2	12

FOOD AND APPROXIMATE MEASURE OR COMMON WEIGHT	WATER	FOOD ENERGY	PROTEIN	FAT	TOTAL CARBOHYDRATE	CALCIUM	IRON	VITAMIN A VALUE	THIAMINE	RIBOFLAVIN	NIACIN VALUE	ASCORBIC ACID
	Pct	Cal	Gm	Gm	Gm	Mg	Mg	IU	Mg	Mg	Mg	Mg
VEGETABLES—Continued												
Parsnips cooked 1 cup	82	100	2	1	23	70	9	50	11	13	2	16
Peas green												
Cooked 1 cup	82	115	9	1	19	37	2 9	860	44	17	3 7	33
Peppers green-raw, 1 medium	93	15	1	Tr	3	6	4	260	05	05	3	79
Potatoes												
Baked 1 medium (2 1/2 in diam)	75	90	3	Tr	21	9	7	Tr	10	04	1 7	20
Boiled after peeling 1 medium (2 1/2 in diam)	80	105	3	Tr	23	10	8	Tr	13	05	2.0	22
Boiled in skin 1 medium (2 1/2 in diam)	83	80	2	Tr	18	7	6	Tr	11	04	1 4	20
French fried 10 pieces (2 by 1/2 by 1/2 in)	45	155	2	7	20	9	7	Tr	07	04	1.8	12
Potato chips 10 medium (2 in diam)	2	115	1	8	10	8	4	Tr	04	01	1 0	3
Pumpkin canned 1 cup	90	75	2	1	18	57	9	14 590	07	12	1.3	12
Radishes raw 4 small	94	5	Tr	Tr	1	12	4	Tr	01	01	1	10
Sauerkraut canned drained solids 1 cup	93	45	2	Tr	9	85	1 2	120	07	09	4	33
Soybean sprouts raw 1 cup	89	40	6	2	4	46	7	90	17	16	8	4
Spinach												
Cooked 1 cup	92	40	5	1	6	167	4 0	14,580	13	25	1 0	50
Squash												
Summer cooked diced 1 cup	96	30	2	Tr	7	52	8	820	10	16	1 6	21
Winter baked mashed 1 cup	81	130	4	1	32	57	1 6	8 610	10	27	1 4	27
Sweet potatoes peeled 1 sweet potato												
Baked (5 by 2 in)	64	155	2	1	36	44	1 0	8,910	10	07	7	24
Boiled (5 by 2 1/2 in)	71	170	2	1	39	47	1 0	11 610	13	09	9	25
Tomatoes												
Raw 1 medium (2 by 2 1/2 in)	94	35	2	Tr	7	20	0 8	1.350	0 10	0 06	1.0	34
Canned or cooked 1 cup	94	50	2	Tr	10	15	1 2	2.180	13	07	1 7	40
Tomato juice canned 1 cup	94	45	2	Tr	10	17	2 2	1.940	13	07	1.8	39
Turnips cooked diced 1 cup	94	35	1	Tr	8	54	6	Tr	06	08	5	33
Turnip greens cooked 1 cup	93	30	3	Tr	5	267	1.6	9.140	21	26	.8	100
MATURE BEANS AND PEAS NUTS												
Almonds shelled unblanched 1 cup	5	850	26	77	28	332	6 7	0	34	1.31	5 0	Tr
Beans canned or cooked 1 cup												
Kidney red	76	230	15	1	42	74	4 6	Tr	13	10	1.5	—
Lima dried cooked	64	260	16	1	48	56	5 6	Tr	26	12	1 3	Tr.
Navy or other varieties with Tomato sauce and pork	71	320	16	7	50	141	4 7	340	20	06	1.5	5
Tomato sauce no pork	68	310	16	1	60	177	5 2	160	18	09	1 5	5
Coconut dried shredded (sweetened) 1 cup	3	340	2	24	33	10	1 2	0	02	02	2	0
Peanuts roasted shelled 1 cup	2	840	37	72	27	107	3 0	—	46	19	24 7	0
Peanut butter 1 tablespoon	2	95	4	8	3	9	3	—	02	02	2.4	0
Peas split dry 1 cup cooked	70	290	20	1	52	28	4.2	100	37	22	2.2	2
Pecans 1 cup halves	3	740	10	77	16	79	2 6	140	93	14	1 0	2
Walnuts English 1 cup halves	4	650	15	64	16	99	3 1	30	33	13	9	8
MEAT POULTRY FISH												
Beef 3 ounces without bone cooked												
Chuck lean and fat braised	53	245	23	16	0	10	2 9	30	04	18	3 5	—
Hamburger regular broiled	54	245	21	17	0	9	2 7	30	07	18	4 6	—
Sirloin relatively fat broiled	44	330	20	27	0	9	2 5	50	05	16	4 0	—
Beef dried 2 ounces	48	115	19	4	0	11	2 9	—	04	18	2.2	—
Chicken 3 ounces												
Canned, boned	65	170	18	10	0	18	1.3	200	03	11	3 7	3
Flesh only, broiled	71	115	20	3	0	8	1 4	80	05	16	7 4	—
Clams, raw meat only, 3 ounces	82	65	11	1	2	59	5.2	90	06	15	1.1	8
Crab meat canned or cooked, 3 ounces	77	85	15	2	1	38	7	—	07	07	1 6	—
Haddock fried, 1 fillet (4 by 3 by 1/2 in) 3 ounces	66	140	17	5	5	34	1 0	—	03	06	2.7	2

FOOD AND APPROXIMATE MEASURE OR COMMON WEIGHT	WATER	FOOD ENERGY	PROTEIN	FAT	TOTAL CARBOHYDRATE	CALCIUM	IRON	VITAMIN A VALUE	THIAMINE	RIBOFLAVIN	NIACIN VALUE	ASCORBIC ACID
	Pct.	Cal	Gm	Gm	Gm	Mg	Mg	IU	Mg.	Mg	Mg.	Mg.
MEAT POULTRY FISH—Continued												
Heart, beef, braised, 3 ounces	61	160	27	5	1	5	5.0	20	21	1.04	6.5	1
Lamb, leg roast, cooked, 3 ounces	54	235	22	16	0	9	1.4	—	13	23	4.7	—
Liver, beef, fried, 2 ounces	57	230	15	6	3	6	5.0	30,280	15	2.37	9.4	15
Oysters, meat only raw 1 cup (13 19 medium size oysters selects)	85	160	20	4	8	226	13.2	740	.33	43	6.0	—
Pork loin or chops, cooked, 3 ounces without bone	46	310	21	24	0	9	2.7	0	78	22	4.7	—
Pork, cured ham, cooked, 3 ounces without bone	54	245	18	19	0	8	2.2	0	40	16	3.1	—
Pork luncheon meat canned, spiced 2 ounces	55	165	8	14	1	5	1.2	0	18	12	1.6	—
Salmon canned, pink, 3 ounces	71	120	17	5	0	167	7	60	03	16	6.8	—
Sardines, canned in oil, drained solids, 3 ounces	62	175	20	9	0	372	2.5	190	02	17	4.6	—
Shrimp, canned, 3 ounces	70	100	21	1	1	98	2.6	50	.01	.03	1.5	—
Tuna, canned in oil drained 3 ounces	61	170	24	7	0	7	1.6	70	04	10	10.1	—
FATS OILS, RELATED PRODUCTS												
Bacon, medium fat, broiled or fried, 2 slices	8	100	5	8	1	2	5	0	08	05	8	—
Butter, 1 tablespoon	16	100	Tr	11	Tr	3	0	460	—	—	—	0
Fats, cooking (vegetable fats)												
1 cup	0	1770	0	200	0	0	0	—	0	0	0	0
1 tablespoon	0	110	0	12	0	0	0	—	0	0	0	0
Lard, 1 tablespoon	0	125	0	14	0	0	0	0	0	0	0	0
Margarine, 1 tablespoon	16	100	Tr	11	Tr	3	0	460	—	—	—	0
Oils, salad or cooking 1 tablespoon	0	125	0	14	0	0	0	—	0	0	0	0
Salad dressings, 1 tablespoon												
French	39	60	Tr	6	3	2	1	—	—	—	—	—
Home-cooked	68	30	1	2	3	15	1	80	01	03	Tr.	Tr
Mayonnaise	15	110	Tr	12	Tr	3	1	40	Tr.	01	Tr	0
SUGARS, SWEETS												
Candy, 1 ounce												
Caramels	8	115	1	3	22	42	4	Tr	01	05	Tr	Tr
Chocolate, sweetened milk,	1	150	2	9	16	65	3	80	02	09	1	Tr.
Fudge, plain	8	115	1	3	21	22	3	Tr	01	03	1	Tr.
Hard	1	110	0	Tr	28	6	5	0	0	0	0	0
Marshmallows	17	90	1	Tr	23	5	5	0	0	Tr	Tr	0
Chocolate syrup 1 tablespoon	32	50	Tr	Tr	13	3	3	—	Tr	01	1	0
Honey, strained or extracted 1 tablespoon	17	65	Tr	0	17	1	1	0	Tr	01	1	Tr
Jams, marmalades, preserves 1 tablespoon	29	55	Tr	Tr	14	4	2	Tr	Tr	.01	Tr	Tr.
Molasses, cane, 1 tablespoon												
Light	24	50	—	—	13	33	9	—	.01	01	Tr	—
Blackstrap	24	45	—	—	11	137	3.2	—	02	01	4	—
Sugar, 1 tablespoon												
Granulated, cane or beet	Tr	45	0	0	12	0	Tr	0	0	0	0	0
Brown	2	50	0	0	13	12	5	0	Tr	Tr	Tr	0
MISCELLANEOUS												
Beverages, carbonated cola type 1 cup	90	95	0	0	24	—	—	0	0	0	0	0
Bouillon cubes, 1 cube	4	5	1	Tr	Tr	—	—	—	—	—	—	—
Chocolate, unsweetened, 1 ounce	2	145	3	15	8	22	1.9	20	01	07	4	0
Gelatin dessert, plain, ready-to-serve 1 cup	84	140	4	0	34	—	—	—	—	—	—	0
Sherbet, 1 cup	67	260	2	2	59	31	Tr	110	02	06	Tr	1
Yeast												
Compressed, baker's 1 ounce	71	25	3	Tr	3	4	1.4	Tr	20	47	3.2	Tr
Dried brewer's 1 tablespoon	5	25	3	Tr	3	17	1.4	Tr	1.25	34	3.0	Tr

APPENDIX 3

RECOMMENDED DAILY DIETARY ALLOWANCES

	Age	Weight (lbs)	Protein (g)	Vit. A (R.E*)	Vit. D (mg**)	Vit. E (mg T.E) (***)	Vit. C (mg)	Thiamin (mg)	Riboflavin (mg)	Niacin (N.E.) (****)	Vit. B_6 (mg)	Folacin (ug)	Vit. B_{12} (ug)	Calcium (mg)	Phos. (mg)	Mag. (mg)	Iron (mg)	Zinc (mg)	Iodine (ug)
Infants	To 6 mos.	13	kg x 2.2	420	10	3	35	0.3	0.4	6	0.3	30	0.5	360	240	50	10	3	40
	To 1 yr.	20	kg x 2.0	400	10	4	35	0.5	0.6	8	0.6	45	1.5	540	360	70	15	5	50
Children	1-3	29	23	400	10	5	45	0.7	0.8	9	0.9	100	2.0	800	800	150	15	10	70
	4-6	44	30	500	10	6	45	0.9	1.0	11	1.3	200	2.5	800	800	200	10	10	90
	7-10	62	34	700	10	7	45	1.2	1.4	16	1.6	300	3.0	800	800	250	10	10	120
Males	11-14	99	45	1000	10	8	50	1.4	1.6	18	1.8	400	3.0	1200	1200	350	18	15	150
	15-18	145	56	1000	10	10	60	1.4	1.7	18	2.0	400	3.0	1200	1200	400	18	15	150
	19-22	154	56	1000	7.5	10	60	1.5	1.7	19	2.2	400	3.0	800	800	350	10	15	150
	23-50	154	56	1000	5	10	60	1.4	1.6	18	2.2	400	3.0	800	800	350	10	15	150
	51 +	154	56	1000	5	10	60	1.2	1.4	16	2.2	400	3.0	800	800	350	10	15	150
Females	11-14	101	46	800	10	8	50	1.1	1.3	15	1.8	400	3.0	1200	1200	300	18	15	150
	15-18	120	46	800	10	8	60	1.1	1.3	14	2.0	400	3.0	1200	1200	300	18	15	150
	19-22	120	44	800	7.5	8	60	1.1	1.3	14	2.0	400	3.0	800	800	300	18	15	150
	23-50	120	44	800	5	8	60	1.0	1.2	13	2.0	400	3.0	800	800	300	18	15	150
	51 +	120	44	800	5	8	60	1.0	1.2	13	2.0	400	3.0	800	800	300	10	15	150
Pregnant			+30	+200	+5	+2	+20	+0.4	+0.3	+2	+0.6	+400	+1.0	+400	+400	+150	A	+5	+25
Lactating			+20	+400	+5	+3	+40	+0.5	+0.5	+5	+0.5	+100	+1.0	+400	+400	+150	A	+10	+50

A - The increased requirements during pregnancy and lactation cannot be met by the iron content of habitual American diets nor by the existing iron stores of many women; therefore the use 30-60 milligrams of supplemental iron is recommended.

ug. = Microgram

* Retinol equivalents

** Micrograms of cholecaloiflerol 10 ug. cholecalciferol = 400 I.U. Vit. D.

*** tocopherol equivalents

****Niacin equivalents

From: Recommended Dietary Allowances, Revised 1979. Food and Nutrition Board
National Academy of Sciences-National Research Council, Washington, D.C.

		VITAMINS			TRACE ELEMENTS[b]						ELECTROLYTES		
	Age (years)	Vitamin K (μg)	Biotin (μg)	Pantothenic Acid (mg)	Copper (mg)	Manganese (mg)	Fluoride (mg)	Chromium (mg)	Selenium[c] (mg)	Molybdenum (mg)	Sodium (mg)	Potassium (mg)	Chloride (mg)
INFANTS													
	0-0.5	12	35	2	0.5-0.7	0.5-0.7	0.1-0.5	0.01-0.04	0.01-0.04	0.03-0.06	115-350	350-925	275-700
	0.5-1	10-20	50	3	0.7-1.0	0.7-1.0	0.2-1.0	0.02-0.06	0.02-0.06	0.04-0.08	250-750	425-1275	400-1200
CHILDREN AND ADOLESCENTS													
	1-3	15-30	65	3	1.0-1.5	1.0-1.5	0.5-1.5	0.02-0.08	0.02-0.08	0.05-0.1	325-975	550-1650	500-1500
	4-6	20-40	85	3-4	1.5-2.0	1.5-2.0	1.0-2.5	0.03-0.12	0.03-0.12	0.06-0.15	450-1350	775-2325	700-2100
	7-10	30-60	120	4-5	2.0-2.5	2mp-3.0	1.5-2.5	0.05-0.2	0.05-0.2	0.1 -0.3	600-1600	1000-3000	925-2775
	11+	50-100	100-200	4-7	2.0-3.0	2.5-5.0	1.5-2.5	0.05-0.2	0.05-0.2	0.15-0.5	900-2700	1525-4575	1400-4200
ADULTS		70-140	100-200	4-7	2.0-3.0	2.5-5.0	1.5-4.0	0.05-0.2	0.05-0.2	0.15-0.5	1100-3300	1875-5625	1700-5100

[a]From: Food and Nutrition Board National Academy of Sciences-National Research Council Washington, D.C.

Appendix 4

The following is a listing of free or inexpensive material available to be used with various nutrition education efforts.

1. Nutrition Education, 1976 (Curriculum Guide)
K-6th
Superintendent of Public Instruction
Division of School Food Services
State Capitol
Helena, MT 59601
No Charge
Nutrition Education is a curriculum guide for teachers who wish to expand nutrition education into other subject areas. The basic layout of each section is: 1) a broad, general concept; 2) specific behavioral objectives; 3) teaching aids that answer behavior objectives, as well as supply the teachers with additional information; 4) learning experiences relative to behavioral objectives; and 5) possible subject areas in which learning objectives can be included.

2. Framework for Nutrition Education, 1975 (Curriculum Guide)
K-6th
State Department of Education
School Food Service Section
Division of Administration and Finance
410 State Office Building
Montgomery, AL 36104
$1.00 (K-2nd) Discovering Vegetables
$1.00 (3rd-4th) Food Choices
$1.00 (5th-6th) Nutrition Trek
Each section, K-2nd, 3rd-4th, 5th-6th, contains a sequential portion for learning. Concepts are naturally expanded for the different levels to help strengthen understanding. Learning experiences are suggested for each concept. Evaluations are also included with each objective. This guide may be used in its entirety or selected portions can be chosen.

3. Teaching Nutrition: A Resource Guide for Nutrition Education in the Elementary School, 1974 (Curriculum Guide)
K-6th
New Hampshire Department of Education
State House
Concord, NH 03301
No Charge
A resource guide for nutrition education. It is designed to help integrate nutrition education information within school curriculum. Basic concepts and generalizations are stated and student performances are identified. Participation of school food service managers, the school nurse and other school personnel are necessary for accomplishment of activities. Parental participation is also very important for reinforcement. The material is divided into two units, K-3rd and 4th-6th.

4. Food With Food Facts (Curriculum Guide)
K-3rd
State of Delaware
Department of Public Instruction
Dover, DE 19901
No Charge
A teacher's guide for nutrition education. It is meant to supply some of the resources available for carrying out a good nutrition program. This primary school guide presents an opportunity to involve children in an understanding of nutrition through experiences and activities in the home, school and community.

5. Learning About Nutrition (Curriculum Guide)
Preschool
Illinois State Board of Education
100 North First Street
Springfield, IL 62777
No Charge
A nutrition manual developed to assist day care teachers in their role in instilling positive nutrition habits in children. Each lesson states teaching objectives, activities, teachers' preparation and equipment. Coloring book activities are also included which can be incorporated within any of the lessons.

6. P.A.C. - Nutrition Experience, 1965 (Curriculum Guide)
Preschool
Belleville Public Schools
District #118
Belleville, IL 62220
No Charge
A booklet which is designed to help the classroom teacher introduce good nutrition principles, experiences with major food groups, activities in food preparation and serving methods. Activities are designed to help achieve these goals. Emphasis upon motor skills and language skills are stressed.

7. Try Something New (Curriculum Guide)
9th-12th
New York State College of Human Ecology
c/o Duplicating Services
Ithaca, NY 14850
$3.00
A series of activities and lessons which are directed toward youths between the ages of 9 and 12. Emphasis is placed upon foods that youths prepare and eat and the vitamins they receive everyday. There are 22 lessons available to the teacher, however, it is pointed out that all of these activities need not necessarily be used.

8. A Guide for Financing School Food & Nutrition Services #A200
Author Not Listed
American School Food Service Association
4101 East Iliff Avenue
Denver, CO 80222
$1.00

9. Bibliography of Nutrition and Nutrition Education
Author Not Listed
American School Food Service Association
4101 East Iliff Avenue
Denver, CO 80222
$1.00

TEACHER REFERENCE BOOKS

10. Calories and Weight: The USDA Pocket Guide (AB 362)
Author Not Listed
Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402
$1.00

11. Chronology of Nutrition
Author Not Listed
The Nutrition Education Foundation
888 17th Street, N.W.
Washington, D.C. 20006
$1.00

12. Renaissance of Nutrition Education
Author Not Listed
The Nutrition Education Foundation
888 17th Street, N.W.
Washington, D.C. 20006
$1.00

13. Nutrition Science: Overview of American Genius
Author Not Listed
The Nutrition Education Foundation
888 17th Street, N.W.
Washington, D.C. 20006
No Charge

14. Proceedings of Nutrition Education Conference
Author Not Listed
The Nutrition Education Foundation
888 17th Street, N.W.
Washington, D.C. 20006
No Charge

15. Improvement of Nutritive Quality of Foods, A Policy Statement of the Food and Nutrition Board
Author Not Listed
National Academy of Sciences, 1974
Printing and Publishing Office
2101 Constitution Avenue
Washington, D.C. 20037
No Charge

16. Diet and Coronary Heart Disease
A joint statement of the Food and Nutrition Board and the Council on Foods and Nutrition of the A.M.A.
National Academy of Sciences, 1972
Printing and Publishing Office
2101 Constitution Avenue
Washington, D.C. 20037
No Charge

17. Vegetarian Diets
A statement of the Food and Nutrition Board, prepared by the Committee on Nutritional Misinformation
National Academy of Sciences, 1974
Printing and Publishing Office
2101 Constitution Avenue
Washington, D.C. 20037
No Charge

18. School Lunch Worker other Than Director or Supervisor #A300
Author Not Listed
American School Food Service Association
4101 East Iliff Avenue
Denver, CO 80222
$.50

19. Discovering Vegetables, The Nutrition Education Guidebook for School Food Service Managers and Cooperators, 1975 (16 pp.) Curriculum Guide
Food and Nutrition Service
USDA
Federal Building
Rockville, MD 20782
No Charge
Food service managers and cooperators, such as teachers, are provided with sequential learning experiences for introducing children to vegetables in this guide. These activities may be used as a separate unit or integrated into other areas. Recipes and suggested resource materials are included.

20. Teaching the Young Child Good Eating Habits for Life, 2nd ed., 1971 (37 pp.)
Missouri Home Economics Association
Mrs. Joyce Taylor, Executive Secretary
Route 3, Box 170
Fayette, MO 65248
$2.00
The concise and attractive teaching guide for the preschool and primary grades includes basic concepts, a wide variety of activities and references. Creative activities from many disciplines are suggested such as sensory experiences, music, science, dramatics, and art.

21. National Dairy Council's Nutrition Education Materials, 1979
National Dairy Council
6300 North River Road
Rosemont, IL 60018
One copy free to educators
Posters, games, films, pamphlets, comparison cards, and curriculum guides are some of the many valuable nutrition education resources described in this catalogue.

22. The Very Hungry Caterpillar, and Other Stories About Food (21 pp.)
E. Harris, J. Inverso, and J. Needham, 1975
From Albert E. Bedworth, Associate in Health Education
Division of Health and Drug Education Services
Bureau of Health Education
The State Education Department
55 Elk Street, Room 233
Albany, NY 12234
Single copies free, limited quantities available. One hundred delightful books about food are listed in this annotated bibliography. Book selection was based on ability to stimulate children's interest in nutrition and health. Also included are activity suggestions, adult nutrition references, and classroom resources.

23. Discovering a Pattern for a Balanced Diet, A Puzzle Self-Teaching Kit, by H. Spitze. (7 pp.)
Illinois Teacher
351 Education Building
University of Illinois
Urbana, IL 61801
$1.00
This classroom puzzle activity reinforces basic nutrition facts. It is designed to help students learn to evaluate dietary adequacy.

24. Food is More Than Just Something to Eat (32 pp.)
USDA, HEW, the Grocery Manufacturers of America and the Advertising Council
U.S. Government Printing Office
Pueblo, CO 81009
One copy free
This beautifully illustrated, appealing booklet discusses the major nutrients, nutrient needs at different stages of life, nutrition labeling, the Basic Four Food Groups, processed foods, and sociocultural food traditions. The type is large and the text easily understood. It could be used as a learning aid for grades 6-8.

25. Hamburgers and You by J. Tronc and J. Oppert
Illinois Teacher
351 Education Building
University of Illinois
Urbana, IL 61801
Game Kit: $1.00
A puzzle board, 18 page student booklet and a set of answer sheets make up this self-teaching learning aid. The game kit includes concepts and behavorial objectives. It is designed to help students discover that "we are what we eat."

26. How to Use the Comparison Cards to Learn Which Foods Are Best by J. Tronc and J. Oppert (17 pp.)
Illinois Teacher
351 Education Building
University of Illinois
Urbana, IL 61801
$1.00
This self-teaching kit is designed to introduce students to the Dairy Council Comparison Cards. The kit provides learning activities related to understanding the concept of percentage and translating information on comparison cards to solve specific problems.

27. Humpty Dumpty Was an Egg by J. Ikeda and L. Garcia, 1977
Agricultural Sciences Publications
Division of Agricultural Sciences
University of California
Berkeley, CA 94720
No Charge
Teachers of preschool and early primary children should welcome this booklet. It is full of interest-grabbing, fun activities for teaching children about where food comes from, food function, identification, and preparation methods that include tasting experiences. An excellent annotated resource section of food and nutrition teaching materials and children's books is included along with some snack ideas, recipes, and ways to solicit parent involvement.

28. Nutrition Lesson Plans for the Primary Grades, 1976
Dr. Helen Guthrie
College of Human Development
Pennsylvania State University
University Park, PA 16802
Four color posters 24" x 36"; $1.00 each
Sound, appealing activities for introducing the Four Food Groups to grades K-3 are suggested to teachers on the back of these posters which feature foods assembled as college characters. The clear outlining of teaching objectives and activities should encourage elementary teachers with a minimum nutrition training to tackle nutrition education.

29. Primary Grade Nutrition Kit, 1971
National Livestock and Meat Board
444 Michigan Avenue
Chicago, IL 60611
Review set: 2 pamphlets and 8 pp. teacher's guide; $.40; Kit is $2.00 for 30 copies
This teaching kit provides basic nutrition facts and learning activities for primary grades.

30. The Thing the Professor Forgot by General Mills in cooperation with USDA, 1975. (18 pp.)
From U.S. Government Printing Office
Pueblo, CO 81009
One copy free
Professor Eckwoose uses rhymes and pictures to tell children about the Four Food Groups in this delightful booklet. This booklet could be used as a learning aid by primary school children.

31. Rudy & Iron, 10¢, Susie & Calcium, 10¢, Andy and Vitamin A, 15¢, Cindy & Vitamin C 15¢
University of Missouri & Lincoln University
Cooperative Extension Service - 205 Whitten Hall
Columbia, MO 65211
Cost: 10% discount on 10 or more copies, 20% discount on 1,000 or more copies.
Target audience: K-3; good nutrient concepts worked into simple stories; emphasizes nutrients, their food sources, and family roles.

32. Growth Record
Wisconsin Dairy Council
2805 East Washington Avenue
Madison, WI 43704
Cost: $.05
Chart for recording growth, helpful in relating food to growth and health.

33. Guidelines to Good Health & Other Publications
Kraft, Inc.
Department of Consumer Affairs
Box 4611
Chicago, IL 60677
No Charge

A good handout with concise overview of nutrition: through the life cycle, food groups, RDA's, labeling, menu planning, weight control and physical fitness. (TARGET AUDIENCE 7-12, Adult)

34. Personalized Weight Control
Wisconsin Dairy Council
2805 East Washington Avenue
Madison, WI 53704
Cost $.25
Pamphlet contains tips on behavior modification, diet and cooking, suggestions for eating out, exercise.

35. Just Maybe You Need a Body Job
Wisconsin Dairy Council
2805 East Washington Avenue
Madison, WI 53704
Cost: $.15
Pamphlet offers pointers on dieting, getting more exercise, suggestions for prevention of obesity. May be helpful for parent involvement or teacher or food inservice material.

36. Calories: Food and Activity, 1974 by Jean Bonde
8 1/2" x 11", 3 hole punched flip-charts
Media Services - Printing
B-10 Martha Van Rensselaer Hall
Cornell University
Ithaca, NY 14853
Cost: $1.00 per complete set
-Calories and Food (12 charts to be colored)
-Calories and Activity (5 colored charts)
The flip charts are to be used on a one-to-one or small group teaching basis. They are designed to help the person who wishes to gain or lose weight become aware of possible changes to make in food and exercise habits to help in controlling body weight.

37. Yardsticks for Nutrition, 1974 by Barbara Fry
Educational packet: Nutrition Card Packet and Teaching Guide (Order additional Nutrient Card Packets for large groups.)
Mailing Room, Building #7
Research Park
Cornell University
Ithaca, NY 14853
Cost: Nutrient Card Packet $1.25; Teaching Guide $.25
An educational packet in full color focusing on iron, Vitamin A, Vitamin C and calcium - the nutrients frequently low in U.S. diets. Packets contain 4 nutrient cards with inserts to adapt the resource for many audiences: preschool educators, school-age children, older youth and adults. The 16-page Teacher's Guide explains the use of the packet and describes 10 youth or adult activities.

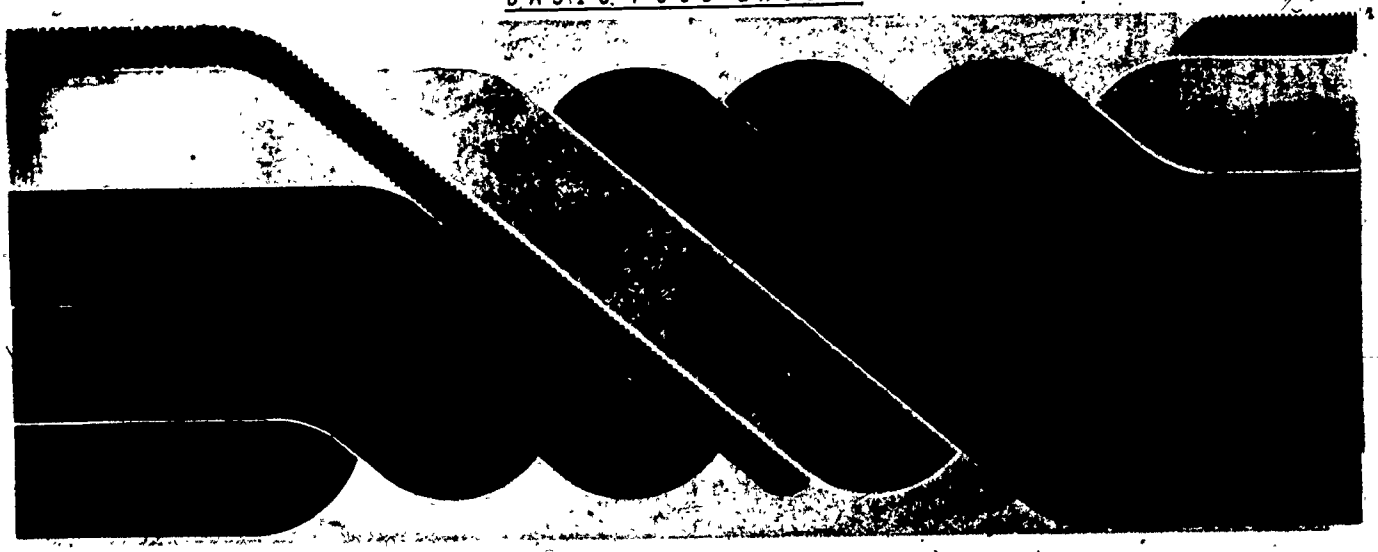
38. Buy and Buy, 1974 by Barbara Fry and Judy Needham
Mailing Room, Building #7
Research Park
Cornell University
Ithaca, NY 14853
Cost: $.55
A Health Education student - centered unit for 9-13 year olds
An activity oriented, student-centered unit for 9-13 year olds focusing on food, a consumer issue. The project facilitates the clarifying of values, understanding of concepts, and internalization of facts within a child's practical world of change, uncertainty, and choice. Additional consumer education, nutrition education and values clarification resources are identified in an annotated bibliography. The unit is designed for a classroom situation, but easily adapted to any youth group.

39. Food - What for? Nutrition for Teenagers, 1968 by Gail Harrison and Ruth Klippstein
Workbook to be used with adolescents and pre-adolescents
Cornell Miscellaneous Bulletin No.94
Mailing Room, Building #7
Research Park
Cornell University
Ithaca, NY 14853
Cost: $.50
This workbook is designed for teachers and leaders who work with adolescents and pre-adolescents. It has a two-fold purpose: first, to provide the teen with sufficient knowledge about nutrition to make sound nutrition decisions when choosing food; and second, to help the teen become aware of the science of nutrition as an exciting and challenging field intimately related to human health and wellbeing.

40. GULP!, 1974 by Martha Mapes
A comic developed for teenagers
Mailing Room, Building #7
Research Park
Cornell University
Itaca, NY 14853
Cost: $.26 per copy
Through an emphasis on the medium (the story which is expressed in the manner of a fantasy comic), GULP! reaches the minds of older youth in a tongue-in-cheek manner. It communicates genuinely, in a way teenagers will accept without skepticism the aspects of nutrition that are of particular interest to the teenager: body image, soft drinks, and fad dieting. Can be used as an individual pick-up piece or for discussion in a group setting.

41. New York State Health Education Curriculum, Nutrition Component, 1970
Media Services - Printing
B-10 Martha Van Rensselaer Hall
Cornell University
Ithaca, NY 14853
Cost: K-6 $1.00; 7-12 $1.00
The Nutrition Curriculum deals with a progression of concepts relevant to the age and comprehension of the child. In conjunction with these concepts, teaching aids and learning activities are suggested and supplementary information for the teacher is given.

BASIC FOOD GROUPS



The food we consume can be categorized into five food groups. These groups of foods work together to make up a complete diet, just as a strong rope is composed of strands that intertwine and support each other. Each of the strands symbolize a food group. Four of these groups--Fruit-Vegetable, Bread-Cereal, Milk-Cheese, and Meat-Poultry--supply the vitamins, minerals, and protein, the nutrients the body needs, as well as calories. The fifth group--Fats-Sweets-Alcohol provides mainly calories and its nutritional contribution is more limited than that of other groups.

Servings and Calories

Lower	In-Between	Higher
1 cup raw vegetable salad without dressing (40)	3/4 cup raw vegetable salad with 1 tablespoon French dressing (95)	1/2 cup potato salad (125)
1/2 cup cooked cabbage (15)	1/2 cup coleslaw (60)	2 rolls stuffed cabbage (260)
1 medium baked potato (95)	2/3 cup mashed potatoes prepared with milk and butter (125)	1/2 cup hashed brown potatoes (170)
1 medium raw apple (80)	1 sweetened baked apple (160)	1/8 of 9-inch apple pie (300)
1/2 cup fresh citrus sections (40)	1/2 cup jellied citrus salad (120)	1/2 cup lemon pudding (145)
1/2 cup cooked green beans (15)	1/2 cup stir-fried green beans (35)	1/2 cup green bean-mushroom casserole (70)
1/2 cup diced fresh pineapple (40)	1/2 cup canned pineapple chunks in natural juice (70)	1/2 cup canned pineapple chunks in heavy sirup (95)

VEGETABLE FRUIT Group

SERVINGS: 4 or more

Important for contribution of Vitamins A and C and fiber. Dark-green and deep-yellow vegetables are good sources of Vitamin A. Dark-green vegetables, if not overcooked, are reliable sources of Vitamin C as well as riboflavin, folacin, iron, and magnesium. Nearly all vegetables and fruits are low in fat and none contains cholesterol.

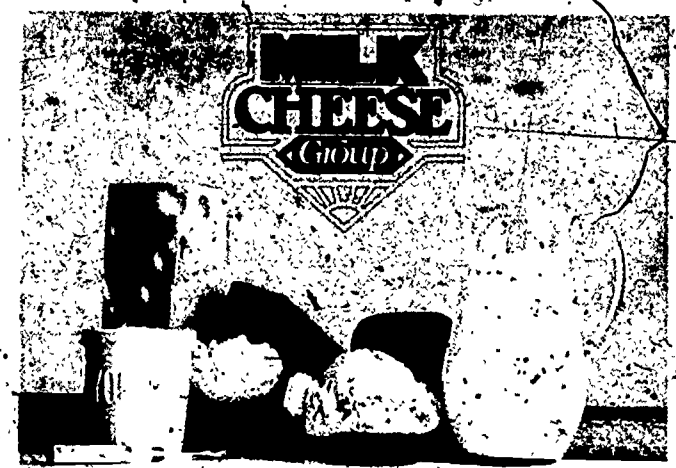
Servings and Calories

Lower	In-Between	Higher
1/2 cup (single dip) ice milk (95)	1/2 cup (single dip) ice cream (135)	1 cup vanilla milkshake (255)
1 oz. Cheddar cheese (115)	1 cup cheese souffle (260)	1 cup macaroni and cheese (430)
8 fl. oz. carton plain lowfat yogurt (145)	8 fl. oz. carton vanilla flavored yogurt (195)	8 fl. oz. carton yogurt with fruit or 2 dips frozen yogurt (225 to 240)

MILK
CHEESE
Group

SERVINGS:
CHILDREN--(under 9) 2-3 servings.
CHILDREN--(9-12) 3 servings
TEENAGERS--4 or more
ADULTS--2 or more

Provide calcium and riboflavin; contribute protein and Vitamins A, B_6, and B_{12}. Also provides Vitamin D, when fortified with this vitamin.



Servings and Calories

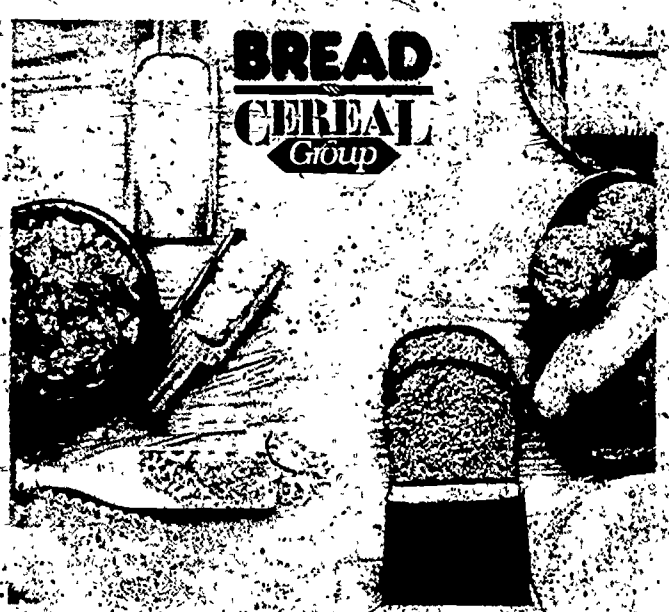
Lower	In-Between	Higher
1 cup plain corn flakes (95)	1 cup sugar-coated corn flakes (155)	1/2 cup crunchy cereal (See recipe p.42) (280 to 290)
1/2 cup steamed or boiled rice (85)	1/2 cup fried rice without meat (185)	1/2 cup rice pudding (235)
1 slice of bread (55 to 70)	1 corn muffin (125)	1 Danish pastry (275)
1/2 cup cooked noodles (100)	6 cheese ravioli with sauce (175)	1 cup lasagna (345)

From: "Food," Home and Garden Bulletin #228, prepared by Science and Education Administration, U.S. Department of Agriculture. Copies may be obtained for $3.50 by writing: U.S. Department of Agriculture, Office of Governmental and Public Affairs, Publications Division, Washington, D.C. 20250

BREAD
CEREAL
Group

SERVINGS:
4 or more

Important sources of B vitamins and iron. Also provides protein as well as magnesium, folacin, and fiber.



Servings and Calories.

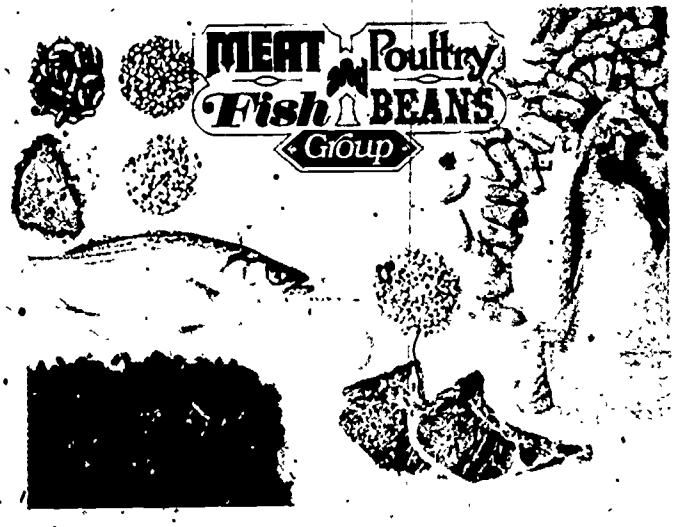
Lower	In-Between	Higher
2 oz. broiled chicken (95)	1/2 fried chicken breast (2-3/4 oz.) or 2 drumsticks (2-1/2 oz.) (160 to 180)	8 oz. individual chicken pot pie (505)
3 oz. lean hamburger (without bun) (185)	3 oz. regular hamburger (without bun) (235)	3-1/2 oz. cheeseburger (without bun) (320)
3 oz. lean roast beef (205)	3 oz. Swiss steak (315)	2/3 cup beef stroganoff over noodles (525)
2-1/2 oz. broiled cod with butter or margarine (120)	2-1/2 oz. fried, breaded ocean perch (160)	2-1/2 oz. baked stuffed fish (1/2 cup bread stuffing) (325)
1/2 cup boiled navy beans (95)	1 cup navy bean soup (170)	1 cup baked navy beans (310)
3 oz. boiled shrimp (100)	3 oz. fried breaded shrimp (190)	1/2 cup shrimp Newburg (285)

MEAT POULTRY and FISH BEANS GROUP

SERVINGS: 2 or more

Provide protein, phosphorus, Vitamin B_6, B_{12}, and other vitamins and minerals. Red meats and oysters--good sources of zinc, liver and egg yolks--good sources of Vitamin A; dry beans, dry peas, soybeans and nuts are worthwhile sources of magnesium.

All meats contain cholesterol which is present in both the lean and fat.



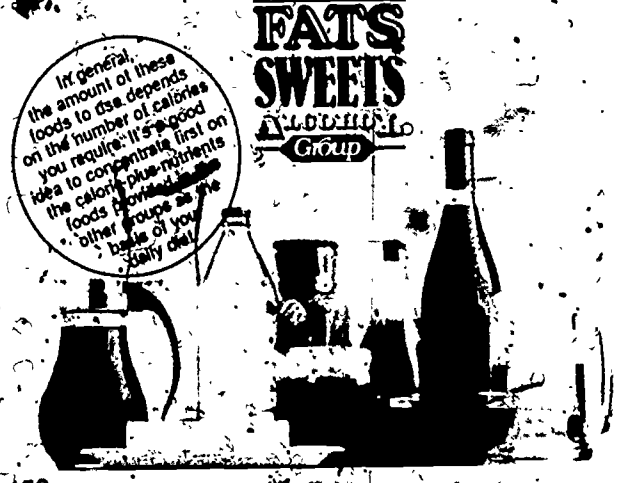
FATS SWEETS ALCOHOL

No serving size is defined because a basic number of servings is not defined for this group.

These products, with some exceptions such as vegetable oils provide mainly calories. Vegetable oils generally supply Vitamin E and essential fatty acids.

Servings and Calories.

Lower	In-Between	Higher
1 teaspoon sugar (15)	2 tablespoons pancake syrup (120)	12 fl. oz. cola (145)
12 fl. oz. light beer or 3-1/2 fl. oz. dry wine (85 to 95)	12 fl. oz. regular beer or 3-1/2 fl. oz. sweet wine (140 to 150)	Tom Collins--1 fl. oz. gin & 6 fl. oz. Tom Collins (195)
3 oz. popsicle (70)	1/2 cup (single dip) sherbert (135)	1.2 oz. milk chocolate candy bar (175)



Appendix VI

NUTRIENT CHART

NUTRIENT	IMPORTANT SOURCES OF NUTRIENT	SOME MAJOR PHYSIOLOGICAL FUNCTIONS
MACRONUTRIENTS		
Protein	Meat, poultry, fish, dried beans and peas, eggs, nuts, cheese, milk	Furnishes amino acids necessary for the building and maintenance of body tissues; provides energy when carbohydrates and fats are lacking.
Carbohydrates	Cereal, cereal products, potatoes, beets, carrots, dried beans, squash, corn, bananas, dates, figs, bread, sugar	Supplies energy so protein can be used for growth and maintenance of body cells, contributes glucose for the brain and central nervous system.
Fat	Shortening, oil, butter, margarine, egg yolks, salad dressing, avocados, olives, nuts	Supplies energy, increases palatability of foods, supplies fatty acids which are essential to the diet.
Water	Water, milk, juices, fruits, vegetables, meats	Helps give structure and form to the body, gives aqueous environment necessary for cell metabolism, provides means for maintaining a stable body temperature.
FAT-SOLUBLE VITAMINS		
Vitamin A (Retinol)	Liver, eggs, dark green and deep yellow vegetables, sweet potatoes, cantaloupe, carrots, squash, butter, margarine	Aids in the prevention of night blindness, controls bone and teeth growth, aids in keeping skin clear and smooth, allows for healthy mucuous membranes and keeps them firm, healthy, and free from infection.
Vitamin D	Vitamin D milk, fish liver oils, eggs, sardines, salmon, tuna, sunshine on skin	Helps absorb calcium from the digestive tract and build calcium and phosphorus into bones and teeth.
Vitamin E	Corn oil, green leafy vegetables, wheat germ, liver, egg yolk, butter, milkfat	Acts as an antioxidant in protecting Vitamin A and unsaturated fatty acids from destruction by oxygen.
WATER-SOLUBLE VITAMINS		
Vitamin C (Ascorbic Acid)	Broccoli, cauliflower, oranges, grapefruits, lemons, limes, papayas, mangoes, stawberries, cantaloupe, tomatoes, green peppers	Makes walls of blood vessels firm, aids in formation of cementing materials that hold body cells together, aids in healing of wounds, broken bones, and possibly helps prevent infection.

NUTRIENT	IMPORTANT SOURCES OF NUTRIENT	SOME MAJOR PHYSIOLOGICAL FUNCTIONS
Thiamine (B_1)	Lean pork, liver, kidney, nuts, wheat germ, whole grain products, fish, poultry, eggs	Aids in the normal functioning of nervous system, plays essential role in digestion and absorption of carbohydrates.
Riboflavin (B_2)	Liver, heart, kidney, milk, cheese, fish, poultry, eggs, dark green vegetables, cottage cheese, dried beans	Enables the cells to better use oxygen, helps keep skin and lips healthy.
Niacin	Peanut butter, meat, poultry, fish, milk, enriched or whole grain breads and cereals, dried beans and peas	Aids in keeping nervous system, skin, mouth, tongue and digestive tract healthy, helps cells use other nutrients.
Vitamin B_6	Beef, liver, pork, ham, soybeans, lima beans, kale, bananas, spinach, avocado, whole grain cereals, potatoes	Lack of this vitamin could result in central nervous system disorders, is necessary for the normal metabolism of proteins.
Folic Acid	Green leafy vegetables, liver, kidney, whole grain cereals, yeast, mushrooms	Aids in the formation of normal blood cells, helps in the function of enzyme and other biochemical systems.
Vitamin B_{12}	Liver, meat, fish, shellfish, kidney, milk, milk products, eggs, poultry, vegetarian diets should include milk or a B_{12} supplement - (if no animal foods are used)	Aids in the formation of normal blood, helps in the maintenance of nerve tissue.
Biotin	Kidney and liver, milk and eggs, molasses, most fresh vegetables, nuts, grains	Regulates the use of carbohydrates and regulates the body in the formation and utilization of fatty acids.
MINERALS		
Calcium	Milk, yogurt, hard cheese, sardines and salmon with bones, collard, kale, mustard, dark green leafy vegetables	Essential in giving strength to bones and teeth, is necessary for clotting of blood, is an important function of normal muscle contraction, assists in response of nerve tissue to stimuli.
Iron	Enriched farina, prune juice, liver, dried beans and peas, red meat, egg yolk	Aids in the formation of hemoglobin which is the red substance in blood responsible for carring oxygen to and carbon dioxide from the cells, aids in the increasing resistance to infection, is involved in enzyme functioning of tissue respiration.
Iodine	Seafoods, iodized salt	Helps regulate the rate at which the body uses energy, aids in the prevention of goiter.

NUTRIENT	IMPORTANT SOURCES OF NUTRIENT	SOME MAJOR PHYSIOLOGICAL FUNCTIONS
Phosphorus	Milk and milk products, meat, poultry, fish, eggs, whole grain cereals, legumes	Helps utilize calcium to provide strong bones and teeth. Many internal activities are regulated by this mineral.
Magnesium	Legumes, whole grain cereals, milk, meat, seafood, nuts, eggs, green vegetables	Aids in carbohydrate regulation and production of energy within the cells, assists in making nerves and muscles work.
Zinc	Meat, liver, eggs, oysters, other seafoods, milk, whole grain cereals, peas, garbanzo beans	Assists in transporting carbon dioxide by the blood and helps to secrete hydrochloric acid in the process of digestion.
Copper	Seafood, meat, eggs, legumes, oysters, cocoa, whole grain cereals, nuts, raisins	Is required for utilizing iron in producing hemoglobin in the blood, is a part of several enzymes that occur in metabolic process.

Reference:

People, Food, and Science, by Patricia Cote, 1972, Ginn and Company.

Laurel's Kitchen, by Laurel Robertson, Carol Flinders, and Bronwen Godfrey, 1976, Nilgiri Press.

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NUTRITION AND YOUR HEALTH
DIETARY GUIDELINES FOR AMERICANS

What should you eat to stay healthy?

Hardly a day goes by without someone trying to answer that question. Newspapers, magazines, books, radio, and television give us a lot of advice about what foods we should or should not eat. Unfortunately, much of this advice is confusing.

Some of this confusion exists because we don't know enough about nutrition to identify an "ideal diet" for each individual. People differ - and their food needs vary depending on age, sex, body size, physical activity, and other conditions such as pregnancy or illness.

In those chronic conditions where diet may be important - heart attacks, high blood pressure, strokes, dental caries, diabetes, and some form of cancer - the roles of specific nutrients have not been defined.

Research does seek to find more precise nutritional requirements and to show better the connections between diet and certain chronic diseases.

But today, what advice should you follow in choosing and preparing the best foods for you and your family?

The guidelines below are suggested for most Americans. They do not apply to people who need special diets because of diseases or conditions that interfere with normal nutrition. These people may require special instruction from trained dietitians, in consultation with their own physicians.

These guidelines are intended for people who are already healthy. No guidelines can guarantee health or well-being. Health depends on many things, including heredity, lifestyle, personality traits, mental health and attitudes, and environment, in addition to diet.

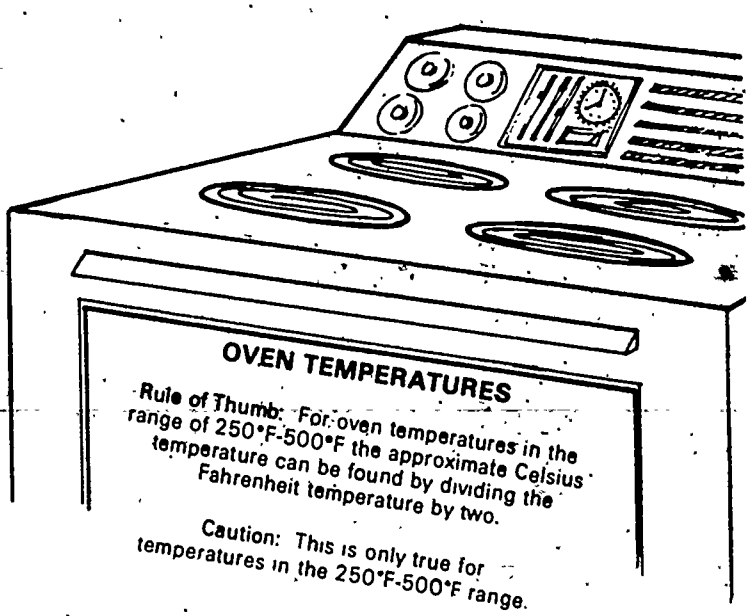
Food alone cannot make you healthy. But good eating habits based on moderation and variety can help keep you healthy and even improve your health.

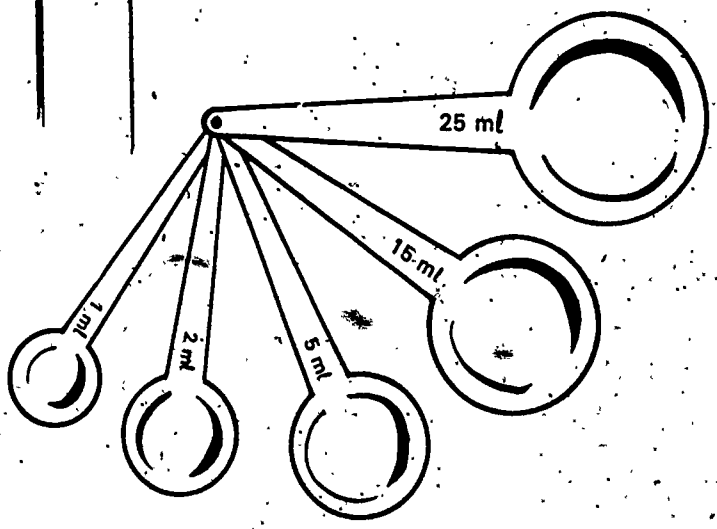
DIETARY GUIDELINES FOR AMERICANS

-Eat a variety of foods
-Maintain ideal weight
-Avoid too much fat, saturated fat, and cholesterol
-Eat foods with adequate starch and fiber
-Avoid too much sugar
-Avoid too much sodium
-If you drink alcohol, do so in moderation

Nutrition Education and Metrics

It should be noted that the metric system is well integrated in nutrition education as seen in the RDA's and nutritional labels that measure in milligrams (mg) and milliliters (ml). Food preparation is another area in which the metric system can be effectively utilized. Typically, the unit of measure for weight is the gram, whereas, the unit of measure for liquids is the liter. By taping the metric equivalents listed below to measuring cups and spoons, the conversion is simplified. Also, in order to facilitate the weighing process for conversion to the gram measurement, the purchase of a scale may be appropriate.





SMALL DRY AND LIQUID MEASUREMENT
(1 ml, 2 ml, 5 ml, 15 ml, 25 ml)

Illinois State Board of Education

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Printed by the Authority of the State of Illinois
July 1981 3M 1-1187B-42