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A Hands-On Nutritional Curriculum for Children Ages Five to Eleven

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A HANDS-ON NUTRITIONAL CURRICULUM
FOR CHILDREN AGES FIVE TO ELEVEN

Teryl L. Fricke, B.S., DTR

An Abstract Presented to the Faculty of the Graduate
School of Lindenwood College in Partial
Fulfillment of the Requirements for the
Degree of Master of Science Health Care Management

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ABSTRACT

This thesis will focus on the development of a nutrition curriculum to be used as a continuing education program at the community college level for children from the ages of five to eleven years.

Research indicates that American children are becoming physically unfit and overweight at an alarming rate. Because this condition seems to be the rule rather than the exception, it becomes important to the future health of our children that they be educated in proper selection of foods and eating habits.

Research also indicates that the health curriculums of local public school districts touch on the nutritional aspects of health in a very limited manner with little or no hands-on experiences for the children.

The purpose of this curriculum development is to provide an inexpensive, fun and educational alternative for parents who have concerns about the nutritional status of their children. The curriculum is planned to provide the children with the knowledge needed to make

good, healthy decisions about what they select to eat in an environment that does not appear to be a school classroom setting.

Two school district curriculums, one from St. Louis County and one from St. Charles County, were researched. Additional research was done through personal conversations with elementary classroom teachers to obtain information regarding areas of nutritional education that are lacking. One major preschool chain was contacted to ascertain if nutrition education was a part of activities planned for the children.

Results of this research produced considerable evidence to suggest that a hands-on curriculum to be taught at the community college level for children ages five to eleven would be well received by parents and add a new approach to community health education.

A HANDS-ON NUTRITIONAL CURRICULUM
FOR CHILDREN AGES FIVE TO ELEVEN

Teryl L. Fricke, B.S., DTR

A Culminating Project Presented to the Faculty of
the Graduate School of Lindenwood College in Partial
Fulfillment of the Requirements for the
Degree of Master of Science Health Care Management

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Preface

It is almost impossible to read the daily newspaper or a current magazine without finding an article dealing with health and nutrition in American society. Articles relating poor eating habits to chronic illnesses such as heart disease and cancer seem to be the rule rather than the exception. Most of these articles are devoted to the health and eating practices of adults. However, the children of our society are just as much at risk for poor health from their nutritional habits as adults.

Children receive the bulk of their nutritional education through the meals that they eat at home. Their second most prevalent source of knowledge comes from the media, primarily television. The third source is through their school health programs. Although each of these sources are valuable resources, they are many times imparting incorrect or limited knowledge that does not transcend to everyday life.

This culminating project is an attempt to close the gaps and to give the children a basis for good nutritional practices that will follow them throughout their lives.

Chapter I
INTRODUCTION

Human Nutrition

Nutrition and the study of the effects that food play on the health and social acceptance of people within our society have intensified within the last twenty years. Food faddism is prevalent with people who make unresearched claims such as pineapple dissolves fat or olive oil will increase life span. Diet books are often on the best seller lists as are cookbooks that claim low fat, low sodium, heart healthy recipes.

Human beings are bombarded with false information and limited research regarding the foods we eat. Humans as social animals gather this information and attempt to make intelligent decisions regarding their health. However, a vast majority of the population does not understand good health practices with eating, and therefore; are limited resources for children to tap when learning about good nutrition.

Traditionally the public school classroom is the avenue for nutrition education for most American

children. This education is limited to the simple teaching of the basic food groups that are now outlined on the food pyramid. Included in this study are the basics regarding sugar and good dental hygiene and the "so-called" junk food lessons. Children are routinely required to cut food examples out of magazines and cut and paste them into collages.

The classroom study of nutrition is limited due to the format that is used. It is only a small part of a total health curriculum that includes the human body, sexuality, safety and first aid, and drugs and alcohol abuse. Given the scope of the health education program it is understandable that only a very limited amount of time can be devoted to the study of nutrition and hands-on activities that are essential when learning about good nutrition.

Another source of food and nutrition education is provided by the school food services through the use of table decorations and lunchroom posters. However, there is rarely if any type of student/teacher interaction regarding the messages that are being displayed. Further educational opportunities are supplied by the school food service through scheduled visits to the classrooms. These visits are typically

accompanied by videos that are commercially supplied by food boards.

The school lunch program has the perfect opportunity for education through the preparation of healthy, nutritious meals. Research suggests that most school lunches are well above the government guidelines of 30 percent fat and fall somewhere within the range of 41-50 percent of calories coming from fat. When questioned about the high fat menus, school food service directors are quick to point out that they are providing what the children will eat, are using the commodities that are supplied by the government, and have limited funds to modify menus to provide a more nutritious meal.

Over the last decade, study of school district menus shows little change in items served. Typical items include hamburgers and French fries, grilled cheese sandwiches, a variation of hamburgers in the form of sloppy joes, pizza and the variation pizza burger, and spaghetti. Vegetables are over-whelmingly corn and peas, and fruits come in the form of applesauce and canned peaches or fruit cocktail.

Local School Districts

The health curriculum of the Francis Howell School District, size 17,000 students, located in St. Charles County, is the location of education in the area of human nutrition. In grades kindergarten through five, the children are taught the health curriculum in the regular classroom setting sometimes as part of science units. The last update of the curriculum was the 1988-1989 school year. Therefore, several areas of health nutrition have changed such as the teaching of the basic four food groups to the teaching of the pyramid. Although the written curriculum has not been updated, all teachers that I spoke to were aware of the change and were teaching appropriately.

From kindergarten to the fourth grade, the basics are taught regarding the food pyramid which is divided into six categories with foods grouped according to importance in the diet, i.e. which foods belong where on the pyramid, how many servings to eat a day, salt and sugar information, and junk food. The curriculum is basic with children developing charts of good foods, cutting out magazine pictures and planning a nutritious meal. At the fifth grade level the curriculum intensifies with discussion of the major nutrients that

our bodies need to grow and the digestive cycle. Diet and overweight also play a major role in nutrition discussion. In all grades, there is no indication the portion sizes are discussed.

The Rockwood School District, 22,000 students, in St. Louis County, teaches its health curriculum during physical education classes. The curriculum was adopted in the 1994-1995 school year making it current with nutrition education changes.

Health education, including nutrition, starts in the first grade with discussion on teeth and foods that cause decay, the pyramid, smart snacks, and the role of advertising in food choices. The first and second grades are merely repeats of the information. However, in the third grade some emphasis is placed on serving sizes and amounts. There is also discussion regarding the lunchroom and healthy choices that can be made. In the fourth and fifth grades, nutrients and their need in the growth process come into play. Activities at all levels include watching television advertisements, constructing charts from magazine pictures and, on the upper level, keeping a food diary.

Kindercare licensed daycare centers do not provide the children with any type of nutrition or food selection education. The centers follow the guidelines

supplied by the state in cooking the daily meals and serving the required portion sizes. The operators of the centers treat mealtimes as just another part of a very busy day. Mealtimes are spent in a frantic hurry to finish at a specific time and get the area cleaned up so that more interesting activity can take place. For the most part, the daycare centers do not consider themselves as teaching centers.

Research Shows...

Research indicates that one in every four American children is overweight. In the age groups six to eleven years, this would constitute approximately four million children. An overweight preschooler has a 25 percent chance of becoming an obese adult. An overweight seven year old has a 40 percent chance of becoming an obese adult (Walther 1). The prevalence of childhood obesity has increased in children five to eleven years of age in the last 20 years by 54 percent (Melin & Frost 187). The American public, in general, has reduced physical activity by 75 percent and increased their dietary fat intake by 31 percent since 1900 (Walther 2).

The implications for the future health of our children and the increased medical costs to treat the

diseases associated with improper nutrition are of great concern for all Americans. A 1987 study by the American Alliance of Health, Physical Recreation and Dance found that 40 percent of children five to eight years of age already exhibited one or more risk factors related to heart disease. These risk factors include diabetes, high blood pressure, and elevated blood cholesterol levels (Pesmen 90).

Closely related to increased weight and poor nutrition is the sedentary lifestyles that many of our children are leading. The Amateur Athletic Union, 1989, surveyed nine million children between the ages of six and seventeen years of age and discovered that approximately 68 percent could not meet minimum standards for strength, flexibility and endurance (91).

Statistics show that obese, inactive children tend to become sedentary adults who run an increased risk of heart disease, stroke, cancer, diabetes, and back problems. Clearly 80 percent of overweight children are still overweight in their teens and early twenties.

The Problem

The fitness craze that has permeated our society has not become part of the lifestyle of the children. Why? Children do not have real role models. There is

still a large group of adults who buy workout clothes and exercise equipment but rarely use them. Also, children do not play outdoors after school anymore. Up to seven million children in the United States are considered latchkey kids who come home to an empty house and have strict instructions to stay in the house until their parents come home. Most of their time is spent watching television or playing video games (90).

The sedentary lifestyle of America's children and the prevalence of fast food restaurants, food advertisements, and an abundance of convenience foods that can be prepared in the home have contributed to the increasing weight problems of the children. According to the Snack Food Association, in 1990 the American population consumed 4.72 billion pounds of snack foods at a cost of \$12.67 billion. Comparison of periodic national surveys of American eating habits suggests that, snack foods, or foods eaten between regular meals are making an increasing contribution to the total food intake among all age groups (Cross, Babicz, & Cushman 1998).

Given these few statistics it seems clear that our children are not receiving adequate information regarding the food they consume and the importance of good nutrition. Clearly, many of their food choices

are left to them alone. Parents are not available to oversee the food they eat in the lunchroom at school, and latchkey children are not monitored after school. Many parents feel an extra guilt when they are unable to be at home for their children after school hours due to the need to work outside the home. In response to this guilt, many parents supply the children with favorite foods and video games.

Although schools have taken on many of the traditional parental roles of our society, i.e. sex education, drug and alcohol education, food and nutrition, the time allotted to the various areas of study is limited. The health curriculums of public education address each area in a limited fashion with as little as one or two classroom sessions per topic per year. Clearly the retention level is limited.

Today's schools are also plagued with major societal issues, and more time is devoted to those areas that are considered inappropriate behaviors by our society. An unequal amount of time is spent discussing cigarette smoking and drugs on the elementary level, and an added emphasis is placed on sex and sexually transmitted diseases on the junior high and high school levels.

The inclination to see the nutritional status of children as a major area of concern in an increasingly problematic society appears, at best, improbable. As long as schools provide lunches, and in many cases breakfast, there is little concern over the nutritional content of those meals. The children are satisfied, the parents are relieved that someone else is preparing the meals, and the schools have met their obligations to government statutes. Furthermore, in a society of plenty there is little concern regarding the effects of overabundance. Overabundance is actually a source of pride for the United States.

Purpose

The purpose of this thesis is to develop a nutritional education curriculum that transcends the traditional information offered in the public school setting for students from the ages of five to eleven years of age. This curriculum will be a hands-on experience in which the students are introduced to the production of various foods, the buying of nutritious foods, learning to understand labels and numbers involved in shopping for foods, and the study of cultural foods from other countries and ethnic communities around the United States.

Implementation

The nutrition curriculum is being developed specifically for use at the community college level of continuing education. Recently, the community colleges in the area have realized the need for children to experience the larger setting of a school experience and have developed the "college for all kids" concept. This curriculum will fit well with other classes that are being offered.

It will be developed with a fun approach, and the children will be only slightly aware that they are being involved in nutrition education. This concept will be influential in getting the parents and the children to sign up for the classes. Hopefully, children will continue their interest as they age progress. Continuing education classes run for a period of eight weeks for approximately two hours at a time. The curriculum will be centered around age groups, and the emphasis will be geared toward the verbal and motor skills that each age level possesses.

The curriculum can also be used as a supplemental approach to nutrition education in public schools as well as daycare centers. Ideally, the courses would be administered by registered dietitians with teaching

background. The days of teaching would be equivalent to field trips to the kitchen, special occasions.

Although this program may not make drastic changes in the obesity problems of American children, it does take a small step in making nutrition education available to those who have an interest in changing the approach and knowledge of children regarding the foods that they eat.

Chapter 2

LITERATURE REVIEW

Area of Investigation

Children throughout the United States who attend public schools and daycare centers are given a limited amount of knowledge regarding nutrition and its effect on their basic health. Daycare centers feed the children according to the guidelines set by federal and state government agencies but provide little or no practical nutrition experiences for the children.

Within the public school system, basic nutrition concepts are provided yearly with several days (2-7) of lessons. However, there is rarely or never any timely reinforcement or practical hands-on lessons. The practical experiences of shopping, buying and cooking are the reinforcements that will aid in the retention of the book material that is presented through the classroom. Hands-on experiences are life skills that will be retained and used throughout a lifetime. It is in the life skills that basic school curriculums are lacking.

History

The nutritional status of children and specifically American children has been a national concern since the early 1900's. Just prior to World War I, the nation saw a movement to develop community nutrition programs to address and correct malnutrition in children. The community activities included education about family and child nutrition. The emphasis was placed on caregivers taking responsibility for the nutritional needs of their children (Obert 10).

In 1917 the first nutritionists or dietitians were employed in the State Departments of Health in New York and Massachusetts. It was also in 1917 that the American Public Health Organization saw a need to provide nutrition education and information to the American public. By 1921 the concern over rickets and malnutrition prompted the American Public Health Association to call for nutrition education in the public schools. Nutrition education was connected to the general health curriculum (10).

The nutrition programs gained increased emphasis with the passage of the Social Security Act of 1935.

Title V of the act called for the employment of nutritionists in maternal and child health programs (10).

During World War II, the country experienced food shortages. Much emphasis was placed on the health of the American worker during times of shortages. A landmark in American nutrition education occurred in 1941 when the first Recommended Dietary Allowances (RDA's) was published. In connection with the RDA's, the basic seven food groups were developed as a teaching tool (10). In 1954, the basic seven was changed to the basic four (meat, milk, vegetables and bread) (Goldstein 52). On the heels of these major nutrition innovations came the mandated law of bread enrichment in a mass effort to increase the consumption of nutrients that were low in the diets of the average American. Additional programs were developed for improving the nutritional status of industrial workers and children in day nurseries (Obert 10).

The most major nutritional program ever developed for children in the United States was enacted in 1946 as the National School Lunch Act. The purpose of the program is stated by the United States Department of Agriculture (USDA) under Food and Nutrition Service,

Part 210-National School Lunch Program, Subpart A-
General as:

It is declared to be the policy of Congress, as a measure of national security, to safe-guard the health and well-being of the Nation's children and to encourage the domestic consumption of nutritious agricultural commodities and other food, by assisting the States, through grants-in-aid and other means, in providing an adequate supply of food and other facilities for the establishment, maintenance, operation and expansion of nonprofit school lunch programs. (National Archives 7)

Clearly, the Congress felt a need to supply food for children to ensure that those who were not receiving regular meals received at least one full meal per day.

The Congress further stated the objectives of the National School Lunch Program as:

Participating schools shall service lunches that are nutritionally adequate, as set forth in these regulations, and shall to the extent practicable, ensure that participating children gain a full under-

standing of the relationship between proper eating and good health (7).

It is here in this declaration that the Congress acknowledges the need for nutrition education for our nations children.

In 1968 the publication of Hunger USA and the television program "Hunger In America" placed emphasis on the poverty factor and its relationship to poor eating habits, malnutrition and obesity. In response to the publication and television program the White House Conference on Food, Nutrition and Health was formed in December, 1969. Approximately 3000 participants from the public, business, and professional sectors discussed the national problems of nutrition (Obert 11).

Many new nutrition programs were funded as a result of the ensuing federal poverty programs. An amendment to the Social Security Act, Title V, resulted in nutrition programs for high-risk mothers and infants called the Maternity and Infant Care Projects. Another program called the Children and Youth Projects was developed for children and adolescents (11).

During the 1970's a direct distribution program called the Supplemental Food Program for Woman, Infants, and Children (WIC) was developed. Under this

program participants with children under the age of five with an income below the specified government amount can receive cereals, milk, breads, and other specified foods from the local grocery stores for free. The mothers are required to attend nutrition education classes as part of the requirements for acceptance to the program. To date the WIC program has been one of the most successful government programs ever developed through social services (11).

In 1977 the Congress provided additional funds for nutrition education through the public schools. The money was to be used for training of school personnel in better skills in teaching nutrition education. This money was given through the Child Nutrition Act under the Nutrition and Education Training Program (12).

The history of concern for the nutritional status and education of Americans regarding healthy eating is long and entrenched in our governmental priorities. Programs have been developed to assure the quality and safety of the food we eat.

In 1985 a shift in government policy occurred with a publication by the National Institutes of Health calling for a reduction of fat and cholesterol in the American diet. This publication reversed the FDA's

long-standing policy disallowing health benefit statements on commercial product labels. In 1990 the federal government updated the laws regarding labeling of food products. Responding to the proliferation of health claims, the labels are now required to list calories from fat (saturated and unsaturated), fiber and cholesterol (Goldstein 68). Today, policies developed for labels and the contents printed on those labels is a major educational tool for all consumers (67).

In 1988 Surgeon General C. Everett Koop issued his publication Report on Nutrition and Health. The report cited over consumption of fat as the nation's greatest nutritional risk and further specified diet as a major component in five of the ten leading causes of deaths among adults (68).

Today, along with the concerns of children who have little food to eat, comes the overwhelming evidence that America's children are becoming increasingly overweight and lack physical fitness. One in four children fit the definition of 20 percent overweight. The United States is a land of plenty and food consumption has increased as quickly as the resources of the country have been discovered. Anthropologists tell us that food often takes on a

symbolic dimension in people's lives (41). Therefore, it is not surprising that food consumption has taken on a social aspect in the lives of Americans.

Early settlers came from Europe where moral connotations were associated with eating. The over consumption of food was associated with the inability to take on the responsibility of work. The Pilgrims brought these notions with them but for some unknown reason did not practice the restraint associated with their religion. It has been noted that as early as the 1800's foreign travelers to the United States often remarked on the abundance, variety and over consumption of food in America (42).

Restricting oneself to a healthy diet was a problem as early as the 1700's. Benjamin Franklin wrote to readers of Poor Richard's Almanac: "Wouldst thou enjoy a long life, healthy body, and a vigorous mind and be acquainted also with the wonderful works of God? Labor in the first place to bring thy appetite into subjection to reason" (42).

Another development that shaped the nutrition movement of the country can be traced to the early 1900's, the desire to be slender. The major motivation in good diet developed not from a desire for good health but the American obsession with attractiveness.

To Americans attractiveness and slender are synonymous (48). This trend has intensified and continues as a major concern for men, woman and children in today's society.

Along with the government and public school system, the food industry plays an influential role in the nutrition education and healthy choices made by both adults and children. Since the 1920's and the governments concentration on the agriculture of the country, the food industry has developed into large conglomerates that dominate much of the healthy food movement of today (52). By the 1980's, the idea that "the foods we consume influences the type of people we are" was a prevalent feeling throughout middle and upper class society (57).

Where does the historical development of food consumption in the United States leave us with regard to nutrition education and the American child? Comprehensive health education (kindergarten through grade 12) is a stated goal of the Healthy People 2000 Report. Nine of the national health objectives stated for the year 2000 are relevant to dietary behaviors among children and adolescents. The objectives stated are:

1. Objective 2.5 calls for reducing the

consumption of foods high in fat among people ages two and older from 36 percent fat of total calories to 30 percent or less.

2. Objective 2.6 calls for increasing consumption of complex carbohydrates and fiber from 2.5 servings per day to five servings. The inclusion of fruits, vegetables and grains in the diet is advised for everyone older than age two.
3. Objectives 1.7 and 2.7 recommend physical activity and balanced dietary intake to achieve appropriate body weight without impairing growth and development among our overweight youth.
4. Objectives 2.8 and 2.9 recommend increased calcium intake and decreased salt and sodium intake among children ages 12 through 24.
5. Objective 2.17 deals with school lunch and breakfast services. The objective calls for these services to be consistent with the nutrition guidelines

of the publication, Dietary Guidelines for Americans.

6. Objective 2.19 recommends that nutrition education be provided from preschool through twelfth grade, preferably as a part of quality school health education.
7. Objective 2.3 singles out children ages 12 through 19 as a special target population for reducing the prevalence of obesity.
8. Objective 13.1 calls for a reduction of dental caries among children ages six through eight and adolescents age 15 (Trowbridge and Collins 40).

The key strategies identified to achieve the goals of Healthy People 2000 include improved access to nutrition information and education. The strategies also call for a strong national program of nutritional research (42).

These recommendations have been incorporated into state education guidelines in approximately 35 states. The other states have some requirements for health and nutrition education but do not comply in full with the

suggested goals and objectives of the Healthy People 2000 Report (Thomas, Long, Zaske 318).

The recommendations have not been incorporated in the rules and guidelines for the operation of daycare and preschool establishments. In 1992 there were 24,361 commercial daycare centers and 161,533 regulated family daycare homes operating under the US Department of Agriculture's Child and Adult Care Food Program (CACFP) (Tuttle and Dewey 282). In addition to the nutrition guidelines developed by the CACFP, each state provides specific guidelines in regard to the number of meals and snacks that must be served daily as well as the serving sizes that are required.

In the state of Missouri the pyramid food groups are used to establish how many servings must be provided for each child according to the time spent in the facility daily. The only component of the meal service guidelines that could be interpreted to be of health and education benefit is the stipulation that all mealtime atmospheres shall be enjoyable and relaxed. No child shall be forced to eat any foods they do not want, and they shall be encouraged to set his/her own pace for completion of the meal (19 CSDR 40-62.202).

Research

A survey conducted in 1991 of elementary school teachers indicated the 71 percent had never taken a course in nutrition, and 87 percent stated they had never attended a workshop on nutrition (318). Of the 708 teachers (30 percent), who responded to the survey, 651 were completed for analytical use (319). The results indicate that the two main sources of nutrition information used to teach the elementary children are materials provided by the Dairy Council and chapters from the basic health textbooks approved by the school districts (319).

A little more than half of the respondents (52.6%) also use television and newspapers as sources for classroom lessons. The source of nutrition information used the least frequently by the respondents was the commodity food organization with 57.6 percent stating that they rarely or never used this source for information (320).

Although the survey indicates that credible sources of nutrition information are used to teach elementary children, the survey also indicates that health professionals are rarely or never used to supplement the curriculum. The survey does not state

whether hands-on lessons are used to reinforce book work.

In 1995, in anticipation of the updated United States Dietary Guidelines, The National Dairy Council developed a survey to be administered by leading health care and nutritional professionals. The survey was to analyze the nutritional needs of children from the ages of two to 18 years. The findings concluded: 1) children's nutritional requirements are different from the adult population and require specific guidelines geared toward their needs; 2) obesity is the most important nutritional issue facing the children of today; 3) American children need more calcium and fiber in their diets; 4) children need more fat in their diets than adults to support their calorie and energy needs for growth; 5) taste is the leading criteria used by adults when making food choices for their children (Nutritional Research Newsletter 4). This survey clearly points out the need for specialization when teaching children about nutrition.

Information currently used for teaching, as stated previously by a survey of teachers, indicates that they use generic teaching tools supplied by the National Dairy Council, television and newspapers, and health textbooks. A cursory overview of the textbook used in

the fifth grade at the Francis Howell School District indicates that the chapter on nutrition is elementary dealing mostly with oral hygiene and good eating habits from the food groups. Specific information about portion sizes, purchasing, and coping with food selections are not a part of the nutrition education.

In 1995 a poll conducted by the Gallup Organization for the International Food Information Council and the American Dietetic Association found that 66 percent of the 400 children who were polled believed that a healthy diet is important. However, they also reported that healthy food does not taste good (Stickel 32).

A survey completed in England, 1993, analyzed the diets of British children. The conclusion of the survey indicated that the children's diets were low in fiber and high in fat with general nutrition having deteriorated since the 1950's. The survey of 250 school children found that 66 percent of the children ate no fruit on the day surveyed, 40 percent ate chips, 75 percent drank at least one soft drink, and 20 percent ate no bread (Ferriman 44). Interviews with American children indicated patterns much the same as

that of the British children. The diet is clearly saturated with fat and empty calories.

Health concepts and cultural beliefs develop early in life. Therefore, experts in child health are recommending that health education begin in early childhood with a growing emphasis on nutrition. However, very little has been done in the way of research to understand how children think about nutrition and its relationship to their health.

In an effort to understand this question, nutritionists surveyed 60 healthy children between the ages of four and seven for a four week period. During this time frame the children were randomly assigned a four week, home-based nutrition education program. The results indicated the children did in fact think of nutrition as a concept related to their good health, and the four week education program increased their appreciation of how their health and good nutrition are related. These results led the authors to conclude that "young children are cognitively ready to learn more about food, nutrition, and health than previously thought..." The authors went further to recommend that "greater efforts be made to educate preschool children

about nutrition and health" (Teaching Nutrition to Kids 4).

A survey conducted by the magazine, Restaurants and Institutions, asked a group of children a simple set of questions that were straightforward and easy for the children to understand. The questions included: 1. What are three foods that you think are good for you? 2. Why do you think they are good for you? 3. Do you eat these foods? 4. Why do you eat these foods, or why don't you eat these foods (Out of the Mouths of Babes A-26).

The survey's initial purpose was to ascertain if all the efforts our schools and children's parents spend teaching children the basics of healthy eating were showing results. The survey is admittedly unscientific. The group of children surveyed was not demographically diverse, and tabulating the results to a conclusion was impossible. However, the survey did show that when it comes to nutrition and the foods the children eat, they have minds of their own (A-96).

In answer to the question regarding three foods that are good for you the children gave such answers as:

1. Foods that are good for you are vegetables, salad and chicken.

People feed the chickens vegetables. The chickens eat the vegetables, and I eat the chickens. It's like a food chain. I heard about the food chain in The Lion King (i.e. a movie from Disney productions). I cook macaroni and cheese. I don't know if it's good for you, but it's easy. I cook it for a break. I can always eat what is good for me.--Mark, age 11

2. Onions, lettuce and potatoes. They're good for you because they're healthy. I eat them because they're healthy, and I like them.--Danny, age 6
3. Spinach. My very, very favorite food because it's good for us. I eat it out of a can. It's good for you because it's a green food, and it's a vegetable. It has vitamin C, plus minerals and vitamin B.--Tori, age 7
4. Milk, because it's white like the clouds and makes your teeth and bones grow. All different foods make one good body.--Sophie, age 6 (A-30).

As can be seen from the responses given by the children, they are able to answer questions about nutrition and have definite opinions about food. They also appear to understand the concept of healthy food or food that is good for you.

The children's responses to food that are not good for you is less clear cut, and their knowledge seems to be limited to foods that they do not particularly like to eat rather than to the foods actually falling into a category of "junk food" such as sweets or potato chips. Some of the responses also indicate information that they have been given by parents or other adults that may show bias and inaccurate information. Examples of these responses are:

1. Chocolate candy is bad for you, but I eat it. Then I feel like a pig.--
Mark, age 11
2. Chicken. I like the meat. Chicken is bad for you, but I like it because it tastes good. It would be better for you if they took the fat off before they cooked it. You can eat too much meat or steak. It makes you sick. I don't like hamburgers, and I don't like meat from a pig

because pigs are dumb. Foods like sausage and bacon.--Tori, age 7

3. Lollipops. They make you weak. They're not good for you, and if you eat too much it can make you sick.--Joaquin, age 4 (A-31)

Each of these answers illustrates feelings that parents or other adults have instilled into the children to keep them from eating too much of specific foods. One child has been made to feel guilty and dirty like "a pig" for liking and eating chocolate. Another has been told that he will become weak and sick if he likes and eats too many lollipops. Another child has been given information regarding the eating of meats that is erroneous. In all instances, the method of teaching about nutrition and moderation has been through negative reinforcement.

A recent publication, The Food You Chews (sic), by Gencare Health Systems contains an article, "Tips On The Care and Feeding of 'Small People.'" This article provides good nutritional concepts for parents to use when feeding their children. However, it too uses the negative approach to teaching the children appropriate foods to eat.

Advice includes saying to a child, "I don't want you to eat such-and-such food because it has too much sugar and too much sugar isn't good for you (22)." Although this statement appears harmless, it does not take into consideration that fact that children take information that is given them very literally. Basic interpretation would be "sugar is bad" without any recognition of the limiting words "too much."

Other advice includes reacting to television commercials that advertise foods with disgust and comparing cat and dog food commercials to people-food commercials pointing out that pet foods always talk about good nutrition but people-food commercials do not. Of the eleven practical ideas related for parent use, six of the ideas start with the words don't. Most people, including children, respond poorly to negative approaches to learning.

Expanding on the limitations of children to understand complex word structures can be seen in a research study from the Journal of the American Dietetic Association, October, 1993, regarding preschoolers reporting of food habits. The survey was conducted using 30 children between the ages of two years eleven months to five years six months. The

children were recruited from four preschools in a small university community (Hertzler, Bowens and Hill 1159).

The interviewers used observation of actual mealtimes to ascertain what foods the children consumed and documented the findings for each individual child. The observation was done at a distance so the researcher's presence would not be felt by the children. The third step was to interview the children regarding their individual food choices. The interviews took less than 20 minutes due to the limited ability of small children to remain interested and focused on the subject (1159).

Several findings became evident regarding the recognition of foods: 1) Children could name the foods served daily but often confused foods of same colors (e.g., green beans called broccoli; orange sections called carrots); 2) Children often cannot recognize the same foods when they are prepared in different forms; 3) Single foods are more likely to be recalled than mixtures (e.g., spaghetti is named for spaghetti and meatballs; pizza named singularly for all types--pepperoni, cheese, etc.); 4) By the age of four the children could recall at least two foods they had eaten without prompting and 91 percent of the foods with prompting. Color prompts were the most useful (1160).

The study clearly shows that very young children are aware of the food they eat and can be taught even starting at this early age the appropriate foods to eat for good health.

Another study done with 1797 elementary students in the New York public schools found that the children ate an average of 12 different foods daily and that more than one third of the students ate four or more low nutrient-dense snack foods daily. Furthermore, almost half of the students did not eat foods from all food groups daily (Wolfe and Campbell 1283).

Television is another major influence on children and the foods they choose for consumption. Research conducted on children's Saturday morning television programming found that after screening 52.5 hours of children's television, there were 997 commercials selling products of which 56.5 percent were for food. On the average of the 19 commercial advertisements per hour, 11 were for food. These figures equate to an average of one food commercial every five minutes (Kotz and Story 1297).

The foods advertised fell into the following categories: 1) 43.6 percent for foods classified in the oil, fats and sweet foods group; 2) 37.5 percent for foods in the bread, cereal, rice and pasta group

(23 percent were for high-sugar cereals); 3) Fourteen advertisements were for combination meals--seven for breakfast and seven for lunch and dinner. Fast food restaurants accounted for 11 percent of the combination advertisements (1298).

Conclusion

The author concludes that the children of the United States are receiving the majority of their nutritional information from biased information with the primary intent of making a financial profit. The public education system of most states calls for a nutritional component in the health curriculum. The time spent on nutrition education is minimal with the teachers stating that they have had no formal nutrition courses. They rely on information gathered from textbooks (many of which are outdated). Many use information supplied by local agencies that print educational materials but which also carry messages for their own products.

A study conducted in 1994 regarding the development of a food-safety curriculum for second and third grade students concluded with an overall statement of feeling by the teachers involved with the research that they would prefer, if given the option,

to have the curriculum taught by personnel trained in the area of nutritional health. They further stated a reluctance to have the program integrated into the regular curriculum stating their lack of science background in the area of nutrition (Pivarnik, Patnoad and Giddings 868).

In regards to preschool children, teachers do little more than coax the children to eat so that they may resume other tasks that must be accomplished throughout the day. However studies have confirmed that poor nutritional habits developed early in life are continued for the most part throughout a person's lifetime. Furthermore, the increase in many chronic diseases such as heart disease, high blood pressure, obesity, dental decay and infections can be related to poor nutritional habits.

Children are receiving the majority of their nutritional information from television commercials and adults who have little or no knowledge of correct nutritional information. The media provides research information in small blurbs that emphasis only a small part of the findings, and consumers are following this information in hopes of seeking a longer life and better health only to find the studies are flawed or inconclusive.

Teachers admit that they are asked to teach in areas where they have little or no training and that they rely on any materials that they can find to assist them. They also state that health teaching is a low priority in most schools and therefore is often skipped or poorly done (Hausman and Ruzek 82). Also, the health curriculums emphasize major problem areas such as teen pregnancy, smoking, drinking and drugs. Nutritional information is not looked upon as life threatening but simply as a function of everyday, normal survival.

A simple program of hands-on study of nutrition that is fun and practical as well as visual can give children some important information that can be carried into their adults lives. This information, if provided in separate lessons away from the traditional classroom setting, can promote a healthier lifestyle for the children today and in the future. The children can also pass what they learn on to the significant adults in their lives, and possibly make them think of the necessity of good nutrition and health.

Children enjoy learning, especially when they do not perceive it as learning. Providing a simple nutrition curriculum can give the parents another

avenue to use to teach their children good habits at a young age.

Chapter III
Nutrition Education Curriculum
For Children
Age 5 Years Through 11 Years

Philosophy

By the time that young children enter school, they have been thoroughly indoctrinated by their parents, siblings, relatives and peers regarding the foods they eat and the reasons that they should eat them. The torch of educating children about health and wellness is then passed on to their respective schools. Within these schools the health curriculum is decided by the major issues of the day, those issues that are viewed as most damaging to society as a whole. Current health education focuses on drugs and alcohol, violence, and pregnancy.

Reliable studies indicate that children are receiving information from many sources other than family and school. These sources include television and printed media which view the importance of healthy nutrition through the eyes of executives who wish to

make as much money as possible. In order for the money goal to be achieved, foods that are made available to children must taste "good" and be easy and quick to prepare. The marketers must also gear their products toward the working parents who have little time to take eating as a serious commitment to better health.

With these modern attitudes and easy availability of food products outside of the home environment, the United States has seen an increase in the number of chronic illnesses that can be attributed to a too fatty diet that is high in sodium and cholesterol. We have also seen an increase in the number of obese and overweight people, including children, a condition that leads to heart disease, arthritis, joint and back pain, and shortness of breathe.

Related to the correctness of information that children receive from their family and peers is the problem that most everyone feels that he/she knows something about food. As generations grow information is passed down through many generation and cultures. When the information is erroneous, children are unable to make appropriate choices from the foods offered to them.

Children grow physically and cognitively into an understanding of the world they live in and the foods

they eat. Many of the concepts that they learn before the age of six years never change later in life. Therefore, it is the philosophy of this curriculum that children must learn through visual, hands-on activities regarding food and nutrition in order for them to overcome the misinformation that has been provided to them. They must also comprehend when they are receiving incorrect information and correct it, if possible, by making better choices.

A copy of the proposed curriculum was shared with elementary teachers, parents and preschool workers for input and changes that they felt would help to achieve the philosophical goal of the project. Corrections and additions were made accordingly.

The following is the actual curriculum with goals and objectives, materials and costs, and suggested brochure advertising for use at the community college level.

A Hands-On Eight Week Course Of
Nutrition Education for Children
Ages 5 years through 11 years

Goal

To provide the skills needed to attain awareness of nutritional health in terms of the immediate environment of family, school and neighborhood.

Objective

To provide the skills needed to achieve the goal in an affordable and fun manner with hands-on experiences. To avoid the traditional classroom type of activities and at the same time providing useful and life spanning information as well as correcting current misconceptions.

Related to the objective is the need to understand that family provides for the basic needs of the child and that economics and cultures affect the family decisions. The children must develop confidence and competence in decision making based upon an understanding of their history and a responsibility to self and society.

Skills

Nutrition Education

Ages 5 years through 11 years

Skills

A constituent part of the nutrition curriculum is the demonstration of skills. The process of training starts with the introduction of a skill through planned activities and reteaching when necessary.

Helping the children to develop and use the skills effectively is the central purpose of the curriculum and the instruction. Without an adequate command of the skills, it is doubtful that the children will develop the habits necessary to repeat appropriate behaviors the constitute the ultimate goals of the curriculum.

1. Comprehend the connection between good health and good nutrition (ages 5-11).
2. Comprehend the importance of balance in the diet (ages 5-11).
3. Comprehend dietary components of water, minerals, vitamins, fats, protein, fiber and carbohydrates (ages 5-11).
4. Comprehend the impact of media, technology and

other influences on good health and nutrition (ages 5-11).

5. Comprehend the differences in culture and family history regarding family health (ages 9-11).
6. Comprehend the concept of all foods in moderation have nutritional value (ages 5-11).
7. Demonstrate the asking of questions pertinent to selecting nutritious foods (ages 5-11).
8. Demonstrate the similarities and differences in ethnic foods (ages 9-11).
9. Demonstrate an understanding of food label information (ages 9-11).

The Student Will:

Learn about the foods they eat
and how to make better choices

Facilitating ActivitiesResource Materials

1. Observe and discuss FAT in the diet

Greasy Kid Stuff

1. Brown Paper Bag, Lay flat. Place foods on bag
Determine fatty foods
Retain bag for next class
Hold dried bag to light
The more transparent stain
the greasier the food

Butter, Cheese
Banana, Apple, Nuts
Potato Chips, etc.

2. Fry 3 ounce hamburger
Broil 3 ounce hamburger
Measure the fat drippings

1/2# hamburger

2. Observe and discuss GRAINS in the diet

Loafing Around

1. Yeast, making bread rise
Mix 1/2 yeast pack with 1/2
cup very warm water
Mix 1/2 yeast pack and 1
tablespoon sugar with
1/2 cup warm water
Set glasses in warm spot and
watch for 10-15 minutes

Drinking glasses,
spoons, yeast,
sugar, water

2. Make white bread dough
(recipe attached)
Children shape dough
into snails and

Oven, yeast, water
bowls, spoons,
sugar, butter, salt
milk, flour, cookie

sprinkle with
cinnamon
Bake 375, 15 minutes

sheets, wax paper

3. Observe and discuss FRUITS and VEGETABLES in the diet.

Smiling Salads

1. Assemble per diagrams or each child's preference

	Cottage cheese, pineapple, nuts, cherries, carrots, chow mein noodles, kiwi, cucumbers, English muffins, coconut, etc.
--	--

2. New Zealand kiwi in a cup. Cut kiwi in half. Place in cup. Drizzle with honey
Spoon eat

	3 oz. paper cups, kiwi, honey, spoons
--	--

4. Observe and discuss SUGAR and SNACK foods in the diet.
 1. Construction of a cereal/sugar spoon chart

	Plastic spoons, poster board, variety cereal boxes, twist ties, colorful markers
--	---

 2. Prepare homemade marsh-mellow (recipe attached)

	Mixing bowl, square baking pan, sauce pan, spoons, measuring utensils, recipe ingredients
--	---

 3. Prepare rice cake s'mores. Assemble as per diagram. Microwave for 18-20 seconds and cool for 30 to 60 seconds

	Plain rice cakes peanut butter, Hershey bars, home-made marshmallow, paper plates, microwave oven
--	---

5. Demonstrate understanding of previous lessons and their relationship to the food pyramid.
 1. Fruits, vegetables, grains from other countries Star fruit, ugly fruit, jicama, plantains, papaya, bok choy, ramein noodles, mango, couscous, others of choice
 2. Where do these foods go? Children to make party platters Potato chips, corn chips, raisins, peanuts, macaroni and cheese, pizza, salsa, dips, etc.
6. Observe and discuss FOOD LABELS and the information contained in the nutrition section.
 1. Ice cream or additives discussing foods processing pure ice cream vs. ice cream with additives, hot dogs, bacon, etc.
 2. Pizza rounds-Let's add it all up! English muffins, cheese, pizza sauce, oven, cookie sheet
 3. Sad "Happy Meal" The snare of the toy nutrition fact sheets from fast food restaurants, a child's meal
7. Observe and discuss the effect of different cultures, nationalities and religion on our food selection.
 1. International sandwich spread prepared by children recipes and supplies attached

8. Discuss and review the nutrition information learned during the previous seven classes. Discuss exercise as an important part of good nutrition.

1. Couch potatoes
Spuds are good
for you!

baked potatoes,
broccoli, lowfat
sour cream, plain
yogurt, corn,
salsa, chili, etc.



Good White Bread Recipe

1 package of active dry yeast
1/2 cup very warm water (100-115 degrees)
2 tablespoons of white sugar
4 tablespoons (1/2 stick) melted butter
1 1/2 cups warm milk
1 tablespoon of salt
5 to 6 cups unbleached flour

In a small bowl, combine yeast and water. Stir well.

When yeast is mostly dissolved, add sugar and allow mixture to sit ten minutes. This is called "proofing," and it will bubble and foam. If it does not bubble and foam, the water is too hot.

While the mixture is proofing, melt butter and add it to warm milk and salt. Stir slightly.

Begin adding flour to the butter/milk mixture. Start by adding 3 cups of flour and stirring with a wooden spoon.

Add yeast mixture to butter/milk/flour mixture.

Gradually add 2 or 3 more cups of flour and stir. You will know you have used enough flour when the dough pulls away from the sides of the bowl.

Turn dough out onto a floured board and knead for about 5-10 minutes. Put dough in a buttered bowl and cover with plastic wrap.

Let the dough rise until it is twice its original size. Punch it down and knead for several minutes.

Shape into snail shapes or other shapes. Sprinkle with cinnamon and bake in a 375 degree oven about 15 minutes or until golden brown.

Homemade Marshmallow

2 envelopes of unflavored gelatin
1/3 cup cold water
1/2 cup sugar
2/3 cup light corn syrup
1 teaspoon of vanilla extract
1/4 cup confectioners sugar combined with 1/4
cup cornstarch

1. Combine gelatin and water in a small saucepan. Let mixture stand about five minutes until firm.
2. Place pan in a pan of hot water and stir until gelatin is completely dissolved (liquid will be clear and look like syrup).
3. Add sugar and stir until sugar is dissolved.
4. Pour mixture into a mixing bowl. Add corn syrup and vanilla. Beat on high for 15 minutes until light and fluffy.
5. Lightly oil 8 X 8 X 2 pan and sprinkle with 1/2 of the confectioners' sugar.
6. Pour marshmallow mixture into pan and allow to cool in refrigerator.
7. Sprinkle the rest of the confectioners sugar onto cooled marshmallow. Cut into squares.

International Sandwich Spread

A Sandwich Party Honoring

Earl of Sandwich (1762)

- French: brie cheese, tomato slice, lettuce on a baguette
- Norwegian: smoked salmon and scrambled egg on pumpernickel bread
- American: peanut butter and grape jelly on white bread
- European: nutrella chocolate spread on white bread
- Greek: lamb, cucumber, tomato and plain yogurt on pita bread
- Italian: Genoa salami, provolone cheese, tomato, lettuce and olive oil on a hard roll
- Russian: chopped hard-cooked egg and sausage on a hard roll
- Swiss: grilled Swiss cheese
- Canadian: Canadian bacon, lettuce and tomato on a soft roll
- African: peanut butter and honey on a soft roll
- German: German sausage and mustard on pumpernickel bread
- Indian: chicken salad with curry powder on flat bread (pita acceptable)
- Mexican: avocado and sliced ham on a hard roll

The Student will through the completion of 8 sessions of activities:

1. Observe for a purpose
2. Ask questions
3. Participate in free exploration
4. Role play by relating personal experiences
5. Become familiar with food and nutrition identification
6. Manipulate materials into order and sequence
7. Use the senses to acquire information
8. Listen for a purpose and task completion
9. Demonstrate material retention

Activity Distribution by Age

Activity	Children's Ages			
	5-6	7-8	9-10	11
1	1,2	1,2	1,2	1,2
2	1,2 modify kneading	1,2 modify kneading	1,2 microscope 1	1,2
3	1,2	1,2	1,2	1,2
4	1,2 3	1,2 3	1,2 3	1,2 3
5	1,2	1,2	1,2	1,2
6	2,3	2,3	1,2 3	1,2 3
7	1	1	1	1
8	1	1	1	1

Brochure Information

Cooking for Good Health

Learn the basics of good health and nutrition and create many fun and easy recipes. Learn how to make good food choices and still eat all your favorite foods. Loads of fun and you will learn something too!

Ages 5 to 11 years. Limited to ten children per class. Classes last 2 1/2 hours each.

Cost: \$20

Supplies: \$20

Total: \$40 per eight week session

Reference Resources

Diet and Nutrition by Brian F. Ward, 1987.

Fast-Fixin' Kids' Recipes by Better Homes and Gardens, 1988.

Food and the Kitchen by The Smithsonian Institution, 1993.

Kids' Multicultural Cookbook by Deanna F. Cook, 1995.

Kitchen Fun for Kids by Michael Jacobson, PhD. and Laura Hill, R.D., 1991.

Rainy Day Cooking: Hands-On Projects by Denny Robson and Vanessa Bailey, 1993.

Various Nutritional Fact Sheets provided by Fast Food Restaurants.

Chapter IV

Results

The curriculum was reviewed and several suggestions for improvement were made. A specific questionnaire was not used to elicit the information because the evaluators were seasoned educators. Two evaluators were preschool educators. Five evaluators were elementary school educators.

The evaluators (4) questioned the possibility of completing several assignments within the given time period of 2 1/2 hours per session. The recipe for white bread dough was used as an example. To compensate for the time constraints the teacher of the curriculum would need to prepare some dough before class and proof it before class started so that this dough could be used for the making of the cinnamon snails.

The dough made by the children would be taken home to bake in their own ovens with a parents help. This method would allow the children to share their product with their families and possibly pass on the

nutrition information that they had learned during the class session.

The same method of preparation would be used with the marshmallow recipe. However, the marshmallow that the children made could go home as a finished project for sharing with the family. Again the children could use the opportunity of sharing to pass on the lessons learned during the classroom session.

Three evaluators asked what would be the method used to ascertain retention of the material. Tests were suggested as well as homework that would be turned in at the next classroom session. These suggestions were disregarded specifically because they are traditional classroom exercises and would change the entire approach of the curriculum as supplemental to traditional curriculum. The curriculum is designed to be entirely hands-on and presented in a fun and "non-school" approach.

All evaluators stated that they had little if no education in nutrition other than those elements provided to them during the process of developing and teaching health within their classrooms. Four of the five elementary teachers have never taught a health class per se. One teacher had previously taught

physical education, and it was here that the teacher encountered limited nutrition education.

Although the concepts of testing and homework were rejected, paper crosswords, pyramid charts, pictures to color and recipes pertaining to the lessons are part of the materials to be given to students to use on their own for fun. The materials will be given as a means of reinforcement.

The purpose of the curriculum is to provide information that can be retained and used in every day life. It is also meant to provide a fun approach to a tedious subject. The design of the curriculum is to be used, overall, at the community college level in classes usually entitled "Kids Go To College." The class structure covers an eight week period.

Actual evaluation of the curriculum comes from the students themselves. Their enjoyment or boredom will show by their attendance and attitude during the classroom sessions. The last two sessions of the curriculum are specifically designed to ascertain the amount of retention of the students and to reinforce the six previous lessons. At this time the teacher will be able to discover the areas of weakness in the curriculum and make changes for further sessions.

Another test of the curriculum and student enjoyment is "word-of-mouth" referral and continued interest and sign-up for new sessions. Recurring interest is needed to justify the curriculum's existence and the expenses incurred in teaching the courses. The lack of response by new students would indicate that previous students and their families did not find value in the money they spent. Therefore, they did not relate to others the "good" experiences that they had cooking and learning about nutrition.

The teacher must provide self-evaluation of his/her performance in order to make changes or enhance the learning experience. An evaluation form for this process has been developed and is attached. This type of evaluation form is used often in the educational setting. It should be noted that the form is only as good as the teacher is honest regarding his/her performance.

Overall, this curriculum has been developed for those few children who show an additional interest in health and nutrition over what is taught within the traditional classroom. The process of delivering this curriculum through cooking is a natural medium because historically children love to "help" in the kitchen.

Teacher Self-Evaluation

Scale: 5 high to 1 low

1. Provided a classroom of acceptance and trust
5 4 3 2 1
2. Provided an atmosphere of fun and creativity
5 4 3 2 1
3. Achieved motivation of the students
5 4 3 2 1
4. Utilized a variety of activities and learning
styles
5 4 3 2 1
5. Aware of student concerns and fears
5 4 3 2 1
6. Allowed for student input into activities and
learning styles
5 4 3 2 1
7. Provided quality activities and instruction for
dollars spent
5 4 3 2 1

Chapter V

Summary

Evaluation

The final curriculum with handouts and explanations of methods and time frames used to complete the skill tasks associated with the topics of each session were examined by seven teachers. These teachers were involved in the initial evaluation of the curriculum and their suggests were incorporated into the final project. Those suggestions not used in the final project preparation were described and their limitations discussed. Each of the teachers saw some interesting possibilities for the curriculum that were not initially conceived as part of original thought. One teacher stated that various segments of the curriculum could be used in hospital settings where children would be housed on a long term basis. The lessons and activities could be used to lessen the boredom of long term care. The lessons could also be used in situations where children have excessive

weight problems and are being treated for the condition.

Another evaluator added to the scenario by suggesting use for patients with anorexia and bulimia. This suggestion was rejected because of the nature of the conditions which are psychological and have little or nothing to do with understanding cooking of foods or understanding of nutrition components of the diet.

Handouts that were to be given to the students to work on in their own time were looked at and discussed. They were found to be appropriate for each age group and good reinforcement tools. However, there was still a reluctance by the evaluators to release the idea of testing for retention. Understanding of the goal of the curriculum as a "fun" supplement to traditional learning techniques did not register with the evaluators. They appeared to be set in the traditional mechanisms and results afforded to American education principles and procedures.

Overall the curriculum was accepted as useful and productive with potential for educating a limited amount of students (8 to 12 per class) in proper food selection and nutrition knowledge. The drawbacks would

appear to be in philosophy rather than lack of merit to the curriculum.

The Problem Solved?

The problem as stated in Chapter II is multifaceted. In our society more children are becoming overweight and sedentary. They are consuming foods that are higher in fat and cholesterol. These facts put American children at risk for health problems as they age and become adults. Heart disease, cancer, diabetes, high cholesterol, high blood pressure and joint and back pain can be linked to obesity, lack of exercise, and over consumption of high fat foods.

Nutrition is one of the special risk areas identified by the Healthy People 2000 Report as needing early attention. Ensuring good nutritional habits in children is important as a preventive measure. The report states:

Today's most prevalent nutritional problems are overeating and ill-advised food choices. Obesity--a risk factor for hypertension, heart disease, and diabetes--frequently begins during childhood. About one-third of today's obese adults were over-

weight as children, An obese child is at least three times more likely than another to be an obese adult. Because obesity is more difficult to correct in adulthood, major preventive efforts are best directed toward children and adolescents...Another cause of concern is the diet of a large proportion of today's children--containing considerably more fat and sugar than a reasonable diet should have...Limiting fat consumption by children may reduce blood fat levels and, thus, a risk factor for heart disease. (Obert 302)

The potential for increased chronic illness in our population due to overweight and sedentary lifestyles presents a monetary problem for the entire population. With increased chronic illness comes higher insurance rates. The results also include stricter guidelines for medications, doctor's visits and hospital usage.

Linked to the increases are the rising costs of the benefits that employers provide to their work forces. As the costs rise, they will be forced to cut the benefits back and reduce the percentage of coverage that they can provide to the employees.

Another facet of the problem lies with the health teaching systems of our public schools. As stated, the majority of health curriculums deal with those areas of health that are perceived by society to be of greatest immediate personal danger to our children. Very little media coverage is given to the issues of childhood obesity. Health coverage of weight problems and the chronic illnesses that can be related to poor nutritional habits are often reported in the news. However, these the reports are rarely about children's nutritional health.

The lack of concern regarding children's nutritional status, other than those children who are starving and poor, transcends to the classroom. School districts respond to the health areas of major concern. These are usually areas that are well publicized. Money is devoted to the areas, and current classroom health curriculums reflect the societal fears of drugs and alcohol as areas of major need.

The simple eight-week curriculum that has been developed addresses that lack of nutrition education that is available in the public school health curriculums. It gives the children who attend the sessions some hands-on experience in cooking and in the process imparts nutrition knowledge in a subtle manner.

A correct classification for the type of curriculum that has been developed is "community nutrition," one that recognizes the need for some type of intervention that goes beyond the traditional scope of education in our society. The curriculum's goal was never to "cure" the children from eating the wrong foods. It was never designed to make sweeping social change or to reach a large number of children.

The direct purpose of any nutritional education is a change in food practices. The important intermediate and final changes should include:

1. changes in food practices as in foods consumed and the way food is selected and prepared;
2. changes in knowledge about food and nutrition;
3. changes in attitudes, specifically in what an individual feels and thinks about nutrition;
4. changes in how the individual perceives nutritional health as shown by objective comments such as, "I like to eat salad" or "I started eating a good breakfast."

(Obert 300)

Changes in knowledge about nutrition and food are the keystone of the problem. These changes are measured with the recognition that knowledge does not always correlate with practice. Similarly, changes in attitude are frequently shown by the individual commenting on a new realization of the importance of nutrition. This could include small statements in the negative or positive about their favorite cereal or some fast food they frequently eat.

Whatever changes take place in the children after the use of the curriculum have yet to be determined. Ultimately, all the changes must be satisfying for the individual child. The changes must be seen or felt. Community nutrition education is inexact and should be evaluated by the best practical methods available to the instructor. The instructor should realize that most efforts will have some degree of success while some participants will appear unchanged.

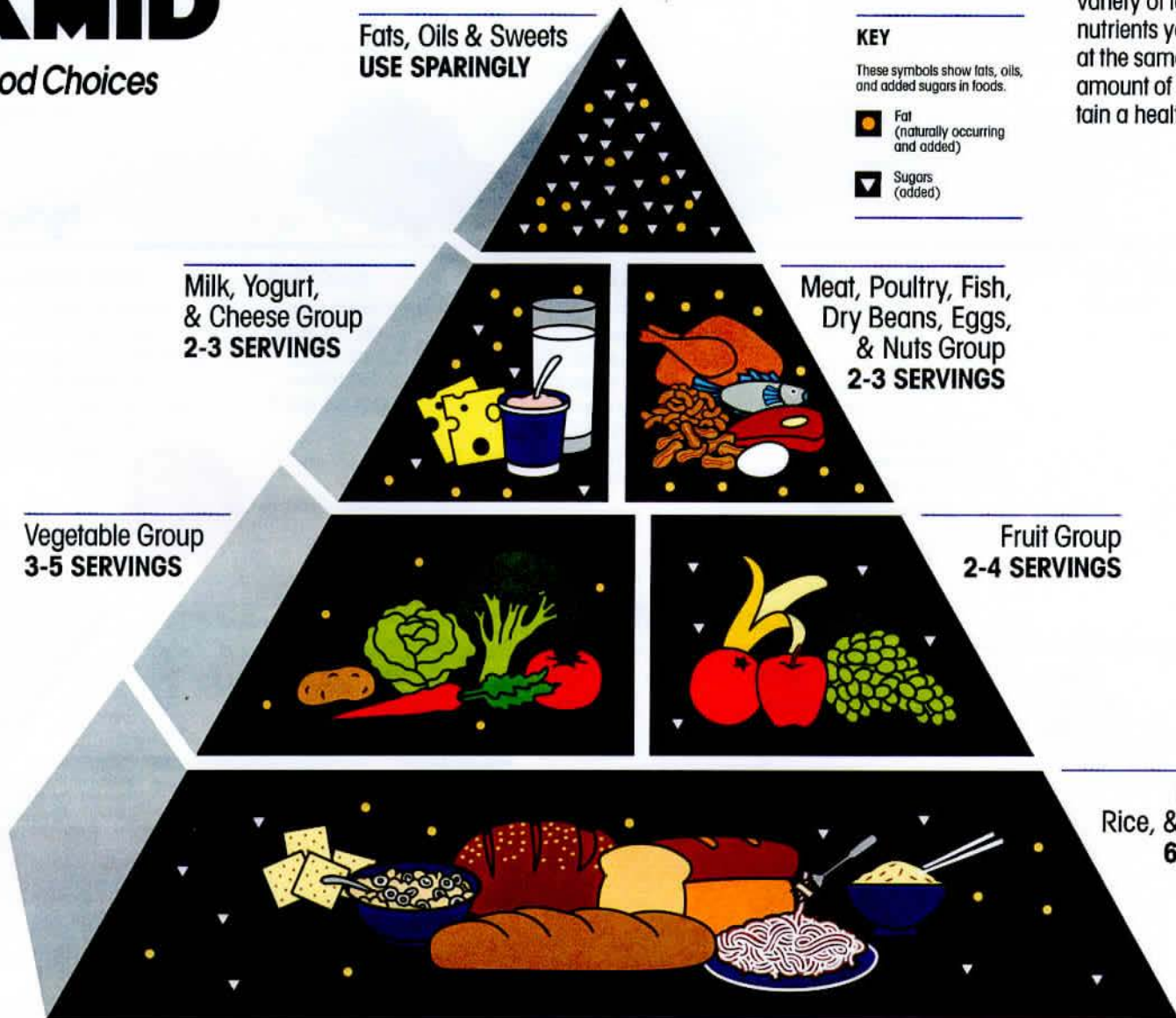
This curriculum attempts to provide the changes that are necessary for the child to understand and incorporate good nutritional habits in his/her life. It attempts to achieve this goal in a fun and non-threatening atmosphere. It attempts to achieve the goal without appearing to be traditional "school."

However, a statement of solving the problem of obesity and sedentary lifestyle is too big of a claim for this small step. It is only an attempt in what the author believes is the correct direction.

FOOD GUIDE PYRAMID

A Guide to Daily Food Choices

The Pyramid is an outline of what to eat each day. It's not a rigid prescription, but a general guide that lets you choose a healthful diet that's right for you. The Pyramid calls for eating a variety of foods to get the nutrients you need and at the same time the right amount of calories to maintain a healthy weight.



The **Food Guide Pyramid** emphasizes foods from the five food groups shown in the three lower sections of the Pyramid.

Each of these food groups provides some, but not all, of the nutrients you need. Foods in one group can't replace those in another. No one food group is more important than another—for good health, you need them all.

How Many Servings Do You Need?

The **Food Guide Pyramid** shows a range of servings for each food group. The number of servings that are right for you depends on how many calories you need. Calories are a way to measure food energy. The energy your body needs depends on your age, sex and size. It also depends on how active you are.

In general, daily intake should be:

- ▲ 1,600 calories for most women and older adults;
- ▲ 2,200 calories for kids, teen girls, active women and most men; and
- ▲ 2,800 calories for teen boys and active men.

Those with lower calorie needs should select the lower number of servings from each food group. Their diet should include 2 servings of meat for a total of 5 ounces. Those with average calorie needs should select the middle number of servings from each food group. They should include 2 servings of meat for a total of 6 ounces. Those with higher calorie needs should select the higher number of servings from each food group. Their diet should include 3 servings of meat for a total of 7 ounces. Also, pregnant or breastfeeding women; teens; or young adults up to age 24 should select 3 servings of milk.



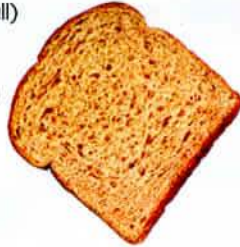
The amount of food that counts as one serving is listed below. If you eat a larger portion it is more than one serving. For example, a slice of bread is one serving, so a sandwich for lunch would equal two servings.

For mixed foods, estimate the food group servings of the main ingredients. For example, a large piece of sausage pizza would count in the bread group (crust), the milk group (cheese), the meat group (sausage) and the vegetable group (tomato sauce). Likewise, a helping of beef stew would count in the meat group and the vegetable group.

What Counts as a Serving?

Bread, Cereal, Rice & Pasta Group

- 1 slice bread
- 1 tortilla
- ½ cup cooked rice, pasta or cereal
- 1 ounce ready-to-eat cereal
- ½ hamburger roll, bagel or English muffin
- 3-4 plain crackers (small)
- 1 pancake (4-inch)
- ½ croissant (large)
- ½ doughnut or danish (medium)
- ⅓ cake (average)
- 2 cookies (medium)
- ⅓ pie (2-crust, 8")



Vegetable Group

- ½ cup chopped raw or cooked vegetables
- 1 cup raw, leafy vegetables
- ¾ cup vegetable juice
- ½ cup scalloped potatoes
- ½ cup potato salad
- 10 French fries



Fruit Group

- 1 piece fruit or melon wedge
- ¾ cup fruit juice
- ½ cup chopped, cooked or canned fruit
- ¼ cup dried fruit



Milk, Yogurt & Cheese Group

- 1 cup milk or yogurt
- 1½ ounces natural cheese
- 2 ounces process cheese
- 2 cups cottage cheese
- 1½ cups ice cream or ice milk
- 1 cup frozen yogurt

Meat, Poultry, Fish, Dry Beans, Eggs & Nuts Group

- 2½ to 3 ounces cooked lean beef, pork, lamb, veal, poultry or fish
- Count ½ cup cooked beans or 1 egg or 2 tablespoons peanut butter or ½ cup nuts as 1 ounce of meat

Fats, Oils & Sweets

use sparingly

Lean Meat Choices

BEEF

- Round Tip
- Top Round
- Eye of Round
- Top Loin
- Tenderloin
- Sirloin

PORK

- Tenderloin
- Boneless Top Loin Chop
- Boneless Ham, Cured
- Center Loin Chop

LAMB

- Loin Chop
- Leg

VEAL

- Outlet
- Loin Chop



Adapted from the **Food Guide Pyramid**, Home and Garden Bulletin Number 252, U.S. Department of Agriculture, Human Nutrition Information Service. FOOD MODELS courtesy of NATIONAL DAIRY COUNCIL®



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GUIDE TO GOOD EATING

Every day eat different foods from each food group.

MILK
Group
2-4 servings



MEAT
Group
2-3 servings



VEGETABLE
Group
3-5 servings



FRUIT
Group
2-4 servings



GRAIN
Group
6-11 servings



The Guide to Good Eating can be used in conjunction with the Food Guide Pyramid































GUIDE TO GOOD EATING

Anyone can eat for good health. Just follow these 2 simple steps:

1. *Eat foods from all Five Food Groups every day.* Each food group provides you with different nutrients.

2. *Eat different foods from each food group every day.* Some foods in a food group are better sources of a nutrient than others. By eating several foods from each group, you increase your chance of getting all the nutrients you need.

Every day eat: Suggested Serving Sizes

<p> MILK Group for calcium 2-4 servings</p>	<p> Milk 1 cup</p> <p> Yogurt 1 cup</p> <p> Cheese 1½ - 2 oz</p> <p> Cottage cheese ½ cup</p> <p> Ice cream, ice milk, frozen yogurt ½ cup</p>
<p> MEAT Group for iron 2-3 servings</p>	<p> Cooked, lean meat 2-3 oz</p> <p> Cooked, lean poultry, fish 2-3 oz</p> <p> Egg 1</p> <p> Peanut butter 2 tbsp</p> <p> Cooked, dried peas, dried beans ½ cup</p>
<p> VEGETABLE Group for vitamin A 3-5 servings</p>	<p> Juice ¾ cup</p> <p> Raw vegetable ½ cup</p> <p> Raw leafy vegetable 1 cup</p> <p> Cooked vegetable ½ cup</p> <p> Potato 1 medium</p>
<p> FRUIT Group for vitamin C 2-4 servings</p>	<p> Juice ¾ cup</p> <p> Raw, canned, or cooked fruit ½ cup</p> <p> Apple, banana, orange, pear 1 medium</p> <p> Grapefruit ½</p> <p> Cantaloupe ¼</p>
<p> GRAIN Group for fiber 6-11 servings</p>	<p> Bread 1 slice</p> <p> English muffin, hamburger bun ½</p> <p> Ready-to-eat cereal 1 oz</p> <p> Pasta, rice, grits, cooked cereal ½ cup</p> <p> Tortilla, roll, muffin 1</p>

Some foods don't have enough nutrients to fit in any of the Five Food Groups. These foods are called "Others." These foods are okay to eat in moderation. They should not replace foods from the Five Food Groups.

"OTHERS"
Category

Fats and oils, sweets, salty snacks, alcohol, other beverages, and condiments



Fast Food Favorites: A Comparison

<u>Product</u>	<u>Saturated Fat</u> (grams)	<u>Dietary Cholesterol</u> (milligrams)	<u>Total Fat</u> (grams)	<u>Total Calories</u>
Cheese pizza, 1 slice	2	9	3	140
Pepperoni pizza, 1 slice	2	14	7	181
Bean burrito	3	3	7	224
Beef and cheese burrito	5	85	12	317
Hamburger	4	36	12	275
Cheeseburger	6	50	15	320
French fries, regular	4	0	12	235
French fries, large	6	0	19	355
Grilled chicken breast sandwich	1	60	9	310
Chicken nuggets, 6 pieces	6	62	17	290
Beef hot dog, on bun	6	27	15	265
Vanilla low-fat frozen yogurt cone	0	2	1	105
Vanilla soft serve ice milk cone	4	28	6	164
Vanilla shake	5	32	8	314
Vanilla ice cream, 1 cup (10% fat)	9	59	14	269
Cola, 12 oz.	0	0	0	151

Source: USDA Handbook 8-21; individual manufacturers for items not available from USDA.

Sample Fast Food Meals: How Small Changes Add Up

<u>Meal</u>	<u>Saturated Fat</u> (grams)	<u>Dietary Cholesterol</u> (milligrams)	<u>Total Fat</u> (grams)	<u>Total Calories</u>
Typical meal #1 Chicken nuggets Large French fries Vanilla shake	17	94	45	959
Lower-fat choice #1 Grilled chicken breast sandwich ½ small French fries 12 oz. cola Low-fat frozen yogurt cone	3	62	16	684
Typical meal #2 Cheeseburger Large French fries 12 oz. cola Vanilla ice milk cone	16	78	40	990
Lower-fat choice #2 Hamburger ½ small French fries 12 oz. cola Low-fat frozen yogurt cone	6	38	19	649



PIZZA CAT

This delicious looking cat is ready to go into the oven. It has herbs for hair, olive eyes and green scallions for whiskers.



FUNNY FRED

This strange looking character has tomato puree hair and eye glasses, olive eyes, green pepper lips and a large tomato nose!

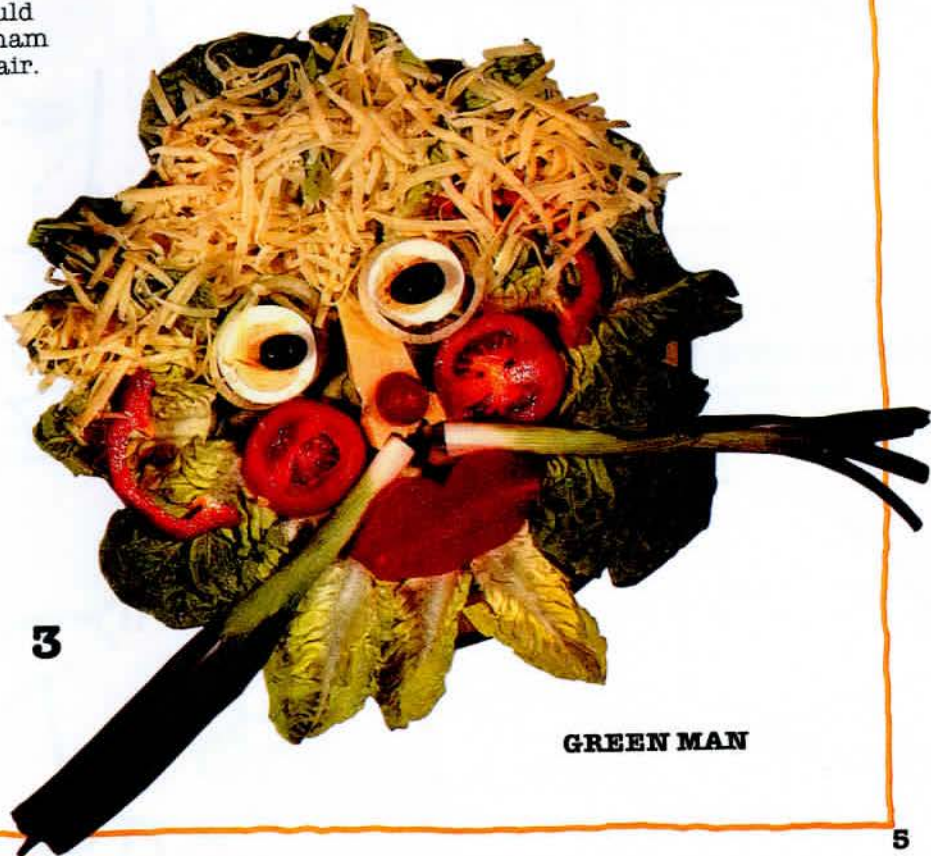


2 Cut up fruit to make the fruity face. Put a damp dish towel under the chopping board to make sure it doesn't slip and use a small sharp knife.



FRUITY FACE

3 We have used cheese and a radish for the green man's nose, slices of hard-boiled egg and olives for his eyes, and cheese for hair. You could also roll up ham "curls" for hair.

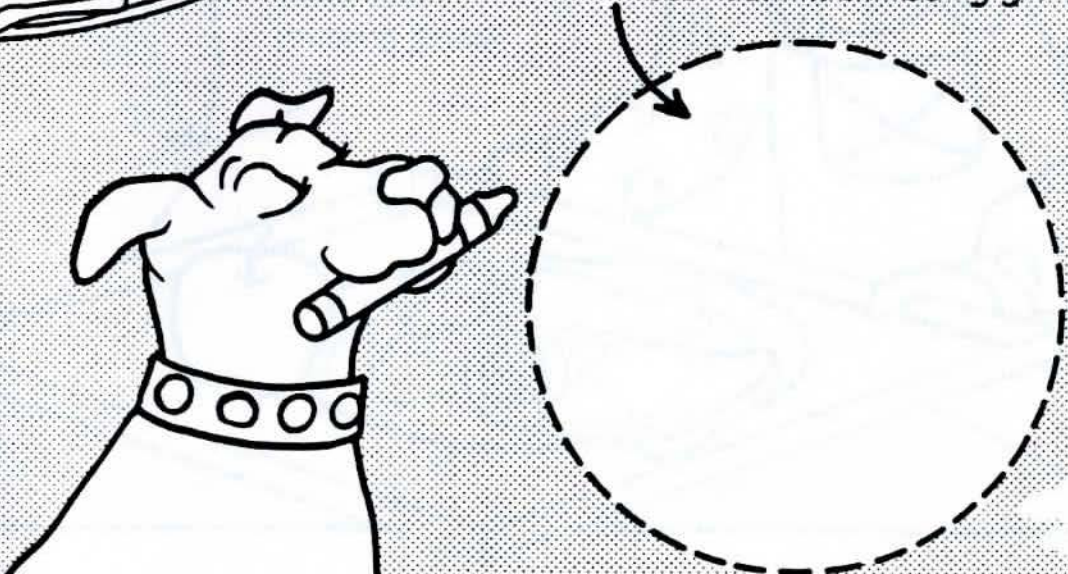


GREEN MAN

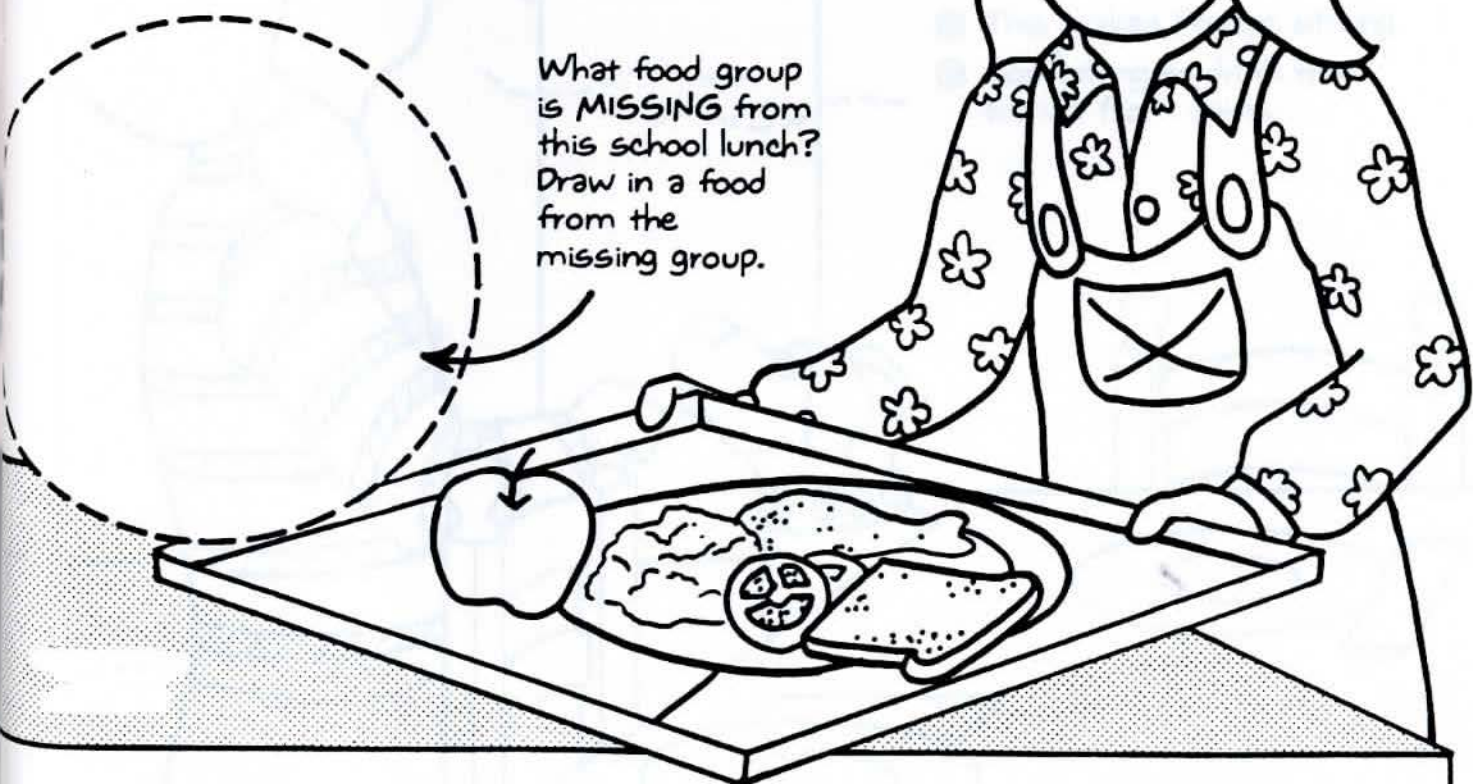
BREAKFAST is a very important meal. It gives you the energy you need to start your day off right. Never skip breakfast!



What food group is **MISSING** from this breakfast? Draw in a food from the missing group.



LUNCH is important, too. It gives you the nutrition you need for energy in the afternoon.

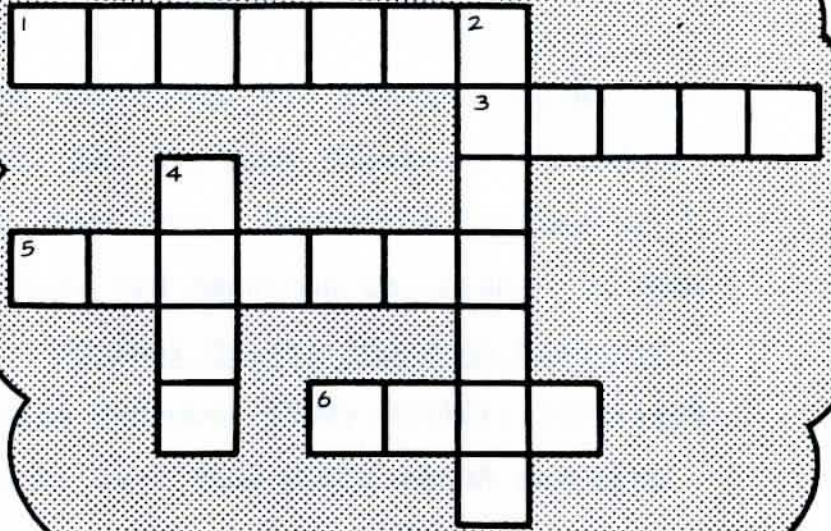


What food group is **MISSING** from this school lunch? Draw in a food from the missing group.

SUPPER is often the biggest meal of the day. Fill in the crossword puzzle to see what's for supper tonight.

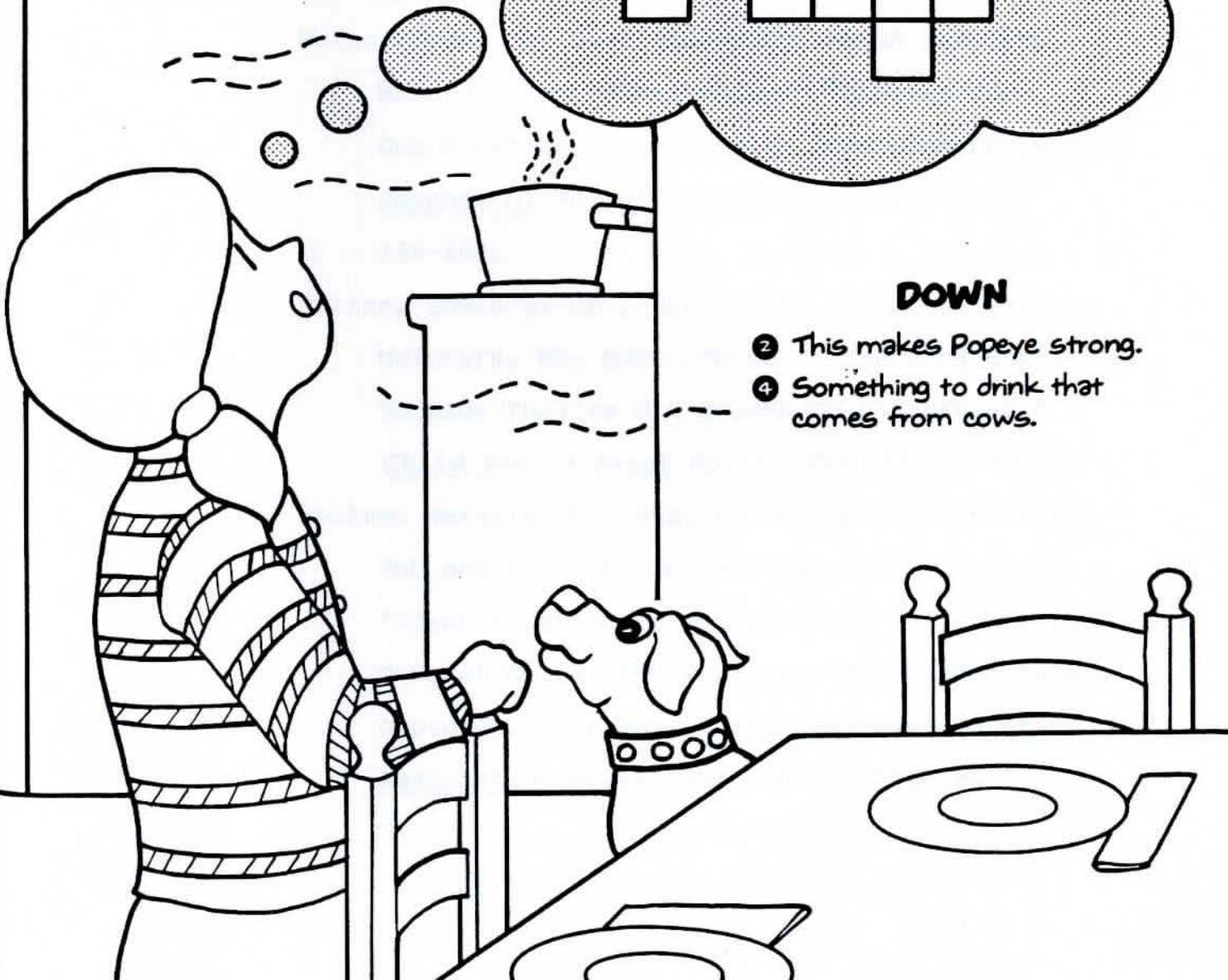
ACROSS

- 1 Bugs Bunny loves these.
- 3 This sweet fruit rhymes with "teach."
- 5 This animal gives us eggs, and tastes good, too.
- 6 A grain that sounds like "mice."



DOWN

- 2 This makes Popeye strong.
- 4 Something to drink that comes from cows.



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