

RELATIVE EFFECTIVENESS OF TWO METHODS OF TEACHING  
NUTRITION TO TWO CLASSES OF HOME MAKING I GIRLS

by

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Wm. L. BROWN Paper

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# RELATIVE EFFECTIVENESS OF TWO METHODS OF TEACHING NUTRITION TO TWO CLASSES OF HOMEMAKING I GIRLS

## CHAPTER I

### INTRODUCTION

Homemaking teachers may become so absorbed in trying to keep students interested in their classes that they concentrate on planning interesting class activities and gathering illustrative material. They consider a high score on a written test to be an indication that the unit was successfully taught. On the other hand, there is a great need for teachers to stand back and survey what they are teaching, to determine what learning is taking place, to see if the objectives of education are being reached. When results of teaching have been determined, then teachers need to consider the teaching methods that were used to see if they have contributed to the learning or have blocked learning.

As Hatcher (6, p. 41)<sup>104</sup> states in her study of the relative effectiveness of two methods of teaching:

"In the past, the training of high school teachers in colleges and universities focused upon mastery of subject matter to be taught. In recent years emphasis has been placed on methods of teaching as well as on content because it has been recognized that the teacher should not only possess technical information but also know how to adapt

the content of her subject matter to produce the optimum development of students in her classes.) Today there is much controversy over methods of teaching. Methods in use vary from rigid formality in classroom procedure to unrestrained freedom of action; if the professional education of teachers is to be on a par with the technical training it is important that educational research be utilized to determine what methods best serve to produce the desired development of students."

### Need for the Study

The investigator has been concerned about the need for evaluating the actual learning that is being accomplished in her homemaking classes. It has seemed most difficult to obtain satisfactory learning in the teaching of nutrition. She has had difficulty in helping students learn the nutritive value of foods and why these essentials are important in the diet. Not only has it been difficult for her to teach this unit in homemaking classes, but she also has taught in school systems where physical education teachers who taught health units also expressed the same opinion, "The girls do not seem to be able to learn it anyway, and repetition in your homemaking class and my health class does not seem to bring about greater learning."

Not only have the investigator's students seemed to be resistant to learning nutrition information, but the investigator has believed that the dietary practices of the students are poor and their food habits have not been improved



by the nutrition unit. It may be that the investigator's teaching methods were at fault.

The investigator has taught for six years in three different high schools that offered broad homemaking programs, that is, included units in all areas of homemaking. During the third summer school session since graduation, she became aware that perhaps her dissatisfaction in teaching nutrition could be overcome by changing her method of teaching the unit. It seemed interesting to compare proposed newer methods with her former methods. Formerly she had taught a separate two-weeks' nutrition unit preceding the ninth grade foods unit. She now realized that home economics education experts advocated that nutrition be integrated into the foods unit. Being so interested in this problem, the writer decided to pursue it further.

### The Problem

Nutrition was one area in her teaching of homemaking in which the writer was dissatisfied with what students were learning and applying to their everyday living; therefore, this area of teaching was selected for further study. According to the literature in the field, the dietary habits of high school boys and girls were poor. Dietary studies of families throughout the United States revealed a need for nutrition education for school children

and adults. Other studies of the effectiveness of various methods of teaching revealed that dietary practices could be changed through education. Reports of studies showed that the discussion-decision method of teaching nutrition was more effective in changing food habits than the lecture-request decision method.

Current literature in home economics education recommends that the teaching of nutrition be integrated in the foods units. Recent literature indicates that foods should be taught on the meal basis in order to give greater emphasis to management in food preparation. A need for self-evaluation by students is indicated.

The primary purpose of the present study was to improve teaching methods. To do this it was decided to compare results of teaching nutrition to (a) one homemaking class by using the meal basis, integrating nutrition, emphasizing management, and using pupil self-evaluation; and (b) another homemaking class by using a separate nutrition unit, very little emphasis on management, and teacher evaluation only.

Two ninth grade foods classes were equated on the basis of intelligence quotient, age, and socio-economic status. The schedule in the school in which the writer was employed for 1953-54 included two Homemaking I classes. It was decided that these two groups would be used for the



study to determine the relative effectiveness of the two methods of teaching the beginning units on foods and nutrition. A different method of teaching was used for each class in order to determine which method brought about greater learning, as determined by a dietary survey, written examinations and a practical examination.

The objectives of this study were:

1. To determine whether the integrated nutrition unit would bring about greater learning than a separate unit.
2. To see whether the discussion-decision method or the lecture-request decision method would bring about greater change of dietary habits.
3. To determine the extent that the learning in a nutrition unit was retained and to see which class would show greater retention.
4. To compare progress made by students of higher and lower intelligence levels in each class.

#### Limitations of the Study

1. The investigator, having learned about the methods of teaching foods and nutrition may have been influenced so as to inadvertently improve upon the lecture-request decision method.
2. The investigator believes that she was not always skillful in the use of the newer methods, especially the discussion-decision method in the teaching of nutrition.
3. The results would apply only to this particular group taught by this teacher.
4. Equating groups with a limited number of pupils may not have been as valid as it might have been had there been more students from which to select classes for study.



5. Both groups would be subject to the limitations of a school situation, as absence of teacher, and interrupted periods.
6. Originally, the present study was to deal with all the learnings in the foods and nutrition unit for the Homemaking I classes of Tillamook High School. It was found, however, that there were so many variables when the total unit was included and that the problem was so large that the problem was limited to the teaching of nutrition. Nonetheless, just by virtue of the interrelatedness of the two classes, there was not enough distinction between the two classes. This limitation is very evident in the results.

### Review of Literature

Wherever there is a group of high school home economics teachers, one finds discussions of the problems of teaching foods and nutrition. They agree that there is a need for the use of methods of teaching nutrition which will motivate teen-agers to select foods which meet National Research Council dietary standards. Besides teaching nutrition in a foods unit, however, a teacher must incorporate preparation of foods, meal planning, table service and etiquette, as well as buying and storing of foods. Adequate planning is essential before kitchen periods (usually 50-60 minutes in length) take place. Certainly in high schools the unit in foods and nutrition needs to place emphasis on good work habits and management as well as achievement of standard products. Adequate teacher and

student evaluation should measure progress throughout the unit.

Perhaps the high school homemaking units in foods and nutrition are attempting too much. Perhaps teachers are not using suitable teaching methods. Whatever the reason, evidence in the literature shows that high school students are not eating nutritionally sound diets. They have poor food habits, poor food selection, and do not take advantage of the essential foods when available to them.

A study (8) was carried out in Tillamook County, the county in which the school used in this study is located, in 1943-44, to determine whether the grade school and high school students were anemic and whether the blood level of Vitamin C was at a level indicating adequacy. Blood samples of 67 presumably healthy grade school children and 32 high school students were taken. Hemoglobin values and plasma levels of ascorbic acid were tested. A food record of one week was evaluated for each student. Anemia was not a problem among the students tested, but 68 per cent of the grade school children and 71 per cent of the high school students had blood plasma ascorbic acid values below the standard. There was found a relation between plasma Vitamin C levels and consumption of citrus fruits and tomatoes. It was interesting to compare the findings in this study

with the 1943 study in which laboratory tests were made of the students.

In 1944 the diets of 44 girls, ages 12 to 15, in Washington, D. C., were found to be inadequate and the girls showed signs of malnutrition (2). Two weeks' food intake records were kept twice during the study. Information about the girls was gathered: family life, size of family; occupation of parents; and personal characteristics of girls such as intelligence quotient, height, weight, condition of teeth and eyes, and hemoglobin percentages.

Ninety-three per cent of the girls had inadequate diets (if one quart of milk is considered adequate). There was insufficient intake of protective foods. Only 14 of the girls ate all meals regularly. If both parents worked, more meals were missed by the girls. Lack of home supervision and lack of education of parents is blamed for the poor diets. In this study it was found that nutritional status could not be judged by height and weight records.

A very similar study was made by Sesson in Prince Frederick, Maryland, in 1945-46, in which the findings were much the same (14).

In the Minnesota schools a study (1) was undertaken to evaluate the effectiveness of the homemaking instruction. The foods record of 4,000 boys and girls was analyzed. In 1944, boys and girls who had homemaking were studied and



in 1945-46, boys and girls who had or had not taken home-making were studied. Foods records for one week were kept and evaluated. Basic Seven and meal patterns were evaluated.

Breakfast was the meal most frequently missed and the meal most frequently rated as poor. Twenty-five per cent of the lunches were poor. Elementary children had the best meals. Meals were progressively poorer as the girls studied were older. Homemaking girls were even lower than the other students in diet rating.

Most likely to be low in the diets were egg, green and yellow vegetables, citrus fruit and tomatoes, butter, and milk. Poor diets often resulted from refusal of foods that were served, but for many of the children, recommended foods were not available to them.

In this study, the author reported (1, p.118), "A scrutiny of food records of almost any age group revealed how far from meeting recommended allowances were foods available to many of the children." There was in evidence a need for parent education as well as better nutrition education in the schools.

In West Virginia, in 1951, Cook (4) studied food habits of 71 students in homemaking, grades nine to 12 to attempt to discover various types of conditions that influenced opinions and prejudices about food habits. The

girls were asked to answer a questionnaire in which there was a list of 131 foods to react to, as well as questions about food habits, food beliefs, likes, and dislikes. She found that many of the girls did not eat regular meals, did not leave their plates clean, had food prejudices, did not eat essential required foods, and did not have wise selection of foods for between-meal snacks.

A review of studies of dietary practices of families throughout the United States reveals that minimum amounts of essential foods are not included in the diets. Many people do not know what foods to select for health. Many do not select foods that they know produce health even though nutritious foods are available to them. It is not an economic problem with them. These studies indicated a need for better nutrition education, not only for normal health, but for buoyant health.

Stiebeling reported from a study in 1935-36 (17, p. 7) that one-fourth of the families in the United States had diets rated as good; one-third had diets rated as fair; and one-third had diets rated as poor. Ten to 20 per cent more milk was needed in the diets; 25 to 70 per cent more tomatoes and citrus fruit were needed; twice as much leafy, green and yellow vegetables, and 10 to 20 per cent more butter was needed.

Stiebling and Phipard, in a study (16) of 4,000 families from 43 cities in eight geographical regions of the United States from December, 1934, to February, 1937, found that in the average dietaries one-half to two-thirds as much milk as was recommended was included in the diet and less than two-thirds as much fruit and vegetables were included as in diets graded "good." "Even the good diets fell short of allowances of protective foods many authorities think optimal." (16, p.355)

In 1941, a study was made in Oregon (20) of food habits of ten rural families as a basis for recommending and developing suggestions for an educational program in teaching nutrition to meet needs of these families of Josephine County. Ten families who were receiving Federal aid under the Farm Security Administration were selected for study since they were keeping detailed lists of expenditures for the Federal Security Agency and could easily cooperate in keeping a record of food intake for this study. Food supplies were weighed and menus kept for seven days. The food intake was evaluated by one of the three Market Lists for Low Cost Meals from the Bureau of Home Economics of the United States Department of Agriculture to determine what percentage of the recommended amounts of essential foods were consumed. In this study, five of the ten families did not use recommended amounts of milk. Only two families did



not reach a score of 100 per cent in egg consumption. Only two families scored above 100 per cent in consumption of leafy, green, and yellow vegetables; and four families were below 50 per cent. One family scored 100 per cent on potato consumption and five of the families scored below 50 per cent. Three families were low in consumption of tomatoes and citrus fruit. One family was low in consumption of other vegetables and fruits. Three families were below 50 per cent in consumption of meat, poultry, and fish. Three families were 100 per cent or over in consumption of dried beans, peas, and nuts, but most were low. Five families were low in flour and cereal consumption. Three families were low in fat and oil consumption. Three families were a little below 100 per cent in sugar, syrup, and preserves consumption.

In this study, the results revealed that income level had very little effect on eating habits. The investigator recommended that Josephine County homemakers needed to be taught to use available land to raise essential foods for the family. The women needed to be encouraged to preserve essential foods and to learn to use seasonal foods in interesting ways in the diet. These families needed to learn why various essential foods are essential in the diet and how to incorporate them into interesting menu combinations.

A study in Richmond, Virginia, by the Virginia Extension Service (3), in 1947, revealed an appalling lack of adequate diets and lack of information about nutrition among the 400 homemakers interviewed. Fifty per cent of the homemakers had little or no nutrition information. About half were acquainted with the Basic Seven chart. Lists of foods served in a 24-hour period were evaluated. Forty-nine per cent of the diets were adequate. The diets were low in green and yellow vegetables, citrus fruit and tomatoes and milk. Income and education affected the ability of the homemaker to answer questions about nutrition. Those with little or no information did not want more. Seventy-three per cent of the homemakers were interested in obtaining more information about nutrition. This study points out the lack of good diets in the United States and the need for nutrition education for adults as well as children.

In 1948, a study (13) was made in four areas of the United States. It was found that the diets in the four cities were comparable, but diets in cities and rural areas differed since home food production in rural areas affected dietary level. Since income has become more equalized in the United States, the diets of high and low income groups do not differ as much as before. The poorest diets were in homes with low income, in homes with large families, and in



homes in which the homemaker had the least education. In both cities and rural areas, calcium and Vitamin C were low in the diet at all income levels. On farms in the spring, diets were low in Vitamin A; and in city diets in the North diets were low in thiamine. The proportion of people having recommended protein allowances in low income diets was two-thirds and in high income diets was nearly 100 per cent. Vitamin C for low income diets was 50 per cent and in high income diets was 90 per cent.

These studies have indicated that high school girls' diets as well as adults' are not those recommended. The question arises: Is the problem an economic one? Would increased purchasing power be the answer? Here is one answer (16, p. 354):

"Stiebeling's studies of food consumption at different economic levels show that as purchasing power rises from levels of severe poverty to those permitting more freedom in the choice of food there is at first an increase in fruit and vegetable consumption fully proportionate to the increased per capita expenditure for food. But with still more comfortable levels of expenditure the extra food money does not go as largely to increased consumption of fruit and of succulent vegetables as would be desirable. In other words, the consumer demand represented by the nation-wide data of about 1933-1937 is responsive to but not fully abreast of the guidance of modern knowledge."

Nutritionally-minded physicians testify that malnutrition is really greater than is indicated by Federal statistics or records of morbidity and mortality. Many deaths



that should be attributed to malnutrition are recorded as being from some other cause. Distribution of the nation's food is uneven and malnutrition exists among low income groups.

It has been speculated that since so many studies of dietaries indicate that a large percentage of the dietaries fall short of the National Research Council's recommended daily allowances, the standards might be too high to judge adequacy.

Although overt signs of vitamin and mineral deficiencies are rare, many people have borderline or subclinical deficiencies. Some effects of this are loss of vigor, retarded growth, low resistance to infection, tooth decay, abnormal births, and early signs of old age. Sherman (18, p.3) has shown in studies with animals that increased amounts of some essential foods resulted in increased weight and growth, physical vigor in adulthood, and longevity. If, through generations of good eating, humans mature earlier and retard onset of senility, it is speculated that as much as seven years could be added to our productive years. There are degrees of health varying from borderline cases with the overt signs of deficiency barely prevented by nutrients in the diet, to normal health, to buoyant health.

The investigator has recognized a definite need to evaluate nutrition education in her school. The literature cited has shown that there is a national nutrition education problem. American diets are not in keeping with those recommended by the National Research Council. Many people do not know how to select adequate diets. How can these people be educated in such a manner as to stimulate them to eat better diets?

Dr. Miriam Lowenberg (9), in a talk to the American Home Economics Association Food and Nutrition Division, in 1952, challenged home economists as follows:

1. Do you really care how well fed are children in your school?
2. Do you believe that your teaching in foods and nutrition can really change food habits?
3. Do all teachers in your school system understand how vitally a school lunch and nutrition program can affect the lives of their students?
4. Do you care whether they understand this?
5. Do you know how many students in your school system have an adequate breakfast each day? Do you care? Do you really believe that having a good breakfast affects a student's health and school performance? Can you convince others if you do believe this?

At the National Nutrition Conference, in 1941, the Vice-President of the United States set three goals for nutrition (15, p.107):

1. Eradicate nutritional deficiency diseases.



2. Decrease infectious diseases whose prevalence depends on nutritional condition.
3. Build nutritional status in our people to the level that supports health.

The Food Habits Committee of the National Research Council, in their study, stated (11, p.11):

To be successful the nutrition education campaign must achieve the following:

- a. Create interest in nutrition.
- b. Educate the public to know and wish necessary changes in the diet.
- c. Produce these changes and establish them as habits.
- d. Firmly establish these adequate habits in the culture as food folkways.

Some interesting experiments in nutrition education have been carried out which show evidences that dietary habits can be changed through proper nutrition education.

The need for an individual personal approach to the teaching of nutrition is indicated in a study in Buffalo, New York. Stoesser (19) measured the results of nutrition teaching in terms of diet scores obtained from 150 school girls in Buffalo, New York, and tested a method of improving the diet behavior of special cases. Dietary habits of 80 girls in homemaking classes, in 1941, and 70 girls, in 1942, were checked. She found that classroom teaching needed modification. She took eight severe cases for personal study and through individual counselling and home



visits helped the girls to improve weight deviation and bring about better eating habits.

A study (7) in a college and a high school in New York reveals that nutrition information presented by interesting, clever, colored mimeographed sheets can change food habits of cafeteria patrons. This study also points out that the approach to high school students is more difficult. Very attractive, illustrated mimeographed sheets with nutrition information were adapted from an earlier study and distributed daily for 12 weeks to patrons of the Cazenovia Central School, New York, and the Syracuse University college commons cafeteria. At the beginning and end of the study and twice during the 12 weeks, tests were given. The average college gain in score on the test was 13.8 per cent. The average high school gain was 5.8 per cent. No high school final score was as good as the highest college pre-test score. Thus, the college students began with more nutrition knowledge and made greater progress. Average sales of fruit, fruit juice, salad, vegetables, milk, and whole grain products were taken before the study and once a week during the study. The use of whole wheat bread and milk sales were increased. More fruit and vegetables were sold during the study. In a post study, the increased sales of dark bread and of milk persisted for at least 12 weeks. The high school students were less interested in the

mimeographed sheets and discarded them more readily. Thus, a popularized nutrition education program is effective in changing food habits and teaching nutrition information, but it is more effective at the college level than at the high school level.

A study (5) of the effect of teaching food selection and nutrition to adult working women, although it is not on a high school level, has application to this study. Ellis taught food selection and nutrition to three experimental classes who had registered for the Red Cross Nutrition courses, fall, winter, and spring of 1943-44, and included in the study three control groups that had no nutrition instruction. The working women in the groups were 18 years or older.

The purpose of the study was to determine whether food habits of working women could be improved by a 20-week nutrition course. Three weekly dietary records were kept and a questionnaire on food habits was used. The two-hour lessons were based on a Red Cross nutrition textbook and were presented as a lecture course.

The poorest features of the diets were low consumption of milk, green and yellow vegetables, and citrus fruit. The study was carried on during the war and it was found that the diets were low in butter or fortified margarine since red ration stamps were saved for meat. The greatest

dietary improvements were the ones most needed. Meal patterns as well as Basic Seven foods were checked. As a result of the course, two-thirds of the food choices and of the meal patterns were rated good by the end of the course.

Some interesting findings in this study were that most improvements occurred during the lessons on the Basic Seven rather than those on meal patterns. The American born class members made poorer dietary choices than foreign born members but improved in their choices. The class members were unwilling to try unfamiliar foods that were nutritious. It was suggested that a laboratory course might encourage eating of unfamiliar nutritious foods. The investigator recommended strongly that both meal patterns and Basic Seven be considered in a dietary study. It was determined that habits of adult urban wage earners could be changed in a short term nutrition course.

In Ohio, a study of improving management in foods classes has been made (12). A three-year statewide study was made to determine accomplishment in ninth and tenth grade food classes. Seventy-five teachers participated at various times during the study. The objectives set up by the teachers were as follows:

1. To achieve the ability to plan, prepare, and serve simple meals with assistance:
  - a. Using good working habits and management practices in meal preparation.



- b. Achieving a standard product in foods prepared.
- 2. To achieve the development of understanding the following in regard to the foods included in meals:
  - a. Nutritive value.
  - b. Good buying practices.
  - c. Care.
  - d. Principles underlying preparation.
  - e. Place in meal planning.
  - f. Standards for products prepared.

These teachers stressed work habits as well as products achieved. After one year, they recommended meal management as a basis for the foods work. In the second year, an experimental unit was produced.

A written pretest and final test, a practical examination, the Minnesota Check List for Food Preparation and Serving, and the Minnesota score cards were used to check progress. Definite improvements in all standards in working habits in both ninth and tenth grades resulted, when foods was taught on the meal basis with management stressed and with both student and teacher evaluation throughout the unit.

Some interesting experiments in the evaluation of two methods of teaching nutrition have been carried out. The lecture-request-decision so frequently used is compared

with the discussion-decision method. The difference between the two methods will be in evidence in the following description of one of the studies. Two methods were tried at the state hospital at Iowa City where mothers having their first babies were being educated in the feeding of their babies (10). The mothers were divided into groups of six. The group taught by the lecture-request-decision method was simply told about the advantages of giving babies cod-liver oil and orange juice and requested to add these foods to the babies' diets. The group taught by the discussion-decision method was also instructed about the advantages of cod-liver oil and orange juice for babies. But this group was encouraged to freely discuss giving these nutrients to babies and any questions that arose were answered by the instructor. Then the group was asked if it would choose to make a decision to give these foods to babies. The group decided to add them to the babies' diets.

After two weeks, the mothers were checked to see if the nutrients were being given to the babies. The results were as follows:

Lecture-request-decision group	20% gave cod-liver oil
	38% gave orange juice
Discussion-decision group	50% gave cod-liver oil
	85% gave orange juice

In four weeks there was a recheck with the following results:

Lecture-request-decision group	50% gave cod-liver oil 50% gave orange juice
--------------------------------	---

Discussion-decision group	88% gave cod-liver oil 100% gave orange juice
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An interesting study was conducted with these same methods with two groups of women in Cedar Rapids, Iowa (11). The Home Economics Department of the State University of Iowa and the Cedar Rapids Nutrition Service conducted the study with Cedar Rapids Red Cross nutrition classes.

The lecture-request-decision method was used with one group. This group was given a 30-minute lecture on the nutritive value of some of the less often served organ meats. The women were urged to serve them and were informed about interesting ways to prepare them.

The discussion-decision method was used with a second group. This group received the same information as the first group but were encouraged to discuss the problems involved in serving these meats. They were asked if they would be interested in making a decision to serve the meats. The group decided to serve the meats at home.

In seven days, the women were interviewed to see if they had served the meats. The results were as follows:

Lecture-request-decision group	10% served the meats
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Discussion-decision group	52% served the meats
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As a result of the research findings, the investigator formulated the plan which is presented in the following



section, in order to compare progress of students taught by a former method and revised method of teaching foods and nutrition to ninth grade homemaking classes.

## CHAPTER II

### METHOD OF PROCEDURE

In order to discover ways to improve methods of teaching nutrition to high school homemaking girls, the writer planned a study for teaching two Homemaking I classes differently. Two ninth grade homemaking classes at Tillamook High School were equated on the basis of intelligence quotient, age, and socio-economic status. After the pairing was done, the students were asked to reschedule their classes so that the classes would be equated on the above three items. Later, one student moved from the school, and three others entered the classes. The enrollment in the classes at the beginning were: Class A--23 and Class B--25 girls.

At the end of the unit, Class A had 24 students and Class B had 26 students. Only data from 23 students from each class were used.

Class A met third period, which was just before lunch, 10:40 to 11:35 A. M., while Class B met fifth period, just after lunch, from 12:40 to 1:35 P. M. The classes met daily and were 55 minutes in length.

In both classes there were some sophomore girls as well as the freshmen. In Class A there were three

sophomores and one 18-year-old who was a special student. In Class B there were five sophomores.

The intelligence quotient scores were obtained from the school guidance office. The Otis Quick Scoring Mental Ability Test, Beta Test Form A had been administered in the spring of 1953.

The socio-economic status of the girls was determined by a test (appendix) developed by the writer. The test contains 29 items, each one of which is given a certain number of credits. The sum of these credits is divided by the number of questions answered. This quotient, carried to one decimal place and the decimal neglected, is the score or socio-economic status. There is a possible score of 31.0. No attempt has been made to interpret scores from the test. The results are given later to show what the classes used in the study were like. The scores were used only to pair girls from the two classes. The test reveals such information as the education of the parents, number of organizations to which the mother and daughter belong, library facilities in the home, size of the home in relation to number of occupants, occupation of the father, and equipment in the home.



## How the Classes Were Taught

### Nutrition

A written pretest was administered to both classes at the beginning of the foods and nutrition unit. This test was developed in the three-year Ohio study of accomplishment in ninth and tenth grade food classes under the direction of Hazel Huston Price (12). The test has two forms, Foods Test Form A and Form B, Home Economics I. The tests each have 100 points. The tests cover (1) buying foods, (2) care of foods, (3) principles of preparation, (4) nutrition, and (5) meal planning. The instructor decided not to "teach toward the test" but to teach only the items that she believed were important. Thus, a score was taken on the sections of the test specifically taught in the unit. This score included 54 items. A second score was taken on both pretest and post test and included 32 nutrition items. Omitted were the sections on buying foods and caring for foods since the instructor had not planned to teach some of the material. Other test questions in the sections on principles of preparation and meal planning were omitted in scoring. Form B of the test was administered at the end of the foods and nutrition unit in each class.

A dietary survey of the girls was then made and used to determine the girls' needs for the unit, and it was also

to serve as a comparison of food habits before and after the unit. For the dietary survey, the printed forms developed by Tinsley for recording a three-day food intake were used. These are distributed by the General Mills Company. The method developed by Tinsley for tabulating the food record was used and the forms for tabulating and scoring the food records were obtained from General Mills. These forms are in the appendix.

The Tinsley devices were used to record all food consumed for a three-day period. The food records were tabulated on the Score Sheet for Three Day Food Record to determine the total score for the three days, the score for each of the tabulated items, and a breakfast score for the three days.

The food records were tabulated on the Score Sheet for Three Day Food Record accompanying the Pupil Food Record. On this tabulation sheet there are nine essential food groups listed. The survey sheets are scanned for foods from each of the nine groups, and these were tabulated. These groups are:

1. Green and yellow vegetables.
2. Citrus fruit, tomatoes, raw cabbage, and salad greens.
3. Potatoes
4. Other vegetables and fruit

5. Milk, milk products, and cheese
6. Meat, fish, poultry, dried beans and peas
7. Eggs
8. Bread, flour, and cereals
9. Butter or fortified margarine

Three points is the maximum possible score for each food group. Points were recorded for each food group, and the number of points depended on the number of servings recorded from the survey sheet. The maximum possible score for the three days' food record is 27. Classifications have been determined by Tinsley from standards proposed by the Food and Nutrition Board of the National Research Council in 1948. These classifications are:

Poor diet: Total score of 18 or lower or if no milk is included.

Fair diet: Total score of 19, 20, or 21, and a score on milk of at least one.

Good diet: Total score of 22 or higher and a score on milk of two or three.

Substitutions are possible in scoring the day's meals. If servings in certain food groups are too few or lacking, and servings in certain other food groups are more than the maximum number that can be credited, points may be given for the extra servings as follows:

1. Extra servings from the green and yellow vegetables group or the citrus fruit group may be substituted for the other fruits and vegetables group.



2. Extra servings of cereal foods may be substituted for potatoes if there are three servings tabulated for the citrus fruit group.
3. Extra servings of milk may be substituted for butter by counting each serving of milk as three servings of butter.
4. Extra servings of meat may be substituted for eggs if there are at least three servings of milk.

The breakfasts were also scored separately for a breakfast survey. Credit was given for the following foods: milk, egg, fruit, cereal, bread, and butter. Three points may be earned for each of the six foods. The maximum possible breakfast score is 18. Tinsley has set the following classification of breakfasts:

Good breakfast--15 to 18 points.

Fair breakfast--Nine to 14 points.

Poor breakfast--Eight or below.

Class A spent 14 days in the nutrition unit. This unit was separate from the foods unit. These were the activities the girls had:

Learning about the Basic Seven.

Preparing an illustrated nutrition notebook stressing the food nutrients.

Tabulating their food intake records to see how their menus rated.

Learning menu planning principles and practicing improving typical student menus from the food survey.

Learning about calories and weight control, calculating caloric intake, and being weighed.

It took this class longer to plan the improvement campaign than had been planned (two days instead of one). Sufficient time for tests and review had not been allotted in the unit plans. This nutrition unit took 14 days instead of the planned eight.

Class B spent ten days in the preliminaries of the introduction to foods and nutrition. Only six days had been planned for. These were the activities used before going into the foods unit:

- Learning about the Basic Seven.

- Tabulating their food records.

- Analyzing the class distribution of scores and planning an improvement campaign in eating habits.

- Learning visible evidences of good health.

- Learning menu planning principles and practicing improving typical student menus from the survey.

- Learning about calories, calculating their caloric intake, and being weighed.

It took this class longer to plan the improvement campaign than had been planned (two days instead of one). Sufficient time for menu planning study had not been allotted when the unit block was planned. Weight control took longer than had been planned (two days instead of one).

Both classes studied the same materials in the preliminaries to the study of foods and nutrition:

- Basic Seven.

- Tabulating a food survey.

Menu planning.

Weight control.

Class A studied the nutrients separately from the foods unit and made nutrition notebooks, whereas Class B did not.

The approach to improvement of food habits differed in the two classes. The author's methods used previously were used with Class A. Previously, a less exacting food survey was taken, and the girls tabulated the menus by the Basic Seven chart. The girls were urged to eat more nutritious meals. That was as far as the unit went. No follow-up study of eating habits was made. In Class A, during the present study, this same lecture-request-decision method, as it is named in current literature, was used (10, 11). Every girl saw only the score of her own food record. The class was urged to eat more nutritious meals. For recording improvements, a small attractive booklet was devised. The booklets were placed on a bulletin board.

The discussion-decision method was selected for teaching Class B the improvement of eating habits. After the girls had tabulated the three-day food survey, charts were made by students to show individual student scores, labeled by numbers rather than names, so that students could see the food record scores of all class members. The class discussed ways of improving eating habits of all class



members. After a long discussion, the class voted to try to bring all diets at least up one classification (poor to fair, fair to good, etc.). These girls planned to use booklets to record improvements. The booklets were mounted on a bulletin board.

Different methods of teaching diet improvement were used in the two classes. Class A was requested to improve menus, whereas, Class B was guided to analyze the problem, to see the need for improvement, and to make their own decisions to improve eating habits.

The study of food nutrients was taught to Class A in a separate nutrition unit preceding the foods unit. The nutrients were not taught to Class B except as they were integrated with the preparation of foods in the foods unit. The foods unit will be outlined before the method of integrating nutrition is discussed. In Class A, a study was made of Vitamin A, Vitamin B, Vitamin C, Vitamin D, calcium, iron, carbohydrates, protein, and fat. Each nutrient was studied by the following outline:

Effect that the nutrient has on the body.

Chief sources of the nutrient.

Each nutrient was written up in a notebook and illustrated with magazine pictures of foods.

## Foods

The 11-weeks' foods unit was taught in each class on the meal basis. The following is a list of the laboratory periods in the two classes:

### Class A

#### 1. Pretest meal.

A breakfast of fruit or juice, toast, and cocoa.

#### 2. Meal consisting of creamed food, salad, and fruit.

#### 3. Biscuits.

#### 4. Cookies other than sugar cookies.

#### 5. Sugar cookies with icing.

#### 6. Candy (just before Christmas vacation).

#### 7. Vegetable plate lunch with pudding.

#### 8. Soup and toasted sandwiches.

#### 9. Salad plate lunch with a quick bread.

#### 10. Cheese or meat extender meal with salad and fruit dessert.

#### 11. Practical test meal.

Selection by lot of one of the following patterns:

a. A creamed food, a quick bread, a fruit salad, or dessert.

b. Cream soup, sandwich or bread, fruit salad, or dessert.

c. Salad plate, quick bread, beverage.

d. Meat extender, tossed salad, gelatin dessert.

## Class B

### 1. Pretest meal.

A breakfast of fruit or juice, toast, and cocoa.

### 2. Ten-minute breakfast.

### 3. Meal consisting of creamed food, salad, and fruit.

### 4. Biscuits.

### 5. Cookies other than sugar cookies.

### 6. Sugar cookies with icing.

### 7. Candy (just before Christmas vacation).

### 8. Vegetable plate lunch with pudding.

### 9. Soup and toasted sandwiches.

### 10. Salad plate lunch with a quick bread.

### 11. Cheese or meat extender meal with salad and fruit dessert.

### 12. Practical test meal.

Selection by lot of one of the following patterns:

a. A creamed food, a quick bread, a fruit salad, or dessert.

b. Cream soup, sandwich or bread, fruit salad, or dessert.

c. Salad plate, quick bread, beverage.

d. Meat extender, tossed salad, gelatin dessert.

For these meals, day ahead preparation was used. For many meals, the girls used the noon hour in addition to class periods. Dry ingredients for quick breads were measured the day before to save time.



The following kitchen duties were rotated by kitchen groups (sociograms were used twice in each class to form the six kitchen groups):

1. Care of refrigerator.
2. Care of supply table and supply cupboard.
3. Laundry.
4. Check-up of cleanliness of large appliances.

In Class A the girls were completely teacher evaluated. No student self-evaluation was used since this had been the author's method before. Before the Class A girls started to work in the kitchen for the first time, they were instructed in the following areas:

Safety  
Washing hands  
Using an apron  
Using a tray for supplies  
Working quietly  
Finishing on time  
Completely cleaning the unit kitchens before leaving

This was the only teaching of management to Class A.

Management was taught to Class B by giving the girls a copy of a modification by the writer of the score card, Form A--Score on Laboratory Work in Foods, an adaptation by Hazel Price of the Check List for Food Preparation and Serving, published by the University of Minnesota Press (appendix). This score card was discussed with the girls and each time they evaluated their own work on a copy of the score card. The instructor also evaluated every girl

in each class with the score card. Copies of the Minnesota Food Score Cards were used by both the students and the teacher in Class B to evaluate most products. In this way, girls were taught to develop skills in preparing standard products. A few products were evaluated by the teacher by using the 1, 2, 3, 4, and 5 grading system used in the school. The girls in both classes used the plan sheets modified by the writer from the Plan for Meal Preparation and Service from the Ohio study (appendix) when planning order lists and time plans for kitchen periods.

During the teaching of the unit, the instructor attended the American Vocational Association Convention in Chicago from November 22 to 27, as a delegate, while an Oregon State College student teacher took the classes and helped the girls make Christmas gifts. It was thought that it was wise not to have the student teacher carry on the foods unit and that since both classes would be delaying their foods unit, the results should be equalized in both classes. At the convention, the instructor had the opportunity of hearing Mildred Moore, Head of the Home Economics Department at Ball State Teachers' College, Muncie, Indiana, tell of a study on "Space and Equipment for Unit Kitchens in Secondary Schools." From this instruction, the instructor put into practice the following improvements with the assistance of a Homemaking II class:



1. Eliminating a central supply table by putting staple foods in the units and placing each unit's daily supplies on a tray.
2. Using divided drawers for small equipment and labelling the space for each utensil.
3. Using vertical files for baking equipment and trays.

The equipment was rearranged in the unit kitchens for greater convenience. Plans were drawn up for drawer dividers which were made by the school carpenter. The following staple foods and supplies, in addition to the flour, salt, and sugar that were already in the units, were added: shortening, baking powder, pepper, chocolate, soda, powdered and brown sugars, vanilla, toothpicks for cake testing, paper napkins, and waxpaper.

The author had the privilege of hearing a report at the convention by Hazel Huston Price, Curriculum Consultant, formerly Associate Professor of Home Economics Education, Ohio State University, under whose direction the three-year study of management practices in foods classes in high schools was made. Several of the materials used in this study were developed in the Ohio study. The report dealt with the teaching of management through selection and arrangement of equipment for many of the units taught in homemaking.

The teaching of foods in the two classes differed in the following respects:



In Class B, nutrition was stressed; whereas, it was not stressed in Class A.

Class A did not have management stressed; whereas, in Class B the girls learned management by scoring themselves with the score card on work habits. The breakfast, a pre-test meal, was supplemented in Class B by a second breakfast meal in which the girls were made aware of time management by the preparation of a ten-minute breakfast. The method of having the kitchen groups subdivided so that half of each kitchen group could analyze the management of the other half was adapted from the Ohio study.

#### Integration of Nutrition with the Foods Unit

No mention of nutrition was made in Class A during the foods unit. In Class B, the nutrients were taught in connection with the kitchen preparations.

After the pretest meal, a breakfast of fruit or juice, toast, and cocoa, the girls made colorful charts by mounting colored paper, each color representing a different nutrient, by the written menu of the meal that each kitchen prepared. They planned the other two meals of the day to meet Basic Seven requirements.

After the pretest meal, the ten-minute breakfast, and the biscuit preparation, the class discussed the two food groups from the Basic Seven which had been present in their

food preparation: bread and cereal and citrus fruits. The girls read in McDermott, Trilling, and Nicholas, Food for Better Living, pages 111-113 and 162-163. They did a written exercise on Vitamin B on pages 166-167. They discussed Vitamin B, iron, fat, and protein in cereal, and Vitamin B in biscuits.

In connection with the citrus fruits in the breakfasts, the girls read material on Vitamin C, pages 58-64, and did the exercise on page 66.

In connection with planning the vegetable plate meal in each class, the girls discussed likes and dislikes of vegetables among class members. Both classes had study questions on vegetable cookery, but Class B also had study questions on Vitamin A, and they read pages 269-278 and did the exercises on pages 292-293. In Class A, methods of preparing individual vegetables were discussed, and in Class B, girls gave reports on preparing individual vegetables.

After the vegetable plate meal, carbohydrates and calcium, nutrients in cookies, muffins, and pudding that had been prepared were discussed.

## CHAPTER III

### ANALYSIS OF DATA

#### INTRODUCTION

The following is an analysis of the data obtained from the two paired Homemaking I classes taught nutrition by two different methods. Class A was taught a separate two weeks' nutrition unit before the foods unit. The lecture-request decision was used. Class B was taught nutrition by the discussion-decision method and the unit was integrated with foods. Included in this chapter, are a description of the results in the two classes on the dietary survey, as well as results on a pretest and post test, a six weeks' examination, a semester examination, and a nutrition test. A comparison is made of the scores made by the pairs of girls in the classes. Scores of girls of different intelligence quotient levels on different forms of nutrition tests are compared.

#### The Classes Used in the Study

Table 1 shows the median of Class A and Class B as to age, intelligence, and socio-economic test score.

The design of the experiment was to pair two classes on intelligence quotient test scores, age, and



socio-economic status. Classes were organized to reduce the error in the experiment and to make the classes as similar as possible.

From Table 1 it can be seen that both classes were very well equated. Class A had a median age which is only one month less than Class B. There was a wider range of ages in Class A than in Class B, however. (Appendix, Table A) Whereas in Class A there was a range from 13 years and ten months to 18 years and six months, in Class B, the range was from 13 years and ten months to 16 years and two months. In Class A, except for the pupil who was 18 years and six months and another who was 16 years and six months, all others were less than 15 years and six months. In Class B, except for the pupil who was 16 years and two months, there were no others more than 15 years and seven months.

The intelligence quotient scores were obtained from the school guidance office. The Otis Quick Scoring Mental Ability Test, Beta Test, Form A, had been administered in the spring, 1953.

Table 1 and Table A (Appendix) also show that the median intelligence quotient for the two classes was 105 for Class A and 102 for Class B. In Class A, the range was from 82 to 118, whereas in Class B, the range was from 67 to 124. In Class A, there were eight pupils who had

Table 1

Median of Three Factors Used in Selecting Pairs of Students

Factors	Class A	Median	Class B
Age of students	14 years, 5 months		14 years, 6 months
Intelligence quotient	105		102
Socio-economic test	16		17

intelligence quotient scores below 100 and 14 had scores from 101 to 113. The highest had a score of 118. In Class B, six had intelligence quotients from 94 to 99. Fourteen girls had scores from 101 to 113. In Class B, the range was wider than in Class A.

The socio-economic status of the girls was determined by a test prepared by the writer. This test had 29 items with a possible score of 31.0.

The 29 items in the socio-economic test were not each credited with a certain number of points, but some items received more than one credited score and some items were grouped to receive only one score among several. This accounts for the discrepancy between the number of items on the responses on Table B (Appendix) and the number of items on the socio-economic test. The 29 items on the socio economic test are subdivided so that actually 32

items receive a credit of points. The credits for these 32 items total 102 points. Dividing these yields a possible score of 31.0 if the quotient is carried to one decimal place and the decimal neglected. The test reveals the education of the parents, number of organizations to which the mother and daughter belong, library facilities in the home, size of the home in relation to number of occupants, occupation of father, and equipment in the home.

Table 1 also shows that the medians of the two classes in the socio-economic test scores were very similar. The range in Class A was from seven to 23 with a median of 16. In Class B, the range was from ten to 21 with a median of 17.

Table B (Appendix) is a comparison of the responses of the girls in the two classes on the socio-economic test. The classes had the same responses on the following items. All the girls lived at home. In each class, 91 per cent of the fathers finished the eighth grade. Thirty-nine per cent of the fathers finished high school. About 57 per cent of the mothers belonged to clubs. Only four per cent of the families had no car. Only nine per cent of the families took only one magazine, but 78 per cent of the families took three or more magazines. It is surprising that 17 per cent of the girls reported their families had more than 500 books. Four per cent of the families occupied



only two rooms, four per cent of the families occupied four rooms, and four per cent of the families occupied eight rooms. One-fourth of the families were comprised of four people, whereas 13 per cent of the families consisted of six people. It was not from the socio-economic test but from the Food Practices Checksheet that it was found that almost one-third of the girls live outside of town but not on a farm.

There were significant differences in the responses of the two classes on the following items. Twenty-two per cent more girls in Class A reported having their own bank accounts. In Class B, 17 per cent more girls reported that their fathers finished college. Also in Class B, 39 per cent more girls have their own rooms; however, in Class A, 13 per cent more girls reported that their families attended musicals, and 17 per cent more girls in Class B go on vacations. Whereas 13 per cent more girls in Class B reported one car in the family, 13 per cent more families in Class A reported two or more cars in their families. The girls in Class B reported more books in the homes. Class B had more large homes. Class B has 13 per cent more fathers in the professional and executive positions. Class A has more fathers than Class B in commercial service and skilled labor. Four per cent of Class A's fathers were

unskilled laborers, whereas there were none of the fathers in Class B so employed.

Washing machines, refrigerators and vacuum cleaners seemed to be standard equipment for the homes of most of the total group. On the other hand, Class A reported 13 per cent more deepfreezes than Class B and Class B reported 13 per cent more disposalls.

There were other pertinent facts. The median of the years these girls had lived in this community was ten for each class. Forty-three per cent in Class A and 35 per cent in Class B had gone to school elsewhere. In each class, the median number of siblings was two. In each class there were five girls who were only children. Most of the parents finished the eighth grade, but only about one-third of the fathers and one-half of the mothers finished high school. In Class A there were nine per cent of the fathers and four per cent of the mothers who finished college. There were very few families who had part-time or full-time paid help in the home. Only in Class A were there any, in which class there were four per cent part-time and four per cent full-time workers. Girls in both classes reported their families had good supplies of books and magazines in the homes. There were no dishwashers reported, as might be expected.

Although the median of Class A on the socio-economic test was 16 and the median in Class B was 17, this detailed analysis of the responses would seem to indicate that the girls in Class B were from larger homes where more girls had their own rooms. More of these girls were from the city. The homes of Class A had more of the major appliances. In Class B, there were more fathers in higher positions and more of them had finished college.

It is of interest to note the lack of any dishwashers being reported and the low number of disposalls reported by the total group, whereas the homemaking department in Tillamook High School has both pieces of equipment. The department equipment seems to be above community standards.

### Results of Ohio Tests

A written pretest developed in the three-year Ohio study of accomplishment in ninth and tenth grade food classes under the direction of Hazel H. Price was administered to the Tillamook Homemaking I classes. The test has two forms, Foods Test Form A and Form B, Home Economics I. Both tests have 100 items. Form B of the test was given at the end of the foods and nutrition unit in each class. Fifty-four items from the test which represented material covered by the teacher conducting this study in the unit



were selected for scoring. A separate score was taken on the 32 items in the test which pertained specifically to nutrition.

Table 2 shows the percentage scores on the pretest and post test, foods and nutrition section of 54 items, of the pairs in the two classes. The difference in scores is also shown.

Table 2 shows that in Class A, 16 girls improved their scores with an average improvement of 13.6 per cent. Two girls made the same score on both tests. Five girls made lower scores on the post test with an average change of 3.1 per cent. The mean improvement of Class A was 8.7 per cent.

In Class B, 17 girls improved their scores on the post test with an average improvement of 12.9 per cent. One girl made the same score on both tests. Five girls lowered their scores with an average change of 9.6 per cent. The mean improvement of Class B was 7.4 per cent.

The difference between the two classes was quite small. More girls from Class B improved than did in Class A. The mean improvement in Class A was slightly higher.

The median score on the pretest in Class A was 66.6 per cent with a range of 38.8 to 81.4 per cent. In Class B, the median was 62.9 with a range of 37.0 to 79.6 per cent.

Table 2

Percentage Scores on Pretest and Post Test (54 Items)  
and Difference Between Scores in the Two Classes

Pairs	Class A			Class B		
	Pre- test %	Post Test %	Differ- ence %	Pre- test %	Post Test %	Differ- ence %
1	66.6	88.8	22.2	68.5	72.2	3.7
2	68.5	83.3	14.8	75.9	83.3	7.4
3	70.3	68.5	-1.8	74.0	83.3	9.3
4	66.6	81.4	14.8	79.6	79.6	0
5	66.6	61.6	-5.5	64.8	74.0	9.2
6	68.5	70.3	1.8	62.9	31.4	-31.5
7	70.3	66.6	-4.7	70.3	68.5	-1.8
8	70.3	72.2	1.9	44.4	72.2	27.8
9	61.1	62.9	1.8	55.5	61.1	5.6
10	74.0	72.2	-1.8	64.8	74.0	9.2
11	77.7	83.3	5.6	70.3	66.6	-3.7
12	75.9	74.0	-1.9	61.1	77.7	16.6
13	70.3	83.3	13.0	62.9	72.2	9.3
14	57.4	77.7	20.3	61.1	75.9	14.8
15	81.4	81.4	0	62.9	72.2	9.3
16	70.3	75.9	5.6	53.7	68.5	14.8
17	66.6	66.6	0	55.5	74.0	18.5
18	57.4	66.6	9.2	57.4	75.9	18.5
19	57.4	79.6	22.2	51.8	68.5	16.7
20	51.8	66.6	14.8	68.5	75.9	7.4
21	59.2	64.8	5.6	42.5	64.8	22.3
22	59.2	74.0	14.8	59.2	51.8	-7.4
23	38.8	62.9	24.1	37.0	33.3	-3.7

On the post test, the median in Class A was 72.2 with a range of 61.6 to 88.8 and in Class B, was 72.2 with a range of 31.4 to 83.3. Class A had a higher median on the pretest than Class B, and the same median on the post test as Class B.

On the pretest, in 14 pairs, Class A had higher

scores. In six pairs, Class B had higher scores. In three pairs, scores were identical. On the post test, in 12 pairs, Class B had higher scores. In three pairs, scores were identical. On the post test, in 12 pairs, Class A had higher scores. In Class B, eight girls had higher scores. In three pairs, scores were identical. Class A had more high scores on the pretest and the post test.

Table 3 and Chart 1 show the percentage scores on the pretest and post test, nutrition section of 32 points, of the pairs in the two classes. The per cent of change is also shown.

Table 3 shows that in Class A, 13 girls improved their scores on the nutrition section of the post test with an average improvement of 8.2 per cent. Two girls made the same scores on the pretest and post test. Eight girls made lower scores on the post test with an average change of 8.9 per cent. The mean improvement of Class A was 1.6 per cent.

In Class B, 11 girls improved their scores on the post test with an average improvement of 9.3 per cent. Two girls made the same scores on both tests. Ten girls had lower scores with an average change of 6.8 per cent. The mean improvement of Class B was 1.4 per cent.

In Class A, therefore, a few more girls improved than they did in Class B. Fewer girls in Class A made lower scores on the second test than the pretest. The mean



Table 3

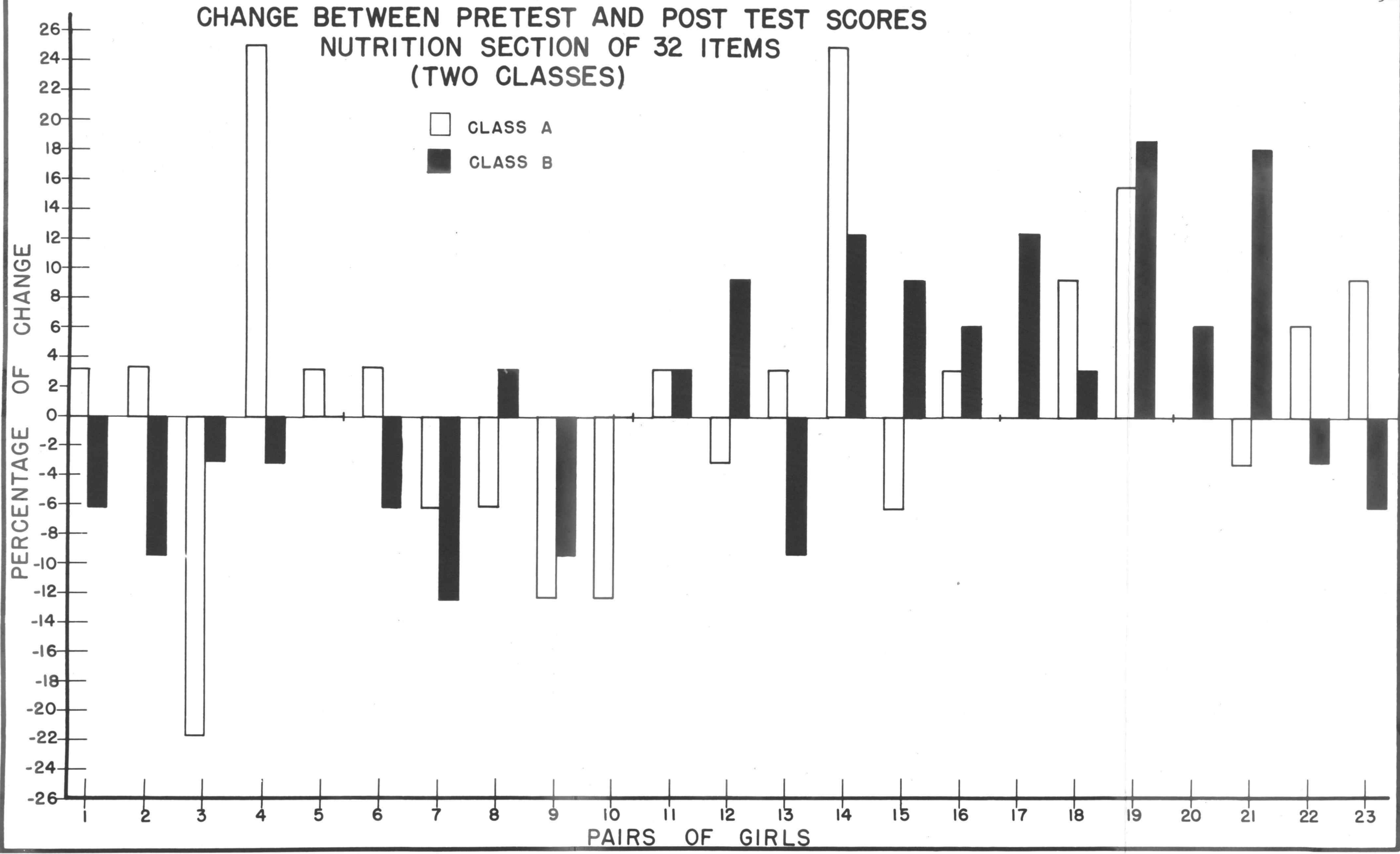
Percentage Scores on Ohio Pretest and Post Test (32 Items)  
And Differences Between Scores in the Two Classes

Pairs	Class A			Class B		
	Pre-test %	Post Test %	Difference %	Pre-test %	Post Test %	Difference %
1	81.2	84.3	3.1	78.1	71.8	-6.3
2	84.3	87.5	3.2	87.5	78.1	-9.4
3	84.3	62.5	-21.8	84.3	81.2	-3.1
4	62.5	87.5	25.0	87.5	84.3	-3.2
5	75.0	78.1	3.1	75.0	75.0	0
6	71.8	75.0	3.2	68.7	62.5	-6.2
7	65.6	59.3	-6.3	84.3	71.8	-12.5
8	81.2	75.0	-6.2	71.8	75.0	3.2
9	68.7	56.2	-12.5	62.5	53.1	-9.4
10	84.3	71.8	-12.5	75.0	75.0	0
11	90.6	93.7	3.1	65.6	68.7	3.1
12	84.3	81.2	-3.1	75.0	84.3	9.3
13	81.2	84.3	3.1	78.1	68.7	-9.4
14	59.3	84.3	25.0	59.3	71.8	12.5
15	87.5	81.2	-6.3	75.0	84.3	9.3
16	75.0	78.1	3.1	62.5	68.7	6.2
17	65.6	65.6	0	65.6	78.1	12.5
18	50.0	59.3	9.3	65.6	68.7	3.1
19	62.5	78.1	15.6	50.0	68.7	18.7
20	59.3	59.3	0	78.1	84.3	6.2
21	62.5	59.3	-3.2	43.7	62.5	18.8
22	65.6	71.8	6.2	56.2	53.1	-3.1
23	46.8	56.2	9.4	43.7	37.5	-6.2

improvement in Class A is slightly higher.

The median score on the pretest in Class A was 71.8 per cent with a range of 46.8 to 90.6 per cent. In Class B, the median was also 71.8 per cent with a range of 43.7 to 87.5 per cent. In the post test, the median in Class A was 75.0 with a range of 56.2 to 93.7 per cent, and in

CHART I  
CHANGE BETWEEN PRETEST AND POST TEST SCORES  
NUTRITION SECTION OF 32 ITEMS  
(TWO CLASSES)



Class B, it was 71.8 per cent with a range of 37.5 to 84.3 per cent. There were identical median scores on the pretest in the two classes but on the post test Class A had a higher median.

On the pretest, in 14 pairs, Class A had higher scores. In four pairs, the scores in both classes were the same. In five pairs, Class B had higher scores. On the post test, in 13 pairs, Class A had higher scores. In one pair, the scores were the same. In nine pairs, Class B had higher scores. On both the pretest and post test, there were more high scores in Class A.

The data from the 32 items of Form A and Form B of the Ohio test were treated statistically.

The post test score minus the pretest score of the lecture-request decision method is a measurement of the knowledge gained by a girl through that method. For example, the girl of Pair No. 1 gained  $84.3 - 81.2$  or 3.1 points. A similar measurement of the knowledge gained through the discussion-decision method can also be obtained. For example,  $71.8 - 78.1$  or -6.3 is the knowledge gained by the girl of Pair No. 1. She actually lost 6.3 points. Then the difference between the two measurements, that is,  $3.1 - (-6.3)$  or 9.4 is a measurement of the degree of the superiority of lecture-request decision method over the discussion-decision method of the first pair. Such a measurement was calculated for each of the



23 pairs of girls. The problem was to determine whether the average of the 23 differences was significantly different from zero, that is, to determine, on the average, which one of the two teaching methods is best suited to the instructor. The "Students" t-test was used and it was found equal to .10 with 22 degrees of freedom. The conclusion was that the two methods are equally suited to the instructor.

#### Results of Dietary Survey

At the beginning of the unit, a dietary survey was made in each class. The Tinsley devices were used to record all food consumed for a three-day period. The food records were tabulated on the Score Sheet for Three-Day Food Record (Appendix) to determine the total score for the three days, the score for each of the tabulated items, and a breakfast score for the three days. The scores were classified as "Good," "Fair," or "Poor." Each class participated in a second dietary survey at the end of the entire foods and nutrition study.

In Table 4, the food records show the percentage of each class who had "Good," "Fair," and "Poor" diets on the first and second dietary surveys and the improvement in each class.

From Table 4, it can be seen that food records of the girls in the two classes showed that the diets in both

classes had improved somewhat during the time that the nine weeks units in foods and nutrition were taught. At the beginning of the unit, dietary habits of the girls in both classes were poor. In Class A, there were 78.4 per cent of poor diets and only 8.6 per cent of good diets. In Class B, there were 52.2 per cent of poor diets and only 8.6 per cent of good diets. After the unit, both classes had 52.2 per cent of poor diets and Class A had more good diets than Class B, 34.8 per cent and 30.4 per cent, respectively. Class A made the greater improvement in good diets, 26.2 per cent to Class B's 21.8 per cent. They also improved 26.1 per cent in reducing the number of poor diets, whereas Class B did not reduce the number of poor diets. Class A, therefore, had lower scores on the first survey and higher scores on the second survey than Class B, and seemed to improve more but Class B reported better diets to begin with.

The median of the dietary scores on the first survey was 55.5 per cent in Class A and 66.6 per cent in Class B. On the second survey, the median of the dietary scores in Class A was 66.6 per cent and 70.3 per cent in Class B. Class A improved by 11.1 per cent and Class B by 3.7 per cent.

Table 5 shows the breakfast survey scores of two classes of Homemaking I girls.



Table 4

Three-Day Food Intake Scores of Two Classes of Homemaking I

	First Survey		Second Survey		Improvements	
	Class A	Class B	Class A	Class B	Class A	Class B
	%	%	%	%	%	%
Good Diets	8.6	8.6	34.8	30.4	26.2	21.8
Fair Diets	13.0	39.2	13.0	17.4	0	21.8
Poor Diets	78.4	52.2	52.2	52.2	26.1	0
Total	100.0	100.0	100.0	100.0		

Table 5

Breakfast Survey Scores of Two Classes of Homemaking I

	First Survey		Second Survey		Improvements	
	Class A	Class B	Class A	Class B	Class A	Class B
	%	%	%	%	%	%
Good Break-fasts	0	4.4	13.0	13.0	13.0	8.6
Fair Break-fasts	13.0	34.8	39.2	43.5	26.2	8.7
Poor Break-fasts	87.0	60.8	47.8	43.5	39.2	17.3
Total	100.0	100.0	100.0	100.0		

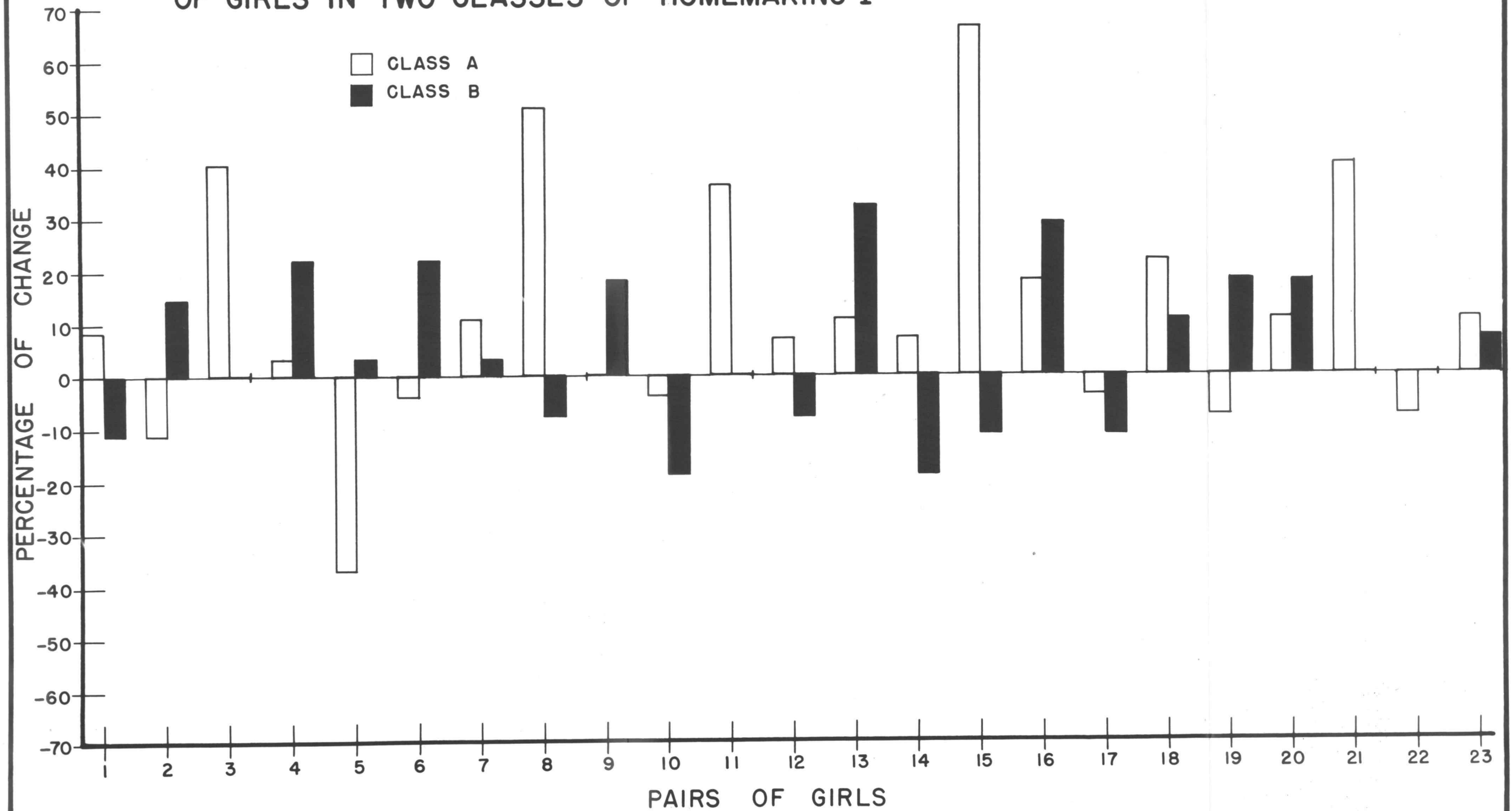


From Table 5 it can be seen that breakfast scores in both classes at the beginning of the unit were low. Class A, according to scores, had poorer breakfasts than Class B, 87.0 percent to 60.8 percent, respectively. Class A reported no good breakfasts and Class B had only 4.4 percent of good breakfasts. Both classes had a high percentage of poor breakfasts. Over 50 percent of each group reported breakfasts which were scored poor. As a result of the unit, breakfasts were improved a little. In the second survey, both classes had the same percentage of good breakfasts, 13 percent. Class B had fewer poor scores and more fair scores than Class A. Class A had improved more since their initial scores were lower than Class B and were raised to almost the level of Class B scores on the second survey. Class A improved 13 percent on good scores and Class B improved 8.6 percent. Therefore, Class A reported poorer breakfasts to begin with, and raised to the same level of good breakfasts that Class B did, 13 percent. Members of Class B reported more scores which rated as fair breakfasts than did Class A.

Chart 2 shows the percentage of change between the pairs on the food record scores.

From Chart 2 it can be seen that in Class A there were 15 girls who improved their diet scores with average

CHART 2

CHANGE BETWEEN FOOD INTAKE SCORES  
OF GIRLS IN TWO CLASSES OF HOMEMAKING I

improvement of 23.1 percent. In Class B there were 12 girls who improved with an average of 16.9 percent. In 11 of the pairs, the girls in Class A made greater improvement than Class B with an average gain of 27.5 percent. In nine pairs, the girls from Class B made greater improvement than Class A with an average gain of 20.1 percent.

More girls in Class A improved their scores and more girls in Class A made larger average improvements than among those who improved in Class B. The mean percent of improvement in Class A was 11.9 percent, whereas in Class B it was only 5.1 percent. Therefore, the food record scores show that for the meals reported, Class A showed more improvement than Class B.

Table 6 and Chart 3 show the percent of pupils reporting daily occurrence of various foods on the general food intake survey and the percentage of change.

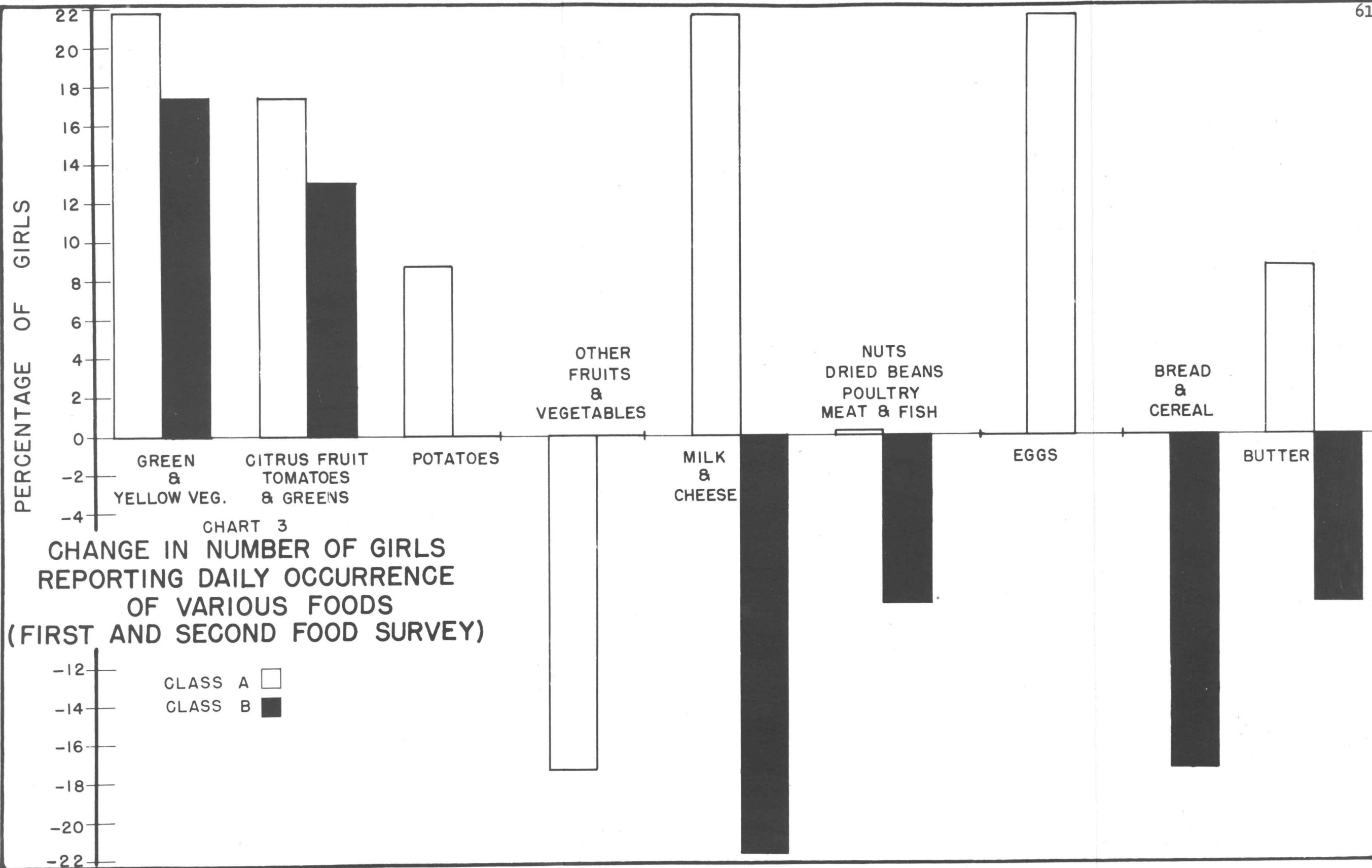
Table 6 shows that the girls were not eating sufficient amounts of the nine protective foods scored in the survey. Both classes were very low in all items. In scoring diets, a food was considered to be included in the diet only if the minimum number of servings for the three days was included, and a score of 3 was earned on the food group. A food was considered to be omitted if it earned a score of zero. The girls reported on



Table 6

Percentage of Girls Reporting Daily Occurrence of  
Various Foods in Their Food Records

Food Groups	First Survey		Second Survey		Difference	
	Class A %	Class B %	Class A %	Class B %	Class A %	Class B %
Green and yellow vegetables	17.3	13.0	39.1	30.4	21.8	17.4
Citrus fruit, tomatoes, cabbage, greens	17.3	13.0	34.7	26.0	17.4	13.0
Potatoes	39.1	56.5	47.8	56.5	8.7	0
Other fruits and vegetables	30.4	17.3	13.0	17.3	-17.4	0
Milk and milk products, and cheese	13.0	52.1	34.7	30.4	21.7	-21.7
Meat, fish, poultry, dried beans, nuts	82.5	95.6	82.6	86.9	.1	-8.7
Eggs	34.7	52.1	34.7	73.9	0	21.8
Bread and Cereals	47.8	78.2	47.8	60.8	0	-17.4
Butter and margarine	21.7	39.1	30.4	30.4	8.7	-8.7



the first survey that 82.5 percent in Class A ate meat, fish, poultry, dried beans, nuts and in Class B 82.6 percent of the girls ate meat, fish, poultry, dried beans, nuts. Both classes were below 50 percent on both surveys in the amount of green and yellow vegetables, citrus fruit, tomatoes, cabbage, greens, other fruit and vegetables, and butter and margarine which they ate. Class A was below 50 percent on consumption of potatoes on the first survey. Only in Class B in the first survey was consumption of milk, milk products, cheese reported by over 50 percent of the girls, but only one-third of the girls reported drinking milk in the second survey. Eggs and bread and cereals were below 50 percent in both surveys in Class A. In Class B, whereas three-fourths of the class had sufficient bread and cereal in the first survey, in the second survey, only two-thirds reported a sufficient supply in this group. On the other hand, this class improved about twenty percent in the occurrence of eggs in the diet.

In the first survey, Class A had higher scores in only three items--green and yellow vegetables, citrus fruit, tomatoes, cabbage, greens, and other fruit and vegetables. Class B had higher scores in six items.

In the second survey, Class A had higher scores on consumption of three items--green and yellow vegetables,



citrus fruit, tomatoes, cabbage, greens, and milk, milk products, and cheese. Both classes had the same scores on consumption of butter. Class B had higher scores on five items.

In Class A, improvements were made in five of the nine items: green and yellow vegetables, citrus fruit, tomatoes, cabbage, greens, potatoes, milk, milk products, cheese, butter, and margarine. In Class B, improvements were made in three items: green and yellow vegetables, citrus fruit, tomatoes, cabbage, greens, and eggs. Class A had a mean improvement in the nine items of 6.7 percent. Class B lost slightly in the second survey. Therefore, Class A showed the greater improvement.

Although Class A improved in five items and Class B improved in three items, both classes still had less than 50 percent who reported eating green and yellow vegetables, citrus fruit, tomatoes, cabbage, greens, and butter, and less than 25 percent of both classes ate other fruits and vegetables. Class A was below 50 percent on consumption of potatoes and Class B reported only 56.5 percent consumption on this item. Consumption of eggs was below 50 percent of the girls in Class A but 73.9 percent so reported in Class B in the second survey. Bread and cereals were reported by fewer than 50 percent of the girls in Class A and 60.8 percent of the girls in Class B. The consumption of milk, milk

products and cheese was very low. In Class B in the first survey, 52 percent reported consuming milk, milk products and cheese, but in the second survey only one-third in each class reported such consumption.

Table 7 and Chart 4 show the percentage of girls in each class reporting daily occurrence of various foods on the breakfast survey.

On the breakfast survey, Class A improved in all six items with a mean improvement of 31.1 percent. Class B improved in only one item. The consumption of bread was below 50 percent in both classes as was butter. Cereal, fruits, and eggs were below 25 percent in both classes. Milk was 56.5 percent in Class A and 52.1 percent in Class B.

A total of 27 girls improved their eating habits during the study of foods and nutrition with an average improvement of 27.8 percent.

Table 8 shows the number of pupils in each class reporting no occurrence of various foods in the diet.

From Table 8 it can be seen that at least 25 percent of the girls in both classes on both surveys reported having no servings of citrus fruit, tomatoes, cabbage greens. At least one-fourth of both classes reported eating no green and yellow vegetables during the three days



Table 7  
Percentage of Girls Reporting Daily Occurrence of  
Various Foods on the Breakfast Survey

Food Groups	First Survey		Second Survey		Difference	
	Class A %	Class B %	Class A %	Class B %	Class A %	Class B %
Milk	34.7	60.8	56.5	52.1	21.8	- 8.7
Eggs	0	17.3	13.0	8.6	13.0	- 8.7
Fruit	0	13.0	17.3	13.0	17.3	0
Cereal	4.3	21.7	8.6	17.3	4.3	- 4.4
Bread	21.7	34.7	39.1	34.7	17.4	0
Butter	8.6	17.3	21.7	30.4	13.1	13.1



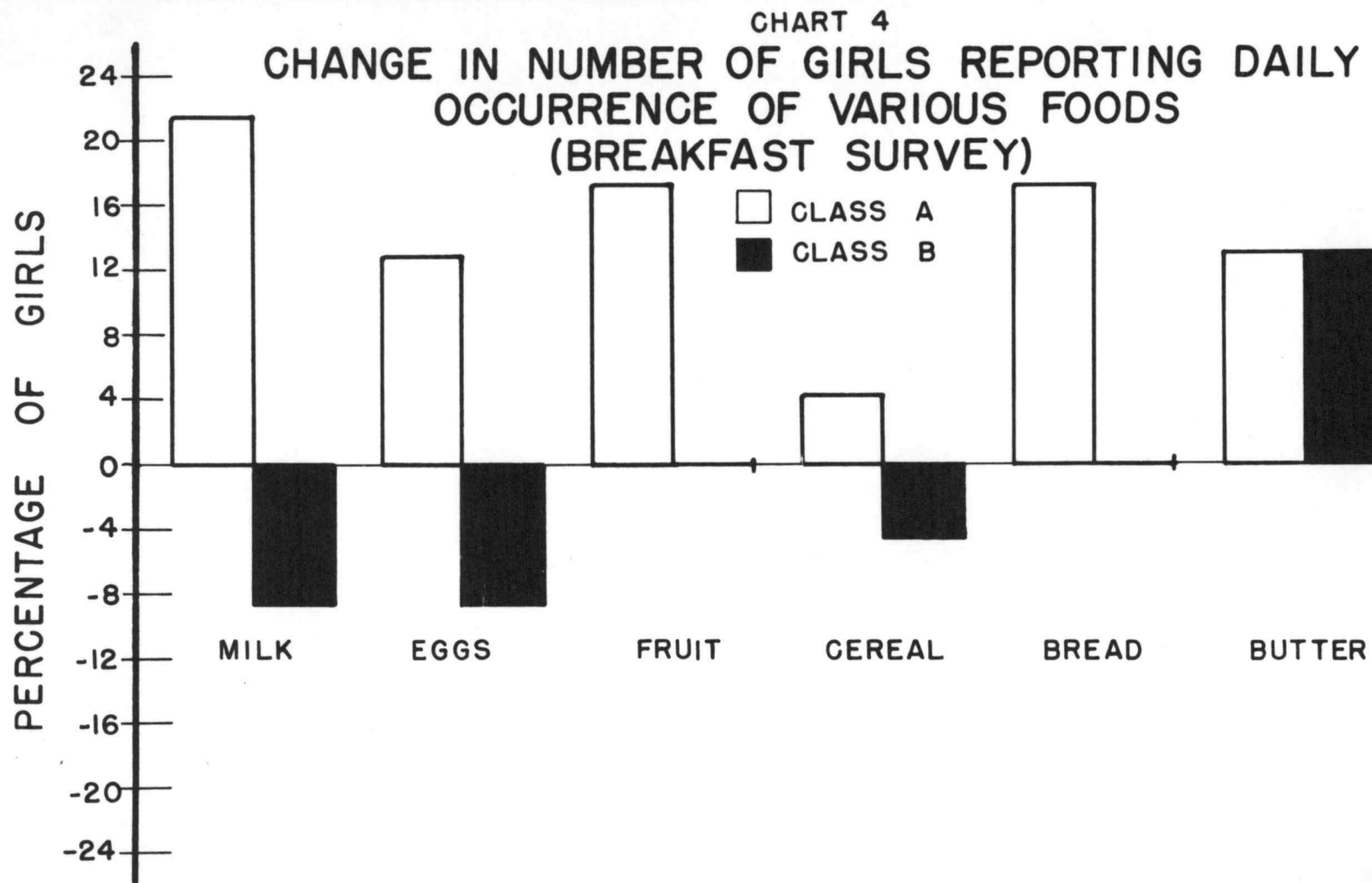


Table 8

Percentage of Girls Reporting No Servings  
of Various Foods in Their Records

Food Groups	First Survey		Second Survey		Difference	
	Class A %	Class B %	Class A %	Class B %	Class A %	Class B %
Green and yellow vegetables	26.0	39.1	4.3	17.3	21.7	21.8
Citrus fruit, tomatoes, cabbage, greens	56.5	56.5	26.0	39.1	30.5	17.4
Potatoes	21.7	13.0	8.6	8.6	13.1	4.4
Other fruits and vegetables	13.0	21.7	30.4	21.7	-17.4	0
Milk, milk products, and cheese	17.3	4.3	13.0	8.6	4.3	-4.3
Meat, fish, poultry, dried beans, nuts	4.3	0	0	0	4.3	0
Eggs	39.1	17.3	30.4	8.6	8.7	8.7
Bread and cereal	4.3	4.3	8.6	0	-4.3	4.3
Butter and margarine	39.1	30.4	30.4	21.7	8.7	8.7

of the first survey. About one-third of Class A reported eating no eggs on either survey. Butter was missing from the diets of the high school girls in over one-fourth of the girls' meals in both surveys.

On the first survey, Class A had a lower percentage of those reporting omission of foods than Class B in two items--green and yellow vegetables and other fruit and vegetables. Class B was lower on five items. Both classes reported the same percentage of missing citrus fruit, tomatoes, cabbage, greens, and bread. No one in Class B had omitted meat, fish, poultry, dried beans, nuts on the first survey.

On the second survey, Class A had lower percentages of those reporting missing foods in two items--green and yellow vegetables and citrus fruit, tomatoes, cabbage, greens. Class B was lower in five items. On the second survey, all pupils in Class A ate meat, fish, poultry, dried beans, nuts, and all pupils in Class B ate meat, fish, poultry, dried beans, nuts, and bread and cereals.

From Table 8 it may be seen that the improvement in eating was greater for Class A than for Class B on the four items: citrus fruit, tomatoes, cabbage, greens; potatoes; milk, milk products, cheese; and meat, fish, poultry, dried beans, nuts. In two groups, both classes improved the same--eggs and butter. Class B improved more



than Class A in bread and cereal, and there was only a very slight improvement of Class B over that of Class A in green and yellow vegetables.

Neither class improved in eating fruits and vegetables other than citrus fruits. Class A improved on meat but no improvement was needed in Class B.

The mean improvement in Class A was 7.2 percent on the nine items and in Class B it was 6.7 percent. Class A did slightly better.

Table 9 shows the percentage of girls reporting no servings of various foods in their breakfasts and the change in scores.

From Table 9 it can be seen on both breakfast surveys that more than a third of the girls in both classes reported no servings of eggs, fruit, cereal, and butter.

On the first survey, Class A reported a lower percentage of omitted foods on one item--cereal, whereas Class B reported lower percentages of consumption on three items--milk, eggs, and fruit. Both classes reported the same percentage of consumption of bread and of butter. On the second survey, in no instance did Class A report any lower percentages than Class B, but Class B reported lower percentages than Class A in use of eggs and bread. Both classes had the same percentage in milk, fruit, cereal, and butter. Class B had fewer omissions on the second survey than did Class A.

Table 9

Percentage of Girls Reporting No Servings  
of Various Foods in Their Breakfasts

Food Group	First Survey		Second Survey		Improvement	
	Class A %	Class B %	Class A %	Class B %	Class A %	Class B %
Milk	17.3	4.3	8.6	8.6	8.7	-4.3
Eggs	56.5	47.8	56.5	52.1	0	-4.3
Fruit	60.8	56.5	47.8	47.8	13.0	8.7
Cereal	43.4	52.1	47.8	47.8	-4.4	4.3
Bread	13.0	13.0	26.0	13.0	-13.0	0
Butter	34.7	34.7	34.7	34.7	0	0



Chart 5 shows the percentage of change in the number of pupils reporting no daily occurrence of various foods in their breakfasts.

It may be seen from Chart 5 that Class A improved more than Class B in consuming milk and fruit. Class B improved more than Class A in use of cereal. Neither class improved in eating eggs, bread, and butter. In these three items in which there was no improvement or there was negative change, Class A had a negative change in eating cereal, Class B had a negative change in drinking milk and a negative change in eating eggs; neither class made any change on consumption of butter. In Class A, the mean improvement was 0.69 percent and in Class B it was 0.73 percent, a very slight change.

When the experiment was set up, the two classes were paired.

Chart 6 shows the percentage of change between pairs on the breakfast survey.

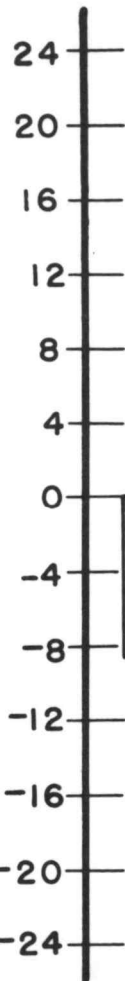
From Chart 6 it can be seen that the girls from Class A in ten of the pairs improved their scores a greater percentage on the breakfast survey than the girls with which they were paired. In nine pairs, the girls in Class B improved more. In one pair, improvement was the same. There were three pairs in which there was no improvement in either class or there was negative change.



CHART 5

# CHANGE IN NUMBER OF GIRLS REPORTING NO DAILY OCCURRENCE OF VARIOUS FOODS IN THEIR BREAKFASTS

PERCENTAGE OF GIRLS



CLASS A  
CLASS B

MILK

EGGS

FRUIT

CEREAL

BREAD

BUTTER

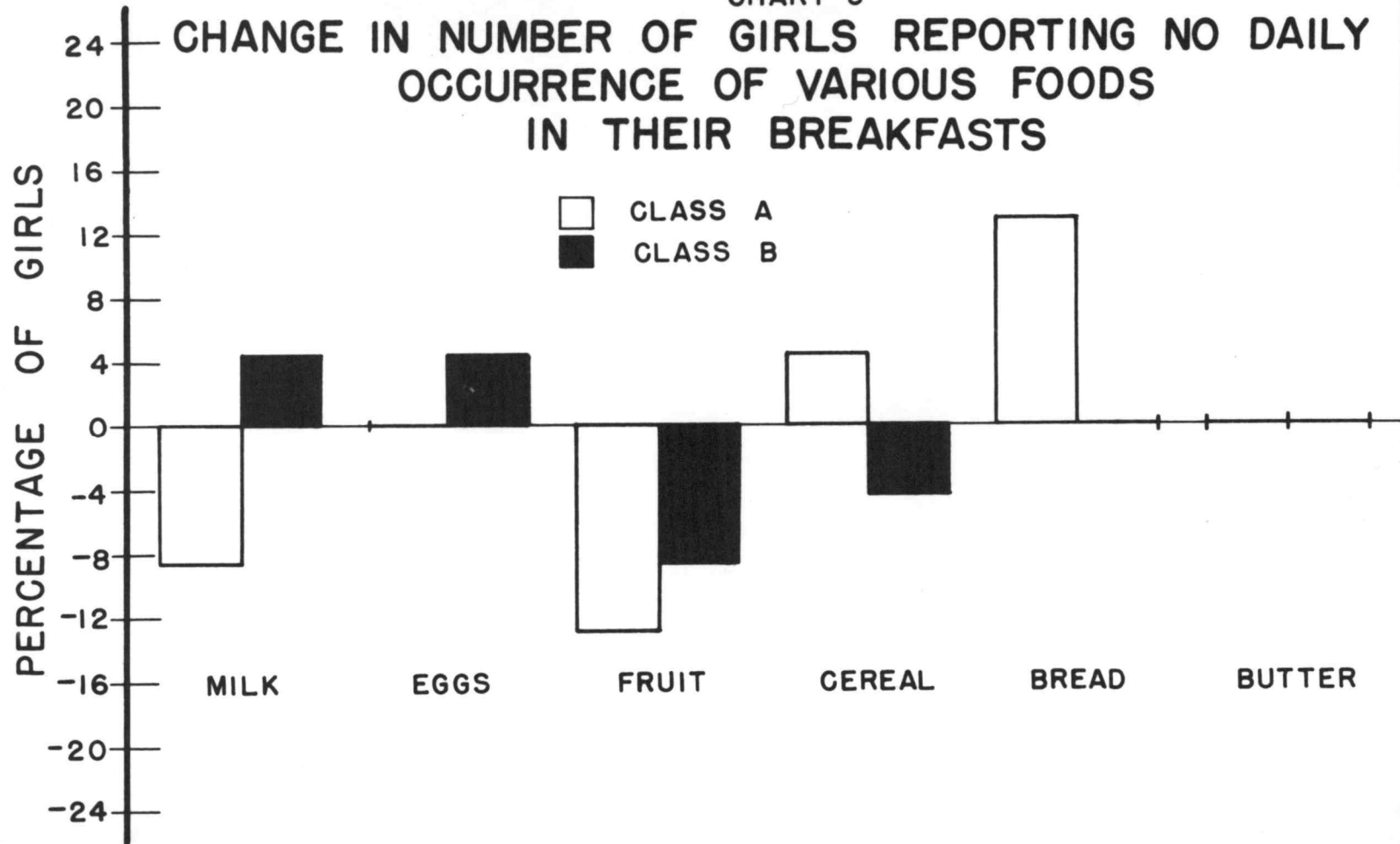
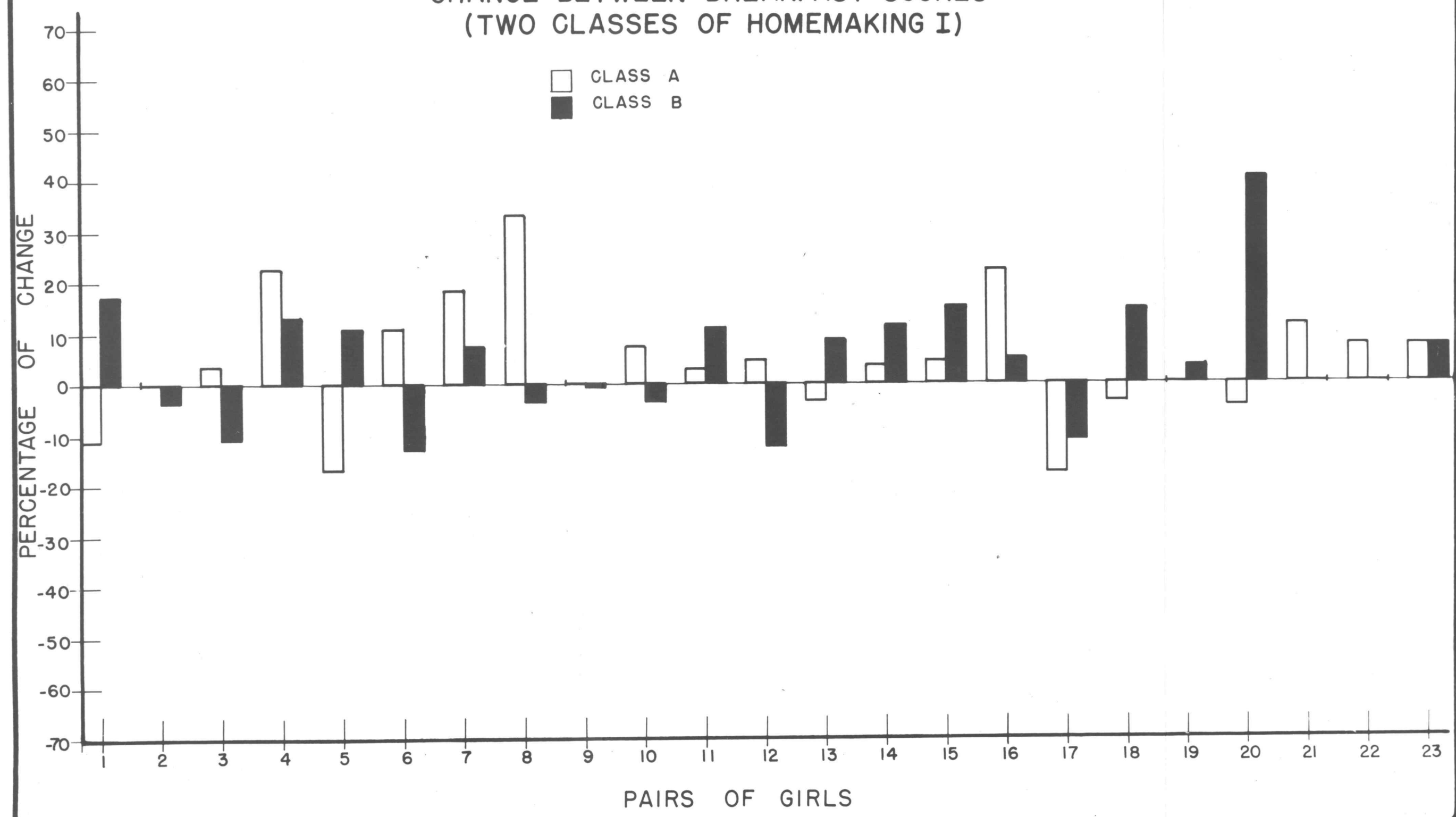


CHART 6  
CHANGE BETWEEN BREAKFAST SCORES  
(TWO CLASSES OF HOMEMAKING I)



In two of the pairs, Class B had the greater negative change and in one pair Class A had the greater negative change.

The girls in Class A had a mean improvement of 4.4 percent on the breakfast survey; whereas Class B had a 4.6 percent improvement. Therefore, between the paired girls, greater improvement was made in Class A and there was a very slightly higher mean improvement in Class B.

#### Scores on Six Weeks' Tests

Scores on the foods and nutrition section of a six weeks' test given during the foods and nutrition unit were taken for this study. There were 33 points on foods and nutrition.

Table 10 shows the scores of the paired girls in both classes on the six weeks' examination, 33 points, and the difference in scores of the paired girls.

The median in Class A was 63.6 with a range of 54.5 to 78.7. Class B had a median of 57.5 with a range of 36.3 to 72.7. This is an indication that Class A did better than Class B.

In fifteen pairs, Class A had higher scores than Class B. In only eight pairs, Class B had higher scores; therefore, Class A had more high scores than Class B.

Scores on the foods and nutrition section of a



Table 10

Percentage Scores on Six Weeks' Examination,  
Foods and Nutrition Section of 33 Items,  
and Differences between the Scores of the Two Classes

Pair	Class A	Class B	Difference
1	66.6	60.6	- 6.0
2	60.6	69.6	9.0
3	69.6	72.7	3.1
4	63.6	72.7	9.1
5	63.6	72.7	9.1
6	57.5	54.5	- 3
7	63.6	42.4	-21.2
8	60.6	72.7	12.1
9	63.6	57.5	- 6.1
10	75.7	42.4	-33.3
11	60.6	63.6	3
12	69.6	51.5	-18.1
13	75.7	48.4	-27.3
14	78.7	48.4	-30.3
15	78.7	54.5	-24.2
16	60.6	66.6	6
17	75.7	57.5	-18.2
18	69.6	57.5	-12.1
19	78.7	57.5	-21.2
20	54.5	57.5	3
21	69.6	36.3	-33.3
22	63.6	45.4	-18.2
23	63.6	39.3	-24.3

semester examination administered during the foods and nutrition unit were taken for this study. There were 44 items dealing with foods and nutrition. A separate score was taken on the 29 items dealing with nutrition.

Table 11 shows the scores of the paired girls from each class on the nutrition section of the semester examination, 29 points, and the difference in scores of the paired girls in each case.

From Table 11 it can be seen that Class A has a median score of 72.4 with a range of 46.8 to 100. In Class B the median is 79.3 with a range of 20.6 to 96.5.

Twelve girls in Class A had higher scores than Class B. Ten girls in Class B had higher scores than Class A. In one pair, the scores of both girls were the same. Therefore, Class B had a higher median but a range of scores lower than those in Class A. The mean improvement indicated that Class B did slightly better than Class A. More of the girls in Class A had higher scores than the girls in Class B with whom they were paired.

Table 12 shows the scores from the paired girls in both classes on the foods and nutrition section of the semester examination, 44 points, and the difference in scores between paired girls.

Table 11

Percentage Scores on Semester Examination,  
Nutrition Section of 29 Items,  
and Difference Between Scores of the Two Classes

Pair	Class A	Class B	Difference
1	89.6	75.8	-13.8
2	100	86.2	-13.8
3	65.5	89.6	24.1
4	89.6	89.6	0
5	72.4	65.5	- 6.9
6	75.8	68.9	- 6.9
7	72.4	58.6	-13.8
8	65.5	82.7	17.2
9	55.5	58.6	3.1
10	93.1	65.5	-27.6
11	89.6	82.7	- 6.9
12	48.2	86.2	38.6
13	82.7	62.0	-20.7
14	89.6	72.4	-17.2
15	82.7	96.5	13.8
16	79.3	89.6	10.3
17	65.5	82.7	17.2
18	62.0	89.6	27.6
19	68.9	55.5	-13.4
20	46.8	96.5	49.7
21	72.4	20.6	-41.8
22	62.0	79.3	17.3
23	51.7	27.5	-24.2



Table 12

Percentage Scores on Semester Examination,  
Foods and Nutrition Section of 44 Items,  
and Difference Between Scores of Two Classes

Pair	Class A	Class B	Difference
1	95.4	72.7	-22.7
2	93.1	84.0	- 9.1
3	72.7	79.5	6.8
4	88.6	86.3	- 2.3
5	79.5	68.1	-11.4
6	77.2	65.9	-11.3
7	75.0	54.5	-20.5
8	77.2	79.5	2.3
9	65.9	54.5	-11.4
10	90.9	61.3	-29.6
11	84.0	81.8	- 2.2
12	68.1	81.8	13.7
13	84.0	75.0	- 9.0
14	84.0	65.9	-18.1
15	88.6	90.9	2.3
16	81.8	86.3	4.5
17	70.4	72.7	2.3
18	65.9	90.9	25
19	81.8	52.2	-29.6
20	50.0	90.9	40.9
21	70.4	54.5	-15.9
22	56.8	79.5	22.7
23	52.2	34.0	-18.2

From Table 12 it can be seen that the median score of Class A was 77.2 with a range of 50.0 to 95.4. The median of Class B was 75 with a range of 34 to 90.9.

Fourteen girls in Class A had higher scores than their pairs in Class B. Nine girls in Class B had higher scores than their pairs in Class A. Therefore, Class A had a slightly higher median and more girls in Class A in the pairs had higher scores.

At the end of the separate nutrition unit, Class A was given a teacher-prepared nutrition test composed of 34 items. Class B took this test when they had completed their foods unit. Class A took the second nutrition test at this later date when Class B took the first nutrition test. When the same number of days had elapsed since the first test had been administered to them, Class B took the second test.

Table 13 shows the scores of the paired girls in both classes on the first and second nutrition tests, 34 points, and the changes made.

From Table 13, it can be seen that on the first nutrition test Class A made a median score of 76.4 with a range of 47.0 to 94.1. In Class B, the median score was 44.1 with a range of 20.0 to 82.3. Class A did better than Class B. In 19 of the pairs, Class A had

Table 13

Percentage Scores on Two Teacher-Made Nutrition Tests,  
34 Items, and Difference Between Scores of the Two Classes

Pair	Class A			Class B		
	First Test	Second	Difference	First Test	Second	Difference
1	91.1	82.3	- 8.8	50.0	50.0	0
2	76.4	64.7	-11.7	82.3	76.4	- 5.9
3	58.8	44.1	-14.7	67.6	73.5	5.9
4	94.1	50.0	-44.1	50.0	61.7	11.7
5	70.5	67.6	- 2.9	55.9	47.0	- 8.9
6	52.9	50.0	- 2.9	52.9	50.0	- 2.9
7	52.9	52.9	Same	41.1	32.3	- 8.8
8	85.2	58.8	-26.4	58.8	58.8	0
9	55.9	47.0	- 8.9	20.0	32.3	12.3
10	91.1	64.7	-26.4	58.8	73.5	14.7
11	67.6	52.9	- 4.7	41.1	44.1	3.0
12	47.0	58.8	11.8	44.1	41.1	- 3.0
13	76.4	58.8	-17.6	32.3	35.2	2.9
14	82.3	58.8	-23.5	23.5	35.2	11.7
15	91.1	88.2	- 2.9	55.9	67.6	11.7
16	88.2	73.5	-14.7	55.9	70.5	14.6
17	52.9	52.9	Same	38.2	58.8	20.6
18	76.4	61.7	-14.7	38.2	52.9	14.7
19	88.2	73.5	-14.7	35.2	41.1	5.9
20	55.9	52.9	- 3.0	38.2	50.0	11.8
21	61.7	41.1	-20.6	29.4	23.5	- 5.9
22	79.4	38.2	-41.2	32.3	41.1	8.8
23	50.0	61.7	11.7	70.5	26.4	-44.1



higher scores. In three pairs, Class B had higher scores. In one pair, scores were the same.

Therefore, Class A did much better on the first nutrition test. Class A took the test 66 days before Class B did. Class A was given the second test at the same time that Class B took the first test. Class B was given the second test 66 days after they took the first test.

On the second nutrition test, in Class A the median score was 58.8 with a range of 38.2 to 88.2. In Class B the median score was 50.0 with a range of 23.5 to 76.4.

In fifteen cases, Class A had higher scores on the second test. In two cases, scores were identical. In six cases, Class B had higher scores. Therefore, in Class A the median was higher and more of the paired girls had higher scores than Class B. In Class A, two girls improved their scores. Two stayed the same. Class A had a mean loss of 12.2 percent. Class B had a mean improvement of 3.1 percent.

Comparison of Test Scores  
According to Intelligence Quotient

Table 14 shows the comparison of scores of the girls in the two classes on the pretest and post test, sections of 54 items, according to intelligence test scores.

Table 14

Scores on the Pretest and Post Test, 54 Items,  
Arranged According to Intelligence Quotients of the Members  
of the Two Homemaking I Classes

Pair	I. Q. %	Class A			I. Q. %	Class B		
		Pre- test %	Post Test %	Change %		Pre- test %	Post Test %	Change %
1	*118	66.6	88.8	22.2	*113	68.5	72.2	3.7
2	*113	68.5	83.3	14.8	*124	75.9	83.3	7.4
3	*112	70.3	68.5	- 1.8	*111	74.0	83.3	9.3
4	*111	66.6	81.4	14.8	*112	79.6	79.6	0
5	*111	66.6	61.6	- 5.5	*111	64.8	74.0	9.2
6	*110	68.5	70.3	1.8	101	62.9	31.4	-31.5
7	*109	70.3	66.6	4.7	106	70.3	68.5	- 1.8
8	*108	70.3	72.2	1.9	*114	44.4	72.2	27.8
9	106	61.1	62.9	1.8	102	55.5	61.1	5.6
10	106	74.0	72.2	- 1.8	105	64.8	74.0	9.2
11	106	77.7	83.3	5.6	#101	70.3	66.6	- 3.7
12	105	75.9	74.0	- 1.9	*107	61.1	77.7	16.6
13	105	70.3	83.3	13.0	104	62.9	72.2	9.3
14	102	57.4	77.7	20.3	102	61.1	75.9	14.8
15	101	81.4	81.4	0	102	62.9	72.2	9.3
16	# 98	70.3	75.9	5.6	# 99	53.7	68.5	14.8
17	# 97	66.6	66.6	0	*108	55.5	74.0	18.5
18	# 96	57.4	66.6	9.2	# 95	57.4	75.9	18.5
19	# 95	57.4	79.6	22.2	# 95	51.8	68.5	16.7
20	# 92	51.8	66.6	14.8	# 94	68.5	75.9	7.4
21	# 89	59.2	64.8	5.6	# 99	42.5	64.8	22.3
22	# 88	59.2	74.0	14.8	# 95	59.2	51.8	- 7.4
23	# 82	38.8	62.9	24.1	# 67	37.0	33.3	- 3.7

\* Higher Intelligence Quotient Groups

# Lower Intelligence Quotient Groups

It can be seen from Table 14 that in Class A, the two girls with the lowest pretest scores were girls with intelligence quotients of 82 and 92, respectively. The girl with the lowest intelligence quotient had the lowest pretest figure.

It can be seen from Table 14 that in Class B, the two girls with the lowest pretest scores had intelligence quotients of 67 and 99. The girl with the lowest intelligence quotient had the lowest pretest score.

In Class A, the girl with the lowest pretest score made the greatest gain, 24.1 percent.

In Class B, the girl with the lowest pretest score had even a lower post test score and decreased her score by 3.7 percent.

In Class A, the girl with the highest score on the pretest had an intelligence quotient of only 101 but she made no gain on the post test. The girls with the highest intelligence quotients did not have the highest scores.

In Class B, the girl with the highest score on the pretest had an intelligence quotient of 112. She made no improvement in the later test. In this class, the highest pretest scores were from girls with low intelligence quotients and girls with high intelligence quotients. In both classes, the girl with the highest pretest score made no change in score.



The interpretation seems to be that since in both classes girls with the lowest intelligence quotients made the lowest pretest scores, guessing did not enter into the results to a great extent. Since the low intelligence quotient girl in Class A made such a gain and the highest scoring girl on the pretest made no gain, it might be assumed that perhaps the teaching method in Class A may be more helpful to low intelligence quotient girls.

Since both highest and lowest test scores in Class B made no gain, perhaps the method is just as effective to high as low intelligence quotient girls.

In Class A the greatest improvements were made by the girl with the lowest intelligence quotient, improvement of 24.1; medium intelligence quotient (intelligence quotient of 95) with an improvement of 22.2 percent; and the girl with the highest intelligence quotient, 22.2 percent improvement. Thus, the method used in teaching Class A seemed equally effective in raising scores of low and high intelligence quotient girls. It is of interest to note that the girl with the highest intelligence quotient in Class A, who made an average score on the pretest, learned enough to send her score up to 88.8 percent on the post test, the highest score in the class.

The greatest gain in Class B was made by a girl with an intelligence quotient of 114. She gained 27.8

percent. Her pretest score was 44.4 percent. She made a post test score of 72.2 percent.

The girl in Class B with the lowest intelligence quotient made the lowest pretest score in the class and decreased her score. The girl with the highest intelligence quotient made the second highest pretest score and made the highest score on the post test.

The highest intelligence quotient groups and lowest intelligence quotient groups in the classes were compared. Since there were eight girls in each intelligence quotient group, it was thought that mean scores would give a better comparison than median scores with such a limited number.

It can be calculated from Table 14 that the eight girls in Class A with the lowest intelligence test scores (mean intelligence quotient of 92) had a mean score on the pretest of 57.5 percent. The eight girls with the highest intelligence test scores (mean intelligence quotient of 111) had a mean score of 68.4. The eight girls in Class B with the lowest intelligence test scores (mean intelligence quotient of 93) had a mean score of 55.0 on the pretest. The eight girls with the highest intelligence test scores (mean intelligence quotient of 112) had a mean score of 65.4 on the pretest.

The girls in both high and low intelligence quotient groups had quite similar scores in both classes. Class A

girls in both groups were a little higher in scores than Class B.

The eight girls with the lowest intelligence test scores in Class A had a mean score on the post test of 69.6 percent. The eight girls with the highest intelligence test scores in Class A had a mean score of 74.0 percent on the post test. The eight girls with the lowest intelligence test scores in Class B had a mean score on the post test of 63.1 percent. The eight girls with the highest intelligence test scores in Class B had a mean score of 77.0 on the post test.

The girls in Class A who had low intelligence test scores did slightly better than those in Class B. The girls in Class B with high intelligence quotients did slightly better than similar girls in Class A.

The girls in Class A who had low intelligence quotients increased their mean score on the tests by 12.1 percent. The girls in Class A who had high intelligence quotients increased their mean test score by 5.6 percent. The girls in Class B who had low intelligence quotients increased their mean test scores by 8.1 percent. The girls in Class B who had high intelligence quotients increased their mean test score by 11.6 percent.

The girls in Class A with low intelligence quotients increased their mean score 4.0 percent more than



similar girls in Class B did. The girls in Class B with high intelligence quotients increased their mean score 6.0 percent more than the Class A girls did.

Perhaps the teaching method used in Class A was more helpful to the girls who had low intelligence quotients and the teaching method used in Class B was more helpful to girls whose intelligence quotients were higher.

Table 15 shows a comparison of the food intake record scores of the two classes according to intelligence quotients of the members of the two classes.

From Table 15, it can be calculated that the eight girls with the lowest intelligence quotients in Class A (mean intelligence quotient score of 92) had a mean score on the first food survey of 53.1 percent. The eight girls with the highest intelligence quotients in Class A (mean intelligence quotient score of 111) had a mean score on the first food intake record of 61.5 percent.

The eight girls with the lowest intelligence quotient scores in Class B (mean intelligence quotient score of 93) had a mean score on the first food intake record of 61.0 percent. The eight girls in Class B with the highest intelligence quotient scores (mean intelligence quotient score of 112) had a mean score on the food intake record of 68.9 percent.

On the first food intake record, Class B had

Table 15

Food Record Scores of Two Classes of Homemaking I  
Arranged According to Intelligence Quotients  
in the Two Homemaking Classes

Pair	Class A				Class B			
	I. Q.	1st Survey	2nd Survey	Change	I. Q.	1st Survey	2nd Survey	Change
1	*118	85.1	92.5	7.4	*113	92.5	48.1	-11.1
2	*113	33.3	22.2	-11.1	*124	22.2	85.1	14.8
3	*112	55.5	96.0	40.5	*111	96.0	70.3	0
4	*111	55.5	59.2	3.7	*112	59.2	81.4	22.2
5	*111	62.9	25.9	-37.0	*111	25.9	81.4	3.7
6	*110	92.5	88.8	-3.7	101	88.8	40.7	22.2
7	*109	77.7	88.8	11.1	106	88.8	81.4	3.7
8	*108	29.6	81.4	51.8	*114	81.4	62.9	-7.4
9	106	59.2	59.2	0	102	59.2	81.4	18.5
10	106	59.2	55.5	-3.7	105	55.5	74.0	-18.5
11	106	44.4	81.4	37.0	#101	81.4	77.7	0
12	105	22.2	29.6	7.4	*107	29.6	62.9	-7.4
13	105	44.4	55.5	11.1	104	55.5	70.3	33.3
14	102	74.0	81.4	7.4	102	81.4	37.0	-18.5
15	101	33.3	100.0	66.7	102	100.0	44.4	-11.1
16	# 98	66.6	85.1	18.5	# 99	85.1	62.9	29.6
17	# 97	37.0	33.3	-3.7	*108	33.3	62.9	-11.1
18	# 96	44.4	66.6	22.2	# 95	66.6	92.5	11.1
19	# 95	59.2	51.7	-7.5	# 95	51.7	85.1	18.5
20	# 92	51.7	62.9	11.2	# 94	62.9	66.6	18.5
21	# 89	33.3	74.0	40.7	# 99	74.0	48.1	0
22	# 88	74.0	66.6	-7.4	# 95	66.6	77.7	0
23	# 82	59.2	70.3	11.1	# 67	70.3	62.9	7.4

\*Higher Intelligence Quotient Groups

#Lower Intelligence Quotient Groups

higher mean scores in both high and low intelligence test score groups.

On the second food record, the eight girls in Class A with low intelligence tests scores had a mean food intake score of 63.8 percent. The girls in Class A who had the highest intelligence quotient scores had a mean score on the second food intake of 69.3 percent.

On the second food record, the eight girls in Class B with the lowest intelligence quotient scores had a mean score on the food record of 71.6 percent. The eight girls in Class B with the highest intelligence quotient scores made a mean score on the second food survey of 69.3 percent.

On the second food survey, the girls in Class B who had the lowest intelligence quotient scores made a mean score 7.8 percent higher than that of Class A, and the mean score of Class A among the high intelligence quotient score group was the same as that of Class B.

In Class A, the eight girls with the lowest intelligence quotient scores improved their mean score on the food surveys by 10.7 percent. The eight girls with the highest intelligence quotient scores in Class A improved their mean score on the food surveys by 7.8 percent.

In Class B, the eight lowest intelligence quotient



girls increased their mean score on the food surveys by 10.6 percent. The eight highest intelligence quotient scores in Class B increased their mean score on the food surveys by 0.4 percent.

In each intelligence quotient group on both surveys, the girls in Class B had either higher medians, or as in the case of the high intelligence quotient girls on the second survey, the same score. Among the low intelligence test score groups, the girls in Class B improved slightly more. Among the high intelligence quotient score groups, the girls in Class A improved more.

The method used in teaching Class A may have been more effective for the girls having high intelligence quotient scores and the method used in Class B may have been more effective for those having low intelligence quotient scores.

Table 16 shows the comparison of scores of the girls in Class A and in Class B on the first and second nutrition tests according to intelligence test scores.

From Table 16 it can be seen that only two of the 23 students in Class A improved their scores when they took the second nutrition test. In Class B, 14 girls had improved scores.

In Class A, the girls with the lowest score on the first nutrition test had a score of 105 on her intelligence

Table 16

Scores on First and Second Teacher-Made Tests on Nutrition Arranged  
According to Intelligence Quotients of the Two Homemaking Classes

Pairs	Class A				Class B			
	I. Q.	Form A %	Form B %	Change %	I. Q.	Form A %	Form B %	Change %
1	*118	91.1	82.3	- 8.8	*113	50.0	50.0	0
2	*113	76.4	64.7	-11.7	*124	82.3	76.4	- 5.9
3	*112	58.8	44.1	-14.7	*111	67.6	73.5	5.9
4	*111	94.1	50.0	-44.1	*112	50.0	61.7	11.7
5	*111	70.5	67.6	- 2.9	*111	55.9	47.0	- 8.9
6	*110	52.9	50.0	- 2.9	101	52.9	50.0	- 2.9
7	*109	52.9	52.9	0	106	41.1	32.3	- 8.8
8	*108	85.2	58.8	-26.4	*114	58.8	58.8	0
9	106	55.9	47.0	- 8.9	102	20.0	32.3	12.3
10	106	91.1	64.7	-26.4	105	58.8	73.5	14.7
11	106	67.6	52.9	- 4.7	#101	41.1	44.1	3.0
12	105	47.0	58.8	11.8	*107	44.1	41.1	- 3.0
13	105	76.4	58.8	-17.6	104	32.3	35.2	2.9
14	102	82.3	58.8	-23.5	102	23.5	35.2	11.7
15	101	91.1	88.2	- 2.9	102	55.9	67.6	11.7
16	# 98	88.2	73.5	-14.7	# 99	55.9	70.5	14.6
17	# 97	52.9	52.9	0	*108	38.2	58.8	20.6
18	# 96	76.4	61.7	-14.7	# 95	38.2	52.9	14.7
19	# 95	88.2	73.5	-14.7	# 95	35.2	41.1	5.9
20	# 92	55.9	52.9	- 3.0	# 94	38.2	50.0	11.8
21	# 89	61.7	41.1	-20.6	# 99	29.4	23.5	- 3.9
22	# 88	79.4	38.2	-41.2	# 95	32.3	41.1	8.8
23	# 82	50.0	61.7	11.7	# 67	70.5	26.4	-44.1

\*Higher Intelligence Quotient Groups

#Lower Intelligence Quotient Groups

test. She improved by 11.8 percent the second test score. Only she and the girl with the lowest intelligence quotient score improved in this class on the second test.

In Class B, the two girls with the lowest scores on the first nutrition test had intelligence quotient scores of 102. One girl with an intelligence quotient score of 102 improved by 11.7 percent and the other girl improved by 12.3 percent.

In Class A, the girl with the highest score on the first test had an intelligence quotient score of 111. She decreased her score by the greatest percentage, 44.1.

In Class B, the girl with the highest score on the first test had the highest intelligence quotient score (124). She decreased her score by 5.9 percent.

In Class A, the greatest improvements were made by the two girls with the lowest test scores on the first test. One of these girls had the lowest intelligence quotient in Class A.

In Class B, the greatest improvements were made by girls having intelligence test scores of 95, and 108. The gains on the second test over those on the first test were 14.7, and 20.6 percents, respectively.

It is interesting to note that in Class B, the girl with the highest intelligence test score received the



highest scores on both tests but decreased her score by 5.9 percent. The girl with the lowest intelligence test scores received one of the highest scores on the first test, but dropped her score the most, 44.1 percent, on the second test.

It can be calculated from Table 16 that the eight girls with the lowest intelligence quotient scores in Class A (mean intelligence quotient score of 92) had a mean score on the first test of 69.0 percent. The eight girls with the highest intelligence quotients in Class A (mean intelligence quotient score of 111) had a mean score of 72.7 on the first test.

The eight girls with the lowest intelligence quotient scores in Class B (mean intelligence quotient score of 93) had a mean score of 42.6 percent on the first test. The eight girls in Class B with the highest intelligence quotients (mean intelligence quotient score of 112) had a mean score of 55.8 on the first test. On the first test, therefore, in Class A, the girls with low intelligence scores did far better, 26.4 percent, than similar girls in Class B. Girls in Class A with higher intelligence quotients did far better than similar girls in Class B with a 16.9 percent higher mean score.

On the second test, the eight girls with the lowest

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intelligence quotient scores in Class A had a mean score of 56.9. The eight girls in Class A with the highest intelligence quotient scores had a mean score of 58.3 on the second test.

On the second test, the eight girls with the lowest intelligence quotient scores in Class B had a mean score of 43.7. The eight girls in Class B with the highest intelligence quotient scores had a mean score of 58.4 percent.

Therefore, on the second test, the low intelligence quotient girls in Class A did better than the low intelligence quotient girls in Class B with a 13.2 percent higher score. In both classes, girls having high intelligence quotient scores did equally well.

The girls who had high and low intelligence test scores in Class B had somewhat caught up to Class A on the second test.

In Class A the girls who had low intelligence quotient scores decreased their mean score by 12.1 percent. The girls in Class A who had high intelligence quotient scores decreased their mean score by 14.4 percent on the second test.

The girls in Class B who had low intelligence quotient scores increased their mean score by 1.1 percent; whereas, the girls in this class who had the highest intelligence quotient scores increased their mean score

by 2.6 percent.

The girls in Class B who had low intelligence test scores had lower mean scores than Class A on both tests. There were lower mean scores in Class B than Class A on the first test among girls who had scored high on the intelligence test. Class B showed an increase from the first test to the second test in both groups.

The method of teaching nutrition in a separate nutrition unit using the lecture-request decision method as used in Class A seemed to bring better results for this investigator for the extremes of class members as they were grouped according to intelligence quotient scores as compared to the discussion-decision method of teaching nutrition incorporated with foods.

The girls in Class B had less tendency to decrease their scores by forgetting, however, and both groups arranged by intelligence test scores actually seemed to improve in Class B. Those girls in Class A who had scored high on the intelligence test had, at the end of the unit, forgotten so much that they made more nearly the same scores as Class B. Among students who had rated low on the intelligence test, the girls in Class A had forgotten enough to be only 12.1 percent better than the similar group in Class B.

Thus, the separate unit seems to teach more, but



it seems to be forgotten. The integrated nutrition unit seems to teach less, but it seems to be longer retained.

## CHAPTER IV

### SUMMARY AND CONCLUSIONS

Because the writer was interested in checking the effectiveness of her teaching methods in nutrition, two classes of Homemaking I in Tillamook High School, Tillamook, Oregon, were paired and taught nutrition by two different methods.

Twenty-three girls in each of two Homemaking I classes at Tillamook High School were paired on the basis of intelligence quotient, age, and socio-economic status. Class A was taught a separate 14-day nutrition unit using the lecture-request decision method. Class B was taught nutrition by the discussion-decision method in a nutrition unit integrated with the foods unit taught on the meal basis.

The following evaluative devices were used: (a) a three-day dietary survey was taken in each class and tabulated using the Tinsley devices; (b) a pretest, Form A of the 100-item test developed in the three-year Ohio study of accomplishment in ninth and tenth-grade food classes was administered; (c) six weeks' examination (d) semester examination; (e) the first teacher-made nutrition test, (f) a post test, Form B of the 100-item test developed in the Ohio study; (g) a second dietary

survey; and (h) the second nutrition test.

The findings in this study were evaluated in terms of the four objectives of the study:

(1) To determine whether the integrated nutrition unit would bring about greater learning than a separate unit. Class B which was taught an integrated nutrition unit made a poor showing on all but one of the eight written test scores used in this study. This class had higher medians only on the nutrition section of the semester examination. The other class excelled on post test, six weeks' examination, foods and nutrition section of the semester examination, first nutrition test, and post test. However, this class retained nearly as much information as Class A as measured by the second nutrition test. Greater learning seemed to be accomplished in a separate nutrition unit but was only temporary learning; whereas, that in an integrated nutrition unit was retained since it was more meaningful. When the data from Form A and Form B of the Ohio test were analyzed statistically, the results showed that the learning results were equal in both classes.

(2) To see whether the discussion-decision method or the lecture-request method would bring about greater change of dietary habits. Although the medians on both dietary surveys were higher in the class taught by the



lecture-request decision method, they had poorer eating habits to begin with. Class A improved to a marked degree in lowering the percent of poor diets and in raising the percent of good diets until there was a greater percent of good diets in Class A than in Class B. Class B did not lower the percent of poor diets but did raise the percent of good diets. Class A improved more in raising the number of servings of protective foods both in the general survey and in the breakfast survey. Class A also improved markedly in including foods which had been omitted in the general survey and the breakfast survey. The lecture-request decision method was superior in bringing about changes in dietary habits. It may have been that the girls who saw the dietary scores of the entire class, rather than being alarmed by the poor showing that they made, took comfort in the fact that their scores were not the only poor ones, and did not try as hard to improve. Perhaps this group did not take the group decision to improve eating habits as seriously as the other class took the instructor's urging.

(s) To determine the extent that the learning in a nutrition unit was retained and to see which class would show greater retention. Class A had evidenced forgetting of nutrition information in the second nutrition test. The decrease in Class A in 66 days was 17.6 percent.

Class B improved in 66 days by 5.9 percent. It is of interest that in Class A two girls improved their scores and in Class B, 14 girls improved their scores although no nutrition had been taught in the interim between the tests.

(4) To compare progress made by students of higher and lower intelligence levels in each class. It is quite evident in this study that the girls with the lowest intelligence quotients improved more than any other girls on the dietary survey. The girls with the highest intelligence quotients tend to attain the highest scores. It is of interest that both high and low intelligence quotient groups in a given class tend to do the same on a given test--do poorly or well as compared to another class. The higher intelligence quotient group in the class that is not doing well tends to do work that more nearly parallels that of the superior class on a given test. The lower intelligence quotient groups tended to improve more in the dietary surveys.

The two methods of teaching seem equally effective with the high and low intelligence quotient groups. The two methods of teaching seem equally effective for bringing about dietary improvement for low intelligence quotient groups. The discussion-decision method does not



seem to be very effective with high-intelligence quotient groups for dietary improvement for this investigator.

### Analysis of This Study

The most important outcome of the study has been the interest created in the investigator to try to use different teaching methods to improve her skill in helping students change their behavior.

The investigator recognized at the time the study was designed that having students learn about nutrition is no indication that those students will practice what they learn. However, for a study such as this, concrete evidence in the form of test scores, and dietary surveys is necessary.

The investigator also realized that although she set up in the experiment as few variables as possible, the fact that she was dealing with people meant that many other variables, some of which she could not control, entered into the experiment. For example:

1. The time the two classes met may have influenced students' reaction.
2. The interaction of the individuals in the classes might make a difference. The investigator did use socio-grams for helping her to understand the classes better. These were not part of this study.
3. The use of the discussion-decision method requires great skill. Since it was used for the first time by this investigator, her lack



of skill may have been responsible for the results.

4. Although they knew what use was being made of the materials, students in the two classes became rebellious at such parts of the study as the food surveys. A third survey was omitted for this reason.

The investigator found it exceedingly difficult to teach one way in one class and another way in the second. A teacher always wants to do the best she can by every class. For this reason, this investigator would recommend that other teachers plan studies for improving their teaching around one or more classes, but not necessarily comparative studies.

In the class where a separate nutrition unit was taught, nutrition information was more readily forgotten. The investigator believes that students may have more lasting value from an integrated unit. Although the total results of this study do not show any great difference in the two classes, one test that would show the retention of information over a 66 day period did show that Class B, which was taught by integrating nutrition, did slightly better than Class A.

The investigator found the dietary survey with the Tinsley devices to be very helpful to her and the girls as a basis for the unit since it revealed the need for the unit and served as a basis for the unit. She will use this in the future although it is very time consuming.

It is very difficult to get cooperation from the girls on dietary surveys, especially on succeeding ones. Even when this investigator had good rapport with the girls, it was very difficult to get them to bring in their dietary survey blanks. They found it very difficult to remember to fill in the meals for all three days, and since the records were kept for certain days of the week, a delay of a week resulted if any girl forgot to fill out her record blank for a certain day.

She found that she was unskilled in using the discussion-decision method of teaching nutrition and therefore believes that she will have to practice this method of teaching before she can achieve lasting diet improvement in her students. She was unskilled in integrating nutrition with foods but she sees the value of this method and plans to put it into effect in the future.

The investigator is still dissatisfied with her method of teaching nutrition and believes that there is a great need for methods of motivating students to be interested in nutrition and improving their eating habits.



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## APPENDIX A

Table A  
Items on Which Classes Were Paired

Pairs	Age	Class A		Age	Class B	
		I. Q.	Soc. Ec.		I. Q.	Soc. Ec.
1	14-10	118	11	14-6	113	21
2	13-10	113	15	13-11	124	15
3	14-11	112	16	15-0	111	20
4	14-2	111	23	14-5	112	16
5	14-7	111	16	14-5	111	18
6	13-11	110	16	13-10	101	18
7	13-10	109	16	15-7	106	17
8	13-11	108	16	14-11	114	11
9	14-8	106	17	14-2	102	15
10	15-2	106	17	15-6	105	20
11	13-11	106	16	14-11	101	15
12	14-10	105	7	14-9	107	17
13	14-6	105	20	14-6	104	17
14	14-2	102	15	14-9	102	12
15	14-5	101	13	14-7	102	19
16	15-5	98	13	15-6	99	21
17	18-6	97	11	16-2	108	20
18	13-11	96	17	13-11	95	16
19	14-2	95	14	14-3	95	12
20	14-1	92	17	14-4	94	21
21	15-2	89	23	14-6	99	14
22	16-6	88	19	15-2	95	13
23	13-11	82	17	14-4	67	10
Range		13-10	13-10			
		18-6	16-2			



Table B  
Responses on the Socio-Economic Test

	<u>Class A</u>	<u>Class B</u>
*1. How many years have you lived in this town?	Range of 0-15 years; median of 10 years	Range of 0-15 years; median of 10 years
*2. Have you attended schools in other places?	43 percent	34 percent
*3. Tell the number of brothers and sisters living at home.	Range of 0-7 Median of 2 Only children 5	Range of 0-5 Median of 2 Only children 5
*4. Are you living at home with your parents?	100 percent	100 percent
5. Have you a telephone in your home?	78.2 percent	91.3 percent
6. Does your home have inside plumbing?	95.6 percent	100 percent
7. Do you have a bank account in your own name?	60.8 percent	39.1 percent
8. Did your father finish the eighth grade?	91.3 percent	91.3 percent
9. Did your mother finish the eighth grade?	86.9 percent	95.6 percent
10. Did your father finish high school?	39.1 percent	39.1 percent
11. Did your mother finish high school?	52.1 percent	56.5 percent
12. Did your father finish college?	8.6 percent	26 percent
13. Did your mother finish college?	4.3 percent	8.6 percent

Table B (continued)

14.	Does your mother go to night classes or home extension classes?	0	8.6 percent
15.	Do you have your own room?	39.1 percent	78.2 percent
16.	Do you take private lessons in music?	39.1 percent	34.7 percent
17.	Do you take private lessons in dancing?	0	0
18.	Does your mother belong to any clubs?	56.5 percent	56.6 percent
19.	Do you belong to any clubs?	60.8 percent	56.5 percent
20.	Does your family attend musical programs?	73.9 percent	60.8 percent
21.	Does your family go on vacations?	73.9 percent	91.3 percent
22.	How often do you have dental work done?		
	Never	0	4.3 percent
	When needed	78.2 percent	65.2 percent
	Once a year	8.6 percent	26.0 percent
	Often	0	4.3 percent
23.	Have you any people who work in your home for pay?		
	One part-time	4.3 percent	0
	One or more full time	4.3 percent	0
24.	Does your family own an automobile?		
	None	4.3 percent	4.3 percent
	One	52.1 percent	65.2 percent
	Two or more	43.4 percent	30.4 percent

Table B (continued)

25. How many magazines are regularly read in your home?

None	4.3 percent	0
One	8.6 percent	8.6 percent
Two	8.6 percent	13.0 percent
Three or more	78.2 percent	78.2 percent

26. How many books are in your home?

None	0	0
1-25	0	0
26-125	26.0 percent	13.0 percent
126-500	56.5 percent	60.8 percent
More	17.3 percent	17.3 percent

27. How many rooms does your family occupy?

2	4.3 percent	4.3 percent
3	8.6 percent	0
4	4.3 percent	4.3 percent
5	26.0 percent	8.6 percent
6	26.0 percent	21.7 percent
7	21.7 percent	26.0 percent
8	4.3 percent	4.3 percent
9	0	21.7 percent
10	0	4.3 percent
11	4.3 percent	0

28. How many people occupy these rooms?

3	30.4 percent	17.3 percent
4	21.7 percent	21.7 percent
5	30.4 percent	34.7 percent
6	13.0 percent	13.0 percent
7	0	0
8	0	8.6 percent
9	0	0
10	4.3 percent	0



Table B (continued)

## 29. Give your father's occupation.

<u>Group 1</u> - Professional men, proprietors of large businesses and higher executives	0	13.0
---	---	------

<u>Group 2</u> - Commercial service, clerical service, large land owners, managerial service, and business proprietors	17.3 percent	8.6
--	--------------	-----

<u>Group 3</u> - Artisan proprietors, petty officials, printing trades employees, skilled laborers with managerial responsibility, shop owners, and business prop- rietors	17.3 percent	43.4
--	--------------	------

<u>Group 4</u> - Skilled laborers who work for someone else, building trades, trans- portation trades, manu- facturing trades involving skilled laborer, personal service, small shop owners doing their own work	43.4 percent	26.0
--	--------------	------

<u>Group 5</u> - Unskilled laborers, common laborers, helpers, hands, peddlers, varied em- ployment, venders, unem- ployed	4.3 percent	0
--	-------------	---

30. Does your family own or have  
use of the following equip-  
ment?

Washing machine	78.2 percent	60.8
Automatic washer	30.4 percent	43.4
Refrigerator	95.6 percent	91.3
Automatic dryer	43.4 percent	34.7
Dishwasher	0	0
Deepfreeze	34.7 percent	21.7
Disposall	0	13.0
Vacuum cleaner	86.9 percent	73.9

Table B (continued)

\* Preliminary data, not included in the  
score given each girl

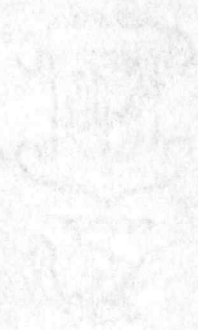
Pertinent Responses from Food Practices Checksheet

1. Have you had previous homemaking courses?	0	8.6
2. Have you had 4H projects in foods?	30.4	43.4
3. Where do you live?		
Within Tillamook city limits	26.0	39.1
Outside of town but not on a farm	30.4	30.4
On a farm	43.4	30.4

## APPENDIX B

CONFIDENTIAL

ADVANCE BOMB





## Test for Socio-Economic Status

1. Name \_\_\_\_\_
2. Age: \_\_\_\_\_ years and \_\_\_\_\_ months.
3. Home address \_\_\_\_\_
4. How many years have you lived in this town? \_\_\_\_\_
5. Have you attended schools in any other place? \_\_\_\_\_  
If so, name them \_\_\_\_\_
6. If you have brothers or sisters living at home write their names and ages on these lines:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
7. Are you living at home with your parents? \_\_\_\_\_
8. If you are not living with your parents, are you:  
\_\_\_\_\_ living with relatives?  
\_\_\_\_\_ living with adopted parents?  
\_\_\_\_\_ living with a guardian?
9. What previous homemaking courses have you taken?  
Grade                  School
10. Did your previous homemaking courses include a foods laboratory? \_\_\_\_\_
11. Did your previous homemaking courses include some study of nutrition? \_\_\_\_\_
12. If you have had 4-H experience, how many years have you taken part? \_\_\_\_\_
13. Were your 4-H projects in:  
\_\_\_\_\_ Foods?  
\_\_\_\_\_ Clothing?  
\_\_\_\_\_ Other?

14. Where do you live:

- ☐ Within Tillamook city limits?  
☐ Outside of town but not on a farm?  
☐ On a farm?

Directions: The following information will help the teacher in this experiment but will never be used with your name on it. Only the teacher will read these score cards and she will not discuss the information with anyone.

Circle the correct answer.

- |   |     |    |
|---|-----|----|
| 1. Have you a telephone in your home?   | Yes | No |
| 2. Do you have inside plumbing?   | Yes | No |
| 3. Do you have a bank account in your own name?   | Yes | No |
| 4. Did your father finish the eighth grade?   | Yes | No |
| 5. Did your mother finish the eighth grade?   | Yes | No |
| 6. Did your father finish high school?  | Yes | No |
| 7. Did your mother finish high school?  | Yes | No |
| 8. Did your father finish college?  | Yes | No |
| 9. Did your mother finish college?  | Yes | No |
| 10. Does your mother (or the lady of the home in which you live) regularly go to night classes at the school or home extension classes? | Yes | No |
| 11. Do you have your own room?  | Yes | No |
| 12. Do you take private lessons in music?   | Yes | No |
| 13. Do you take private lessons in dancing?   | Yes | No |
| 14. Does your mother belong to any clubs or organizations of which you know?  | Yes | No |
| 15. Do you belong to any organizations or clubs?<br>If you do, write the names of the organizations on these lines:                     | Yes | No |

---



---

16. Does your family attend musical programs? Never  
Occasionally  
Frequently
17. Does your family go on a vacation?
18. How often do you have dental work done?  
\_\_\_\_\_ Never \_\_\_\_\_ When needed  
\_\_\_\_\_ Once a year \_\_\_\_\_ Oftener
19. Have you any people who work in your home for pay?  
\_\_\_\_\_ None \_\_\_\_\_ One \_\_\_\_\_ Part time  
\_\_\_\_\_ One or more all the time
20. Does your family own an automobile?  
\_\_\_\_\_ None \_\_\_\_\_ One \_\_\_\_\_ Two or more
21. How many magazines are regularly read in your home?  
\_\_\_\_\_ None \_\_\_\_\_ One \_\_\_\_\_ Two  
\_\_\_\_\_ Three or more
22. About how many books are in your home? (A row of books three feet long would not have more than 25 books in it)  
\_\_\_\_\_ None \_\_\_\_\_ 1-25 \_\_\_\_\_ 26-125  
\_\_\_\_\_ 126-500 \_\_\_\_\_ More
23. How many rooms does your family occupy?  
1 2 3 4 5 6 7 8 9 10 11 12
24. How many people occupy these rooms?  
2 3 4 5 6 7 8 9 10 11 12
25. Write your father's occupation on this line \_\_\_\_\_
26. Does he own: \_\_\_\_\_ Part \_\_\_\_\_ All \_\_\_\_\_ None of his business?
27. Does he have any title, such as President, Manager, Foreman, or Boss? Yes No
- If he does have such a title, write it on this line  
\_\_\_\_\_
28. How many persons work for him? \_\_\_\_\_ None \_\_\_\_\_ 1-5  
5-10 More than 10



29. Does your family own or have use of the following equipment:

Own it   Have Use of It

Washing machine

Automatic washer

Refrigerator

Automatic dryer

Dishwasher

Deepfreeze

Disposal

Vacuum cleaner

## GENERAL MILLS, INC.

400 Second Avenue, South  
Minneapolis 1, Minnesota

Department of  
Public Services

January 5, 1954

Miss Emilla Tschanz  
Homemaking Teacher  
Tillamook High School  
2314 First St.  
Tillamook, Oregon

Dear Miss Tschanz:

Thank you for your letter regarding your survey work in connection with your thesis.

We are sending 10 copies each of the food survey summary sheet, breakfast survey sheet, and summary sheets for recording results, along with 120 pupil food records and other individual forms. Since our supplies are becoming rather low on some of the items, we are taking the liberty of sending you sufficient quantity now to take care of the survey you plan for April too.

If you need additional copies of any items, please let us know. We wish you continued success in your work and look forward to the results. Best wishes.

Very truly yours,

Mary G. Dow  
Education Section

## PUPIL FOOD RECORD

Pupil Record No. \_\_\_\_\_

Score \_\_\_\_\_

Note to Teacher: It has been found through experimental research that a food record kept by an elementary pupil for Sunday, Monday, and Tuesday gives a picture of his eating practices very similar to that of a seven-day record. Suggestions for making a survey of eating practices are given in a supplementary folder, "Directions to Teacher Concerning Use of the Food Records."

1. Name \_\_\_\_\_ 2. Boy Girl (Circle one)
3. Grade \_\_\_\_ 4. Height: inches \_\_\_\_ 5. Weight: Pounds \_\_\_\_  
6. Age: Years \_\_\_\_ Birth date \_\_\_\_
7. Date of Sunday the recorded was started \_\_\_\_\_
8. Name of school \_\_\_\_\_
9. Address of school \_\_\_\_\_
10. Name of teacher \_\_\_\_\_
11. Where do you live? Town Country (Circle one)
12. How far from school do you live? \_\_\_\_\_
13. How do you get to school? \_\_\_\_\_
14. What time do you leave home in the morning? \_\_\_\_\_
15. What time do you get home after school? \_\_\_\_\_
16. What time do you usually go to bed at night? \_\_\_\_\_
17. What time do you usually get up in the morning? \_\_\_\_\_
18. What is the occupation of your parents? \_\_\_\_\_

Note to Pupil: On the next three pages you are to write a list of all the foods you eat and drink for three days: Sunday, Monday, and Tuesday. Younger boys and girls may need to ask help from mother and teacher. Your teacher will read these pages with you. Be sure you understand exactly how to fill them in. Each boy and girl should try to be very careful to list exactly the foods eaten and to give the amounts in each case.



## THESE ARE THE FOODS I ATE AND DRANK ON SUNDAY

At breakfast (name foods and give amounts, such as one egg):

- |          |          |
|----------|----------|
| 1. _____ | 5. _____ |
| 2. _____ | 6. _____ |
| 3. _____ | 7. _____ |
| 4. _____ | 8. _____ |

Between breakfast and noon (name foods and give amounts, such as grapefruit juice, one-half cup):

- |          |          |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |

At noon (name foods and give amounts, such as green peas, one-half cup):

- |          |          |
|----------|----------|
| 1. _____ | 5. _____ |
| 2. _____ | 6. _____ |
| 3. _____ | 7. _____ |
| 4. _____ | 8. _____ |

Between noon and the evening meal (name foods and give amounts, such as ice cream, one dip):

- |          |          |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |

At the evening meal (name foods and give amounts, such as fruit salad of oranges, apples, raisins, three-fourths cup):

- |          |          |
|----------|----------|
| 1. _____ | 5. _____ |
| 2. _____ | 6. _____ |
| 3. _____ | 7. _____ |
| 4. _____ | 8. _____ |

Between the evening meal and going to bed (name foods and give amounts):

- |          |          |
|----------|----------|
| 1. _____ | 2. _____ |
|----------|----------|

## THESE ARE THE FOODS I ATE AND DRANK ON MONDAY

At breakfast (name foods and give amounts, such as buttered toast, two slices, and two teaspoons butter):

- |          |          |
|----------|----------|
| 1. _____ | 5. _____ |
| 2. _____ | 6. _____ |
| 3. _____ | 7. _____ |
| 4. _____ | 8. _____ |

Between breakfast and noon (name foods and give amounts, such as milk, one glass):

- |          |          |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |

At noon (name foods and give amounts, such as peanut butter sandwich, whole wheat or enriched bread, two slices, and three tablespoons butter):

- |          |          |
|----------|----------|
| 1. _____ | 5. _____ |
| 2. _____ | 6. _____ |
| 3. _____ | 7. _____ |
| 4. _____ | 8. _____ |

Between noon and the evening meal (name foods and give amounts, such as apple, one):

- |          |          |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |

At the evening meal (name foods and give amounts, such as mashed potatoes, one-half cup):

- |          |          |
|----------|----------|
| 1. _____ | 5. _____ |
| 2. _____ | 6. _____ |
| 3. _____ | 7. _____ |
| 4. _____ | 8. _____ |

Between the evening meal and going to bed (name foods and give amounts):

- |          |          |
|----------|----------|
| 1. _____ | 2. _____ |
|----------|----------|

THESE ARE THE FOODS I ATE AND DRANK ON TUESDAY

At breakfast (name foods and give amounts, such as wheat flakes, one cup):

- |          |          |
|----------|----------|
| 1. _____ | 5. _____ |
| 2. _____ | 6. _____ |
| 3. _____ | 7. _____ |
| 4. _____ | 8. _____ |

Between breakfast and noon (name foods and give amounts, such as graham crackers, three):

- |          |          |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |

At noon (name foods and give amounts, such as spaghetti with tomatoes and meat, one-half cup):

- |          |          |
|----------|----------|
| 1. _____ | 5. _____ |
| 2. _____ | 6. _____ |
| 3. _____ | 7. _____ |
| 4. _____ | 8. _____ |

Between noon and the evening meal (name foods and give amounts, such as prune sauce, five prunes):

- |          |          |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |

At the evening meal (name foods and give amounts, such as potato soup made with milk, one cup):

- |          |          |
|----------|----------|
| 1. _____ | 5. _____ |
| 2. _____ | 6. _____ |
| 3. _____ | 7. _____ |
| 4. _____ | 8. _____ |

Between the evening meal and going to bed (name foods and give amounts):

- |          |          |
|----------|----------|
| 1. _____ | 2. _____ |
|----------|----------|



## SCORE SHEET FOR THREE-DAY FOOD RECORD

Based on recommended allowances  
for elementary school children

Pupil Record No. \_\_\_\_\_ Name \_\_\_\_\_ Grade \_\_\_\_\_ Date \_\_\_\_\_

School \_\_\_\_\_ Classification of diet\*:

Good Fair Poor (Circle one)

Food Groups	No. of Servings**	Rating				Diet Score
		0	1	2	3	
1. Green and yellow vegetables (some raw, some cooked, or canned). Average serving***: 2/3 cup cooked or 1 cup raw		0	1	2	3	1.
2. Oranges, tomatoes, grapefruit, raw cabbage, or salad greens. Average serving: 1 orange, 1 tomato, $\frac{1}{2}$ grapefruit, 1 cup raw greens, or $\frac{1}{2}$ cup juice		0	1	2	3	2.
3. Potatoes. Average serving: $\frac{1}{2}$ cup cooked		0	1	2	3	3.
4. Other vegetables and fruits (raw, dried, cooked, or canned). Average serving: $\frac{1}{2}$ cup cooked		0	2	4	6	4.
5. Milk and milk products (fluid, dried, or evaporated) or cheese. Average serving: 1 cup fluid milk or 1 cubic inch of cheese		0	3	6	9	5.
6. Meat, fish, poultry, dried beans or peas, nuts, or peanut butter. Average Serving: 2 or 3 oz. meat or fish, 4 tbs. peanut butter, 4-8 nuts, $\frac{1}{2}$ cup cooked beans or peas		0	1	2	3	6.

SCORE SHEET FOR THREE-DAY FOOD RECORD  
(continued)

Food Groups	No. of Servings**	Rating				Diet Score
		0	1	2	3	
7. Eggs or egg custard Average serving: 1 egg		0	1	2	3	7.
8. Bread, flour, cereals (whole grain or enriched). Average serving: 1 slice bread, $\frac{1}{2}$ cup cooked or 1 cup prepared cereal, 1 griddle cake or waffle		0	3	6	9	8.
9. Butter or fortified mar- garine. Average serving: 1 teaspoon		0	3	6	9	9.
Total Score						_____

\*The following classification of diets is based upon the standards proposed by the Food and Nutrition Board of the National Research Council in 1948 for children 7 to 9 years of age. Diets are rated as follows:

A diet is poor if the total score is 18 or lower or if it includes no milk. This diet represents 61% or less of the recommended allowances.

A diet is fair if the total score is 19, 20, or 21 and the score on milk is at least 1. This diet represents 61% to 80% of the recommended allowances.

A diet is good if the total score is 22 or higher and the score on milk is 2 or 3. This diet represents 80% or more of the recommended allowances.

SCORE SHEET FOR THREE-DAY FOOD RECORD  
(continued)

\*\* Food groups and number of servings are adapted from Nutrition Education in the Elementary School, Federal Security Agency, U.S. Office of Education, in cooperation with U.S. Department of Agriculture, August, 1943, p.4.

\*\*\*Amounts considered as average servings are adapted from Menu-Planning Guide for School Lunches, W.F.A., NFC-10, Revised, September, 1944, pp. 2-3 and "Food Composition Table for Short Method of Dietary Analysis," Donelson, Eva G., and Leichsenring, Jane M., Jour. Amer. Diet. Assn. 18:429-439, 1942. (Revised March 1, 1945).

This score sheet and accompanying Food Survey Forms were developed by Willa Vaughn Tinsley in connection with a doctoral study under the direction of Clara Brown Army and Jane M. Leichsenring, University of Minnesota.



## DIRECTIONS FOR SCORING THE PUPIL FOOD RECORD

The score on a pupil's diet shows the relationship of the diet to recommended daily allowances of food nutrients. The teacher should be constantly aware that she is evaluating the pupil's diet and not his nutritional status. For this reason diets should not be referred to as "adequate" or "inadequate" since degrees of adequacy can be determined only by detailed clinical examination of the pupil, involving laboratory analysis. The improvement of pupil diets, however, is a sound and practical procedure and one in which teachers, parents, and pupils can participate. Dietary evaluation offers a useful method available to lay people for stimulating dietary improvement. Such evaluation not only indicates the strengths and weaknesses of the pupils' eating habits, but serves as an objective record against which change in these habits can be measured at subsequent intervals.

The directions which follow may appear overwhelming at first glance. They are written in minute detail, however, for the convenience of teachers who are entirely unfamiliar with this type of procedure. Tabulating the servings from the pupil's record onto the score sheet requires three to four minutes; scoring requires much less time than this, once the routine is established. Older pupils can be directed into doing their own tabulation; however there is a distinct advantage to the teacher in making the tabulations herself for in so doing she is becoming better acquainted with the eating practices of her various pupils. If pupils do their own tabulating, the teacher should go over each record carefully.

The division of the standard into nine foods or food groups is a modification of the "Basic Seven" which facilitates scoring and results in a more accurate evaluation.

Although the maximum score of 3 for each group is the same, there has been no effort to equalize the nutritive values of the nine groups. The concept here is very important; no diet is considered good unless it contains a high percentage of the recommended allowances of all food nutrients. These can be supplied by meeting the standards described on the score sheet, including the substitutions explained in the directions for scoring.

### Directions for Tabulating the Number of Servings From the Pupil Food Record Onto the Score Sheet

1. Open the Pupil Food Record to the Sunday morning breakfast and look at the first food the pupil has listed.
2. Familiarize yourself with the amount of that food that is considered an average serving (See left-hand column on Score Sheet). Study these amounts carefully.
3. Estimate the number of servings, or proportion of a serving, represented by the first food on the list.
4. Tabulate this amount opposite the proper food group in the adjoining column labeled "number of servings." Then go on to the next food in the list. For example, study the illustrations in Figures 1 and 2.

Fig. 1. These are the Foods I Ate and Drank on Sunday at breakfast (name foods and give amounts, such as one egg):

1. <u>Milk</u>	<u><math>\frac{1}{2}</math> glass</u>	5. _____
2. <u>Cooked cereal</u>	<u>1 cup</u>	6. _____
3. <u>Egg</u>	<u>1</u>	7. _____
4. <u>Toast</u>	<u>1 slice</u>	8. _____

The foods listed in the above record would be tabulated opposite the food groups as shown in Fig. 2.

Fig. 2. Score Sheet for Three-Day Food Record

Food Groups	No. of Serv.	Rating			Pupil Score	Parent Score
		0	1	2	3	
5. Milk and milk products, fluid, evaporated, dried milk, or cheese Ave. serving: 1 c. fluid milk or 1 cu. in. cheese	1/2	0	3 serv.	6 serv.	9 serv.	5.
7. Eggs (or egg custard) Ave. serving: 1 egg	1	0	1 serv.	2 serv.	3 serv.	7.
8. Bread, flour, cereals--whole grain or enriched Ave. serving:	3	0	3 serv.	6 serv.	9 serv.	8.

5. Continue tabulating from breakfast, to midmorning lunch, to noon, etc. Do not skip from meal to meal over the three-day record searching out numbers of servings for any one group of foods. To do so is likely to result in omissions and confusion.
6. Foods that do not belong to any of the nine food groups are not tabulated. These will include such foods as pickles, popcorn, candy, soft drinks, coffee, and the like, as well as cakes, cookies, ice cream, puddings, pies, and other desserts. Even though many of these desserts include various amounts of basic foods, it is the essence of good nutrition to provide first for the inclusion of basic foods as such rather than as so-called luxury foods.
7. After completing tabulation for pupil's three-day food record, examine Parent Survey Form.



Directions for Tabulating the Foods from the Parent Survey Form that the Pupil Had Opportunity to Eat, but Failed to Eat

1. Look at the first food the parent has listed. Find the food group on the score sheet to which this food belongs.
2. Tabulate each serving from Parent Survey Form with an "0" in the Number of Servings column opposite the proper food group. See Fig. 3. These "0's" represent the servings of foods that the child could have eaten, but failed to eat.

Fig. 3. Score Sheet for Three-Day Food Record

Food Groups	No. of				Pupil	Parent
	Serv.	0	1	2	3	Score
1. Green and yellow vegetables--some raw, some cooked or canned			1	2	3	
Ave. serving considered:	2	0	serv.	serv.	serv.	
2/3 c. cooked or 1 c. raw	0					1.

3. Continue tabulating each food in turn.
4. Foods that do not belong to any of the nine groups are not tabulated. (See item 6 above.)

### To Obtain Pupil Score on Three-Day Food Record

1. Study the four ratings possible under the column labeled "Rating." See Fig. 4. Note that the highest rating any food group can receive is 3, regardless of the number of extra servings. Tabulations showing no servings at all for the three days rate "zero" in each food group. The number of tabulations worth a rating of "1," "2," or "3," however, varies in different groups. For instance, one serving of Green and Yellow Vegetables (Group 1) rates "1," whereas two servings of Other Vegetables and Fruits (Group 4) rate "1" and three servings of Groups 5, 8, and 9 rate "1." Master this element of rating before proceeding.
2. Begin with Group 1. Count the number of tabulations from the pupil record in the "Number of Servings" column. (Ignore at this stage tabulations of "0's" from Parent Survey form.) In Fig. 4 there are 5 servings tabulated for Group 1.
3. Calculate (by inspection) the rating this number of servings would receive for Group 1. Five servings in Group 1 would receive the full rating of 3, with two extra servings to spare. Extra servings are discussed later.
4. Place this rating in the column labeled "Pupil Score" opposite Group 1. See Fig. 4.
5. Do the same for Group 2.

Note: Dietary standards intended for popular use are set up in terms of definite foods or food groups; yet it is commonly understood that our recommended allowances of food nutrients can be derived from a variety of sources. This score sheet makes possible several substitutions from one food group to another. This is a distinct advantage. The greater accuracy in classifying diets, when these substitutions are provided for, more than compensates for the increased difficulty in scoring.

6. More than three servings in Group 1 or 2 can be counted as servings for Other Vegetables and Fruits, Group 4, if this group has less than the recommended number of servings, six, for a full rating. This is shown with an arrow leading down to Group 4 with the number of extra servings marked at the end of the arrow. See Fig. 4.



Green and yellow vegetables are particularly important for Vitamin A value and the Citrus Fruit Group for ascorbic acid content. Extra servings from these two groups can substitute for servings of "Other fruits and vegetables," but extra servings of "Other fruits and vegetables" cannot take the place of servings from Groups 1 or 2.

7. If Group 3, Potatoes, has fewer than three servings tabulated, look at the tabulations in Groups 8 and 2. If there are more than nine servings of cereal foods tabulated in Group 8 and at least three servings tabulated in Group 2, the extra servings of cereal foods can substitute for potatoes, serving for serving. Cereal foods--enriched, restored, or whole grain--Group 8, are valued for at least three of the B vitamins and iron. Foods from Group 2 are valued for their ascorbic acid content. Potatoes are not valuable sources of the protective nutrients in cereal foods, but, like the foods in Group 2, they do carry ascorbic acid. Unless there are three servings tabulated for Group 2, do not make this substitution.
8. Observe that Groups 5, 8, and 9 require three, six, and nine servings to rate "1," "2" or "3" respectively. In these groups, tabulations of four or five servings rate only "1" and tabulations of seven or eight servings rate only "2."
9. If Group 9, Butter or Fortified Margarine, has fewer than nine servings tabulated, look back to the tabulations for Milk, Group 5. Milk is especially important for calcium, protein, riboflavin (a B vitamin) and Vitamin A. Because of the higher Vitamin A content of milk, one extra serving of milk can count as three servings of butter or fortified margarine. Note in Fig. 4 that milk has eight servings tabulated. Since there are more than six servings (deserving a rating of "2") but fewer than nine servings (which would deserve a rating of "3"), these two extra servings of milk can substitute for six servings in the butter group; otherwise the contributions to the diet of the servings of milk beyond the "2" rating, but not equal to the "3" rating, would be denied in the over-all score.



10. Extra servings in Group 6 can substitute, serving for serving, for Eggs, Group 7, provided there are at least three servings in Group 5. Meat can substitute for eggs except for higher Vitamin A value of eggs. If this value is taken care of through at least three servings of milk, the substitution is nutritionally safe. If Group 5 does not show at least three servings tabulated, do not make this substitution.
11. Add the figures in the Pupil Score Column. This total score can be classified "Good," "Fair," or "Poor" by examining the directions at the bottom of the score-sheet page.

To find the score for the diet the pupil had an opportunity to eat, but failed to eat--

1. Look at the food groups in the "Number of Servings" column that have "0" tabulations from the Parent Survey Form.
2. Add the number of these "0" tabulations to the other tabulations in each group and re-rate this combined number of servings. In the example given, Fig. 4 shows Group 3 with one extra serving of potatoes. This rates a pupil score of "1." The two "0's" from the Parent Survey Form added to this one serving equals a score of "3" for the parent score. This means that the child had the opportunity to eat three servings of potatoes, but he ate only one serving.
3. Place the new score for each food group in the column labeled "Parent Score."
4. For groups in which there are no parent survey tabulations, or in which there is no change in the rating, transfer the pupil score into the parent score column. In cases where the parent has written that the child "eats everything," merely copy the pupil's total score in the parent's total score column.
5. Add the figures in the parent score column. This score represents the value of the diet the pupil had an opportunity to eat, according to the parent's record, while the pupil score represents the value of what he actually did eat, according to his own record.

VANDERBILT UNIVERSITY  
School of Medicine  
Nashville 5, Tennessee

Division of Nutrition  
Departments of Medicine and Biochemistry

August 8, 1953

Miss Emilla Tschanz  
Sackett Hall  
Oregon State College  
Corvallis, Oregon

Dear Miss Tschanz:

We are enclosing a set of the forms which we used in our study of the diets of pregnant women in the Vanderbilt Cooperative Study of Maternal and Infant Nutrition. We shall, of course, be glad to have you include duplicates of these in your thesis. In addition, I am taking the liberty of sending you certain reprints pertaining to the problem of appraisal of dietary intake.

Sincerely yours,

William J. Darby

WJD/md

Enclosure



These directions for the food surveys are those used at Vanderbilt University School of Medicine in the study of diets of pregnant women and were used in this study.

### Three Day Diet Record

#### Directions

Record all food eaten and all drinks except water. Judge the amounts as well as you can and fill in this record after each meal.

1. Bread--Tell number of pieces, kind and size. Such as: 2 small buttermilk biscuits, or, 1 piece of cornbread 2 inches square and 1 inch thick.
2. Butter or Oleomargarine--Measure by level teaspoons or tablespoons.
3. Cereals--Judge by cups. Such as: 1 cup cornflakes or 1/3 cup of cooked oatmeal. Give amounts of sugar, milk, or cream used.
4. Candy--Kind, size, and number of pieces.
5. Desserts--Judge amounts of custards and puddings by cups. Tell whether cake has icing. Give size and kind of pie.
6. Drinks--State whether glass is large, medium or small. If bottled drink, give name of drink.
7. Fruits--Tell size and kind. Such as: 1/2 medium grapefruit or 1 cup canned peaches. If sugar is used, state amount.
8. Meats--Tell kind, how it is cooked, and size of piece eaten. Tell amount of gravy eaten.
9. Sandwiches--Tell kind of bread and what is in the sandwich.
10. Soups and Stews--Give amounts and name ingredients.
11. Vegetables--Tell kind and amount, judged by tablespoons or cupfuls after cooking, unless served raw. Give amounts of raw vegetables eaten and kind and amount of dressing used.



### Other Directions

1. Tell how each food is cooked or if it is raw.
2. Tell what kind of salad that you eat.
3. Tell how many slices of bread are in your sandwiches.
4. If you do not eat a meal, write "Nothing" for that meal.
5. Keep track of between meal snacks--anything that you eat.

Table C  
Breakfast Survey Scores of  
Two Classes of Homemaking I

Pairs	First Survey		Second Survey		Difference	
	Class A	Class B	Class A	Class B	Class A	Class B
	%	%	%	%	%	%
1	44.4	4.3	55.5	21.7	-11.1	17.4
2	0	48.1	0	44.4	0	- 3.7
3	25.9	40.7	29.6	29.6	3.7	-11.1
4	21.7	8.6	44.4	21.7	22.7	13.1
5	17.3	37.0	0	48.1	-17.0	11.1
6	25.9	13.0	37.0	0	11.1	-13.0
7	29.6	40.7	48.1	48.1	18.5	7.4
8	25.9	37.0	59.2	33.3	33.3	- 3.7
9	22.2	22.2	22.2	21.7	0	- .5
10	22.2	66.6	29.6	62.9	7.4	- 3.7
11	25.9	29.6	59.2	40.7	3.3	11.1
12	13.0	29.6	17.3	17.3	4.3	-12.3
13	29.6	17.3	25.9	25.9	- 3.7	8.6
14	37.0	21.7	40.7	33.3	3.7	11.6
15	17.3	21.7	21.7	37.0	4.4	15.3
16	25.9	17.3	48.1	22.2	22.2	4.9
17	22.2	40.7	4.3	29.6	-17.9	-11.1
18	25.9	44.4	22.2	59.2	- 3.7	14.8
19	21.7	29.6	21.7	33.3	0	3.7
20	17.3	25.9	13.0	66.6	- 4.3	40.7
21	21.7	17.3	33.3	17.3	11.6	0
22	25.9	51.7	33.3	51.7	7.4	0
23	37.0	25.9	44.4	33.3	7.4	7.4

The 100-item test developed in the Ohio study and used as a pretest in this study:

Your Name \_\_\_\_\_

Form A  
Food Test, Home Economics I

Directions: Circle the correct answers for each question.

Mary, who has just completed her first unit in ninth grade foods, is planning to carry out a home project in meal preparation during the spring vacation. Mary is to do the planning of the meals, most of the buying, and much of the preparation, especially of the noon meal. There are four in the family; father, mother, ten year old John and Mary.

A. Buying foods.

The first order list which Mary took to the grocery included eggs, oranges, canned peaches, cabbage, frozen lima beans, bread, rolled oats and milk. She was buying oranges for juice so she knew that she should:

1. Select large oranges that were coarse grained and thick skinned.
2. Select the heaviest fruit as it is usually more juicy.
3. Buy those which were fine grained and thin skinned.
4. Pay more than she would for oranges to be used for salad.

In buying the eggs, she should consider whether they

5. Are graded eggs.
6. Are white or brown eggs.
7. Are priced according to size.
8. Have been well cared for.

In buying the cabbage, she knew that:

9. If she wished to use the cabbage raw, she should choose a compact head.
10. The outer leaves are low in food value; if they are not fresh they can be discarded without loss.
11. It would be better to buy the cabbage by weight rather than by the head.
12. The head should be loose and the leaves easily separated.

In buying milk she looked at the cap on the bottle to see



if the label told whether the milk was:

13. Pasteurized or homogenized.
14. Condensed or evaporated.
15. Of satisfactory butter fat content.
16. Whole milk or skimmed milk.

She bought a package of quick cooking rolled oats. She thought this was a wise buy since this variety of cereal:

17. Has been cooked at the factory and is classed as a ready-to-eat cereal.
18. Would be more suitable in a warm weather menu than a cold one.
19. Has been partially cooked at the factory and requires less cooking at home.
20. Would not require cooking.

#### B. Care of Foods

When Mary reached home she had to put away the foods she had bought. She chose the correct procedures as:

She had learned that eggs:

21. Should be washed before being placed in the refrigerator.
22. Are not washed until ready to use them, unless very dirty.
23. Will absorb odors when placed near strong foods, such as onions.
24. Should be kept in a cool place since they spoil more rapidly when kept in a warm place.

She washed the cabbage and placed it:

25. Where it would be kept cool and dry.
26. Uncovered on the lowest shelf of the refrigerator.
27. In a covered vegetable container or freshener in the refrigerator.
28. In a vegetable bag of cheese cloth under the freezing unit.

The frozen lima beans were to be used for the evening meal, so she placed them

29. In a part of the refrigerator where they would thaw.
30. In the pan in which they were to be cooked, then left them at room temperature to thaw to insure rapid cooking.
31. In the freezing unit of the refrigerator until ready for use.
32. Where they would stay frozen until dinner, ready for use.

In caring for the food she purchased, Mary knew that:

33. The coldest part of the refrigerator, other than the freezing unit, is the lowest shelf.
34. Vegetables are kept in the least cold part of the refrigerator.
35. Citrus fruits should be kept in the coldest part of the refrigerator.
36. Food ordinarily needs to be kept covered in the refrigerator.

Mary had also learned that:

37. Bread keeps well in a ventilated, not-air-tight, tin box or drawer.
38. Butter should be left uncovered in the refrigerator.
39. Cheese molds rapidly even if kept well wrapped in a cool place.
40. Bread may be kept in the waxed paper wrapper in the refrigerator.

#### C. Preparation of food

Mary was using eggs in two ways in one day's meals, in sandwiches at noon and in baked custard for the evening. She wished to use methods which would apply the principles of egg cooking she had learned. She:

41. Hard cooked the eggs for the sandwiches by boiling them rapidly for ten minutes so that the white would be firm but tender.
42. Set the custard in a pan of hot water and cooked it in a slow oven.
43. Hard cooked the eggs by covering them with cold water, heating the water gradually to the boiling point, removing the pan from the stove, covering and letting stand 20-30 minutes.
44. Used the eggs in the custard as a thickening agent.

In making the white sauce as a basis for the cream of pea soup, Mary followed a correct procedure since she:

45. Stirred the flour into the heated milk and then added the butter.
46. Melted the butter, added the flour, then added the milk gradually and cooked until thick.
47. Added the flour directly to the hot liquid.
48. Stirred the flour into a small amount of cold milk, added the remainder of the milk to the mixture, stirred and cooked for 5 minutes after it came to the boiling point, then added the butter.



In cooking the frozen lima beans for dinner, she remembered that she should:

49. Thaw out the vegetables before cooking.
50. Place them in boiling water without thawing.
51. Cook them in as short a time as possible.
52. Add soda while cooking to get them soft in as short a time as possible.

In cooking the quick cooking rolled oats, she separated the starch grains by:

53. Washing it as she would rice before stirring into boiling salted water.
54. Cooking it in a large amount of water as macaroni is cooked, draining then pouring cold water over it.
55. Stirring the cereal frequently during the cooking period over the direct flame.
56. Stirring it gradually into boiling salted water.

In making muffins she knew that:

57. Carbon dioxide formed in the muffin mixture lightens the batter.
58. The batter should be stirred only enough to blend the ingredients.
59. Hard wheat flour is usually used.
60. Too little flour makes the mixture dry and tough.

D. Nutritive value

Mary, after consulting her mother, had made out the following menus for the first day:

<u>Breakfast</u>	<u>Lunch</u>
Orange Juice	Cream of Pea Soup
Rolled Oats	Egg Sandwiches
Toast, butter	Canned Peaches    Cookies
Currant Jelly	Cocoa or Tea
Coffee and Milk	

Dinner

Broiled hamburgers  
 Mashed potatoes  
 Buttered lima beans  
 Cole slaw  
 Enriched white bread  
 Baked custard  
 Coffee and milk



She included eggs in the lunch, since they furnish:

61. Protein of a high quality.
62. Much carbohydrate (sugar and starches)
63. Valuable minerals (iron and phosphorous)
64. Needed cellulose or roughage.

A citrus fruit juice (orange) for breakfast and canned peaches for lunch were on the menu since:

65. Tomato juice contains half as much Vitamin C content as orange juice.
66. Citrus fruits furnish valuable acids.
67. Fruits in general are good sources of vitamins.
68. Both furnish needed fat and protein.

Mary might have planned for cheese in the sandwiches for lunch instead of eggs since both:

69. Supply complete proteins.
70. Are low in calories.
71. Are poor sources of phosphorous.
72. Serve as good meat substitutes.

She included two servings of vegetables (other than potato), one leafy and green, in the day's meal because:

73. Leafy green vegetables are especially rich in protein.
74. Fresh vegetables are better sources of Vitamin C than are cooked vegetables (except tomatoes).
75. Head lettuce is rich in vitamins A and D.
76. Yellow vegetables and green vegetables (especially those with thin leaves) are valuable for their vitamins.

She decided to buy oleomargarine and serve it instead of butter since:

77. Fortified oleomargarine is as high in Vitamin A as butter.
78. Butter has less fuel value than oleomargarine.
79. Butter is generally much more expensive than fortified oleomargarine.
80. Both are made of vegetable fats.

#### E. Planning Meals

In making out the menus, Mary:

81. Included all the essential foods needed in the diet.
82. Provided the needed milk for herself and her brother.

83. Included fewer eggs than would be needed in a day's meals.
84. Included foods rich in Vitamin C.

Color and texture of foods are important in meal planning; Mary decided that:

85. Cream of corn soup would provide more color in the lunch than cream of pea soup would.
86. The hamburgers in the dinner would have a solid texture, the custard would be soft.
87. It would be wise to garnish the cole slaw with pimento strips to provide more color in the dinner.
88. Strawberry jello with fruit would be less colorful in the dinner than the baked custard.

If these meals were served in the winter, the cost of the meals would be increased considerably if:

89. Fresh peaches were used instead of canned.
90. Sliced tomatoes were used instead of cabbage for salad.
91. Frozen lima beans were used instead of fresh ones.
92. Hot tea were served instead of iced.

Mary is afraid she will be rushed at dinner time. She would like to prepare some foods ahead. She can save time when preparing dinner and yet not sacrifice food value by:

93. Preparing the baked custard while she is preparing lunch.
94. Making the cole slaw immediately after lunch.
95. Mixing the hamburger with eggs and crumbs early in the day, then making the meat balls, keeping in the freezer unit until ready for broiling.
96. Thawing the frozen lima beans so they will cook more quickly.

Mary knew that the meals she planned would be more pleasing if she:

97. Planned to repeat some decided flavor in each of two meals.
98. Combined some rather highly seasoned foods and some bland foods in each meal.
99. Did not include cabbage, since it has a strong flavor which some persons do not like.
100. Planned for a combination of acid, bland, and sweet foods.

ADVANCE BOND

This is the post test developed in the Ohio study:

Your name \_\_\_\_\_

Form B  
Food Test, Home Economics I

Directions: Circle the correct answers for each question.

A. Buying Foods

Jean, who is a freshman in high school, is planning to help her mother with meal preparation. Her mother has asked her to bring home some needed groceries. The grocery list includes bananas, eggs, a package of cereal, head lettuce, peas, bread, and milk. The bananas are for the evening meal. She should buy bananas which:

1. are bright yellow with green tips.
2. are a deep yellow, shaded or flecked with brown.
3. are sold by the pound not by the dozen.
4. have been stored in a cold place to ripen.

In buying eggs, Jean knew that:

5. she should purchase fresh (not cold storage eggs) if she wanted good eggs.
6. the color of the shell was important if she wanted eggs of good flavor.
7. when you shake a strictly fresh egg, you cannot feel the insides of the egg move back and forth.
8. eggs are frequently priced according to size.

In selecting the head lettuce, she should choose one in which:

9. the leaves are crisp.
10. the head is loose and the leaves are easily separated.
11. as many leaves as possible are green.
12. the inner leaves are well bleached.

In buying milk she knew:

13. irradiated milk contains more Vitamin D than ordinary milk.
14. it would cost more to buy skimmed milk than whole milk.
15. pasteurization of milk destroys some disease bacteria but does not prevent spoilage of milk.
16. condensed and evaporated milk are sold in bottles.

Jean bought a ready-to-eat cereal. She thought this was a wise buy since this variety of cereal:



17. would be convenient to use.
18. would add variety to a warm weather menu.
19. would require only a short period of cooking at home since it is cooked at the factory.
20. was partially cooked at the factory.

#### B. Care of foods

Jean's mother was not at home when she arrived. She put away the foods she bought, together with some her father had just brought in. She tried to choose the best method for the care of each food.

The eggs were:

21. kept in a cool place under 50 F.
22. placed in the refrigerator without washing (unless very dirty)
23. washed carefully and placed in the refrigerator
24. not placed near strong foods such as onions because they would absorb the odor.

The lettuce was placed:

25. where it would keep cool and dry.
26. where it would keep cool and moist.
27. on the lower shelf of the refrigerator, uncovered.
28. in a damp cloth or in a wax paper container and kept in a cool place.

The frozen meat her father brought from the locker was not to be used until the next week. She should:

29. leave the wrapper on and place it in the lower part of the refrigerator.
30. leave the wrapper on and place in the freezing unit.
31. pre-cook the meat immediately, keep in refrigerator until ready to use.
32. take the wrapper off and place directly under the freezing unit.

In caring for the food she purchased, Jean had learned that:

33. citrus fruits should be placed in the refrigerator long enough to chill before serving.
34. fruits and vegetables are kept in the coldest part of the refrigerator.
35. salad ingredients can be kept crisp in covered container.
36. most foods can be left uncovered in the refrigerator.

Jean knew that:

37. packaged cheese should be unwrapped to keep it from molding.
38. the covered bottle of milk should be placed in the upper part of the refrigerator.
39. bread should be kept in an air tight bread box or drawer.
40. dried fruits should be kept in original containers or covered containers.

#### C. Preparation of foods

In her foods class at school, Jean has learned to follow certain rules in preparation. In helping at home she wants to apply these rules in the choice of methods of preparation. Which rules should she follow in preparing the foods given below?

#### White sauce

41. melt the butter, add the flour, then add the milk gradually to the fat and flour mixture.
42. use one teaspoon of flour and one of fat for each cup of milk for a medium white sauce.
43. mix the starchy material or flour with melted fat or a small amount of cold liquid to prevent lumping, then add the rest of the liquid.
44. add the flour directly to the hot liquid to shorten the cooking period.

#### Eggs

45. heat stiffens both the white and yolk of the egg.
46. to cook eggs hard, water must be kept boiling rapidly.
47. cook eggs and egg mixtures at a low temperature.
48. eggs may be used only as thickening agents, not as leavening agents.

#### Green vegetables. To preserve Vitamin C:

49. use as little water as possible when cooking.
50. discard the liquid in which they are cooked.
51. use soda in cooking, this shortens the time of preparation.
52. place frozen vegetables in boiling water without thawing.

#### Cereals If Jean were cooking cereal, if in a form other than meal, she could prevent lumping by:

53. gradually pouring the dry cereal into boiling salted water.
54. stirring it frequently to see that starch particles are kept well separated.



55. mixing it with cold water, then stirring the mixture into the boiling water.
56. salting the water before adding cereal.

#### Quick breads

57. air, steam, and carbon dioxide lighten quick breads and are called leavening agents.
58. baking powder is used in biscuits to furnish the leaven.
59. as much fat is used in making muffins as in making pastry or cake.
60. too little fat in muffins makes the product tough.

#### D. Nutritive values

Jean has learned that certain foods should be included in the diet because of their nutritive value. She knew that

#### Eggs

61. are a richer source of iron than milk.
62. contain much carbohydrate (sugar or starch)
63. are so valuable in the diet that three or four are required daily.
64. are vitamin-rich foods.

#### Cheese

65. is rich in protein, mineral, fat and Vitamin A.
66. cannot be used in place of meat in the diet as the protein is incomplete.
67. combines well with starchy foods because of its pronounced flavor.
68. is a food containing little calcium or phosphorus.

#### Green and yellow vegetables

69. are valuable in the diet for their minerals and vitamins.
70. are a better source of Vitamin C when fresh than if they are cooked, dried, or canned.
71. are so valuable for their protein that three servings must be included daily.
72. are especially rich in carbohydrate.

#### Butter

73. has more fuel value than margarine.
74. is generally less expensive than fortified margarine.
75. should always be used instead of fortified margarine because of the high nutritive value.
76. contains Vitamin A.



Fruits

- 77. supply needed fat and protein.
- 78. supply when raw, needed Vitamin C.
- 79. serve as appetizers.
- 80. contain vitamins, mineral and cellulose.

E. Planning Meals

Jean's mother had planned the following menu for the evening meal:

Meat Loaf  
Escalloped Potatoes  
Green beans  
Sliced Tomatoes  
White Bread and Butter  
Fresh sliced Peaches    Cookies  
Coffee    Milk

The meals would be reasonable in cost, would be suitable for the season (early fall), would be sufficiently varied in color, texture, flavor, shape and appearance to meet the standards of good meals. Jean planned the following meals:

<u>Breakfast</u>	<u>Luncheon</u>
Tomato Juice	Macaroni and Cheese
Scrambled Eggs	Plain Muffins
Whole Wheat Toast	Cole Slaw
Milk or Coffee	Apple Pie
	Coffee    Milk

In regard to the foods essential in the diet:

- 81. not enough milk is included in the menus.
- 82. all of the essential foods are included in the three meals.
- 83. a whole grained cereal should be added to the breakfast.
- 84. enough fresh fruits and vegetables are included.

Variety in color and texture of foods

- 85. there is sufficient variety of texture and color in the breakfast menu.
- 86. a tossed vegetable salad would add more color than cole slaw in the luncheon.
- 87. carrots would furnish more variety in color than the green beans on the dinner menu.
- 88. the green beans provide a crisp food in the dinner.

Flavor of foods

89. there are too many highly seasoned foods in the luncheon.
90. since there are tomatoes in the dinner menu, it might be better to have grapefruit or orange juice instead of tomato juice for breakfast.
91. the dinner foods make a pleasing combination of acid, bland, and sweet foods.
92. there are too many sweet foods in the luncheon.

Cost and Season

93. peaches and tomatoes are generally available in the early fall at a reasonable price.
94. it would be hard to get cabbage for the cole slaw early in the fall.
95. a head lettuce salad would cost more than the cole slaw in the luncheon menu.
96. fresh eggs cost more in the fall months than in the winter.

Order of preparation

97. Jean is to prepare the breakfast on Saturday morning. She has made out a plan of work. She should butter the bread before placing in electric toaster.
98. she should set the table when the meal is ready.
99. she should place the chilled tomato juice in the glasses last.
100. she should prepare the scrambled eggs while the toast is being made.

Six Weeks Test  
Homemaking I

True or False

- \_\_\_ 1. When making breakfast of toast, cereal, and cocoa, make the toast first in the broiler.
- \_\_\_ 2. Make cocoa before putting cereal on.
- \_\_\_ 3. Whip cocoa before serving.
- \_\_\_ 4. Add cocoa mixed with sugar to the hot milk.
- \_\_\_ 5. Cereals made from endosperm of wheat are highest in vitamins.
- \_\_\_ 6. Which group of cereals are highest in vitamins?
 

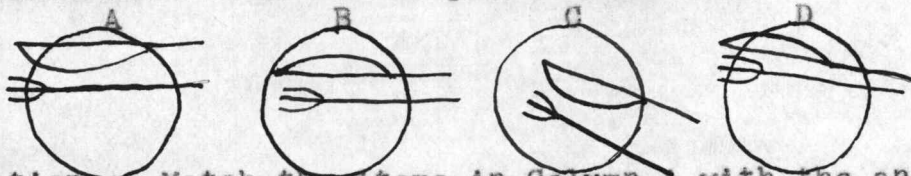
A	B
Cream of wheat	Shredded wheat
Corn flakes	Wheaties
Cheerios	Dina-mite
- \_\_\_ 7. In making white sauce, you should use thin sauce for soup.
- \_\_\_ 8. Use the same amount of flour as fat in white sauce.
- \_\_\_ 9. Cook directly over burner to thicken, then put on double boiler.
- \_\_\_ 10. Use cold milk.
- \_\_\_ 11. Do not cook white sauce after adding cheese for cheese sauce.
- \_\_\_ 12. Allow 20 minutes to make biscuits.
- \_\_\_ 13. Biscuits take longer than muffins.
- \_\_\_ 14. Peaks in muffins are caused by overbeating.
- \_\_\_ 15. Using a pastry blender on biscuits is a good way to insure flakiness.
- \_\_\_ 16. Cooky dough must be stiff.
- \_\_\_ 17. Biscuit dough should be soft to the touch.
- \_\_\_ 18. Candy must cool before beating.
- \_\_\_ 19. Jello for salad should thicken before adding shredded carrots.
- \_\_\_ 20. Allow 1 hour to make jello salad.
- \_\_\_ 21. To keep pudding smooth, mix cornstarch and sugar before adding milk.
- \_\_\_ 22. When making tomato soup, to keep it from curdling, add tomatoes to thin cream sauce rather than vice-versa.

Directions: Check the following if they are incorrect in  
23-29 the diagram:

___ Forks	___ Glass
___ Spoons	___ Knife
___ Knives	___ Salad
___ Cup	



30. Serve from the a) left b) right side with the  
 31. a) left b) right hand.  
 32. Dip soup a) toward b) away from you.  
 33. Leave the silver on the plate as follows:



Directions: Match the items in Column A with the answers in Column B

- A  
     1. Sanforized  
     2. Strawcloth  
     3. Twill weave  
     4. Percale  
     5. Gingham  
     6. Broadcloth  
     7. Orlon  
     8. Gabardine

- B  
 A. Too loosely woven  
 B. A woven cotton plaid  
 C. Needs no shrinking  
 D. Twill weave (diagonal)  
 E. A cotton print  
 F. Permanently pleated,  
 washable, crease resis-  
 tant

Directions: Use the answers in the Column to fill the blanks in the margin.

9. Large girls should avoid \_\_\_\_\_ colors.  
     10. Girls with large hips should avoid \_\_\_\_\_  
     11. and \_\_\_\_\_.  
     12. Tall girls should wear \_\_\_\_\_ stripes.  
     13. Fullness is more becoming on \_\_\_\_\_ girls.

- |               |            |
|---------------|------------|
| A. Vertical   | F. Solid   |
| B. Horizontal | G. Subdued |
| C. Tall       | H. Pleats  |
| D. Short      | I. Flared  |
| E. Bright     | J. Pockets |

14. Complementary colors are pleasing in clothing color combinations.  
     15. Complementary colors form a triangle on the color wheel.  
     16. A triad is composed of three colors from the color wheel and the colors are pleasing together.  
     17. Neighboring colors in close shades may be worn in color combinations.  
     18. A change in the value of a color may affect its suitability for a color combination.

- \_\_\_19. The intensity of a color is the brightness or dullness.
- \_\_\_20. Solid color dresses in subdued shades are more slenderizing than contrasting colors, as in a black skirt and white blouse.

Semester Examination  
Homemaking I

Name \_\_\_\_\_  
Period \_\_\_\_\_

Canning-

- \_\_\_ 1. What is the reason for using a pressure canner for certain foods?  
a) Quicker method  
b) Kills dangerous bacteria  
c) More likely to seal  
d) Product looks nicer
- \_\_\_ 2. Which foods must be canned only in a pressure cooker?  
a) peaches b) tomatoes c) green beans  
d) pears
- \_\_\_ 3. The name of the poison found in certain foods if not carefully canned:  
a) ptomaine b) streptococcus c) botulinus  
d) strychnine
- \_\_\_ 4. Which is the wrong technique in canning?  
a) Boiled jars 5 minutes  
b) Cooked peaches 3 minutes before canning  
c) Dipped thin metal lids in boiling water  
d) Screwed thin metal lids tight before using water bath
- \_\_\_ 5. How can you get all the air out of a jar?
- \_\_\_ 6. a) Boil jar  
b) Screw on lid while contents are still boiling hot  
c) Run knife around inside filled jar  
d) Pack jar full
- \_\_\_ 7. To a jar of tomatoes add: a) Soda b) Sugar  
c) Salt d) Cream of tartar
- \_\_\_ 8. Sugar syrup for pears is made by:  
a) Boiling sugar and water 5 minutes  
b) Bringing sugar and water to a boil  
c) Boiling sugar and water 10 minutes
- \_\_\_ 9. Soak pears in \_\_\_\_\_ to keep them from darkening.

Select answer from right-hand column to place in blank at left:

- |                        |  |
|------------------------|--|
| ___ 10. Thin metal lid | a) Screw tight before water bath                 |
| ___ 11. Zinc lid       |  |
| ___ 12. Glass lid      | b) Screw tight after jar comes out of water bath |



- \_\_\_13. Fill jars: a) to rim b) 1/2 inch from top  
c) 1 inch from top
- \_\_\_14. Mary's jars did not seal. Why?  
She: a) Boiled jars 10 minutes  
b) Let jars cool  
c) Filled jars with cooked tomatoes  
d) Put on self-seal lid dipped in boiling water

### Jelly-making

Select answers from right-hand column:  
How do you make up for:

- \_\_\_15. Low acid a) Certo  
\_\_\_16. Low pectin b) Lemon  
d) Sure-Jell  
e) Ascorbic acid
17. What is the third ingredient of jelly besides acid and pectin that must be in perfect balance if the jelly is a good product? \_\_\_\_\_
- \_\_\_18. Paraffin jelly: a) immediately b) in 5 minutes  
c) next day
- \_\_\_19. If you use a commercial pectin you:
- \_\_\_20. a) Use more sugar than if you used no pectin  
b) Use less sugar  
c) Boil the jelly longer  
d) Do not boil it as long

### Freezing

- \_\_\_21. The name of the method of wrapping foods for freezing is:  
a) Mitered corner b) Drugstore fold c) Safety seal
- \_\_\_22. The best papers for wrapping frozen food are:
- \_\_\_23. a) Wax paper b) butcher paper c) locker paper  
d) heavy foil
- \_\_\_24. We must blanch the following for freezing:
- \_\_\_25. a) green beans b) carrots c) peaches d) strawberries e) chicken

Select the correct answers from the list at the right:

- \_\_\_26. A deodorant a) Veto  
\_\_\_27. An anti-perspirant b) Arrid  
d) Mum  
e) Fresh

ADVANCE BOND

W. L. BROWN

Select the best hairdo from the sketches at the right:

- ☐ 28. Long thin face
- ☐ 29. Round face
- ☐ 30. Triangular
- ☐ 31. Heart-shaped face

Mark the following with C if they are correct or I if they are incorrect:

When giving a facial:

- ☐ 32. Splash cold water on face to open pores
- ☐ 33. Then lather face, rinse in hot water, use an astringent, and rub on beauty grains to close pores.

When giving a shampoo:

- ☐ 34. Wet hair and soap once, then rinse twice.
- ☐ 35. Use a vinegar rinse and dry.

When giving a manicure:

- ☐ 36. Soak nails and file them.
- ☐ 37. Push back cuticle with a nail file and polish nails.

When washing a sweater:

- ☐ 38. Use lukewarm water.
- ☐ 39. Use Duz.
- ☐ 40. Rub thoroughly to loosen dirt.
- ☐ 41. Wring dry
- ☐ 42. Hang in a warm place.

When pressing wool:

- ☐ 43. Use a presscloth
- ☐ 44. Press on wrong side
- ☐ 45. Use a steamiron
- ☐ 46. Press dry
- ☐ 47. Use a cool iron

True-False Place a T or an F in the blanks:

- ☐ 48. To remove fruit juice from a tablecloth, soak it in cold water.
- ☐ 49. To remove gum from a skirt, use ice.
- ☐ 50. To remove lipstick from a skirt, use vaseline and carbon tetrachloride.
- ☐ 51. To remove bloodstains, pour on boiling water.
- ☐ 52. Two kinds of flower arrangements are: a) Chinese
- ☐ 53. b) Current arrangement c) Massed arrangement  
d) Unilateral arrangement e) Japanese

## Foods and Nutrition

From the following meals select the Basic Seven foods.  
Place an X in the blanks numbered corresponding to a Basic Seven food:

<u>    </u> 1.	<u>    </u> 7.	<u>Breakfast</u>	<u>Lunch</u>
<u>    </u> 2.	<u>    </u> 8.	1. Orange Juice	5. Jelly Sandwich
<u>    </u> 3.	<u>    </u> 9.	2. Shredded Wheat	6. Cake
<u>    </u> 4.	<u>    </u> 10.	3. Toast-Butter	7. Apple
<u>    </u> 5.	<u>    </u> 11.	4. Cocoa	
<u>    </u> 6.	<u>    </u> 12.		
		<u>Dinner</u>	
		8. Weiners	
		9. Fried Rice	
		10. Scalloped Potato	
		11. Cream Pie	
		12. Coffee	



66. What Basic Seven group is omitted completely from the meals? \_\_\_\_\_
67. Revise the meals by crossing out and adding foods to make a Basic Seven day's meals that are attractive.
- \_\_\_ 68. To get Vitamin A in the diet, a girl would select:  
a) Bread b) Oranges c) Carrots d) Skim milk
- \_\_\_ 69. Vitamin A helps prevent a) bleeding gums b) night blindness c) anemia d) indigestion
- \_\_\_ 70. Vitamin B prevents a) scurvy b) beriberi c) anemia d) rickets
- \_\_\_ 71. Which of the following foods are rich in Vitamin B:  
\_\_\_ 72. a) Bread b) Oranges c) Carrots d) Shredded Wheat
- \_\_\_ 73. A person with a Vitamin C deficiency would notice:  
a) fainting spells b) night blindness  
c) nervousness d) bleeding gums
- \_\_\_ 74. An anemic person needs: a) Vitamin A b) Vitamin C c) Iron d) Protein
- \_\_\_ 75. Which of these gives us energy? a) protein b) carbohydrate



Place the number of the answer from the right hand column in the blank:

- |                 |               |
|-----------------|---------------|
| ___ 76. Spinach | (1) Vitamin A |
| ___ 77. Bread   | (2) Vitamin B |
| ___ 78. Carrots | (3) Vitamin C |
| ___ 79. Candy   | (4) Vitamin D |
| ___ 80. Meat    | (5) Calcium   |
| ___ 81. Eggs    | (6) Iron      |
| ___ 82. Milk    |               |

True-False Place a T or an F in the blank:

- \_\_\_ 83. In making cocoa, boil the milk and add the cocoa and sugar.
- \_\_\_ 84. When making white sauce, melt the fat, add the flour, then cold milk.
- \_\_\_ 85. For 1 cup of medium white sauce, use \_\_\_ T. fat, 2 T. flour, and 1 cup of milk.
- \_\_\_ 86. When making biscuits, melt the fat.
- \_\_\_ 87. When making biscuits, roll out the dough and cut it.
- \_\_\_ 88. Bake biscuits \_\_\_ minutes at 424 F.
- \_\_\_ 89. The secret of making good biscuits:
- \_\_\_ 90. The secret of making good fudge:
- \_\_\_ 91. The secret of making good white sauce:
- \_\_\_ 92. The way to make good drop cookies:
- \_\_\_ 93. To make good cocoa:
- \_\_\_ 94. Biscuits should be a)  or b) 
- \_\_\_ 95. Biscuits should be a) bready or b) flaky
- \_\_\_ 96. Biscuits a) should b) should not double in height in baking.
- \_\_\_ 97. Sugar cookies should be a) white b) brown on top after baking.
- \_\_\_ 98. Fudge should be a) creamy or b) crumbly
- \_\_\_ 99. Fudge a) should b) should not be soft so that it needs to be put into the refrigerator to harden.
- \_\_\_ 100. Fudge should be a) grainy or b) creamy.

ADVANCE BOND

STANDARD BROWN PAPER

Nutrition Test  
First Test

Name \_\_\_\_\_

Directions: In these meals, tell the nutrient that each food is high in. Select nutrients for answers from column at right and place the letter in the blank.

Breakfast:

1. \_\_\_\_\_ Orange juice
2. \_\_\_\_\_ Shredded Wheat cereal
3. \_\_\_\_\_ Toast
4. \_\_\_\_\_ Butter
5. \_\_\_\_\_ Cocoa

- A. Vitamin A
- B. Vitamin B
- C. Vitamin C
- D. Vitamin D
- E. Calcium
- F. Iron
- G. Carbohydrate
- H. Fat
- I. Protein

Lunch:

6. \_\_\_\_\_ Tomato Soup
7. \_\_\_\_\_ Peanut Butter Sandwich
8. \_\_\_\_\_ Cabbage Salad
9. \_\_\_\_\_ Cake
10. \_\_\_\_\_ Milk

Dinner:

11. \_\_\_\_\_ Fried chicken
12. \_\_\_\_\_ Sweet Potato
13. \_\_\_\_\_ Tossed Green Salad
14. \_\_\_\_\_ Rolls
15. \_\_\_\_\_ Peaches
16. \_\_\_\_\_ Milk

Directions: List the 7 essential Basic Seven foods that should be included in a day's meals:

17. \_\_\_\_\_
18. \_\_\_\_\_
19. \_\_\_\_\_
20. \_\_\_\_\_
21. \_\_\_\_\_
22. \_\_\_\_\_
23. \_\_\_\_\_

- 24, 25. Directions: Place a star by the basic 7 foods above that are missing in these meals:

Breakfast

Toast - Butter  
Coffee

Lunch

Tunafish and Noodles  
Apple  
Milk

Dinner

Liver and Onions  
 Mashed Potato  
 Pear and cottage cheese salad  
 Ice Cream  
 Milk

Directions: What food nutrient would help to prevent the diseases:

- |   |                 |
|---|-----------------|
| 26. <input type="checkbox"/> Bowed legs of a baby             | A. Vitamin A    |
| 27. <input type="checkbox"/> Poor night vision                | B. Vitamin B    |
| 28. <input type="checkbox"/> Anemia                           | C. Vitamin C    |
| 29. <input type="checkbox"/> Internal bleeding                | D. Vitamin D    |
| 30. <input type="checkbox"/> Nervousness                      | E. Calcium      |
| 31. <input type="checkbox"/> Poor bone development            | F. Iron         |
| 32. <input type="checkbox"/> Underweight condition            | G. Carbohydrate |
| 33. <input type="checkbox"/> Poor growth and repair of tissue | H. Protein      |

34. Directions: Which is the better menu, A or B from the standpoint of eye and appetite appeal:

A  
 Egg omelet  
 Sweet potato  
 Carrot salad  
 Peaches  
 Milk

B  
 Egg omelet  
 Green beans  
 Apple and celery salad  
 Fruitcake  
 Milk



Nutrition Test  
Second Test

Directions: In these meals, tell the nutrient that each food is high in. Select nutrients for answers from column at right and place the letter in the blank.

Breakfast

- 1. Peaches
- 2. Wheaties
- 3. Pancakes
- 4. Butter
- 5. Milk

- A. Vitamin A
- B. Vitamin B
- C. Vitamin C
- D. Vitamin D
- E. Calcium
- F. Iron
- G. Carbohydrate
- H. Fat
- I. Protein

Lunch

- 6. Macaroni and cheese
- 7. Green beans
- 8. Carrot salad
- 9. Milk
- 10. Apple

Dinner

- 11. Roast beef
- 12. Potatoes
- 13. Grapefruit and avocado salad
- 14. Bread
- 15. Banana cream pie
- 16. Milk

Directions: List one food from each of the basic seven food groups:

- 17.
- 18.
- 19.
- 20.
- 21.
- 22.
- 23.

- 24. Directions: Which two of the basic seven food
- 25. groups are not represented in the following meals?

Breakfast

Sweet Roll  
Orange Juice

Lunch

Heath Candy Bar

Dinner

Meat Loaf  
Sweet potatoes  
Salad (Fruit)

Directions: What food nutrient would be involved in the following case?

- |                                |                 |
|--------------------------------|-----------------|
| ___ 26. Rickets                | A. Vitamin A    |
| ___ 27. Poor digestion         | B. Vitamin B    |
| ___ 28. Poor teeth             | C. Vitamin C    |
| ___ 29. Low blood count        | D. Vitamin D    |
| ___ 30. Poor growth and repair | E. Calcium      |
| ___ 31. Poor skin              | F. Iron         |
| ___ 32. Overweight             | G. Carbohydrate |
| ___ 33. Bleeding gums          | H. Protein      |
- \_\_\_ 34. Directions: Which is the better menu, A or B from the standpoint of appetite appeal?

Menu A

Pork Chops  
Mashed Potato  
Tossed Salad  
Peaches  
Milk

Menu B

Macaroni and Cheese  
Potato Salad  
Bread and Butter  
Banana Cream Pie  
Milk

ADVANCE BOND

CRUEL BROWN Paper

Casa Bell Motel  
3739 West Imperial Hwy.  
Inglewood, California

August 14, 1953

Miss Emilla Tschanz  
Sackett Hall  
Oregon State Teacher's College  
Corvallis, Oregon

My dear Miss Tschanz:

Your letter to me was forwarded here where we are vacationing. I'm sorry the answer was so delayed. I shall be very happy to have you use any of the tests and teaching materials for experimental use in your thesis. You will need to write to Mrs. Clara Brown Army at The University of Minnesota for permission to use the Ohio Adaptation of the Minnesota Scale.

I do not have copies of the booklet, you or Dr. Dubois might request one from Miss Enid W. Lunn, State Supervisor of Home Economics, 606B State Office Bldg., Columbus 15, Ohio. She will be interested in your experimental use of the devices as long as you give us credit for the instruments.

If you have any questions further, write to me at 181 N. State Street, Westerville, Ohio as I have given up my full time work at Ohio State to devote my time to homemaking and curriculum consultant free lance work.

Give my best regards to Dr. Dubois.

Sincerely yours,

Mrs. Hazel H. Price



University of Minnesota  
University Press  
Minneapolis 14

September 3, 1953

Emilla Tschanz  
2312 - 1st Street  
Tillamook, Oregon

Dear Miss Tschanz:

Clara Brown Army has forwarded to us your letter of August 20 asking our permission to use the Ohio Adaptation of the Minnesota Scale.

You already have our permission to use material from the Minnesota Check List for Food Preparation and Serving. Both Mrs. Army and the University of Minnesota Press are quite willing that you use the Ohio adaptation of the Minnesota Scale.

Sincerely,

Evelyn Munro  
Permissions Editor

em

University of Minnesota  
University Press  
Minneapolis 14

August 4, 1953

Miss Emilla Tschanz  
Sackett Hall  
Oregon State College  
Corvallis, Oregon

Dear Miss Tschanz:

I'm writing in reply to your letter of July 26 asking our permission to use the Check List for Food Preparation and Serving in a thesis problem that you are starting on foods and nutrition.

We are happy to grant this permission. We do ask that you credit the title of the test, the author, and the publisher on the page where the material is used.

This permission is only for use in preparing your thesis problem. If at a later date you should wish to publish this work, it will be necessary to write us again for permission to use the Check List for Food Preparation and Serving in the published work.

I'm enclosing a copy of our current Annotated Book List, and on page 22 you will find a list of our tests and scales.

Sincerely,

Evelyn Munro  
Permissions Editor

em  
Enclosure

A score card slightly changed by the writer from Form A, Score on Laboratory Work in Foods, an adaptation by Hazel Price of the Check List for Food Preparation and Serving published by the Minnesota Press.

### Score on Laboratory Work in Foods

#### Standards

- |   |  |
|---|--|
| <p>A. Grooming</p> <ol style="list-style-type: none"> <li>1. Has her own apron on</li> <li>2. Apron clean and ironed</li> <li>3. Is not wearing a cumbersome jacket</li> </ol>  | <ol style="list-style-type: none"> <li>21. Turns off burners when food is cooked</li> <li>22. Does not cook more than girls can eat</li> <li>23. Is economical in planning and use; no leftovers</li> </ol>  |
| <p>B. Working Space</p> <ol style="list-style-type: none"> <li>4. Paper towels disposed of</li> <li>5. No books on desk</li> <li>6. Drainboard uncluttered</li> <li>7. Leaves utensils clean</li> <li>8. Leaves unit clean</li> <li>9. Checks desk</li> </ol>   | <ol style="list-style-type: none"> <li>24. Puts supplies if worth saving in refrigerator (covered) or wrapped in crisper</li> </ol>  |
| <p>C. Use of Plan</p> <ol style="list-style-type: none"> <li>10. Follows a plan</li> <li>11. Has a recipe; does not bring textbook to kitchen</li> <li>12. Knows her responsibility for the day in her group</li> <li>13. Participates well</li> <li>14. Cooperates with others</li> <li>15. Products each done at same time or when planned</li> <li>16. Not rushed at end of period</li> <li>17. Does not leave late</li> <li>18. Does extra assigned duty</li> </ol> | <p>E. Ability to Follow Directions</p> <ol style="list-style-type: none"> <li>25. Does as instructed; uses correct methods</li> </ol>  |
| <p>D. Use of fuel and supplies</p> <ol style="list-style-type: none"> <li>19. Pays attention to products on stove</li> <li>20. Does not burn food</li> </ol>  | <p>F. Manipulative Skill</p> <ol style="list-style-type: none"> <li>26. Is skillful in manipulation</li> <li>27. Works quickly</li> </ol> <p>G. Sanitary Habits</p> <ol style="list-style-type: none"> <li>28. Washes hands at beginning of period</li> <li>29. Uses clean tasting-spoon each time she tastes</li> <li>30. Uses hot water and soap for dishes</li> </ol> <p>H. Safety Habits</p> <ol style="list-style-type: none"> <li>31. Careful with knives</li> <li>32. Uses potholder</li> <li>33. Careful of hot fat</li> <li>34. Careful not to scorch dishtowels</li> </ol> |



## I. Management

- 35. Uses a tray; does not take class supplies to own unit
- 36. No unnecessary trips
- 37. Does not use too many utensils
- 38. Washes up or stacks cooking utensils as she works

## J. Setting of Table and Meal Service

- 39. Uses correct dishes
- 40. Places dishes and serving dishes correctly
- 41. Has napkins on table
- 42. Places napkins correctly
- 43. Places silver correctly
- 44. Serves correctly when a waitress
- 45. Uses types of table service correctly
- 46. Serves attractive meals
- 47. Uses good table manners

An adaptation by the writer of the Plan for Meal Preparation and Service from the Ohio study.

Kitchen No. \_\_\_\_\_

Pupils preparing meal:

Date \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

A. Menu:

B. Working plan: State duties for each girl for whole period

Name _____	Name _____	Name _____	Name _____
Time Procedure	Time Procedure	Time Procedure	Time Procedure

C. Market Order:  
Foods to order                      Amounts

D. Sketch of a place setting for this meal:

E. List the equipment you will need for this meal. Check those that are not in your kitchen:

F. Give menus for the other two meals of the day which might be eaten to fulfill daily nutritional requirements:

G. Copy all recipes on back.

## Lessons as Taught

## Period 3

Nov. 3

After the grooming test there were 10 minutes left. I presented the idea of how strange life would be if we saw people as through a fluoroscope or X-Ray and saw bodily functions going on. Then we would be more aware of the need for good nutrition. We discussed outward signs of good health.

Nov. 4

Review. We introduced the Basic 7 Wheel. They found magazine pictures to make a chart.

The last 10 min. the girls came to the desk and I showed pictures of vitamin deficiencies in animals and humans. They gave personal stories of examples of rickets, anemia, etc.

Nov. 5

We finished looking at the pictures. The girls tabulated their own meals. We did not post the results or summarize class results.

## Period 5

Nov. 2, 1953

The grooming test took but 10 min. of the period. Then we discussed the purpose of classifying food into 7 basic groups. The girls used the Basic 7 wheel in Meal Planning Guide during the discussion. Then they were drilled to see what they remembered of the seven groups and they did well.

Nov. 3

I used a girl's 3-day food record from the other class to help the girls practice tabulating the 9 food groups (Tinsley score card). Two girls had made posters to record a class summary and an individual summary for the bulletin board when the girls' records were tabulated.

Nov. 4

Girls tabulated their own food records. The girls checked their records against my tabulations. They posted results. They also tabulated and posted results of a breakfast survey.

Nov. 5

While 6 girls finished putting their food intake record on chart on bulletin board, the rest set up a checksheet of evidences of health. We analyzed the posters. About half the class



Nov. 6

We finished the tabulation and those who finished first made their self-evaluative booklets to use later.

had poor meals. Half the breakfasts were poor.

Nov. 6

The girls made the self-evaluative booklets. I asked how many wanted to improve their eating habits. All but six raised their hands. I asked them for ideas for encouraging girls to improve their eating habits. They seemed interested and gave several ideas:

- (1) Get points for eating better
- (2) Honor Roll for improved eating
- (3) Self-evaluative booklets
- (4) Party to honor those who improve

Nov. 9

Completed booklets and check tabulations with mine.

I said, "Have you any ideas of how to keep track of improvements?" They used my suggestion of a mimeographed sheet for recording improvements and a self-evaluative booklet (a red booklet is put on a chart on the bulletin board. In it are listed the needed improvements. Sufficient improvement warrants the exchanging of a red booklet for a blue booklet in which is listed the improvements.) Thus we could see by the number of blue booklets on the chart how many class members have improved.

Nov. 9

I showed pictures of vitamin deficiencies. They took notes on a Basic 7 chart to relate vitamins to the Basic 7. They related experiences pertaining to deficiencies and seemed interested.

They voted to try to raise the poor diets to fair. They will list on a mimeographed form any improvements. They will use the different colors in booklets. I called for a vote of all who will work on diet improvement. All but 2 voted to do so. One of those girls has very poor eating habits.

Nov. 10

We discussed use of the form for recording improvements in eating habits since there was some misunderstanding.

Nov. 10.

Girls put self-improvement booklets up. Twelve girls said they had eaten better food already. I passed out poor menus

We set up an outline for each page of the vitamin notebook. The girls studied Vitamin A from McDermott pp. 171 and 269 and the booklet, Meal Planning Guide. They made a page for their notebooks.

Nov. 12

Review test of Vitamin A. Test p. 292 in McDermott (open book).

They improved and tabulated the poor menus selected and mimeographed from girls' food records.

Nov. 16

The student teacher taught on table setting while I was called home for emergency family illness.

Nov. 17

We discussed carbohydrates and fats. The girls made a notebook page for energy foods and calculated their calories.

Nov. 18

We finished calculating calories and put them on the board to see how many overate and those who underate. We discussed how accurate the

mimeographed from their food records. They planned Basic 7 meals to improve those listed. They tabulated the Basic 7 meals they had planned. They read on menu planning in McDermott pp. 274-5 and 373-5.

Nov. 12

We corrected the poor meal on the mimeographed sheet according to good menu planning principles. The girls calculated their calories for a day from the food record.

Nov. 16

The student teacher taught on table setting while I was out of town.

Nov. 17

We listed their identification numbers on the board and they listed the calories they had consumed and how many calories they should eat. We decided that a girl would bring scales from home so that each girl could be weighed and then re-weighed later to see if any who are working on reducing calories eaten are losing.

We calculated the calories in a breakfast, in a cafeteria lunch, in a dinner

Nov. 18

We discussed the bulletin board on Basic Breakfast Pattern which had foods labelled with calories. We discussed some



book standards for weight are, how to lose weight, and when there is a need to lose weight.

typical teen age problems pertaining to omitting breakfast to lose weight, eating high calorie snacks, etc. We summarized the lessons on calories. I asked, "Now that we have studied this, what shall we do? Shall we get weighed when Sharon brings her scales and make a chart for each girl and weekly record weight, or do any of you need to or want to gain or lose?" "Who wishes to be weighed?" About half of class did. "Who wants to work to gain or lose?"

Then I introduced the foods unit, "Now, I have a problem. We want to learn to cook, but this is the hour after dinner and we may want to learn about breakfast cookery. What can we do?" They said, "We can skip lunch and eat this period".

I told them of their kitchen groups determined by the sociogram taken Oct. 28. I said, "Get into your kitchen groups and decide on some breakfast menu you think could be fixed this period Friday."

They did not mind the hour and were interested.

Note: Last year I had the girls correct theoretical menus. This year I used actual examples of their own. We therefore connected tabulating their eating by Basic 7 to writing better menus and figuring calories and breakfast study. They saw the way their eating tabulated, then planned high scoring days' meals. The tabulating took a great deal of my time, perhaps too much to make it possible in the usual classes. I got a far more



accurate record of what they eat and the number of calories they consume through the food records kept. Formerly the girls used to keep rather haphazard records and reported 500-600 calories. These girls calculated that they had eaten about 1500-2500 calories. In Period 3, the girls were taught about calories, and that was all. In Period 5, they were asked if they wanted to keep a weight check and they did. I am not doing well in keeping the methods different in the two classes, but I am teaching better than I did last year. Period 5 is following through better by class decisions. I think that the class that can start to cook now and learn nutrition as they go will be more interested in it. I do not know which will know more nutrition at the end of the study.

Nov. 19

The girls reviewed and had a Vitamin B test.

Then we studied protein. We had a display of high-protein foods. They worked on notebooks and I graded them as they worked.

Nov. 19

We discussed preparation of:

Orange Juice  
Cocoa  
Toast (use of  
broiler)  
Eggs  
Cereal

We discussed lab. techniques:

Use of tray for obtaining supplies  
Measuring - how and with what  
Dishwashing

I gave out score sheets so they knew grading system. We discussed the items. I gave out laboratory plan sheets. We planned time for preparation, eating, cleanup. I discouraged costly foods in plans and encouraged foods that involved cooking rather than just serving. I find this plan sheet very satisfactory. It is better than my system for last year that was more haphazard. This planning was rather rushed since I wanted to utilize

the remaining time before I go to Chicago for a week to a convention and have the girls study something entirely different.

Nov. 20

We had an oral drill over carbohydrates, fat, protein, vitamins A and B.

We planned their work during my weeks' absence when I go to Chicago and they study something entirely different.

They studied Vitamin C and made a notebook page.

Nov. 20

The girls prepared the pretest meal, a breakfast. The girls did nice work (they came in during the noon hour to start). One group got through early at 1:10. The products were good. Some groups stayed at the table too long and were late (3 groups). The cleanup was not good.

Nov. 30

The girls weighed themselves. We added calcium, phosphorus, and Vitamin D to the notebooks.

Nov. 30

The girls weighed themselves. They made charts showing vitamin content of each food in the breakfasts prepared in class--this was colorful but apparently of little educational value, for they knew nothing about carbohydrates, etc. after it was completed. They scored themselves on score card on laboratory work.

Dec. 1

We added iron to notebook. Then we had a 25 question review for tomorrow's nutrition test. The girls seem to know the nutrition.

Dec. 1

We looked at the nutritional analysis of breakfasts (colorful). I told them the grades that I had calculated on their lab. work and we evaluated the kitchen period. They finished planning the other two days' meals to complete the meals for the day.

I presented the idea of preparing a "Ten Minute Breakfast" via the leaflets describing them. We

decided to improve over the first kitchen period. They chose to work in groups of two and have the other two girls in the kitchens analyze the time schedule as the two girls work. Some chose to cook a meal for two, some for four.

Note: I do not like to try to teach nutrition by integration. I think Period 3 is doing more food improvement, judging by the booklets on the bulletin board.

Dec. 2

Test. Then we went to the kitchen and had a cereal display and we classified the cereals according to Whole Grain or Endosperm cereal.

Dec. 2

I demonstrated sectioning of grapefruit and preparation of broiled grapefruit. Then we discussed the cereal display and classified them as Whole Grain or Endosperm cereals. The girls completed the plans for the "Ten Minute Breakfast".

Dec. 3

I divided the class into kitchen groups according to the sociogram made on Oct. 28. Then each group planned a simple breakfast. We used the laboratory plan sheets but not the score card on laboratory work, I told them:

- (1) Wash hands
- (2) Bring apron
- (3) Use a tray to get supplies
- (4) Plan time
- (5) Take safety measures

Dec. 3

The first group prepared the "Ten Minute Breakfast". The observers helped with cleanup duties.

This time the girls were through and back in the other room by 1:30. The kitchen was left cleaner.

Dec. 4

The girls had the pretest meal, a breakfast. They finished on time. The girls listed needed equipment and

Dec. 4

The other group prepared a "Ten Minute Breakfast". All were finished nine minutes before the bell. The



suggestions for better lab. organization (to be used by another class in improving the arrangement of supplies and equipment in the kitchen.) This class was noisier than Per. 5 and asked me more questions.

Dec. 7

The girls measured dry ingredients for biscuits. We planned how to make biscuits. This class is teacher-evaluated on products.

This class does not use trays for supplies and is noisy.

Dec. 8

The girls made biscuits. The girls were noisy. Kitchen I was late. The biscuits were good. Miss DuBois helped to evaluate the girls.

Dec. 9

We planned the meal which includes Creamed \_\_\_\_\_ on Toast  
Salad  
Fruit

The girls were not very enthusiastic.

Dec. 10

Assembly postponed the kitchen period so we discussed home projects. The girls lined up grocery supplies.

girls listed lacking equipment and suggestions for improvements in organization. The table setting was poor in both meals the girls have prepared.

Dec. 7

This class measured dry ingredients for biscuits and planned to make them tomorrow. They will use a score card to grade their own.

Dec. 8

The girls made biscuits and scored them. Some kitchens did not seem to have equal division of work and some girls did not keep busy. Miss DuBois helped to score the girls.

Dec. 9

We discussed the two food groups from Basic 7 that we had prepared: "Bread and Cereal" and "Citrus Fruit". We read on Cereals and Vitamin B in McDermott pp. 111-113 and 162-3. We discussed the effects of Vitamin B and Iron.

Dec. 10

Girls took Vitamin B test in the book as an open book test. We read on Vitamin C.

Dec. 11

Girls prepared meal. Good work. All finished by 11:10 and ready to eat. No one late in leaving. The girls who had not expected to like the food said they did. The table service was better since we had discussed it before the meal.

Dec. 14

We planned a cooky lab. I gave out recipe folders. Each kitchen chose the kind of cooky they wanted to prepare. They liked the idea of preparing a faculty treat. Each kitchen will contribute 4 sugar cookies nicely decorated. Each kitchen made half a recipe.

Dec. 15

The girls made cookies. A Homemaking II class had rearranged the desk equipment, labelled location for each item, put the dishes in the units instead of in the dish cupboard in the next room, etc.

Dec. 16

The girls learned to make sugar cookies. They assembled dry ingredients to save time tomorrow. This is something that I have not had girls do in former years.

Dec. 11

Review of Vitamin C, Vitamin B, and Iron.

Dec. 14

These girls planned a cooky lab. They planned two kitchen periods. They liked the faculty treat plan.

Dec. 15

The girls made cookies. The cleanup was not good.

Dec. 16

The girls made sugar cookies. Some girls still waste time. We froze the cookies to keep them fresh until we could ice them. (There will be an assembly tomorrow and the cookies must keep two days until iced.).

Most kitchens had cookies still in ovens at the bell but some girls came back from study hall to watch them.

The girls save 7 minutes by assembling dry ingredients the day ahead and having staples in the unit kitchens. We put the following staples in the kitchens:

Crisco	Cocoa
Salt	Powdered Sugar
Flour	Brown Sugar
Sugar	Soda
Vanilla	Baking Powder

We also put linens in the units, paper napkins, wax paper, placemats.

Dec. 17

The girls made sugar cookies. No kitchen finished on time. Perhaps the girls knew they had activity period after this class and could stay. I had a Homemaking II class grade their cleanup.

Dec. 18

Girls iced cookies. They prepared faculty treat. I graded cookies.

Dec. 18

Girls iced cookies and prepared faculty treat. Girls graded cookies with score card.

Jan. 4

We made a class survey of vegetables liked and disliked by each class member. The girls worked on study questions on vegetable preparation and used McDermott. I took a new sociogram. This time we included a listing of any girls that were not popular. Girls wrote progress reports on home projects. One girl was rejected by everyone. This surprised me.

Jan. 4

We took a class survey of vegetables liked and disliked by class members. Study questions on vegetables. We had some study questions on nutrition that Per. 3 did not have.

I made a new sociogram. This class has had trouble in two kitchens with cooperation. This class has several rejects. The girls have changed their minds about working with some girls since the last sociogram. It is a good idea



to make a new sociogram after the girls have worked together for a while. I had a difficult time grouping these girls.

Note: Some students are helping me to formulate a "Letter to Parents" about the nutrition survey.

Jan. 5

Girls worked on study questions on vegetables.

Jan. 5

Girls worked on study questions on Vitamin A and vegetables.

Jan. 6

We hurriedly planned a meal for tomorrow (Pre-preparation). We decided to omit muffins and have Vegetable Plate and Pudding. One kitchen will make muffins, anyway, and make some poor ones to show the class results of overbeating.

Jan. 6

I passed out cards telling how to prepare various vegetables. Each girl reported on a vegetable. This seemed very successful.

Jan. 7

Girls made pudding.

Jan. 7

Girls planned vegetable plate meals. This class will start during the noon hour and have time to make muffins. They were noisy.

Jan. 8

Vegetable plate meal. Nice meals. All finished on time but were rushed.

Jan. 8

Completed meal plans. The girls learned how to make muffins and pudding. They practiced table setting and service.

Jan. 11

Girls worked on study questions on soup. They copied the muffin recipe.

Jan. 11

Girls measured dry ingredients for muffins and made pudding.

Jan. 12

We listed soups commonly made by homemakers. We learned how to make muffins.

Jan. 12

Vegetable plate meal. They started at noon. They used scorecards.

I showed good and poor examples. This year we have had excellent results from the rule, "Stir three times only."

They chose the kind of soup they would make. They measured dry ingredients for muffins.

Jan. 13

Review for semester exams. The assembly was overly long so we did not have time for Soup and Muffin kitchen period.

Jan. 13

Reviewed for semester exams.

Jan. 18

Soup and muffin laboratory. The girls were a little rusty on the plans made so long ago. The products were good. The girls had to cleanup at noon.

Jan. 18

We planned a creamed dish meal with biscuits and salad and dessert. This class somehow missed this lab when the other class did it.

Jan. 19

I gave out the "Letter to Parents" about the nutrition survey. The girls seemed interested in the results. I had them write, "What Effect the Nutrition Unit Has Had on My Eating Habits" and explained that this would not be graded.

We discussed Main dish salads.

Jan. 19

Girls started at noon and prepared Creamed Dish Meal with Quick Bread, Salad, and Dessert.

Jan. 20

Girls planned Salad Plate Luncheon. We used leaflets on salads for ideas. The girls started their quick breads and some made jello.

Jan. 20

I handed out the "Letter to Parents". I returned and discussed semester exams.

Jan. 21.

The girls served the most attractive salads that I have ever seen students prepare.

Jan. 21.

We took time out to clean the kitchen and check the desks. This helped to

The quick breads were good. The girls enjoyed the meal and I let them eat leisurely and clean up at noon. They were quiet.

prepare for the Homemaking II class that will use the lab. soon and helped to prepare a list of equipment requested by the office.

Note: The school carpenter came in to make the drawer dividers and vertical dividers. These dividers are efficient.

Jan. 22

Girls filled out "Food Practices Checksheet." We practiced table setting and table service.

Jan. 22

The girls filled out the "Food Practices Check Sheet". They planned a soup kitchen period. They read to answer oral questions on soup. They will make bran muffins, cinnamon rolls, or cheese sandwiches with the soup.

Note: Kitchen 5 had not made muffins so made them today. They were so used to using a score-card that they requested a score-card instead of asking me to grade them.

Note: When I wrote my convention report of the AVA convention in Chicago, I found that I have put into practice a number of management principles that I learned there from Marianne Moore and Hazel Price.

Jan. 25

We went over semester exams.

Jan. 25

Soup and Cinnamon Roll or Cheese Sandwiches kitchen period. Very noisy and confused. I should have put out each kitchen's supplies on a tray.

Jan. 26

I outlined the rest of the foods unit and the practical exam. We planned a meal:

Jan. 26

I outlined the rest of foods unit. We planned Salad Plate Luncheon.



Cheese or Meat Extender  
Dish, Gelatin Salad, Cooked  
Fruit Dessert.

Jan. 27

Pre-preparation of meal

Jan. 28

Assembly

Jan. 29

Cheese Dish or Meat  
Extender luncheon with Gel-  
atin Salad, Fruit Dessert.

Feb. 1

I gave out slips for the  
test meal. There were four  
different menus and the  
girls drew slips. They star-  
ted the plans.

Feb. 2

I gave time today for  
further planning but the  
girls only needed 30 minutes.  
We then corrected the table  
setting assignments.

Jan. 27

Preparation of meal.

I separated each class'  
groceries and each kitchen's  
in each class and it worked  
well. Poor cleanup stan-  
dards.

Jan. 28

Salad Plate Luncheon.  
All finished on time but  
some sat and ate until 1:30.

We had expected visitors  
today and used this oppor-  
tunity to stress time man-  
agement and cleanup stan-  
dards.

Jan. 29

Evaluated meal. We are  
now using a score card to  
judge meal plans.

We worked on "paper and  
paste" review of table set-  
ting. We had a written re-  
view exercise on table set-  
ting and service.

Feb. 1

We started to plan the  
Cheese Dish or Meat Extend-  
er Meal with Gelatin Salad  
and Cooked Fruit Dessert.  
I assigned the "paper and  
paste" table setting dia-  
grams and written exercise  
on table setting as homework.

Feb. 2

Prepreparation of meal.  
I should have separated  
supplies again.

Feb. 3

Pre-preparation of test meal. The girls did nice work and finished early. Some kitchens did not have as much to do as others.

Feb. 4

Test meal. Girls did a nice job but some were late.

Feb. 5

Form B of foods test administered. I explained the second food survey to be taken next week.

Feb. 3

Cheese or Meat Extender meal.

Feb. 4

Girls planned test meal. One kitchen was noisy and uncooperative with each other in their planning.

Feb. 5

The girls finished their meal plans. We corrected table diagrams and written exercises on table setting. I explained next week's food survey.

Feb. 8

Pre-preparation of test meal.

Feb. 9

Test meals.

Feb. 10

Form B of foods test administered.