Fall 1973

Nutrition for Children

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WHI

NUTRITION FOR CHILDREN

Presented to

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HOEC 483 - 3 hours credit
Fall, 1973

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INTRODUCTION

The Honors Project, "Nutrition for Children" was conducted among first and second graders of the Cale School District, Cale Arkansas. Since the school is small, the relation between the teacher and pupil is on an individual basis. This situation produced a flexible environment especially suited for an Honors Project. Reasons and/or goals for the selection of this project included the following:

1. There is a positive relation between good eating habits and good health.

2. A juvenile understanding of the Basic IV Food Groups is necessary to motivate children to eat better.

3. The School Breakfast Program and the School Lunch Program were available as a basic starting point for improving food habits.

4. Special emphasis was needed on nutrition since many pupils were from low income families.

5. Reports from the teachers gave clues that most of the children were eating "junk foods" instead of their breakfast and lunch.

6. This project gave an opportunity for the Honors Program student to gain practical experience working with childrens' nutrition.

The project was planned as a combination of library research by the student and actual participation in the elementary classroom.

Approximately one month was spent in preparation includ-

ing researching the nutritional and educational needs of the school child. The basic ideas obtained are included in theme form as the body of the project.

The actual classroom participation included 8 special activities carried out over a 2½ month period. The Honors student was especially fortunate to have a flexible college schedule that made Friday available for a lengthy project. The classroom activities are each described in detail as a part of the summary.

At times when activities were not being presented, the student often observed the eating habits of the children at the School Breakfast Program and the School Lunch Program.

Several photographs have also been included showing the class during special activities.

Classroom

Nutrition posters on display

Classroom activity

OUTLINE

I. Nutrition Needs of the Child.

- A. Calories
- B. Protein
- C. Minerals
- D. Vitamins

II. Factors Influencing Nutrition.

- A. Food Habits
- B. Eating Practices
- C. Dietary Errors

III. Role of School in Nutrition.

- A. Assistance of Teacher
- B. School Lunch Program
- C. Breakfast Program

NUTRITION FOR CHILDREN

Numerous studies have shown that the nutritional status of most children in the United States is good. In all cases, the nutrient intakes by boys were far better than those by girls, and elementary school children more nearly met their recommended allowances than did other age groups.[1] The school age year has often been called the period of latent growth. The rate of growth slows, and body changes occur very gradually. A slowed growth rate results in a gradual decline in food requirements per unit of body weight.[2]

The Recommended Dietary Allowances for calories during childhood, 3 to 10 years, are based on calculations of 80 calories per kilogram of body weight. Adequate calories must be supplied if growth is to occur, or protein foods will be used for energy instead of tissue building.[3] The average 6 to 8 year old needs approximately 2,000 calories, this number being slightly greater for boys. Protein requirements are approximately 40 grams daily. The Vitamin D requirements of child-

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[1]Corrine H. Robinson, Normal and Therapeutic Nutrition (New York: The Macmillan Company, 1972) p. 322.

[2]Sue Rodwell Williams, Nutrition and Diet Therapy (St. Louis: The C. V. Mosby Company, 1969) p. 390.

[3]Linnea Anderson, Marjorie V. Dibble, Helen S. Mitchell, and Henderika J. Rynbergen, Nutrition in Nursing (Philadelphia: J. B. Lippincott Company, 1972) p. 153.

ren have not been studied extensively.[4] Requirements are more likely to be met when a variety of foods are included in the diet. Milk, butter, fortified margarine, green and yellow vegetables, and fruits provide adequate Vitamin A.[5] Throughout childhood, 400 I.U. of Vitamin D should be provided, an allowance easily met using fortified milk.[6] Citrus fruits and tomatoes are excellent sources of Vitamin C. Other vitamins are easily acquired in the varied diet.[7] Minerals, especially calcium and phosphorus are needed daily in 1 gram and 10 miligram amounts, respectively.[8] Milk in the recommended amounts is the main source of calcium and phosphorus. Iron needs for children can be met with adequate servings of meat, eggs, green leafy vegetables, whole grain and enriched breads, cereals, and potatoes.[9]

The meal pattern for the school child may vary depending on what the school provides and to what extent these services are used by the family. In either case, the family meals should be planned around the school situation. The

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[4]Robinson, p. 324.

[5]Anderson, Dibble, Mitchell, and Rynbergen, p. 158.

[6]Robinson, p. 324.

[7]Anderson, Dibble, Mitchell, and Rynbergen, p. 158.

[8]Robinson, p. 324.

[9]Anderson, Dibble, Mitchell, and Rynbergen, p. 153.

Basic IV Food Guide which follows should be used in planning meals.

MILK GROUP: 2 or more servings daily, more for children.

VEGETABLE-FRUIT GROUP: 4 or more servings daily.

MEAT GROUP: 2 or more servings daily.

BREAD GROUP: 4 or more servings daily.[10]

Elementary school children are usually better fed than preschool children or adolescents. Likes and dislikes are a product of early training when family attitudes are imitated. Group acceptance becomes extremely important when the child goes to school and encounters food patterns that are different from those at home. The child soon learns that certain foods are not accepted by the peer group. On the other hand, within the group, he may be willing to try foods with which he is not acquainted and which he would not try alone.[11]

Breakfast for the child going off to school is an important meal. Because many mothers today have a variety of responsibilities, the preparation of this meal is often shared with the whole family.[12] This morning preparation can be a learning experience for the child providing he is given adequate instruction; if left to chance, inadequate

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[10] Ibid., p. 160.

[11] Williams, p. 390.

[12] Anderson, Dibble, Mitchell, and Rynbergen, p. 160.

food habits and patterns may develop.[13]

One of the best methods for developing good food habits in children is for the whole family to eat wisely. Children are great imitators. Food habits develop along with other aspects of growth. The 5 to 7 year old prefers plain foods such as meat, potatoes, raw vegetables, milk, and fruit. Most casserole dishes, fat meats, and gravies are not liked. Spaghetti and meat sauce, macaroni and cheese, and pizza are notable exceptions to the rule. Foods will be judged on odor, color, and flavor, and those served attractively will make a favorable impression.[14]

Meals should be served in a pleasant environment with the child seated comfortably. The food should express variety in texture, flavor, and color. Children are quick to realize that food can be a powerful weapon for gaining attention. It is important to recognize that a display of concern or the use of force in getting a child to eat can have nothing but unfavorable effects. Whenever a child refuses food to attract attention, the mother should make certain he receives a full share of affection at times other than meals.[15]

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[13]Williams, p. 390.

[14]Anderson, Dibble, Mitchell, and Rynbergen, p. 160.

[15]Robinson, p. 327.

Studies have shown repeatedly that the foods requiring particular emphasis for the improvement of diets are milk, dark green leafy and deep yellow vegetables, and ascorbic acid-rich foods. Food patterns and habits which contribute to these deficiencies are as follow:

1. Poor breakfasts or none at all: lack of appetite, no one to prepare breakfast food, or poor selection of foods.[16] An adequate early morning meal not only helps a child form good eating habits, but gets the day off to a good start.[17]

2. Poor lunches: failure to participate in the school lunch program, poor sack lunches, or spending lunch money on snacks.

3. Snacks: account for ¼ of the daily calories without significant amounts of nutrients.[18] Overindulgence in sweets is a habit acquired by a majority of youngsters.[19]

4. Irregular eating habits: no adult supervision, few family meals, or children preparing their own meals.

5. Health Problems: communicable diseases, emotional

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[16] Ibid., p. 323.

[17] Hazel Kepler and Elizabeth Hesser, Food for Little People (New York: Funk & Wagnalls Company, 1950) p. 77.

[18] Robinson, p. 323.

[19] Kepler and Hesser, p. 98.

stresses due to classroom competition, or unbalanced programs of rest and exercise.[20]

The primary teacher more than any other needs to know the parents and home life of the class and should be consciously working with the parents to build up a series of correct food and health habits. [20] For many children, the elementary school is their introduction to group feeding. This arrangement affords the opportunity for use of the luncheon meal as an educational tool to develop the child's interest in foods. Nutritional contributions of the school are particularly important to children who do not receive adequate food at home.[21] All children can share in the social aspect of group feeding, and this in itself may be the incentive for a child to try an unfamiliar food or drink. [22]

The school lunch program provides a nourishing meal for many children who would not otherwise have one. When foods are served in the specified amounts and additions are made to satisfy the appetite, the lunch will supply 1/3 of the Recommended Dietary Allowances.[23] This program has experienced rapid growth since its introduction in the 1930's. In 1946 the National School Lunch Act was passed. To partici-

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[20]Lydia J. Roberts, Nutrition Work with Children (Chicago: The University of Chicago Press, 1952) p. 229.

[21]Williams, p. 390.

[22]Anderson, Dibble, Mitchell, and Rynbergen, p. 160.

[23]Williams, p. 390.

pate, a school must agree to operate the program on a non-profit basis, provide free or reduced prices to needy children, serve all children regardless of race, color, religion, or national origin, serve nutritious lunches that meet the requirements as established by the Secretary of Agriculture, and provide kitchen and dining room facilities. The five componets of a Type A lunch are as follow:

1. Fluid whole milk, ½ pint.
2. Protein rich main dish.
3. Vegetables and/or fruits, 3/4 cup.
4. 1 slice of bread or equivalent.
5. Butter or fortified margarine, 2 teaspoons.[24]

Many schools in low income areas have introduced a breakfast program to provide disadvantaged children with a good start for the day.[25] Presently the Breakfast Program is limited to schools that have a large number of needy children. Under the United States Department of Agriculture, funds are provided to help the school pay for the foods purchased for the preparation of the breakfast. The standards for participation are similar to those of the National School Lunch Program. A sample guide for a standard breakfast is as

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[24]Robinson, p. 331.

[25]Anderson, Dibble, Mitchell, and Rynbergen, p. 160.

follows:

1. Fluid whole milk, ½ pint.
2. Fruit, vegetable, or juice, ½ cup.
3. Bread or cereal, 1 serving.
4. Other protein foods served as often as practicable.

Special milk programs are available to schools, camps, and child-care centers for part of the cost of the milk served. Because the milk can be sold at low cost to the child, milk drinking is encouraged. In schools where there are many needy children the full cost of the milk served is reimbursed. As researchers explore the science of nutrition further, one can expect to see increasing emphasis on the diet of the school age child.[26]

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[26] Robinson, pp. 333-334.

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Activity #1

Development of Health Habits and Character Qualities

The desire for children to develop good health habits and good character qualities is not a new concept. Almost everyone realizes the importance of helping girls and boys become healthy, understanding and contributing citizens.

Approach:

The idea of presenting and discussing what "grown ups" do seemed to appeal to the young children's eagerness to "grow up" and helped them appreciate the roles of various workers in the community. They realized that many people contribute to the needs and pleasures of their town. While learning about the occupations presented, the children discussed other jobs for men and women, noticing likenesses and differences among occupations, finding out about the skills and training needed, and services rendered by various community workers. The class discussion emphasized the importance of good health and character for each worker. Basically, this approach helped the children see real reasons for following good health and character guides.

The role of the farmer, doctor, grocer, homemaker, milkman, nurse, teacher, policeman, and weatherman was pointed out. The occupation of each of them highlighted the importance of good health habits and good character qualities. For example, the doctor's services help keep us healthy, and the grocery

man provides and cares for food until we purchase it.

Three activities were included as further study:

1. Each child drew pictures to illustrate a community job such as a teacher, policeman, farmer, bus driver, or nurse.

2. Several books were selected to be read to the class. Examples include "Mike the Milkman" and "My Friend the Policeman."

3. A science experiment was conducted relating the work of a farmer. A sprouting sweet potato was placed in a jar of water, and weekly measures of the plants growth were recorded.

Activity #2

Your Health, How Can You Help?

The health of the young child is important and involves the responsibility of adults as well as increasing responsibility on the part of each child as he gains in knowledge and begins to appreciate the many factors involved in helping him grow strong and healthy.

Approach:

The following topics were used for discussions:

1. Keeping Clean.
2. Brushing Teeth.
3. Sleeping - Rest
4. Eating Good Meals
5. Exercise and Play

Pictures of each activity were made into posters and placed on the bulletin board. Using the posters as visual aids, typical questions were asked to the class:

1. What is the boy in the picture doing?
2. Why should you brush your teeth after meals and snacks?
3. Do you play outdoors everyday?
4. Why do you need a good breakfast?

The following additional teaching methods were included:

1. A class growth chart was made and each child's height was marked.
2. Emphasis was placed on constructive physical activities on the playground.
3. A play clock was set showing the time for going to bed and for getting up.

Activity #3

Where We Get Our Food

The elementary school child has some understanding of the idea "food". The depth or the breadth of their understanding is dependent upon their past experiences of the subject. The main purpose of this activity was to develop a deeper understanding of food, wherever the child may be in his development.

Approach:

Many children had asked questions concerning the origin of certain foods. Several concepts were selected to be developed through class discussions and related activities:

1. There are many different sources of food.

   Plants produce some of the food we eat.

   Plants vary in size.

   We use different parts of plants as food.

   Some of the food produced by plants grows underground.

   Some of the food produced by plants grows above the ground.

   Cereals come from plants.

   Animals provide some of our foods.

   We eat the meat of some animals who live on land.

   We eat the meat of some animals who live in water.

   Meat from different animals has different names.

   Some animals produce food for us.

2. People work to produce the food we eat.

   Some farmers grow plants that produce food for us.

   Some farmers raise animals from which we get food.

   The dairy farmer raises cows from which we get milk.

   The poultry farmer raises chickens which lay eggs.

   The truck driver hauls food on its way to market.

   The factory worker helps to make special machines that are used in plants where food is canned, dried, frozen, and packaged.

   Some food store workers put food on shelves and get food ready to be sold.

   Some food store workers sell food and put it in bags to carry home.

3. Food is processed in different ways.

   Some foods that we eat are fresh.

   Some foods that we eat are canned.

   Some foods that we eat are frozen.

   Most foods that we eat require special handling.

Related activities included a study of the school breakfast and lunch menues for the day. Each food was categorized into one or more of the above classifications.

Activity # 4

The Story of Milk

The importance of milk in the growing child's diet can not be over emphasized. Milk and milk products occupy a large portion of the daily food requirements.

Approach:

Discussions and activities were presented in relationship to four major categories - milk production, processing, distribution, and consumption. Posters were used to introduce each subject. They were presented one at a time, and the children were encouraged to express their ideas of the story each poster told. The class discussion then served as a basis for more detailed study.

Concepts concerning milk production:

1. Cows need good care to produce milk.
2. Farmers and men who work on the farm are important community helpers.
3. The dairy farmer needs different kinds of equipment on his farm.
4. Cows must have food to live and grow.
5. There are many different kinds of cows.
6. Different breeds of cows have definite characteristics that distinguish them from each other.
7. The dairy farmer uses many machines on his farm.
8. Milk must be kept clean and cold.

9. Equipment must be kept clean.

10. Milk is taken by tank trucks to the city dairy plant.

Concepts concerning milk processing:

1. Many machines are in the dairy plant.

2. Dairy plants and the equipment in them are kept clean.

3. Pasteurized milk is safe milk.

4. Homogenized milk is milk with the fat broken up so it stays mixed all through the milk.

5. Milk is tested to be sure it is safe.

6. Fresh milk is put into different kinds of containers of different size.

Concepts concerning milk distribution:

1. Milkmen deliver milk to many places.

2. Many people bring dairy foods to you.

3. It takes many kinds of equipment to bring dairy foods to you.

4. Children drink milk at school.

5. Many foods are made from milk.

6. Milk must be well cared for in stores and home.

Concepts concerning milk consumption:

1. Children need food to live and grow.

2. Milk is a good food.

A major goal covered in this activity was to help the children develop positive attitudes toward food. Milk is a leading source of valuable nutrients and is a "must" in the child's diet.

Activity # 5

The Story of Ice Cream

Ice cream is one of the favorite dairy foods of children and adults alike. For this reason, the topic, ice cream was selected as a most enjoyable one to study. Rare is the child who has not eaten ice cream.

Approach:

The activity was begun by serving ice cream to the class. A question and discussion approach was used to enhance learning. Some basis concepts covered are as follow:

Ice cream has unique characteristics.

Ice cream is manufactured.

Many foods are combined in ice cream.

Ice cream is a dairy food.

Ice cream is pasteurized and homogenized for the same reasons milk is.

As ice cream is frozen, air is whipped into it.

As ice cream freezes, tiny ice crystals form. Freezing ice cream fast helps keep the ice crystals tiny.

Big machines help to make the ice cream we buy.

Refrigeration enables us to buy ice cream in the store and keep it at home.

Many people help to make ice cream.

Ice cream is a healthful food that is made from milk and cream along with other good foods.

Special emphasis was placed on ice cream as an ideal snack.

Activity #6

The Basic IV

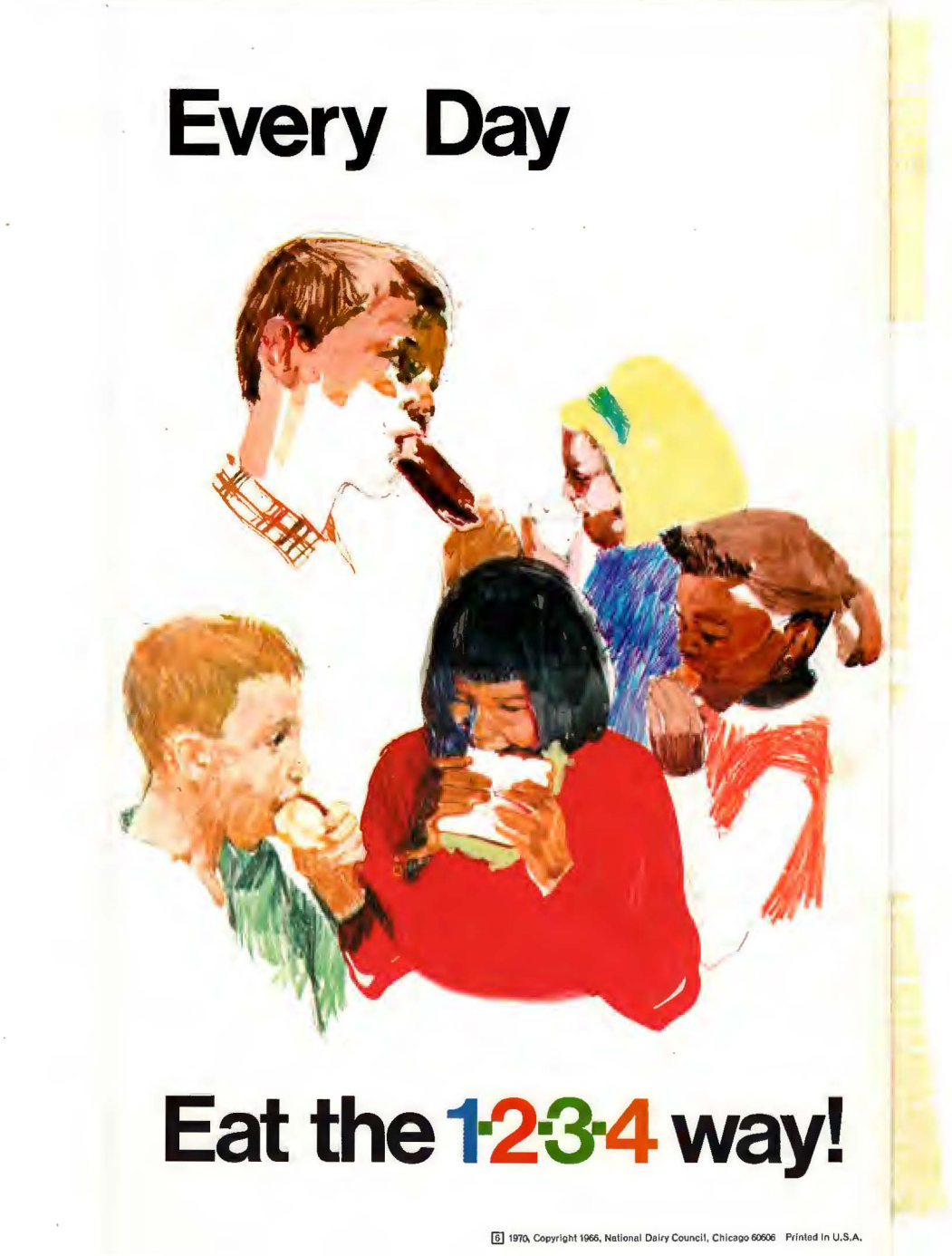
Familiar and favorite foods are topics that children like to discuss. This interest was used to encourage the class to be readily willing to accept the kinds of foods recommended for health and growth. Several posters and charts were prepared to serve as teaching aids by providing an appealing picture of kinds of recommended foods. The charts were actually a juvenile interpretation of the four basic food groups as established by the United States Department of Agriculture. A primary goal in this activity was to motivate the children to want to eat their meals at home and in the school cafeteria. Other goals for the class included:

1. To be interested in eating healthful foods each day.
2. To begin to understand what kinds of food are needed.
3. To begin to understand that the daily habit of eating a combination of foods from these four food groups helps to build muscles, to give a feeling of liveliness and a "glow" that goes with health, and helps each child to grow at his or her own best possible rate.

A large food chart provided by the National Dairy Council proved to be a real incentive in teaching the children the elements of a nutritious meal. (A small replica of this chart is attached to this study). The "1-2-3-4 Way of Eating" was explained to the class. The rhyme "1 for your

muscles....2 for the glow....3 to make ready....and 4 to grow", appealed to them especially since most of the class was familiar with the jingle, "One for the money, two for the show, three to make ready, and four to go." The children were introduced to each of the four food groups.

Several special projects were planned for the following weeks pertaining to this basic lesson. They are explained in detail on the following pages.



Activity #7

Basic IV - Project 1

The recognition and identification of the four food groups served as an initial presentation for the children. The purpose of additional projects was to stress varieties of foods from each group, quantities of foods from each group, and meals that use foods from each group. The following ideas are characteristic of the approach used in presenting new concepts to the class.

1. Why do you think milk is good for you? Some of the answers received are as follows: "It helps me grow big". "Milk tastes good". "It makes you strong".

2. What other kinds of foods are important? The remaining food groups were pointed out on the charts and posters.

3. Can you name some dark green and yellow vegetables? The children enjoyed pointing to pictures on the poster, and some named foods not pictured.

4. Can you name some fruits? The same procedure was used here as in example 3.

The cafeteria menu for the day was discussed and the children called out the food group to which each item belonged. The importance of eating all food served in the lunchroom was stressed.

Activity #8

Basic IV - Project 2

Another activity was planned to aid the children in identifying foods in the different groups and at the same time stressing the idea that these four kinds of foods belong together. Each child was given four pieces of construction paper. On each sheet, he puts a number, thus: 1, 2, 3, 4. These numbers correspond to the 1-2-3-4 categories in the food chart on the classroom wall. On sheet number 1, he draws a picture of his favorite food from the milk group. The same procedure is used for the remaining sheets of paper and other food groups. The completed pages are clipped together as the child's "Food Booklet".

EVALUATION

"Nutrition for Children" was an informative and enjoyable project. Good responses were received from the pupils in all areas, and by the end of the activities, participation in the School Lunch Program was greatly improved. The experience gained in research and practical application will be valuable in the future.

The addition of a permanent nutrition program for the early elementary grades would be a valuable asset to the school curriculum. Many teachers are not aware of the principles of nutrition and are not motivated to teach the children the essentials of good eating habits.

In summary, the project was a great success as well as a valuable opportunity for the student.