EVALUATIVE PROCESSES IN HOME ECONOMICS

I. FOODS AND NUTRITION

By
M. Ray Loree
and
Kathryn R. Mackensen

Louisiana State University
and
Agricultural and Mechanical College
Agricultural Experiment Station
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Louisiana State University
and
Agricultural and Mechanical College
Baton Rouge, Louisiana
June, 1953

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Foreword

This bulletin is written for the student of teaching to help refine the concepts of evaluation as an integral part in the teaching-learning process. Use of the bulletin is directed to teachers of Home Economics to aid in developing evalulative techniques and in using the results in the teaching-learning process.

The evaluation methods presented are selected as illustrative of methods that may be used in determining direction and depth of pupils development and effectiveness of teaching processes.

The illustrations are adapted from, (1) procedures which have been used in high school by students-teachers, pupils and the supervisory staff in developing, cooperatively, evaluation programs, and (2) from studies made by graduate students concentrating in the evaluation area. The selection of evaluation devices based on pupil-teacher experiences in the learning-teaching processes may offer encouragement to teachers and pupils in using materials developed in similar situations in developing their evaluation programs.

Plans made by the Research Division of the Home Economics Department included other bulletins illustrating techniques from a variety of subject matter areas usually a part of high-school home economics programs, including child growth and development, personal and family living, clothing, textiles and housing.

Dr. Clara Tucker, Head
Home Economics Department
Louisiana State University
and Mechanical College.
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PART I
RELATION OF EVALUATION IN THE TEACHING PROCESS

Role of Evaluation in Today’s Schools

In the United States, our society expects men and women to be self-directed, emotionally stable, physically tireless and socially amiable human beings. These characteristics are not innate. From birth, frustration induces trial-and-error and imitative behavior as the individual strives to resolve his many problems and at the same time conform to social expectancies. Under favorable hereditary and environmental conditions, the individual learns to employ a logical sequence of thought to resolve frustration into reasonable satisfaction to himself and others. Not all children have equally favorable hereditary and environmental conditions in which to develop the ability to evaluate possible responses in various situations and to choose to behave rationally in solving problems.

Schools, in the United States, for most children, constitute one major influence in their lives. Those of us who teach in these schools recognize the importance of the development of knowledge, the acquisition of information and the growth of understanding. The responsibility of aiding children in choosing situations in which they may show ability to apply information, exercise judgement and grow in understanding is not assumed by all teachers. The need for such school experience is not recognized or is merely verbalized on by some teachers. The child’s classroom environment is the reflection of the individual teacher’s beliefs as to values in learning.

Each teacher who reads this booklet is likely to interpret it differently. It is written for those teachers who believe in the value of the acquisition of information and skills to the extent to which these learnings are directed toward the ability to apply, to interpret, to understand, to relate cause and effect, to solve problems. Otherwise, information becomes lifeless. Choosing appropriate responses in various situations constitutes the essence of the problem-solving process. The child learns as he evaluates the appropriateness of his responses in achieving his purposes. Evaluation becomes an integral part of the learning process.

We, in home economics and other educational areas, have not "discovered" evaluation. We are able to realize that evaluation is a natural process which, like some other natural processes, provides greater satisfaction when guided toward expressed goals and achievement. This requires the creative use of evaluation in guiding learners into habits of logical thought sequences which relate cause to effect more clearly.

A state of confusion sometimes exists when efforts are made to develop evaluative procedures. Some teachers conceive of evaluation as synonymous to measurement. Other teachers conceive of evaluation only as providing an opportunity to students to respond to a problem situation.
Evaluation makes use of measurement but is not synonymous with it. How do the two differ? Measurement refers to observations which can be expressed quantitatively. It is concerned with the question of "how much". Evaluation recognizes the need to know "how much" but is especially concerned with the question "what value". This emphasis upon values distinguishes evaluation from measurement most clearly.

Evaluation may also make use of the problem-solving processes; but evaluation as a process and problem-solving as a process are not synonymous. The evaluative procedures must be such that the responses of the students yield precise information concerning their behavioral status. Validity, reliability, and objectivity are desirable characteristics in evaluative devices, just as they are in measuring instruments.

The fact that evaluation is concerned with values has special meaning in a democratic society. In a free society, the emphasis of education must be on rationality rather than conformity or indoctrination, if the free society is to preserve itself. Experienced teachers know that it is relatively easy to guide most children into a state of conformity. The "non-conformists" become the "children with problems". The ideal students in some schools are those children who "conform" to the rules and regulations. Such behavior can be forced upon occasion and may, for the immediate health or welfare of the individual, become temporarily expedient. Anyone can secure that kind of education for himself. Try running traffic lights, stepping on fruit peels, or placing pans of hot fat so that the handles of the pans extend into passage ways around stoves - try these practices consistently and sooner or later one is likely to "conform," dead or alive. Actually, the learning will involve some evaluation, but little intellect. Schools have responsibility for helping students develop ways of learning that are creative and constructive: (1) Searching for facts and principles, (2) Applying facts and principles in situations, (3) Appraising the effects of the applications, and (4) Establishing values to guide future behavior. Basically, these are the elements upon which evaluation procedures may be built. Democratic living depends on individuals who have these habits of thought. The development of these habits requires a disciplined intellect.

Evaluative procedures in the democratic school cannot afford to ignore the intellectual development of the child. There is an important place in an evaluative program for tests that measure the student's knowledge, his ability to apply principles, to interpret data in a given subject area, and his ability to think logically in problem solving situations.

An example, from foods and nutrition may clarify the role evaluation may play in the teaching and learning process. Let us suppose that an important general objective for a Home Economics teacher is to forward the development of her students to intelligently direct their own lives. Let us further suppose that our teacher has set up, among others, two objectives for her students in foods and nutrition: (1) To develop an ability to select an adequate diet; and (2) To develop the habit of selecting for self the best diet nutritional opportunity affords. Now let us examine how evaluative procedures might yield information concerning the
progress of students in both the general objective and the two foods and nutrition objectives. A pre-instruction and post-instruction test on nutrition understandings could yield information concerning the progress of students in their ability to select an adequate diet. Similarly food habit records taken before and after instruction could give information on whether students have improved in their food habits. Our home economics teacher in analyzing the test results of her class may be particularly interested in studying further two classes of students: (1) Students who have improved in their nutrition understandings but not in their food habits; and (2) Students who have improved in their food habits but not in their nutrition understandings. Both classes may represent students who are not making satisfactory progress toward the general objective of intelligently directing their own lives. Certainly the student who exhibits the intellectual ability to select an adequate diet but who deliberately chooses a poor diet has not exhibited an ability to intelligently direct his own life. It is equally true that the student who changes his food habits merely to conform to the teacher's expectancies and without understanding the relation of the changes he has made to his own welfare, has not exhibited an ability to intelligently direct his own life.

The above illustration points up three characteristics of evaluation in a democratic society:

1. Information concerning student development is structured in such a way that judgements can be made in relation to a significant behavioral development (increased self-direction).

2. The evaluative devices are such as to yield accurate information on the behavioral status of the child (that is both the nutritional understandings tests and the food-habit-record yield valid, reliable and objectively obtained scores).

3. The significant behavioral development (increased self-direction) represents a democratic value.

Teaching Procedures Directed Toward Releasing the Capacities of the Students for Learning.

To become self-directed, students need experience in setting up goals, choosing methods of reaching these goals and determining values to themselves in these activities. Evaluative procedures developed as an integral part of the teaching and learning process have been used to facilitate this kind of learning and hold promise of unexplored values. Below, is a descriptive outline of the "stages" in teaching procedures where cooperative teaching and learning may be used in order to increase the students understanding of his role in learning and to direct the teaching so as to release the capacity of the student to learn. The outline is presented at the teacher-level and can be interpreted at the pupil level in situations where pupils and teachers are together:

1. Cooperative goal-seeking procedures.

1.1 Determining the needs of learners.
1.11 Arising from individual differences due to individual past experiences.
1.12 Arising from developmental differences in physical, emotional, social and intellectual potentiality.

1.2 Determining the interests of students.
1.21 Kinetic interests as shown in records of the activities pupils presently engage in, when a choice of activity is given.
1.22 Potential interests, set into motion by exposure to broadened experiences.

1.3 Determining existing patterns of living in the current environment of the learner.
1.31 Modes in family living
1.32 Modes in community living
1.33 Values and beliefs held by individuals, families and community
1.34 Factors influencing current family living.

1.4 Determining subject matter needs in home economics with individuals and groups.
1.41 Subject matter known to the learner.
1.42 Subject matter unknown to the learner, essential for satisfactory problem-solving in individual and family living.

2. Cooperative choice of activities through which the goals may be reached.
2.1 Evaluating possible learning experiences which hold promise for the achievement of the expressed goals of an individual or a group.
2.2 Evaluating possible limitations inherent in some learning experiences.
2.21 Learning experiences which, in general may seem valid, but in a given situation may be non-achievable.
2.22 Learning experiences which will permit the achievement of the goals and are possible in the known situation.

3. Cooperative exercise of judgement as to progress toward expressed goals.
3.1 Determining satisfactions in past learning experiences
3.2 Determining lack of satisfaction in past learning experiences
3.3 Obtaining evidences of achievement of objectives
3.31 Increased knowledge and abilities
Developed interests and attitudes
Improved habits and practices
New manipulative skills

4. Cooperative determination of next steps in choice of next goals and learning experiences.

EXAMPLE OF UNIT IN NUTRITION AND FOODS ILLUSTRATING EVALUATIVE PROCESSES IN TEACHING

I. Situation
A. Urban area, Baton Rouge, Louisiana State University
B. Wide range in parent occupations and incomes
C. Wide range in past experiences in home economics among the class members
D. Some students bring lunches; many eat at local hamburger stands; many eat at the L.S.U. cafeteria. Nearly all students have breakfast and dinner at home.

II. Approach

The class had been helping and observing nursery school children as they ate lunch and followed other routine patterns at the Louisiana State University Nursery School. Since we were concerned with food for children and realized the need for specific foods, well-planned and prepared, we wondered if it were reasonable to ask, "Do adults need food which is carefully chosen to satisfy needs of the adult body?" "Are high-school girls adults or growing people?" "How do you know whether you are eating foods which are adequate for your needs?" We recalled the popular song, "Straighten Up and Fly Right". Are you a Mr. Straighten Up and Fly Right".
Finding Evidence of Some Nutritional Problems

<table>
<thead>
<tr>
<th>Problems</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How can we determine whether or not we are really healthy?</td>
<td>Develop a physical fitness index.</td>
</tr>
<tr>
<td>a. What are some evidences of physical fitness other than freedom from illness?</td>
<td>(1) Take weight, height measurements.</td>
</tr>
<tr>
<td>b. What are some evidences in individual cases of physical fitness and lack of physical fitness?</td>
<td>(2) Examine teeth for visible cavities. If parents approve have girls visit a dentist to have teeth examined.</td>
</tr>
<tr>
<td>c. What habits are essential to physical fitness?</td>
<td>(3) Examine skin, hair, and eyes.</td>
</tr>
<tr>
<td></td>
<td>(4) Recall number of colds since Christmas. Keep record of incidence of colds in the class.</td>
</tr>
</tbody>
</table>

Class set-up first objectives:

I. To secure information on ways for specific individuals to:

(1) Clear skin of blemishes
(2) Increase weight
(3) Decrease weight
(4) Improve dispositions
(5) Decrease tooth decay

What foods are necessary to health when no special needs exist? Summarize information on foods necessary to satisfy general body needs.

Analysis

1. Cooperative goal seeking procedures. "...Students need experience in setting up goals ... and determining values to themselves in the activity...."

2. Determining subject matter needs.
   2.1 Information known to the individual
   2.2 Information needed to solve nutrition problems unknown to the individual.
<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Aids</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conclusions for each individual.(^3)</td>
<td>(1) Scales</td>
</tr>
<tr>
<td>(1) Underweight</td>
<td>(2) Height-weight charts</td>
</tr>
<tr>
<td>(2) Overweight</td>
<td>(3) Physiology texts</td>
</tr>
<tr>
<td>(3) Cavities</td>
<td>(4) Guide sheet to record findings and develop physical fitness index.</td>
</tr>
<tr>
<td>(4) Skin, hair, eye conditions.</td>
<td>(5) 8&quot; x 12&quot; mirrors for each two girls.</td>
</tr>
<tr>
<td>(5) Disposition cheerful</td>
<td>(6) Each girl devise some form or use a notebook to record regular weekly weight and incidence of cold or other evidences of state of health.</td>
</tr>
<tr>
<td>(6) Calm quite nerves</td>
<td>(7) Commercial charts on structure of parts of the body.</td>
</tr>
</tbody>
</table>

\(^3\)Kinetic interests of the specific individuals in the group.
<table>
<thead>
<tr>
<th>Problems</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>If a girl is over-weight, what may be some of the causes?</td>
<td>Become familiar with the metabolism of sugar, starches, and fats.</td>
</tr>
<tr>
<td>If a girl is underweight, what may be some of the causes?</td>
<td>Make a record of the days activities. Find records of energy studies made</td>
</tr>
<tr>
<td>Are problems of correcting over-weight or underweight related to the</td>
<td>by research workers.</td>
</tr>
<tr>
<td>care of the skin?</td>
<td>Make records of studies made with own activities.</td>
</tr>
<tr>
<td>How much energy (calories) do individual girls require daily?</td>
<td>Keep a record of foods eaten over a period of time. Analyze these</td>
</tr>
<tr>
<td></td>
<td>records to determine value of foods eaten in terms of individual general</td>
</tr>
<tr>
<td></td>
<td>and specific needs.</td>
</tr>
<tr>
<td></td>
<td>Isolate several menus and add to them or take away foods which are</td>
</tr>
<tr>
<td></td>
<td>needed or which are desirable in terms of individual needs.</td>
</tr>
<tr>
<td></td>
<td>Visit the cafeteria when there is no rush hour and choose combina-</td>
</tr>
<tr>
<td></td>
<td>tions of foods which will:</td>
</tr>
<tr>
<td></td>
<td>(1) Be suitable to individual energy needs.</td>
</tr>
<tr>
<td></td>
<td>(2) Be high in protective and regulatory foods.</td>
</tr>
<tr>
<td></td>
<td>Make arrangements for girls to show their mothers records of menus</td>
</tr>
<tr>
<td></td>
<td>planned and foods chosen at the cafeteria. Encourage girls to ask</td>
</tr>
<tr>
<td></td>
<td>mothers to let them include foods in the days diet which they need.</td>
</tr>
<tr>
<td></td>
<td>Report on reactions of the family to the menus planned.</td>
</tr>
<tr>
<td></td>
<td>Study the structure of the skin.</td>
</tr>
<tr>
<td></td>
<td>Relate functions of foods to health of the mucous membranes, skin, and</td>
</tr>
<tr>
<td></td>
<td>muscles. Demonstrate methods of external care of the skin.</td>
</tr>
</tbody>
</table>

Analysis-

4 Evaluative process to determine behavioral status of individuals in food habits and understandings.

5 Evaluative process to determine values held by families.
<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Aids</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information</td>
<td>Texts</td>
</tr>
<tr>
<td>Understanding of the way fats are stored in the body.</td>
<td>Commercial Life Insurance leaflets on underweight and overweight.</td>
</tr>
<tr>
<td></td>
<td>Planned Nutrition - Davis</td>
</tr>
<tr>
<td>Individual understands her own energy needs.</td>
<td>Visit hospital or college department to see a metabolic test given.</td>
</tr>
<tr>
<td></td>
<td>Textbooks</td>
</tr>
<tr>
<td>Appreciation that accurate nutritional studies of energy needs have</td>
<td>Cafeteria</td>
</tr>
<tr>
<td>been made, and can be used in making comparative studies.</td>
<td>The homes of the girls</td>
</tr>
<tr>
<td></td>
<td>A student in the class who was under the supervision of a doctor</td>
</tr>
<tr>
<td></td>
<td>because of skin eruptions voluntary reported to the class controls</td>
</tr>
<tr>
<td></td>
<td>which the doctor has placed on her diet and explained why as far as</td>
</tr>
<tr>
<td></td>
<td>she understood.</td>
</tr>
<tr>
<td></td>
<td>Commercial charts.</td>
</tr>
<tr>
<td></td>
<td>Films.</td>
</tr>
<tr>
<td>Skill in planning and in also in buying prepared foods which meet</td>
<td>Teacher - pupil made diagrams Textbooks.</td>
</tr>
<tr>
<td>individual needs.</td>
<td></td>
</tr>
<tr>
<td>Realization that methods of cooking and seasoning foods influence</td>
<td></td>
</tr>
<tr>
<td>nutritional value of foods.</td>
<td></td>
</tr>
<tr>
<td>(Later this realization was used as a base for setting up of</td>
<td></td>
</tr>
<tr>
<td>additional objectives.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Understanding that securing proper foods is a family as well as an</td>
<td></td>
</tr>
<tr>
<td>individual problem.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Understand the metabolism of proteins, minerals, and vitamins</td>
<td></td>
</tr>
</tbody>
</table>
When you were in the 8th grade you made a poster – title: Foods That Make Us Go, Glow, Grow. What is the scientific basis for this poster?  

What are some of the problems which homemakers meet when planning daily food?

(1) Costs
(2) Time required for preparation
(3) Family likes
(4) Availability of foods
(5) Others

Further Objectives Set-up:

II. To secure information on the food sources of various nutrients.

III. To understand the reasons for costs of foods and why it is necessary to use different foods at various seasons.

IV. To understand Marketing processes.

V. To develop ability to purchase foods wisely.

Analysis:

7Exploratory, evaluative process to determine understandings from past experiences.
Outcomes

After having seen the metabolism test given, the students in the 11th grade were enthusiastic about understanding anabolism and catabolism.6

Appreciation that the cost of some foods and availability makes it necessary to know several sources of essential nutrients.

Information secured:

(1) Foods available
(2) Cost of foods
(3) Packing
(4) Grading
(5) Labels

Aids

Food value charts.

Study sheet on foods to be studied at the stores.

Field trip to local markets.

Food value books and charts

Marketing study sheets, pupil made.

Local groceries.

6Potential interests, set in motion by exposure to broadened experiences.
<table>
<thead>
<tr>
<th>Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>What foods do we find in the stores which may be used inter-</td>
</tr>
<tr>
<td>changeable from a nutritional</td>
</tr>
<tr>
<td>viewpoint?</td>
</tr>
<tr>
<td>What is the meaning of the &quot;64&quot; which we see on some crates contain-</td>
</tr>
<tr>
<td>ing grapefruit? Etc.</td>
</tr>
<tr>
<td>Summarize results of the trip to the store.</td>
</tr>
<tr>
<td>Why do all canned goods show on the label:</td>
</tr>
<tr>
<td>(1) Content of the can</td>
</tr>
<tr>
<td>(2) Weight of the contents</td>
</tr>
<tr>
<td>(3) The name of the packer?</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Activities</td>
</tr>
<tr>
<td>While at the market, as pre-</td>
</tr>
<tr>
<td>planned, the pupils observe:</td>
</tr>
<tr>
<td>(1) Labels on the crates</td>
</tr>
<tr>
<td>(2) Labels on the canned foods</td>
</tr>
<tr>
<td>(3) Packages of foods</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Purchase some of the foods for a laboratory study of the comp-</td>
</tr>
<tr>
<td>arative value of the various grades, brands, packs, etc.</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Further Objectives Set-up:</td>
</tr>
<tr>
<td>VI. To gain some information about the Pure Food and Drug Act.</td>
</tr>
<tr>
<td>VII. To gain some appreciation for marketing systems.</td>
</tr>
<tr>
<td>VIII. To develop judgement in reading labels.</td>
</tr>
<tr>
<td>IX. To understand that further work must be done in food labeling and</td>
</tr>
<tr>
<td>grading to make the wiser purchase of foods possible.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>8Cooperative identification of activities through which objectives</td>
</tr>
<tr>
<td>may be achieved.</td>
</tr>
<tr>
<td>8Evaluative process in choosing committee membership.</td>
</tr>
<tr>
<td>Outcomes</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Ability to analyze problems.</td>
</tr>
<tr>
<td>Ability to form rules of action based on information, judgements, understanding.</td>
</tr>
<tr>
<td>Appreciation of: (1) Variety of foods on the market, (2) Complexity of food marketing, and (3) Uniformity of some labels.</td>
</tr>
<tr>
<td>Ability to purchase more intelligently.</td>
</tr>
<tr>
<td>Ability to recognize community resources.</td>
</tr>
<tr>
<td>Understanding value of health protection in a community.</td>
</tr>
<tr>
<td>Ability to meet civic leaders and talk to them on community problems.</td>
</tr>
<tr>
<td>Understanding the importance of participating in community programs.</td>
</tr>
</tbody>
</table>

Note: Determining one type of community service (social income) which influences current family living.
Problems

Several weeks have gone by since we first began to keep a record of our weight changes and evidence of clearer complexion. Let's look once more at our records and at ourselves. Have you really followed the principles of wise food choices for yourself?

Is it possible for us to see any evidence of corrected weight, improved skin, fewer cavities, improved dispositions?

Activities

Analyze height-weight records kept over the past weeks.

Have girls re-examine skin, hair, and teeth.

Recall that many health factors other than food affect physical fitness. Get opinions as to decreased feeling of fatigue, etc., if there is a real evidence of conscious effort to follow good health plans.

Further Problems Recognized:

Do you recall that as we choose foods at the cafeteria, we pointed out some practices of cookery that will preserve more nutritive value than do some other methods?

Does it seem true or false to you that some foods might be well cooked according to nutritional standards yet be uninteresting to family members? Why?

Do you believe it might be very possible to season foods according to the general likes of the family and at the same time preserve most of the nutrients of the foods being prepared?

Analysis:

Determining satisfactions and lack of satisfaction in past learning experiences.

Recognizing the influence of existing family attitudes toward foods on possible learning at school.
<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Aids</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to organize information</td>
<td>Personal records</td>
</tr>
<tr>
<td>Realization that maintaining physical fitness is a personal responsibility.</td>
<td>Personal experiences</td>
</tr>
<tr>
<td>Appreciation of nutritional opportunities in the United States.</td>
<td>Personal observations throughout the unit</td>
</tr>
</tbody>
</table>

Further Objectives Set-up:

X. To develop ability to choose methods of cookery which preserve more nutritive value than do some other methods.

XI. To develop skill in preparing foods attractively and to preserve nutritive values.

XII. To develop the ability to plan, prepare, and serve foods so that they are:
     (1) Nutritious
     (2) Attractive
     (3) Within our cost limits
     (4) Possible ones to prepare with the equipment we have at home and here at school.

XIII. To gain the ability to set attractive tables.

XIV. To develop poise and graciousness as hostesses.
     (1) Planning use of time, money and energy.
     (2) Organizing various duties as hostesses.
     (3) Following pleasing patterns in social customs and behaviour.
<table>
<thead>
<tr>
<th>Problems</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are some of the types of foods that we should be able to prepare well in order to prepare entire menus?</td>
<td>List types of foods available and used in menus. Soups, main dishes, fruits, breads, desserts, etc.</td>
</tr>
<tr>
<td>Planning menus is an ever-present responsibility at home.</td>
<td>Plan menus suitable for home use and in line with the individual needs of each person.</td>
</tr>
<tr>
<td>We Americans have a habit of planning a protein dish as our main dish in a menu. In the menus which you have just planned, let's select the protein dishes you have listed.</td>
<td>Organize work in laboratory to prepare main dishes with the principle ingredient protein. Practice good habits of organization, buying, cookery principles set up. Prepare some dishes which we have chosen for main dishes in the menus we have planned. Try to find more than one way to prepare each food.</td>
</tr>
<tr>
<td>Digression:12 Is there value in refraining from licking your fingers? (List other violations of sanitation often observed).</td>
<td>Set up petri dishes with sterile agar-agar to show bacteria on dirty glass edges, unwashed fingers, licked fingers, bacteria carried by a cough, sneeze, etc. (Use controls and other approved methods in experiment).</td>
</tr>
<tr>
<td>List vegetables which we have included in our menus because of their color, nutritive value, flavor, or texture. Maybe, the vegetables you have planned in your menus, you have included for reasons other than those listed? What are the reasons, if any?</td>
<td>Experimental cookery procedures used in cooking leafy-green, yellow, red vegetables, starchy vegetables and rice.13</td>
</tr>
<tr>
<td>How can we prepare vegetables and preserve characteristics which are desirable in ready-to-eat vegetable dishes?</td>
<td></td>
</tr>
</tbody>
</table>

Analysis:

12 The teacher observed practices in handling foods and dishes which were very unsanitary. The bacteriology experiments were initiated by the teacher. Pupils joined in the study. "Potential interests, set into motion by broadened experiences."

13 Evaluative process in teaching to develop understandings.
<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Aids</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appreciation of scope of &quot;learning to cook&quot;.</td>
<td>Texts</td>
</tr>
<tr>
<td>Ability to plan menus:</td>
<td>Personal experience</td>
</tr>
<tr>
<td>(1) Nutritionally adequate for the family.</td>
<td></td>
</tr>
<tr>
<td>(2) Meet individual needs.</td>
<td></td>
</tr>
<tr>
<td>(3) Attractive.</td>
<td></td>
</tr>
<tr>
<td>(4) Achievable in the situation</td>
<td></td>
</tr>
<tr>
<td>(5) Reasonable in cost.</td>
<td></td>
</tr>
<tr>
<td>Ability to cook protein dishes and practice good principles of</td>
<td>A study sheet used to help girls review</td>
</tr>
<tr>
<td>protein cookery.</td>
<td>ways to use in planning meals for specific</td>
</tr>
<tr>
<td></td>
<td>groups -- The Smith Family and My Family --</td>
</tr>
<tr>
<td></td>
<td>is attached to this report. This device was</td>
</tr>
<tr>
<td></td>
<td>used as an aid in keeping nutritional</td>
</tr>
<tr>
<td></td>
<td>standards before the students.14</td>
</tr>
<tr>
<td>Ability and pleasure in organization of work.</td>
<td></td>
</tr>
<tr>
<td>Realization of needs for sanitary processes of work.</td>
<td></td>
</tr>
<tr>
<td>Ability to wash dishes so that they are really clean.</td>
<td></td>
</tr>
<tr>
<td>Understanding the effect of acids, alkalies, temperature and length of</td>
<td></td>
</tr>
<tr>
<td>cooking on the taste, flavor, texture and color of vegetables.</td>
<td></td>
</tr>
</tbody>
</table>

14 See appendix for evaluative device used. "The Smith Family and My Family."
Through problems chosen in class, work was directed toward objectives X, XI, XII, XIII, XIV during approximately the next four weeks. The development of these objectives was guided so that all objectives in the unit were incorporated and respected from day to day. Many menus were planned, tables set, service studied and practiced. A party buffet meal was served toward the last part of the unit.

The type of work done during this part of the unit has also been recorded many times in various published guides and for that reason the problems and activities chosen to achieve objectives X, XI, XII, and XIII, XIV are not recorded here.

Home Experiences

Each student had several home experience sheets fastened firmly in personal folders which are kept in a file case in the laboratory. The girls keep study sheets, tests, any records they choose in their own folders, but all have the experience sheets in the folders. These are examined and commented on in class from time to time. Many experiences were recorded by this group.

During this unit girls were encouraged to do many things, some of which were:

(1) Shopped for or with their mothers. Many of the girls did a large part of every day shopping.

(2) Practiced good buying habits.

(3) Stored foods in the refrigerator so as to preserve the foods well.

(4) Prepared menus on days when they were at home.

(5) Prepared separate dishes whenever that dish could be fitted into the regular menu for the family.

(6) Planned menus with mother, or for the family without mother's help, when she approved.

Searching for evidences of learning: 15

A. As one culminating activity girls planned, prepared, served and judged a buffet luncheon to friends their own age and to several faculty members. The party was very successful and later a group of elementary teachers present at the luncheon, asked this class to cooperate with the first, second, and third grades in developing their nutrition program.

Analysis-

15Cooperative evaluative procedures. Students need experience in determining past successes and indicating future steps.
B. The class agreed to cooperate with the elementary students and their teachers. The foods and nutrition students used posters, charts, foods, and short skits with elementary pupils, abilities developed earlier in the child care unit were real assets in this work.16

C. The class wrote and produced "Pep and Personality", a two act play. This proved excellent as an evaluation device for testing information and practices for both the nutrition and foods, and child care unit.17 The play was presented before all children and faculty members of the elementary group and a large number of the parents of the young children were there as special guests.

D. Pencil-paper tests were also used to secure evidence of growth toward the objectives. The following outlines the objectives of the tests:18

(1) To evaluate information acquired by the students.
    (a) Nutrition
    (b) Cookery
    (e) Miscellaneous

(2) To evaluate ability in food planning.
(3) To evaluate judgement and skill in preparing foods.
(4) To evaluate ability to organize and plan work.
(5) To evaluate ability to serve foods pleasantly.
(6) To evaluate understandings with which some problems in food and nutrition are solved.

E. Observers were used during the unit to gain evidenee of improved practices in:19

(1) Buying foods.
(2) Preparing foods.
(3) Serving foods.
(4) Working as family members.
(5) Working in a sanitary manner.

Analysis:
16 Evaluation can show evidence of continuity, sequence and integration in learning.
17 Recognizing and applying subject matter in a situation in which "others" are to learn.
18 Teacher responsibility assumed in searching for evidences of achievement.
19 Evaluation is a process as well as a product. Learning is facilitated if those who are to learn are aware of the processes involved as well as the product desired.
To identify evaluative teaching and learning procedures which may be cooperative in design, as has been done above, is futile unless predicated upon concepts of teaching which value student capacity and past experiences as important ingredients in the teaching and learning process. Teachers who try to develop cooperative goal-seeking procedures consistently on such tenuous bases as students "want to" expressions are, we believe, leading themselves into a very sobering experience. However, the use of cooperative goal-seeking procedures in evaluating past experiences and in identifying evidences of readiness to learn in future experiences invites the student to participate actively in the teaching process and creates a democratic atmosphere. It is the obligation of the teacher in the United States to foster creative, democratic practices in the schools. We are aware that learning can take place instantly as a result of traumatic experience, but due to the nature of the democratic philosophy, can find no valid place for the method in public schools.

It is possible to rely upon the capacity of the student to deal constructively with his life situation if the teacher's aim is directed toward releasing that capacity. The creation of an atmosphere of acceptance, understanding and respect is the most effective basis for facilitating learning. When the outcome of this approach to teaching is a person who is better informed and better able to guide himself intelligently, are not the realizations of the general goals of education evidenced: The development of persons who are self-disciplined, responsible citizens socially useful, capable of successful home and family life?

Home Economics teachers are employed with the expectancy that they are competent in home economics subject matter and that they understand and are able to work with the students. The teacher's degree of competency in subject matter is a dynamic ingredient in teaching and learning situations. Unless the teacher is competent, also, in the ability to release the capacity of the student to develop, the teaching and learning is half-done, if at all.

Both teacher and student have a great deal to learn as they work together. Each has, perhaps, different things to learn, but if teaching and learning are cooperative, then learning is necessary for each. Unless teachers understand the student, there's likely to be a great deal of "but I taught you" when the student really "never heard a word was said." Each teacher will operate within the framework of individual concept as to the role of the teacher in the learning process. The framework within which the teacher is capable of performing becomes the framework within which the students have an opportunity to perform.

With this belief we proceed to emphasize that at the teacher-level in any area of democratic instruction, the teacher (1) needs to identify own concept as to the role of the teacher in a democratic society, and (2) needs to identify own ability to assume the role of a democratic teacher, and (3) needs to understand the subject matter she is to teach, and (4) needs to understand how to lead students within the framework of student capacity toward achievement of desired goals. There is scarce need
to discuss cooperative evaluative procedures in instruction with teachers unless the preceding type of teacher beliefs is a part of the teachers philosophy.

General Procedures in Developing the Evaluation Program*

1. Formulating Objectives

Valid objectives are reached on the basis of considered judgement utilizing evidence regarding the demands of society, the characteristics of the students, the philosophy of education held and what we know as to the attainability of various types of objectives in specific subject matter areas.

2. Classification of Objectives

The types of objectives indicate the kinds of evaluation techniques essential to an adequate appraisal. Objectives classified in terms of competencies in general fields will require a different kind of appraisal technique than achievement of the objectives in a limited field of behavior. For example: Ability to plan adequate diets is a general competency expected as a result of instruction in nutrition and requires one kind of appraisal technique. Ability to identify foods sources of Vitamin A, a more limited intellectual ability, requires another appraisal technique. The more limited objective may be analogous to learning the multiplication tables in arithmetic. Just as the learning of the multiplication tables enables a person to go on to solve a variety of problems involving numbers, so does the learning of the relationship between food nutrients, sources of food nutrients, and function of food nutrients enable the student to go on to the solving of a variety of nutritional problems.

3. Defining Objectives in Terms of Behavioral Aspect and Subject Matter Content.

The type of behavior desired, such as an understanding or an ability, needs to be clearly stated. Some objectives are stated in terms so vague and nebulous that the kind of behavior they imply is not clear and are not, therefore, subject to adequate appraisal. As an example: "To develop the ability to relate the function of nutrients to food sources of nutrients." is amiable to adequate evaluation. Both behavior expected (ability to relate) and subject matter (function and sources of nutrients) are defined precisely.

4. Suggesting Situations in Which the Achievement of Objectives Will be Shown.

*Adapted from Unpublished paper. Cunningham, Pauline, Reed, Mary; Mackensen, Kathryn, "A Study of Evaluation Procedures."
There should be a wide range of situations which might be used in evaluation; listing a considerable number of types of situations will give students a chance to indicate the sort of behavior patterns they have developed.

5. **Selecting and Trying Promising Evaluation Methods**

Some evaluation methods are misleading and upon examination and use will be found limited. Following the choice of test situations which hold promise of indicating evidence of the development of specific behaviors comes the responsibility of selection of the device to be used in the evaluation. Those which often seem to hold great promise may, upon use and examination, prove to be neither valid nor reliable in providing evidence of achievement toward defined objectives. Some will need to be discarded, others revised.

6. **Developing and Improving Appraisal Methods**

The basis for selecting devices depends on the degree to which the methods are found to give results consistent with other evidences regarding students attainment and the extent to which the methods are practicable and easily interpreted.

7. **Interpreting Results**

Procedures need to be used periodically in appraising the degree to which students are developing toward achievement of desired objectives. Some estimate of the degree of change or growth of students can be made. This analysis will serve as a basis for continued and further study and for interpreting the usefulness of the evaluative program.
Example of Procedures in Developing An Evaluation Program in Foods and Nutrition Which Follows the General Procedures.

General Procedures

1. Formulating Objectives

A. General Educational Objectives—such as developing a sense of responsibility, developing increased self direction, developing acceptable habits, develop an ability to work with other people—usually are considered to be important by the home economics teacher. They are not, however, unique to home economics. Even so, any teacher who has not formulated general objectives will have difficulty in visualizing the contributions of home economics to the total development of the student.

Procedures in Food and Nutrition

Examples of formulating and classifying objectives on foods and nutrition which are consistent with objectives in general education.

1. Understandings.

1.1 Responsibilities and privileges as members of the family and of the community.
1.2 Cooperative vs. autocratic, competitive processes.
1.3 Value of self and others.
1.4 Value of available resources.
1.5 Developmental needs of young and old.

2. Attitudes

2.1 Willingness to accept responsibility.
2.2 Willingness to share work and rewards.
2.3 Willingness to use resources efficiently.
2.4 Willingness to care for property.

3. Abilities

3.1 To assess value of responsibilities which may be assumed.
3.2 To assume appropriate role in the group processes.
3.3 To use and care for resources.

4. Habits

4.1 Of discharging responsibilities assumed.
4.2 Of unselfishness.
4.3 Of conservation.

5. Judgements

5.1 In amount of responsibility to be assumed.
5.2 In choosing kinds of responsibility to assume.
5.3 In choice of methods of work.
B. Defining competencies in subject matter area -

It is useful in formulating objectives to first identify general competencies relevant to the instruction planned. Thus, in foods and nutrition courses, competencies in planning, providing, preparing and serving foods for adequate diets are of this class. They will not be restricted to any grade level necessarily.

C. Defining specific objectives in subject matter area.

When formulating this set of objectives, it is necessary to propose possible ways to evaluate achievement toward them. Criteria we outline below is not all-inclusive, but does define the characteristics which objectives must possess if they are to be subject to sound evaluation.

(1) Be identified with the developmental level of those for whom the instruction is planned.

Examples of general competencies relevant to instruction in foods and nutrition.

A. Competency in planning meals for specific individuals and groups. Examples of objectives which may be relevant to the achievement of this competency are:

1. Interest in planning adequate diets.
2. Appreciation of the importance of adequate diets.
3. Knowledge of the body needs for food.
4. Knowledge of sources of nutrients.
5. Ability to plan meals satisfying to the senses.
6. Ability to plan adequate diets.

B. Competency in preparing meals. Examples of objectives which may be relevant to the achievement of this competency are:

(1) Interest in principles and facts of food preparation.
(2) Appreciation of the contribution of practices in food preparation to the nutritional opportunity of the family.
(3) Understanding the effect of various food preparation practices on the retention or destruction of food nutrients.
(4) Ability to choose recipes which do not violate important principles in conservation of nutrients.

5.4 In use and care of resources.

6. Appreciation

6.1 Of value in assuming responsibilities.
6.2 Of value in cooperative work.
6.3 Of rights of others and of self.
6.4 Of resources available.
General Procedures

(2) Be defined as to the behavior desired and the subject matter involved. As an example in the following sample objective, "understanding" is the behavior desired, whereas "effect of boiling temperatures on the coagulation of egg protein" is the subject matter involved. Sample objective: To understand the effect of boiling temperatures on the coagulation of egg protein.

(3) Be within the possibility of achievement. At any one time and place not all equally important objectives may be achieved. Choices will be necessitated through limitations of time, space, equipment, students' readiness for the objective and other dynamic factors.

(4) Be dynamic. That is, that they suggest action to be taken. This is of great importance. Evaluation is impossible unless pupils and teachers are able to choose several situations in which pupils may exercise the kind of behavior implied by the objective and use the subject matter involved.

Procedures in Food and Nutrition

(5) Ability to apply principles and facts in food preparation processes.
(6) Ability to use fuels and equipment efficiently.
(7) Ability to prepare a variety of dishes which appeal aesthetically to others.

C. Competency in serving foods. Examples of objectives which may be relevant to the achievement of this competency are:

(1) Interest in aesthetic arrangements for food service.
(2) Appreciation of the relation of food service patterns to the cultural patterns.
(3) Knowledge of various food service patterns which have arisen in various cultures.
(4) Understanding that courtesy, convenience, orderliness, cleanliness are basic to satisfactory food service.
(5) Ability to accept current food service patterns or else create new patterns suitable to time, place and equipment available.

D. Competency in Management.

1. In buying foods. Examples of objectives which may be relevant to the achievement of this competency are:

1.1 Interest in the nutritional value of the foods available.
1.2 Appreciation of the relationship of wise food purchasing practices to family welfare.
1.3 Knowledge of the nutrients provided in foods available on the market.
1.4 Ability to choose food which provide the greatest nutritional and aesthetic values at the price one can afford.
1.5 Ability to recognize information
D. Suggesting situations in which the achievement of objectives will be shown.

There should be a wide range of situations which might be helpful in wise shopping.

1.6 Ability to interpret information shown on labels and through other written devices.
1.7 Ability to apply knowledge in choosing between food products.
1.8 Habits of discretion in buying, such as habits of economy in using money, time and energy in satisfying family food needs.

2. In food conservation. Examples of objectives which may be relevant to the achievement of this competency are:

2.1 Interest in food conservation.
2.2 Understanding facts and principles in food conservation.
2.3 Appreciation of the relation of food conservation practices to nutritional opportunity.
2.4 Ability to store foods in ways which preserve food value, flavors, textures and colors.
2.5 Ability to use a variety of food preservation methods.
2.6 Ability to design and arrange cabinets for economical storage of canned, dry and other less perishable foods.
2.7 Ability to preserve foods by a variety of methods such as freezing and canning.

3. In the care and use of equipment. Examples of objectives which may be relevant to the achievement of this competency are:

3.1 Understanding facts and principles in care of equipment.
3.2 Interest in the economical use of equipment.
3.3 Ability to use equipment to save time, energy, and money for the family.

Example of the range in choice of situations in which the achievement of specific objective A6 above may be shown.

A6. Ability to plan an adequate diet. The situations are chosen in order
used in evaluation; listing a considerable number of types of situations providing opportunity for students to indicate the kind of behavior they have developed.

for the pupils to:
(a) Plan an adequate diet for their own families.
(b) Explain reasons for the plan they have made.
(c) Relate nutritional conditions to causes.

Situations in which achievement might be shown:

(1) Students given a description of a specific group of individuals and required to plan a diet for the group.
(2) Students given a description of the nutritional condition of an individual or groups of individuals along with a copy of the diet of the people involved. Students required to explain why the nutritional condition exists.
(3) Students given a description of specific individuals or group of individuals. Students required to set up a display of food models which would represent an adequate diet for this group or individual.
(4) Students given a list of all the food on one school lunch tray for one person. Student required to analyze the specific nutritional contributions which the foods make to the total food needs for the day.

Value of identifying general competencies and specific objectives.

Once the general competencies and specific objectives for a course have been identified it becomes possible to develop evaluative devices to serve the three purposes of:

(a) Determining the initial status of students with respect to their knowledge, interests, attitudes, habits and other behaviors included in the objectives,
(b) Selecting by pupils and teachers learning activities that hold promise of effecting the desired changes in behavior; and (c) Constructing tests and other devices for the purpose of evaluating student progress.
PART II
TEST CONSTRUCTION

Part II of this booklet is written for the purpose of aiding the teacher to develop measuring instruments that may be utilized in evaluation procedures in the Foods and Nutrition area. Numerous examples of test items and testing devices are included. These test items and testing devices, if used blindly, will be of no value. They should be selected with discrimination to fit into rationally conceived evaluation procedures - that is, as means of obtaining evidences of attainment of the objectives for a Foods and Nutrition instructional program.

Characteristics of a Good Test.

A good test must have three qualities - validity, reliability and objectivity.

Validity - A test is said to be valid when it measures what it sets out to measure.

There are four aspects to validity.

(1) The content aspect. A test is valid from a content standpoint if the test items or questions constitute an adequate sample of the subject matter indicated in a teacher's objectives for her class.

(2) The discriminating aspect. A test is valid from a discriminating standpoint if it differentiates the students who possess what the test purports to measure from the students who do not possess what the test purports to measure. Thus, for a nutrition understandings test to be valid the students who possessed more nutrition understandings would obtain higher scores than the students who possessed less nutrition understandings.

Questions in a nutrition understandings test that could be answered successfully by all students usually would not contribute to the validity of a test from a discriminating standpoint. Similarly, questions that could not be answered successfully by any students would not contribute to the validity of a test.

(3) The purpose aspect. The validity of a test must be considered in terms of the purpose of the test. A test may be valid for one purpose but not valid for another. Thus, a test may effectively rank students according to the amount of nutrition understandings they have but not be of much value in diagnosing students weaknesses.

(4) The mental process aspect. For certain types of achievement tests it is appropriate to judge the validity of the test in terms of the mental processes through which students arrive at their answers.
to test items. For example, a teacher, who wishes to develop in her students an ability to apply principles to nutrition problems, may be more concerned in whether or not students arrive at answers to questions on a test through a process of applying principles (rather than just memorizing material) than in whether or not the student obtains the correct answer to the test question.

Reliability - a test is said to be reliable when it measures what it sets out to measure consistently.

The reliability of a test may be dependent upon the consistency of the behavior of the student that is measured by the test. Here the question raised is - "Is the sample of behavior of the student representative of other samples that could be secured at different time intervals?". This kind of reliability is usually estimated by correlating the scores obtained by students on one day on a test with scores obtained on the test on a second day. If the two sets of scores are positively highly correlated, then it is likely that the test is measuring a behavior that students appear to exhibit consistently from day to day. It can readily be seen that with some forms of behavior - for example, "aggressiveness" - we might need to sample various time intervals in order to obtain an adequate sample of the student's behavior.

The adequacy of the sample of test items within a test constitutes a second kind of reliability. Here the question raised is - "Is the sample of items on the test adequate to yield an accurate estimate of the student's status with respect to what is measured?". To a considerable extent this kind of test reliability is dependent upon the length of the test. If we include a sufficient number of valid test items that adequately sample the objectives to be measured we can obtain this second kind of reliability in a test.

Objectivity - A test is said to be objective when two or more competent judges can agree on what constitutes the correct answers for the test. In a perfectly objective test two teachers would arrive at identical scores in marking one student's test paper. Essay type examinations are frequently criticized because they lack this quality of objectivity. The objectivity of essay type examinations can be improved, however, if special care is taken in constructing and grading the test questions.

Constructing Tests on Nutrition Understandings.

There are a number of advantages in using objective test items in testing students' nutrition understandings. One principal advantage is the economy in time in determining how much knowledge the student has. A second advantage is that, once the test has been constructed, the score of the student can be objectively determined. To attain these advantages, test items must be carefully constructed. A number of writers in the test construction field have listed rules for the construction of effective test items. Each stresses that a good test item must have the characteristics of a good test --- generally meaning that the test items should have validity, reliability, and objectivity and that the test item is directed
toward an important aspect of the subject tested. Each writer also stresses the need of stating a problem in the test item in such a way that the task which the testee is called upon to perform is clear. There are numerous types of objective test items -- the most common of which are the completion type, true-false items, multiple choice or best-answer items, and matching items.

1. Completion type items.

In a completion type item, the testee is given an incomplete statement with blanks left for the student to fill in. For example:

Oranges are rich in Vitamin ________.

The student would be expected to write C in the blank in this item.

In constructing this type of item it is important to keep the ratio of words given to words omitted very high because if too many words are omitted, the meaning of the whole will be obscure. The blanks should refer only to omitted key words - never to words such as "the", "a", "to", etc. In this type of item as in all others, the test constructor should avoid taking statements directly from textbooks but should rather concentrate on formulating the statement so clearly that the testee clearly sees the problem posed.

2. True-false items.

In a true-false item, the testee is given a statement and is required to indicate whether the statement is true or false. In constructing such items, statements that are broad generalizations should usually be avoided since such statements are practically always false. General statements that include such words as "never", "always", "sole", etc. should be avoided since many students will recognize them as false. Statements that include such words as "sometimes" and "some" are frequently recognized by students as true. In general, negative statements should be avoided, chiefly because they are often misread. In general, the test item should include only one idea.

The true-false test item is frequently criticized because a student has a 50 - 50 chance of obtaining the correct answer by guessing. Test constructors attempt to reduce this defect by including a large number of items on the test. One modification of the true-false item is to underline one or more key words in both the true and false items and require the student on all items he has marked false to revise the underlined portion of the statement in order to make the statement true. For example:

Liver is a rich source of calcium.

In this item, the student would be expected not only to mark the item false but also to cross out the word "calcium" and replace
it with the word "iron". Thus: _F_ Liver is a rich source of _calcium_ iron.

3. Multiple-choice or best-answer items.

In this type of test item a problem is posed and alternative answers to the problem (usually 3 to 5) are presented to the student. The student is required to select the best answer. For example:

What food is rich in calcium? (A) Beefsteak, (B) Milk, (C) Apple, (D) Eggs, (E) Carrots.

The problem posed is called the "lead" or "stem" of the item. The suggested answers are called alternates. Within the alternates usually only one response is made correct—the remaining incorrect responses are referred to as "distractors". In constructing multiple choice test items the stem of the item should pose a single central problem. The problem should contain only material relevant to its solution. The language used in stating a problem should be appropriate to the subject matter and understandable to the students to be tested. The distractors should be plausible answers rather than obvious distractors; that is, the distractors should present the kinds of errors that the student might make in coping with the problem posed.

In order to test the preciseness of the student's knowledge or understanding sometimes one of the distractors may be made partially true but not as good an answer as the correct response. Such distractors have been labeled "near misses" by Loree. Part credit is given to the testee for the "near miss" response. A number of test items in the appendix (keyed NH) are of this kind.


This test consists of a column of items, each of which is to be matched with the appropriate item in the second column.

The problem presented in a matching test is the same, really, as in a multiple choice test with the word or words in the first column serving as "stems" to test items and the word or words in the second column serving as the alternates for each item. In constructing this type of test, it is profitable to think each item through as a multiple choice test item in order to judge the appropriateness of the distractors in each item.

Constructing tests on the ability of students to solve nutrition problems.

Higher mental processes are usually involved in the student's effort to solve nutrition problems. Frequently the student requires some knowledge in order to solve the problem. But knowledge alone is not sufficient. Possibly the student is required to recognize what knowledge is
relevant to the problem. Possibly the student must be able to see the applicability of certain principles to the solution of the problem. Possibly the student will need to interpret data in arriving at a solution. Hence many objectives in foods and nutrition courses may be classified behaviorally as intellectual abilities and skills. Whether or not the student is able to solve many nutrition problems is often dependent upon whether or not he has developed the needed intellectual abilities and skills.

In developing test items designed to determine the ability of students to solve nutrition problems it is often economical to identify the intellectual abilities or skills that are of crucial importance in the problem solving process and concentrate our test items on these intellectual abilities and skills. Such items are deliberately designed not to measure the complete problem solving behavior in which we are interested. Because the test items developed do not test the complete behavior in which we are interested but only difficult aspects of the behavior, the mental process measured is referred to as an "index of behavior".

After an objective has been defined and situations in which the achievement of the objective might be shown by the student, the test constructor needs to think through the sub-problems involved in the achievement of the objective and focus test items on aspects of the objective that are appropriate for the students of her class. The following example is illustrative of the kind of analyses the test constructor must go through in constructing items designed to measure the problem solving abilities of students.

Objective - An ability to choose the foods to be bought for a family taking into consideration family income and health.

Analysis of objective - Certainly a student might demonstrate this ability if he were required to shop at the grocery store and purchase food for his own family for a number of weeks. In practice, however, it would be impossible for the home economics teacher to observe each student in the class making the food purchases over a period of weeks. It is necessary to find, therefore, certain sub-abilities that would be of crucial importance. Two sub-abilities that would be important in the attainment of the objective would be: (1) ability to recognize good sources of various food nutrients; and (2) ability to relate this knowledge to his knowledge of food costs.

Situation in which achievement of objective could be shown:

The student is given:  A - a description of a family group with limited money to spend for food.
                       B - Names of three or more foods and one reason that could be the basis from a nutrition standpoint for choosing one of the named foods.

The student is required: To choose one of the named foods that will best meet the indicated nutrition purpose at the lowest cost.
Test items illustrative of situation outlined above:

A family composed of Mr. and Mrs. Brown, who are very active, and their three children (Carol, age 4; Paul, age 10; and Mary, age 16) has a very limited amount of money to spend for food, and must buy foods which give the greatest nutritive value for the dollar.

Imagine that Mrs. Brown in shopping in the summer.

DIRECTIONS: For each item, draw a line under the one food that is the best buy for the nutritional purpose listed for the item.

<table>
<thead>
<tr>
<th>Correct Answer</th>
<th>Nutrition Purpose</th>
<th>Foods</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1. To get protein</td>
<td>(A) Young chicken, (B) hen, (C) frozen chicken pie.</td>
</tr>
<tr>
<td>C</td>
<td>2. To get Vitamin A.</td>
<td>(A) White squash, (B) onions, (C) Yellow squash.</td>
</tr>
<tr>
<td>B</td>
<td>3. To get Vitamin C.</td>
<td>(A) Bottled grape juice, (B) Frozen orange juice, (C) Fresh oranges</td>
</tr>
<tr>
<td>B</td>
<td>4. To get B Vitamins.</td>
<td>(A) Precooked rolls, (B) enriched bread, (C) white grits.</td>
</tr>
<tr>
<td>B</td>
<td>5. To get roughage.</td>
<td>(A) Cauliflower, (B) cabbage, (C) bananas.</td>
</tr>
<tr>
<td>A</td>
<td>6. To have a nourishing dessert.</td>
<td>(A) Dried apples, (B) apple pie from bakery, (C) frozen peaches.</td>
</tr>
<tr>
<td>C</td>
<td>7. To have milk to use for cooking</td>
<td>(A) Condensed milk, (B) fresh homogenized milk (C) dehydrated milk.</td>
</tr>
<tr>
<td>B</td>
<td>8. To satisfy body needs</td>
<td>(A) Milk, (B) pie, (C) lean steak.</td>
</tr>
</tbody>
</table>

Comments

Obviously, the actual foods and the nutritional purposes included in the above illustrative items are appropriate only if the students in a class have gained some knowledge of comparative costs of foods as well as a knowledge of good sources for various nutrients.

Note that in the above items, the reason why one food selection is better than another is not stated. An effort was made to construct each item in such a way that the student would need to think of the reason in order to arrive at the correct answer.

Following are the reasons for the best answers for each item:

1. Young chicken in season in summertime. Hen not in season; frozen chicken pie too expensive and less protein than whole chicken.
2. Yellow squash is best source of Vitamin A. White squash not as good source, onions less expensive but not a good source.
3. Frozen orange juice is best source. Grape juice not a good source, fresh oranges are out of season.

1 The correct answers are indicated for all test items included in this booklet for the convenience of the reader.
4. Enriched bread is least expensive and is a good source. Pre-cooked rolls are too expensive; white grits are not a good source.

5. Cabbage is best source. Cauliflower is expensive and does not furnish much cellulose; bananas do not furnish roughage.

6. Dried apples are nutritious and less expensive. Apple pie and peaches are too expensive.

7. Dehydrated milk is least expensive form for cooking. Condensed milk costs more and contains sugar, which is not a protective food, and fresh homogenized milk is more expensive.

8. The consumption of pie does yield energy. Hence pie is the correct answer when judging the relative merit of the three foods solely from an energy criteria.

Appendix A contains many other examples of test items that have been designed to measure the thinking ability and skills needed to solve problems in foods and nutrition.

Evaluation of Manipulative Skills

Often objectives involving the use of manipulative skills are evaluated in terms of desired qualities in a finished product. This is evidenced by the large number of food score cards used in home economics classes. In building a "food score card", the first step of the test constructor is to analyze the aspects of the finished product that are related to its "goodness". For an angel cake, for example, the following aspects may be identified: (1) appearance, (2) lightness, (3) tenderness, (4) moisture content, and (5) flavor. The second step of the test constructor is to describe in concrete terms what is meant by satisfactory "appearance" and what is meant by unsatisfactory "appearance"; what is meant by satisfactory "flavor", what is meant by unsatisfactory "flavor", etc. The third step is to incorporate the analysis undertaken in the first two steps into an evaluative device - in this case into a good score card for an angel cake. Following is an evaluative device that has been developed in the manner described above:

<table>
<thead>
<tr>
<th>Appearance (outside)</th>
<th>Angel Cake Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crust</td>
<td>1 Sugary, sticky, cracked top</td>
</tr>
<tr>
<td>Color</td>
<td>Unevenly browned</td>
</tr>
<tr>
<td>Appearance (inside)</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>Uneven</td>
</tr>
<tr>
<td>Texture</td>
<td>Coarse, tunnels</td>
</tr>
<tr>
<td>Lightness</td>
<td>Heavy</td>
</tr>
<tr>
<td>Tenderness</td>
<td>Crust and crumb tough</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3 Unscrapped and slightly rounded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncracked and slightly rounded</td>
</tr>
<tr>
<td>Evenly browned</td>
</tr>
<tr>
<td>....................................</td>
</tr>
<tr>
<td>Even throughout</td>
</tr>
<tr>
<td>Small uniform cells</td>
</tr>
<tr>
<td>Light</td>
</tr>
<tr>
<td>Crust and crumb tender</td>
</tr>
<tr>
<td>....................................</td>
</tr>
</tbody>
</table>
### Angel Cake

<table>
<thead>
<tr>
<th>Moisture content</th>
<th>Flavor (odor) (taste)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry or soggy</td>
<td>Unpleasant</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flat, too sweet, or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>poorly blended</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ingredients</td>
<td></td>
</tr>
<tr>
<td>Slightly moist</td>
<td>Pleasant</td>
<td></td>
</tr>
<tr>
<td>Pleasant</td>
<td>Well-blended</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and characteristic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>of kind</td>
<td></td>
</tr>
</tbody>
</table>

**SCORE**

The point of view taken by the writers is that evaluative instruments such as illustrated above are of most value when developed by the students of a class and made an integral part of the complete instructional process. The device above is based upon a "score card" developed by students and teacher prior to the manipulation of the ingredients to produce an Angel Cake. In this instance, the terms used in the device arose from words used by students in judging purchased angel cakes and one made by the teacher.

In many of the learning experiences provided in the foods laboratory, the student utilizes knowledge and intellectual ability as well as manipulative skills. Thus, in the food score card illustrated above, the score obtained by a student will depend upon the student's knowledge concerning the process of making the angel cake as well as his manipulative skills.

It is desirable to identify both the knowledge or intellectual ability objectives and the manipulative skill objectives in a foods laboratory learning experience. The appendix includes examples of test items designed to determine whether a student has the knowledge and intellectual abilities needed in food preparation processes. Usually the experienced home economics teacher will encounter little difficulty in identifying the purely manipulative skill aspects in a food preparation problem. In the preparation of the angel cake some crucial manipulative skills that might make a difference in the quality of the finished product are:

1. manipulation of measuring tools
2. complete separation of egg whites from egg yolks
3. gentleness in the folding process; and
4. removing the finished cake from the pan.

The identification of the crucial manipulative skills in a food preparation problem is the first step in constructing an evaluation device focused on the process (rather than the product) of food preparation. The second step is to describe in concrete terms what is meant by such terms as "satisfactory and unsatisfactory manipulation of measuring tools". These statements may be incorporated in either a check list or a rating scale. Obviously, in using such an evaluative device, the teacher will need to observe the student in the process of preparing a food.
Focusing attention on the process of preparing food rather than on the quality of the finished product often is profitable in identifying the next logical steps in the complete teaching process.

Evaluation of Interests

An "interest" may be defined as a liking for or a valuing of an activity. We usually assume that a person has an interest in an activity when he freely chooses to engage in the activity. Thus, when a person chooses to study nutrition rather than engage in some other activity, he is expressing an interest in nutrition. An interest may be intrinsic or extrinsic in nature. The interest is intrinsic when a person engages in an activity for the sheer joy of the activity. The interest is extrinsic when the person engages in an activity primarily because he sees the activity as a means of gaining some other end. Thus a person is expressing an intrinsic interest when he studies nutrition because he likes to study nutrition. He is expressing an extrinsic interest if he studies nutrition for some reason such as a desire to pass an examination.

Interests may serve both as ends and means in school; that is, both as objectives and as motivating factors related to the attainment of objectives.

To construct an evaluation device for interest objectives the test constructor needs to identify the variety of ways in which a person may express the desired interest. For the objective - "interest in principles and facts of food preparation" - the test constructor might list:

1. The student tries to gain more knowledge about the principles and facts of food preparation.
   1.1 He reads books and articles.
   1.2 He asks questions about food preparation both at home and at school.
   1.3 He attends clubs, views commercial programs from which he can gain knowledge about food preparation.

2. The student applies knowledge about the principles and facts of food preparation.
   2.1 He prepares foods in new ways in the home.
   2.2 He seeks new recipes.
   2.3 He carries on food projects in Home Economics, Agriculture or other clubs.

A similar list of concrete ways in which interests may be expressed should be made for all "interest" objectives in a foods and nutrition course. These ways may later be incorporated in one interest inventory. Such a list is useful in the teaching process in that it suggests kinds of activities the teacher will need to provide in order that students will have an opportunity to develop and express their interests.

The extent of the interest of the student in foods and nutrition
may be evaluated either in terms of (1) expressed preferences for foods and nutrition activities over other competency activities, (2) the degree of expressed liking for the activities identified, or (3) the frequency in the amount of time the student spends in the activities.

The first approach might call for the construction of a large number of items of the following type:

DIRECTIONS - For each of the following groups of three activities, place an M before the activity you like MOST; place an L before the activity you like LEAST.

1. Learning how to prepare new foods.
2. Learning how to write a business letter.
3. Learning how to do a science experiment.

From a large number of such items, scores can be generated showing the relative interest in foods and nutrition over other competing interest areas.

An evaluative device constructed by Avice Graham\(^1\) is illustrative of the second approach for determining the extent to which students are interested in nutrition. Twenty activities were identified as the concrete ways in which the student might express his interest. These were:

1. Helping mother in the kitchen.
2. Helping with the gardening.
3. Helping to buy groceries.
4. Helping to can, freeze or dry foods.
5. Carrying on a food project in Home Economics, Agriculture, or other club.
6. Trying new ways of preparing common foods.
7. Preparing foods following the general principles as learned in Home Economics.
8. Studying health habits in order to know how I can keep healthy.
9. Studying the requirements of an adequate diet.
10. Studying how some foods build our bodies and make us grow.
11. Learning which foods give us energy.
12. Studying why we need to eat foods rich in all vitamins and minerals.
13. Improving my own eating habits.
14. Helping to improve the eating habits of the members of my family.
15. Helping improve the eating habits of my friends.
16. Reading magazine articles on foods.
17. Helping to plan meals for my family.
18. Collecting recipes.
19. Experimenting on how a food will help the body or harm the body

by feeding the food to white rats for a period of time and watching the results.

20. Keeping a daily food record in order to see whether or not I am eating an adequate diet.

For each activity identified, Graham formulated statements to enable students to indicate their extent of participation and enjoyment. The following is illustrative:

Activity 1: Helping mother in the kitchen.

Score

0      a. I never help mother prepare a meal. That is not part of my work.

1      b. Once in a while I help mother in the kitchen, if I cannot get out of it, but not more than an average of once a week.

2      c. Mother will not let me help her in the kitchen.

2      d. I do not have time to help mother in the kitchen.

3      e. I help mother when I want her to do something for me.

3      f. I help mother in the kitchen when one of my friends is coming to eat a meal with us.

4      g. I help in the kitchen on the average of once a week and I like it after I get started.

5      h. I help in the kitchen as often as I can because I like to work with food.

In the above item the student obtains an interest score of 5 by checking response "h", a score of 4 by checking response "g", etc. For each item students may obtain an interest score ranging from 0 to 5. Thus for the 20 items students may obtain scores ranging from 0 -- 100. It will be readily recognized that the validity of the technique described above is dependent upon: (1) the extent to which the activities selected represent an adequate sample of ways in which students might express an interest in foods and nutrition; (2) the defensibility of the scoring system used in order to evaluate the student's interest; (3) the willingness of the student to report accurately the extent to which he engages in the activity; and (4) the extent to which the student is able to analyze his own feelings of "likes" and "dislikes".

A third approach to the problem of evaluating the extent of students' interest in foods and nutrition involves determining the frequency or the amount of time the student engages in "foods and nutrition" activities. Again, the first step in this approach is building a list of the concrete ways in which the interests may be expressed. From the list of activities, the test constructor can then formulate a questionnaire to determine the number of times per week the student engages in the activity.

The use of any one of the three approaches outlined above may be used
by the teacher to determine whether or not students increase their interest in nutrition over a given time interval. For example, a teacher may determine the amount of time students engage in foods and nutrition activities at the beginning and at the end of grade eight. An increase in the amount of time spent, or the number of activities in which students participate or express their likes would constitute, in part, evidence of progress toward the interest objective. The teacher may also wish to examine changes in the nature of the activities of the student. Just as the teacher of English would wish to find students reading increasingly mature literature as well as just reading more literature, so the Home Economics teacher would wish to find an increase in the maturity level of the foods and nutrition activities engaged in by students. Thus in evaluating the extent to which foods and nutrition interest objectives are being achieved the teacher will need to keep in mind the maturity factor.

Two questions may be raised to obtain the information concerning students that will be of value as a means of motivating students:

1. What are the activities in foods and nutrition that the student likes?

2. What knowledge and skills does the student wish to have that he does not now possess?

Information derived from the first question may be of value to the teacher in relating classroom learning experiences to students' interest patterns. Information derived from the second question can be of even more importance as an aid in selecting learning experiences that are meaningful to both teacher and pupils. A word of caution is in order. Students' likes and felt needs should not constitute the sole basis for selecting learning experiences. When a person learning to drive a car does not feel the need for learning traffic regulations, the teacher is not relieved of responsibility for teaching this aspect of car driving. In such a case, the teacher's first problem is to lead the pupil to feel the need for learning traffic regulations. Similarly from the identification of the felt needs of students in the foods and nutrition area, the teacher may encounter problems of creating in the student a feeling of need as a first step in the learning process.

Following is an example of an evaluative device designed for the purposes of identifying the interests, felt needs and actual participation in foods and nutrition activities in a class of eighth grade girls:
Planning Our Learning Experiences

Below is a list of activities which we may engage in if we consider them of value. In Column I place an X in front of those activities which you like to do. In Column II place an X in front of those activities which you dislike to do. In Column III place an X in front of those activities which you would like to learn more about.

In the blanks to the right, place a check in the column which tells "how often" you already engage in each activity.

<table>
<thead>
<tr>
<th>I: Like to do</th>
<th>II: Do not like to do</th>
<th>III: Would like to learn more about in school</th>
<th>Possible activities in Home Economics Class</th>
<th>Frequent</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>:</td>
<td>:</td>
<td>:</td>
<td>1. Help buy groceries for family</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>:</td>
<td>:</td>
<td>:</td>
<td>2. Help store and put away groceries when they are bought.</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>:</td>
<td>:</td>
<td>:</td>
<td>3. Help make salads</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>:</td>
<td>:</td>
<td>:</td>
<td>4. Make breadstuffs (e.g. biscuits, pancakes).</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>:</td>
<td>:</td>
<td>:</td>
<td>5. Make cocoa</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>:</td>
<td>:</td>
<td>:</td>
<td>6. Prepare oatmeal or other cooked cereal</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>:</td>
<td>:</td>
<td>:</td>
<td>7. Prepare fruits for breakfast</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>:</td>
<td>:</td>
<td>:</td>
<td>11. Prepare picnic meals</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>:</td>
<td>:</td>
<td>:</td>
<td>13. Set the table</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>:</td>
<td>:</td>
<td>:</td>
<td>15. Dry the dishes</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>:</td>
<td>:</td>
<td>:</td>
<td>17. Care of the stove</td>
<td>:</td>
<td>:</td>
<td>:</td>
</tr>
</tbody>
</table>
Thus, through the identification of interests, felt needs and actual participation in foods and nutrition activities by students, teacher and students have established a base upon which to plan learning experiences. The teacher has discovered the "level" of the pupils' interests and felt needs and is able to plan to advance the maturity level of the students.

Evaluation of Attitudes

Numerous definitions of the word "attitude" may be found in the psychological literature. Central to most definitions is the concept of "a state of readiness" or "set". Thus one definition is - an attitude is a tendency to act in a certain way; this tendency may or may not be consummated.

The meaning of the term "attitudes" may be clarified by examining some of their dimensions. Thus -

(1) The object of an attitude may be a thing, person, group, institution, activity, way of behaving or acting, concept, idea, or belief.

(2) The direction of the attitude with respect to its object may be one of acceptance or rejection.

(3) The intensity of the emotional component of an attitude may vary.

(4) Attitudes have intellectual bases.

(5) Attitudes may be specific or general. A person may accept people from another country as "good workers" but not as "social equals" (specific attitude) or the person may accept people from another country in all respects as "equals" (general attitude).

(6) Attitudes may vary in their consistency. Some attitudes may change from week to week - example - our attitude toward Mr. X. Other attitudes may be much more stable or consistent.

(7) Attitudes may be public or private in nature. The attitude is public when we feel free to reveal it; private when we do not wish to reveal it.

In foods and nutrition classes home economists frequently wish to develop - (1) favorable or acceptance attitudes toward various foods or classes of foods; (2) acceptance attitudes or beliefs in the importance of applying nutritional standards in selecting and preparing foods. The teaching process is usually that of providing the nutrition information that would constitute an intellectual basis for the desired
In constructing an evaluative instrument to measure attitudes, the test constructor must first decide what dimensions of the attitudes are relevant to the objectives of the school - their direction (acceptance or rejection); their intensity; their intellectual bases; their consistency, etc. Secondly, the test constructor needs to identify the ways in which the attitude may be expressed. The kind of evaluative device that will emerge will be dependent upon the particular dimensions of the attitudes the test constructor wishes to measure and the test constructor's judgement as to the behavior of the student that can be considered as expressions of the attitudes.

The following is illustrative of an evaluation device in which the test constructor endeavors to determine the dimensions - direction, consistency, and bases - of attitudes toward a sampling of various basic seven foods.

\footnote{Unfortunately, it is very difficult to change attitudes through a process of logical reasoning. Attitudes are most frequently formed through a process of "assimilation" or a process of "affective association". "Assimilation" is a process through which the child takes over the attitudes of his parents, his peers or his teacher. Affective association is a process through which the pleasantness or unpleasantness of a previous experience with an object (person, activity, idea, etc.) becomes associated with the object in future experiences.}
Purpose of this evaluation procedure:

1. To determine the direction and consistency of attitudes toward foods representing each of the basic seven food groups.

2. To determine the base upon which the negative attitudes may have developed.

Given:

1. A list of phrases which may describe ways people feel about different foods.

2. A list of foods. (Column I)

3. A list of reasons for disliking foods. (Column IV, letter A through J)

Required:

First, tell how you feel about the food by placing the letter which represents how you feel about the food in Column II. Second, in Column III, place the letter which represents your reason for disliking the food. Points 1 - 2 and 3 are examples.

Letters: List of phrases which tell how people may feel about foods.

O - Never tasted it
X - Don't like it at all
V - Like it very much
F - Like it fairly well
D - Don't know the food

<table>
<thead>
<tr>
<th>LIST OF FOODS</th>
<th>Column II</th>
<th>Column III</th>
<th>Column IV - LIST OF REASONS FOR DISLIKING FOODS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rutabaga</td>
<td>1. X</td>
<td>D</td>
<td>A - Sour, or Sweet, or Bitter</td>
</tr>
<tr>
<td>Chard</td>
<td>2. O</td>
<td></td>
<td>B - Mushy, or Stringy, or Tough, or Smooth.</td>
</tr>
<tr>
<td>Sausage</td>
<td>3. V</td>
<td></td>
<td>C - Hot, or Cold</td>
</tr>
<tr>
<td>Asparagus</td>
<td>4.</td>
<td></td>
<td>D - Smells funny</td>
</tr>
<tr>
<td>Beans, green</td>
<td>5.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broccoli</td>
<td>6.</td>
<td></td>
<td>E - Taste it rest of the day,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>or makes one burp, or</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>causes bad breath</td>
</tr>
<tr>
<td>Celery</td>
<td>7.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Column I</td>
<td>Column II</td>
<td>Column III</td>
<td>Column IV - LIST OF REASONS FOR DISLIKING FOODS</td>
</tr>
<tr>
<td>----------</td>
<td>-----------</td>
<td>------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Collards</td>
<td>8.</td>
<td></td>
<td>F - No food value, or dangerous at certain times, in certain combinations.</td>
</tr>
<tr>
<td>Mustard greens</td>
<td>9.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cabbage</td>
<td>10.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turnip greens</td>
<td>11.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spinach</td>
<td>12.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lettuce</td>
<td>13.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Okra</td>
<td>14.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peas, green</td>
<td>15.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peppers, green</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carrots</td>
<td>17.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pumpkin</td>
<td>18.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Squash, Yellow</td>
<td>19.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potatoes, sweet</td>
<td>20.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grapefruit</td>
<td>21.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lemonade</td>
<td>22.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oranges</td>
<td>23.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tomatoes</td>
<td>24.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strawberries</td>
<td>25.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Onions</td>
<td>26.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corn</td>
<td>27.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apples</td>
<td>28.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bananas</td>
<td>29.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peaches</td>
<td>30.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pears</td>
<td>31.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pineapple</td>
<td>32.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prunes</td>
<td>33.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk, sweet</td>
<td>34.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk, evaporated</td>
<td>35.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buttermilk</td>
<td>36.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheese, yellow</td>
<td>37.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beef</td>
<td>38.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Column I</td>
<td>Column II</td>
<td>Column III</td>
<td>Column IV - LIST OF REASONS FOR DISLIKING FOODS</td>
</tr>
<tr>
<td>----------</td>
<td>-----------</td>
<td>------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>LIST OF FOODS</td>
<td>Feelings</td>
<td>Reasons</td>
<td>A - Sour, or Sweet, or Bitter</td>
</tr>
<tr>
<td>Pork</td>
<td>39.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chicken</td>
<td>40.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eggs</td>
<td>41.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liver</td>
<td>42.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>43.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shrimp</td>
<td>44.</td>
<td></td>
<td>B - Mushy, or Stringy, or Tough, or Smooth</td>
</tr>
<tr>
<td>Peas, black-eyed</td>
<td>45.</td>
<td></td>
<td>C - Hot, or Cold.</td>
</tr>
<tr>
<td>Beans, red</td>
<td>46.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beans, white</td>
<td>47.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soybeans</td>
<td>48.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nuts</td>
<td>49.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bread, white</td>
<td>50.</td>
<td></td>
<td>D - Smells funny</td>
</tr>
<tr>
<td>Bread, whole wheat</td>
<td>51.</td>
<td></td>
<td>E - Taste it rest of the day, or makes one burp, or causes bad breath.</td>
</tr>
<tr>
<td>Oatmeal</td>
<td>52.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rice</td>
<td>53.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Macaroni</td>
<td>54.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spaghetti</td>
<td>55.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Butter</td>
<td>56.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oleo</td>
<td>57.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. How many X's do you have in the numbers 4 through 20? __________
2. How many X's do you have in the numbers 21 through 25? __________
3. How many X's do you have in the numbers 26 through 33? __________
4. How many X's do you have in the numbers 34 through 37? __________
5. How many X's do you have in the numbers 38 through 49? __________
6. How many X's do you have in the numbers 50 through 55? __________
7. How many X's do you have in the numbers 55 and 57? __________

Are there any foods in your list marked X which you will not eat at home or at school, but would eat if you were visiting someone and they served it to you? __________

If so, please list them below:
The above evaluative device might well be incorporated in an introduction to a unit on nutrition to aid the teacher and pupils in selecting goals that are appropriate to the pupils' needs. For instance, the items 4 through 20 represent the leafy—green and yellow vegetables; items 21—25, the ascorbic acid foods; items 26—33, other fruits; items 24—37, milk products; items 38—49, meats, poultry and other proteins; items 50—55, cereal products; and items 56 and 57, fats. After students have checked the likes and dislikes in each of these groups both they and the teacher have identified the direction and intensity of the attitude. If the direction is negative toward a large number of foods in a specific group, the attitude becomes of critical importance to the teacher. However, when one or two foods within a general class are the only ones disliked, then the attitude is not likely to be as important. When the direction is known, the choice of "kind of" learning experiences needed is facilitated.

The base of the attitude may also be revealed by the use of the above device (See Column III). If students dislike essential groups of foods for reasons listed in Column III, then learning experiences may be chosen which teach students how to remove the dislike for the foods. This use of an evaluative device was seen to be effective in teaching in one school. Students who disliked some foods very much chose to experiment with different recipes using the food with the aim of finding a way to prepare this important food so someone else will like it. Several students prepared these foods in ways that the FFA boys "raved" about. The girls who worked on this project actually ate some of the foods with the boy judges and were reluctant to lower the food (at least publicly). From this experience, the writers believe that exploratory evaluative devices toward "attitudes" hold value as motivational procedures when incorporated in the teaching—learning process. Home experiences reported as an outcome of this method showed some parent change in attitudes. As a specific example, one student reported that her father had said, "It's the first time I ever liked cauliflower."

It is indeed difficult to determine with certainty whether, during the course of instruction, students develop beliefs concerning the importance of following practices that are sound from a health and nutrition standpoint. The test constructor is confronted with the possibility that the public attitude of the student (what the student leads the teacher to believe he believes) may diverge from his private attitude (what he really believes). The task of developing a projective test in which the testee will unconsciously reveal his private attitudes is time consuming and requires considerable psychological insight and technical skill. Perhaps the use of anecdotal records provide a more practical means through which the teacher may evaluate changes in beliefs and values of the student.

In an anecdotal record the teacher makes a brief written description of an incident that he observes in the life of the student. The anecdote tells exactly what the child did or said, describes concretely the situation in which the behavior occurred and what other people did or said. It avoids evaluative or interpretive statements concerning the incident reported. An accumulation of such anecdotal records over a
period of time provide one basis for evaluating student development. In order to evaluate students' beliefs concerning the importance of following practices that are sound from a health and nutrition standpoint, the teacher would record all incidents that would appear relevant to students' beliefs and values concerning nutrition and health.

A work of caution is in order. The foregoing description of the use of anecdotal records as a means of evaluating changes in beliefs and values of the students requires considerable skill and psychological insight on the part of the teacher. Teachers who wish to add to their repertoires of teaching skills, an ability to use anecdotal records effectively, may profitably study a text such as "Helping Teachers Understand Children", 1

Evaluation of Food Habits

For many teachers of nutrition in the elementary and secondary school, the improvement of food habits is the most important instructional objective in nutrition education. Certainly a fine instructional job has been performed when the improvement of the food habits of the child represents a deliberate attempt on the part of the child to utilize his understandings in nutrition in order to maintain or improve his health.

The seven-day food record is a method frequently used to evaluate the food intake of students. Appendix B contains a copy of the food record form that has been used in research at the Louisiana State University Agricultural Experiment Station. The student is given one form for each of the seven days and asked to record each food that he consumes over a period of a week. It is necessary to explain the form carefully to students at the beginning of the week in which the record is to be kept and instruct students to jot down what they eat immediately after each meal. It is highly desirable to provide a few minutes classroom time each day to allow students to fill in or check their forms. At the end of the week the filled in forms may be scored in terms of servings of protective foods. A maximum of 17 points could be earned by a student for one day by alloting one point per serving for each of the following:

<table>
<thead>
<tr>
<th>Food</th>
<th>Servings</th>
<th>Food</th>
<th>Servings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green leafy vegetables</td>
<td>1</td>
<td>Milk</td>
<td>4</td>
</tr>
<tr>
<td>Whole grain cereal or bread</td>
<td>3</td>
<td>Egg</td>
<td>1</td>
</tr>
<tr>
<td>Butter or fortified margarine</td>
<td>3</td>
<td>Fruit (non-citrus)</td>
<td>1</td>
</tr>
<tr>
<td>Potato (Irish or Sweet)</td>
<td>1</td>
<td>Fruit (citrus)</td>
<td>1</td>
</tr>
<tr>
<td>Other vegetables</td>
<td>1</td>
<td>Meat</td>
<td>1</td>
</tr>
</tbody>
</table>

The use of the seven-day food record may be of value in a number of ways. It provides a means through which students can evaluate their own diets. It can serve to identify general deficiencies in the diets of a class as a whole and thus provide a direction for further instruction. It can, when administered on successive years provide a basis for determining whether or not students' food habits are improving. To use food habit records for this latter purpose, it is necessary to make certain that the conditions under which the records are administered are similar - i.e., given to the same students, instructions identical, given at the same season of the year, etc.

The food habits of the young often depend on the food habits at home. The kinds of foods purchased, grown, prepared and served; the attitudes of other family members toward specific foods often form the base of the students habits. For this reason, in the opinion of the writers the food habit record may best serve the purposes of the school when combined with the evaluation of other forms of student development. Food habit records may provide evidence that students improve the quality of their food intake. An important question that remains to be raised is "Why has the student improved?" In an authoritarian classroom, the change may merely represent a conformity (real or faked) to the expectancies of the teacher. If, on the other hand, as a result of instruction within a democratic classroom, the student deliberately corrects his faulty food habits on the basis of increased understandings in nutrition and as a means of maintaining or improving his health - then the change of food habits may represent an important development in the student to direct his own life in a mature manner.
APPENDIX A

TEST ITEMS - KNOWLEDGE AND INTELLECTUAL ABILITIES

The test items included in this section of the booklet are classified under the four competencies listed on pages 24 -- 28. The classification is arbitrary. Many test items, classified under one competency, are directed toward objectives that are relevant to other competencies.

A. Planning Nutritious Meals

Basic to the development of this competency is the development of understandings of the relationship between:

1. Sources of food nutrients (foods such as oranges, meat, bread).
2. Food nutrients (such as Vitamin C, protein, carbohydrates).
3. Functions (such as supplying energy, building muscles).

Six types of problems can be generated to test the students' understandings between the three classes of information.

Type 1 - GIVEN: (1) SOURCE (a food).
(2) Food NUTRIENTS.

REQUIRED: To select the food nutrient in which the given food is a good source.

EXAMPLES:

1. Fortified oleomargarine is a good source of:
   A. Carbohydrate and Vitamin C.
   B. Carbohydrate and protein.
   C. Fat and iron.
   X D. Fat and Vitamin A.
   E. Protein and thiamine (Vitamin B₁).

2. A daily serving of citrus fruit is recommended because:
   A. Citrus fruits prevent colds.
   B. Citrus fruits promote the flow of digestive juices.
   X C. Citrus fruits are an excellent source of ascorbic acid (Vitamin C).
   D. Citrus fruits are one of the inexpensive foods.
   E. Citrus fruits are good sources of Vitamin A.

3. Fish help to supply the needed amounts of:
   X A. Iodine
B. Carbohydrates
C. Ascorbic acid (Vitamin C).
D. Iron
E. Cellulose.

4. Carrots are considered a very good source of:

A. Complete protein
B. Ascorbic acid (Vitamin C).
C. Thiamine (Vitamin B₁).
D. Fat
E. Vitamin A in the form of carotene.

5. Cooked turnip greens supply in a form the body can utilize, large quantities of:

A. Fat
B. Iron, Vitamin A, ascorbic acid (Vitamin C)
C. Phosphorus, thiamine (Vitamin B₁), riboflavin (Vitamin B₂)
D. Incomplete protein.
E. Carbohydrate

6. Molasses is principally a carbohydrate food but it does supply considerable amounts of:

A. Protein
B. Calcium
C. Iron
D. Ascorbic acid (Vitamin C)
E. Vitamin A

7. Whole milk is considered an excellent source of:

A. Vitamin K
B. Vitamin A
C. Ascorbic Acid (Vitamin C)
D. Vitamin E
E. Thiamine (Vitamin B₁)

8. Buttermilk is a rich source of:

A. Fat
B. Ascorbic acid (Vitamin C)
C. Thiamine (Vitamin B₁)
D. Riboflavin (Vitamin B₂)
E. Vitamin A

9. Cornflakes are primarily a good source of:

A. Carbohydrates
B. Complete protein
C. Vitamin A
D. Thiamine (Vitamin B₁)
E. Ascorbic acid (Vitamin C)
10. Strained green leafy vegetables are added to the infant's diet of milk to supplement his supply of:

A. Ascorbic acid (Vitamin C)
B. Fat
C. Vitamin D
D. Iron
E. Carbohydrate

Type 2 — GIVEN: (1) SOURCE (a food)
(2) FUNCTIONS

REQUIRED: To select the function served by the given food

EXAMPLES:

1. The body uses the food nutrients supplied by eggs:
   X A. To supply fuel
   B. To build and maintain blood, muscle, and bone.
   C. To prevent goiter
   D. To prevent scurvy

2. Cheese and meat are used interchangeably as main dishes in meals because:
   X A. They are both animal products
   B. Each contains bodybuilding substances
   C. It is desirable to provide variety in the diet
   D. Both foods are nutritious
   E. Both foods are excellent sources of Vitamin C

3. The lean meat in the diet supplies certain nutrients which the body uses to:
   X A. Supply fuel
   B. Build body tissue
   C. Prevent scurvy
   D. Build up reserve supplies of Vitamin D
   E. Promote muscular activity of the digestive tract

Type 3 — GIVEN: (1) Food NUTRIENT
(2) SOURCES (foods)

REQUIRED: To select the best source for the given food nutrient.
EXAMPLES:

1. Vitamin C is found in abundance in:

A. Most fruits and vegetables
X B. Citrus fruits
C. Milk and milk products
D. Most meats

2. Foods richest in iron are:

A. Legume vegetables
B. Breadstuffs
X C. Liver and lean meat
D. Carrots and leafy vegetables

3. The best source of Vitamin A among the following foods is:

A. Meat and poultry
B. Tomatoes
C. Starchy vegetables
X D. Carrots

4. An average serving of which of the following foods would be the richest source of riboflavin (Vitamin B₂)

A. Milk (1 glass)
B. White potato (1 medium)
X C. Liver (1 slice)
D. Bacon (2 slices)
E. Oranges (1 medium)

Type 4 - GIVEN: (1) Food NUTRIENT
(2) FUNCTIONS

REQUIRED: To select the food nutrient that serve the given function

EXAMPLES:

1. Which mineral is needed by the body to make strong bones and teeth?

A. Iodine
X B. Calcium
C. Carbon
D. Iron
E. Sulphur
2. A small amount of what food substance supplies the body with a large amount of heat and energy?

A. Carbohydrates  
B. Proteins  
X C. Fats  
D. Roughage  
E. Minerals

3. This mineral is needed for the blood. It helps the blood to carry oxygen to the lungs.

A. Iodine  
B. Calcium  
C. Carbon  
X D. Iron  
E. Sulphur

4. Which one of the following kinds of food substance is needed in building muscles in the body?

A. Carbohydrates  
X B. Proteins  
C. Fats  
D. Water  
E. Minerals

5. Which one of the following food substances more quickly furnishes the body with heat and energy?

X A. Carbohydrates  
B. Proteins  
C. Roughage  
D. Minerals  
E. Vitamins

6. Sore and bleeding gums may be caused by a lack of foods containing:

A. Protein  
B. Iron  
C. Calcium  
D. Vitamin B₁  
X E. Vitamin C

7. Why is it necessary to eat a certain amount of roughage each day?
A. It supplies the body with heat and energy
B. It is a body builder
C. It promotes a bowel movement every day
D. It is needed to form red blood cells
E. It keeps the eyes healthy.

8. Growth if held back and certain eye defects may be caused by a lack of foods containing:

X A. Vitamin A
    B. Carbohydrates
    C. Vitamin C
    D. Iron
    E. Calcium

9. Rickets and poorly formed bones in the body may be caused by a lack of what vitamin?

    A. Vitamin A
    B. Vitamin B
    C. Vitamin C
    D. Vitamin D
    X E. Vitamin G

Type 6 - GIVEN: (1) FUNCTION (2) SOURCES (foods)

REQUIRED: To select the food that will serve the given function

EXAMPLES:

1. Which food has a large amount of two of the food substances needed by the body to make strong bones and teeth?

    X A. Milk
    B. Oranges
    C. Bread
    D. Meat
    E. Butter

2. Which is the food that is sometimes called the perfect food? It is rich in minerals and vitamins. It supplies us with energy and helps us grow.

    X A. Milk
    B. Bread
    C. Meat
    D. Eggs
    E. Spinach
3. Which food supplies the body with a food substance needed for the red cells of the blood?

A. Butter  
B. Oranges  
X C. Liver  
D. Beets  
E. Celery

4. Which food is the cheapest to buy for energy?

A. Green vegetables  
X B. Bread  
C. Fruits  
D. Lean meat  
E. Eggs

5. A small amount of this food supplies a large amount of heat and energy to the body.

A. Milk  
B. Spinach  
X C. Butter  
D. Orange  
E. Lean meat

The following problem situation, developed by Mrs. Kathryn Mackensen for use in the Louisiana State University Laboratory School, is illustrative of:

(1) Test items in which the student is required to apply a knowledge of sources of food nutrients in planning diets for specific individuals and groups.

(2) The subsequent application of the principles included in the test items to the solution of the individual student's concerns in the nutrition area.

A TYPICAL AMERICAN FAMILY

THE SMITHS

Mr. Smith, the daddy is 40 years old. He works as a carpenter and is very active.

Mrs. Smith, the mother, is 36. She does all her own house work. She plans, prepares, and serves her family meals.

Jane Smith, is 14 years old and is in the eighth grade. She is very active in the high school sports and also helps her mother with the house work.
Bob Smith, is 10 years old and is in the fourth grade. He is also very active in sports. He keeps the lawn mowed and the yard clean. Bob is just recovering from the measles.

Jack Smith, is 3 years old. He is a "run-about". He is growing rapidly just like Jane and Bob.

Mrs. Smith is often distressed because the children suffer from faulty elimination, which shows up in the condition of Jane's skin and Bob's disposition.

In Home Economics Jane had learned that the body requires specific nutrients each day to stay healthy and happy. Jane brought home a list of the types of foods essential for the day's diet for one person. She and her mother replanned this list to satisfy the daily needs of the Smith family.

Below there are two lists labeled I and II. I is the list of foods Jane and her mother made for their family's daily needs. Number II is a list of the reasons why they included these foods. Match the foods in I with the ones which best satisfy the reason in II. Write your answer in the blanks on the left side of II. The number of blanks indicates the number of best answers.

LIST I. Foods Jane and her mother listed as essential for their family's daily needs.

1. Four quarts of milk
2. Three vegetables, including one raw, one green leafy and one starchy (more of the starchy vegetable for the father).
3. Two fruits, including one citrus fruit
4. One egg dish
5. One meat or fish dish
6. Two servings of whole grain cereals
7. Butter (or enriched oleo) as desired
8. One serving of dessert
9. Seven or more glasses of water each day per member
10. Some soft and easily digested foods

LIST II. Reasons for foods listed as essentials for the Smith family

Reasons based on individual needs of each member of the family

10. For Bob who is convalescent and for Jack who needs foods that are easily digested

6. To combat faulty elimination

2. To supply the father with extra energy foods

Reasons based on general nutrition needs of any human being

10. For Bob who is convalescent and for Jack who needs foods that are easily digested

6. To combat faulty elimination

2. To supply the father with extra energy foods
2. To supply Vitamins A, B, C, Carbohydrates, Iron, and Cellulose

3. To supply Vitamin C and to stimulate appetite.

1. To supply calcium, phosphorus, some iron, and vitamins

6. To supply carbohydrates for energy and Vitamin B₁

7. To supply Vitamin A and energy and to add flavor to certain foods.

5. To supply complete protein and iron

6. To supply extra energy foods and add finishing touches to the meal

Following the administration of the foregoing test the students were asked to give data relative to the nutritional needs of their own family and to plan diets to satisfy these needs. The following was used to aid the student in focusing on the important considerations.

**MY FAMILY**

III. Data concerning My Family which will help me plan nutritious menus

<table>
<thead>
<tr>
<th>Members of My Family</th>
<th>Age of Each Child</th>
<th>State of Health</th>
<th>Occupation</th>
<th>Other data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

IV. (a) Make a list of the foods your family needs daily to be adequately fed. (b) In terms of nutrients contained in the foods, explain your reason for putting each food into your list.

For example:

**FOODS**

(State the amount for number of servings.)

The performance of the students in the above activity provided evidence to both students and teacher of the nature of the next appropriate learning experiences.

The following set of items were designed to test the student's ability to evaluate menus in terms of color, cost, preparation time, use of cooking fuel, and suitability for small children.
Jane helped her mother to plan some menus for dinner. Below are the menus which they considered. You are to judge each as to color, cost, preparation time, suitability for small children, and use of cooking fuel.

<table>
<thead>
<tr>
<th>Menu</th>
<th>Description</th>
</tr>
</thead>
</table>
| No. 1 | Hamburger Steaks  
 Mashed Potatoes  
 Buttered Cabbage  
 Enriched Bread and Margarine  
 Grapefruit and Orange salad  
 Vanilla Pudding  
 Milk |
| No. 2 | Smothered Round Steak with Onions  
 Baked Potatoes  
 Creamed Cauliflower  
 Whole Wheat Rolls and Butter  
 Perfection Salad (shredded cabbage and pimiento in gelatin)  
 Quick Mix Chocolate Cake  
 Milk |
| No. 3 | Fried Ham with Gravy  
 Buttered Frozen Corn  
 Asparagus Tips  
 Hot Rolls and Butter  
 Peach and Cottage Cheese Salad  
 Frozen Strawberries and Whipped Cream  
 Milk |

Place the number of the menu in the blank beside the words which best describe the characteristics of the menu.

3. A. Most colorful  
1. B. Least colorful  
3. C. Most expensive  
1. D. Least expensive  
2. E. Takes most time to prepare  
1. F. Takes least time to prepare  
1. G. Better for small children  
2. H. Uses most cooking fuel  
3. I. Uses least cooking fuel

The following problem situation is designed to test the ability of the student to plan special occasion meals.

**Meal Planning:**

**OBJECTIVE:** Ability to plan special occasion meals

**GIVEN:** (1) A situation in which characteristics of one type of special occasion meal are described.

(2) A list of various foods to be used in planning various parts of the meal.

**REQUIRED:** To select the food in each part of the menu which will best meet the characteristics desired.

**Situation:** Jane has invited five girls and six boys to a buffet supper after a game in January. Jane plans to attend the game with her friends. She wishes to have an attractive, well-balanced meal at moderate cost and to have one with little last minute preparation. Her mother will be home during the evening but Jane does not want to have her kept busy in the kitchen.

**Directions:** In the blank to the left, place the letter which represents the food which will best meet the characteristics desired.

2. Main dish  
A. Individual broiled steaks
B. Macaroni and cheese casserole
C. Casserole of creamed chicken
D. Baked fish

D 2. Salad
A. Mixed fresh fruit (apples, oranges, grapefruit).
B. Molded shapes of gelatin salad (grated carrots, apples, celery).
C. Stuffed egg salad.
D. Mixed fresh vegetables (lettuce, carrot sticks, celery, radishes).

D 3. Bread
A. Crisp corn sticks
B. Variety of dainty sandwiches
C. Hot cheese toast
D. Hot rolls (bought at bakery).

D 4. Dessert
A. Pineapple ice-box cake with whipped evaporated milk
B. Vanilla ice cream with fudge sauce and sugar cookies
C. Variety of fresh raw fruits (apples, grapes, and oranges)
D. Hot peach pie with hard sauce.

Give your reasons for your choice of food and your reasons for rejecting the other foods in each of the dishes. Explain why you chose:

1. The main dish
2. The salad
3. The bread
4. The dessert

Example of kind of response expected from student in explaining their choices:

1. Main dish
   a. Steaks eliminated on basis of cost and preparation schedule
   b. Macaroni and cheese casseroles deteriorate in texture when held over a time and are re-heated.
   c. Casserole of creamed chicken may be prepared earlier and held without deterioration for several hours.
   d. Baked fish may be expensive, and less palatable when held for several hours before serving.
The form of the above test items is worthy of note. The first part of the test exercise -- i.e., the four multiple choice items -- serves the purpose of providing the setting for a well-focused essay question.

B. Food Preparation

Examples of tests designed to evaluate understandings, intellectual abilities in food preparation.

One General Objective: Understanding effect of physical and chemical actions on the nutritional and aesthetic qualities of the ready-to-serve food product. Achievement of this general objective may be evaluated through evaluation of achievement of specific objectives.

I. Specific Objective: To judge the nutritional value of foods prepared by various methods.

GIVEN: Descriptions of methods which may be used in preparing specific foods.

REQUIRED: To choose the method which preserves the most food value. Place an (X) in the blank to the right of the best choice.

A. Which cole slaw salad would have the highest food value? The salad made of:

1. Green cabbage ground in a meat chopper an hour before serving time and held at room temperature.

2. Green cabbage shredded with a knife, seasoned, and served immediately.

XM 3. White cabbage shredded an hour before serving time and stored in the refrigerator.

4. White cabbage grated and placed on the serving table thirty minutes before serving time.

NM 5. Green cabbage shredded an hour before serving time and stored in the refrigerator until serving time.

B. Which method of cooking dried peas and beans would preserve the greatest nutritive value?

1. Add soda, cook without soaking in enough water to cover until tender.

NM 2. Soak overnight, drain off water in which beans were soaked, add fresh water, season, cook until tender.

3. Cook in deep fat.

XM 4. Soak in warm water for four hours. Season and cook in water in which beans have been soaking until tender.

5. Soak overnight in water to which soda has been added, drain off water, add fresh water, season, cook until tender.
C. When cooking frozen lima beans, to save nutrients:

1. Thaw out the vegetable before cooking.
2. Place them in boiling water without thawing.
3. Place frozen beans in cold water, then boil.
4. Add soda while cooking to get them soft in as short a time as possible.

D. Which of the following methods will preserve the greatest nutritive value of cabbage?

NM 1. Cook in a large amount of water in an uncovered vessel.
2. Boil, drain off water, and add more water then continue cooking at low temperature.
X 3. Boil in an uncovered vessel until tender.
4. Season with salt pork, add a small quantity of water, cover, and cook slowly until pork is thoroughly done.
5. Boil in a large amount of water until the leaves are wilted well, pour off water, and simmer in a pan for one hour.

E. Which of the following procedures in making vegetable salads is the best to use in order to preserve the maximum nutrients?

X 1. Use as soon as possible after they have been harvested.
NM 2. Wash and store in towels or covered containers in the refrigerator.
3. Soak in ice water before serving.
4. Marinate vegetables in salad dressing as soon as possible.

II. Specific Objective: To understand the effect of food preparation processes on the aesthetic qualities of the ready-to-serve food.

GIVEN: Description of food preparation processes which may affect the palatability of ready-to-eat products.

REQUIRED: To choose the process which will produce the most palatable food. Place an (X) in the blank to the right of the best choice.

A. To obtain the most palatable product in preparing

1NM represents a Near Miss — a response that is a fairly good answer but not as good as the correct response. See page 32.
a prime rib roast with least loss of juices:

1. Cook in a hot oven for entire cooking time (435 degrees).
2. Sear it in a very hot oven (450 degrees) until brown, then finish cooking at 150 degrees.
3. Cook in a slow oven (300-325°) for the entire cooking period.
4. Cook in Dutch oven on top of the stove at boiling temperature.
5. Sear it on top of stove and cook in a moderate oven (350°).

B. To make smooth chocolate fudge or icing, always:

1. Beat the mixture slowly until it hardens.
2. Wait until the mixture cools before beating.
3. Add a few drops of water all during the cooking.
4. Scrape the sides of the pan during cooking.

G. Which two of the following procedures for making white sauce will each produce a smooth sauce?

1. Stir the flour into the heated milk and then add the butter.
2. Melt the butter, add the flour then add the milk gradually and cook until thick.
3. Add the flour directly to the hot liquid.
4. Stir the flour into a small amount of cold milk, add the rest of the milk to the mixture, cook for 5 minutes after it comes to the boiling point, then add the butter.
5. Mix flour into 1/4 of the cold milk. Add remainder of the milk to the mixture; cook, stirring constantly, until mixture thickens. Add butter.

D. In order to prevent quick-cooking rolled oats from becoming mushy, the best method to use is:

1. Wash, as rice, before stirring into boiling, salted water.
2. Cook in a large amount of water, drain then pour cold water over it.
3. Cook in salted, boiling water, stirring frequently, for several minutes, reduce flame and continue cooking process until cereal is done.
4. Pour cereal into salted, boiling water and stir continuously over direct flame until cereal is done.

E. In order to make an apple pie with crisp, tender crust the most important thing to do is:
1. Knead the pastry dough to develop the gluten.
2. Remove the peelings from the apples.
X 3. Stop the addition of moisture to pastry mixture whenever the fat and flour particles have blended enough to hold together in one mass.
NM 4. Always add the exact amount of fat called for in the recipe for the pastry.

F. Which of the following procedures in making vegetable salads is the best to use to produce a crisp salad?

1. Using the vegetable as soon as it comes from the market.
X 2. Washing and storing fresh vegetables in towels or a covered container in the refrigerator.
NM 3. Soaking the fresh vegetables in cold water before using them in a salad.
4. Marinating vegetables in salad dressing.

III. Specific Objective: To be able to relate cause and result in food preparation.

GIVEN: Either a result or a cause in food preparation.

REQUIRED: To relate cause to effect.

A. What is the most undesirable change which will take place when a four pound loin roast is baked at 4500 F. for two hours?

1. The roast will become rare.
2. The roast will become very tender.
X 3. The roast will loose an appreciable amount of juice.
4. The heat will seal in the juices.
NM 5. The roast will weigh more raw than cooked.

B. The crust of the butter cake which Mary made in class was peaked, cracked, and lacked uniformity in shape. What is the most likely cause of these factors?

1. Using general purpose flour.
2. Using too much sugar.
X 3. Using too low a temperature in baking.
4. Using too high temperature in the first of the baking period.
5. Using a poor size pan for the amount of batter.
NM 6. Using too high temperature throughout the baking period.
C. The butter cake that Edith made fell in the center and was heavy. It was irregular in shape. These faults are likely to be caused by:

1. Substituting an equal amount of another kind of fat for the butter.
2. Having uneven heat in the oven.
3. Using too much sugar
4. Using too little baking powder.
5. Measuring the sugar inaccurately.

D. Which of the following procedures is *most likely* to prevent yeast rolls from rising?

1. Using too much shortening in relation to liquid.
2. Using liquids at temperature above 98°F in the mixing process.
3. Using more salt than specified by the recipe.
4. Using the wrong kind of baking powder.

E. Yeast is able to act as a leavening agent in flour mixtures because:

1. It is a one-celled plant.
2. It reproduces by budding.
3. It requires food and warmth for growth.
4. It liberates carbon dioxide as it grows.
5. It requires starches and sugars for its growth.

F. In baked breads, the leavening agent used is *most likely* to determine:

1. Lightness in weight of the bread.
2. Lightness in color of the bread.
3. Crispness in the bread.
4. Toughness in the bread.
5. Size of cells in the bread.

G. Which of the following leavens is *most responsible* for the leavening of popovers?

1. Carbon dioxide.
2. Air.
3. Steam.

H. Eggs are used in many recipes for various reasons. What is the *principle reason* for using eggs in making croquettes?
1. They add food value.
2. They act as a binding agent.
3. They leaven the food used in the croquettes.
4. They are usually available.

General Objective: Understanding terms often used in food preparation.

Specific Objective: To be able to recognize definition of food preparation terms.

GIVEN: A list of terms often used in food preparation (Column II).
A list of definitions of various terms often used in food preparation (Column I).

REQUIRED: Match the term to the best definition of that term.
Definition A, below, is an example to show how to write your answers. Four has been placed in the answer space because definition A is a definition of (4), braise.

<table>
<thead>
<tr>
<th>Column I</th>
<th>Column II</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Part I. Definitions</strong></td>
<td><strong>Part I. Terms</strong></td>
</tr>
<tr>
<td>4 A. To brown meat in a hot pan in a small amount of fat, add liquid (or cook in its own juices), cover closely and cook slowly.</td>
<td>(1) Simmer</td>
</tr>
<tr>
<td>6 B. To boil for a short time before cooking by another method.</td>
<td>(2) Boil</td>
</tr>
<tr>
<td>1 C. To cook in water which is barely bubbling.</td>
<td>(3) Roast</td>
</tr>
<tr>
<td>5 D. To cook by direct heat from hot coals, a gas flame, or electric element.</td>
<td>(4) Braise</td>
</tr>
<tr>
<td>2 E. To cook in water which is bubbling rapidly.</td>
<td>(5) Broil</td>
</tr>
<tr>
<td>3 F. To cook uncovered in the oven.</td>
<td>(6) Parboil</td>
</tr>
</tbody>
</table>

**Part II. Definitions**

| 4 A. To combine fat and sugar, mixing well until light and fluffy. | (1) Cut in |
| 3 B. To mix dough with hands. | (2) Fold |
| 1 C. To combine fat with dry ingredients with a pastry blender or two knives. | (3) Knead |
| 2 D. A method of combining ingredients with egg whites to incorporate air. | (4) Cream |

**Part III. Definitions**

| 5 D. To remove fruit or vegetable skins without a knife. | (1) Marinate |
| 4 E. To remove fruit or vegetable skins with a knife. | (2) Saute |

| 2 B. French word meaning to panfry in small amount of fat. | (3) Fricassee |
| 3 C. To cook until tender and serve with gravy made from stock. | (4) Pare |
| 5 D. To remove fruit or vegetable skins without a knife. | (5) Peel |

| 4 E. To remove fruit or vegetable skins with a knife. | **Part III. Terms** |
C. Serving

I. Specific Objective: Ability to judge materials and containers for use as centerpieces for informal meals.

GIVEN: A series of descriptions of containers and materials which may be used for centerpieces at meals.

REQUIRED: Choose one series (A, B, C or D) which offers the best suggestions for centerpiece arrangements. Place a (0) zero, in the blank to the left of each series you reject, and place an X (X-mark) in the blank to the left of the best choice.

0 A. A long stem rose, zinnias in a tall vase, or gladiolas.
X B. A bowl of ivy, an arrangement of fruit, or baby zinnias in a low bowl.
0 C. A low bowl of marigolds, a floating arrangement of cape jasmines, or a bowl of pinks.
0 D. An arrangement of evergreens around tall tapering candles.

In Column I below, circle the letters which you marked with a 0 (zero) above. In Column II, give the reason for your rejection of each.

Column I

Letters representing series above:

A
B
C
D

II. Specific Objective: To be able to choose topics of conversation better suited to meal time than some other topics.

GIVEN: Descriptions of topics sometimes discussed at family meals.

REQUIRED: Place a zero (0) in front of the topics which are often unsuited for mealtime conversation. Place an X (X-mark) in front of the kind of topic which is likely to be most satisfactory to family members.

0 A. Reasons for children coming home late last night.
0 B. The health of the pet dog.
X C. Pleasant happenings of the day.
0 D. The high cost of groceries
0 E. The quality of the cooking on the table.

Answers:
a. Each is too tall
b. Each may have a distinct odor
c. Candles too tall
In Column I below, circle each letter which represents a topic above which you rejected. In Column II, circle the best reason for your rejections of topics.

<table>
<thead>
<tr>
<th>Column I</th>
<th>Column II</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A)</td>
<td>1. Food is not easily digested</td>
</tr>
<tr>
<td>(B)</td>
<td>when people are emotionally disturbed.</td>
</tr>
<tr>
<td>C</td>
<td>2. Food is not easily digested when people are physically disturbed.</td>
</tr>
<tr>
<td>(D)</td>
<td>3. Boresome topic to some people.</td>
</tr>
<tr>
<td>(E)</td>
<td>(Reasons)</td>
</tr>
</tbody>
</table>

III. **Specific Objective:** Knowledge of conventional table manners.

**GIVEN:** A list of practices observed in various situations.

**REQUIRED:**
1. Place an X (X-mark) in the blank to the left of the practices which are conventionally approved.
2. Place a 0 (zero) in the blank to the left of practices which are usually considered least desirable.

**Use of Napkins:**

0 Unfold large napkin completely and place it on lap.
0 Tuck napkin under belt to keep it from slipping from the lap.
X Unfold large napkin to half-size and place it in the lap.
X Refold napkin after meals at home.
X Pick napkin up from lap at about the center of the napkin and place it on the table to the left of the dessert plate after the meal.
0 Let napkin fall to the floor following the meal.
0 Use the edge of the table cloth to wipe finger tips.

**Seating Arrangements:**

1. In a group of two unmarried couples in a restaurant it is most polite for the women to sit:

X Facing each other
X To the right of their partners
0 To the left of their partner
0 Facing one of the men
0 Anyway they want to.

2. When seating guests in your own home at a dinner table, the conventional pattern followed to seat the guests is:

X The oldest or more important woman guest to right of the host
X The oldest or more important man guest to the right of the hostess
0 If there are two men and one woman, place the two men side by side.
X If there are two women and one man, the man sits between the women.
3. If a woman comes to the table when a woman is eating with her date in a restaurant, it is polite for the woman to -

X ___ Remain seated, unless the woman is very old
X ___ Remain seated
O ___ Stand up
X ___ Introduce her to her date if she likes
X ___ Invite her to be seated if she stays for any length of time.
O ___ Tell her to run along so that one can continue eating
X ___ Introduce her to the date if she has been invited to be seated.

4. When a boy is helping you to be seated, it is gracious for you to -

X ___ Enter your chair from your left as you face the table
O ___ Enter your chair from your right as you face the table
X ___ Seat yourself if you see he does not know how to help you
O ___ Stand by your chair until he catches on
X ___ Say "thank you" as you are being seated
O ___ Say nothing so everyone can see that you are used to being helped
X ___ As you are being seated, place your fingers under the edge of the chair seat and help guide the chair to the table
O ___ Always seat yourself without help, it saves time and trouble and it is old-fashioned to be helped

5. If you enter a restaurant alone and see a boy and girl friend eating at a table it is most polite for you to -

X ___ Speak politely and go on your way
O ___ Speak politely and visit with them for a few minutes
X ___ Be seated if they invite you to and you would like to
O ___ Refuse to join them even if you would like to
O ___ Try to impress the boy so that he can see what nice friends his date has

Habits when eating:

1. When eating soup, one is acting politely if one:

X ___ Dips the spoon away from self if the soup is all liquid
X ___ Dips the spoon toward self if there are solids in the soup
X ___ Drinks the soup if it is served in a dish with handles
O ___ Never drinks soup regardless of how it is served
O ___ Breaks bread or crackers into the soup
O ___ Makes a little noise in eating the soup
X ___ Tips the soup plate away from self, to empty the plate completely.
2. When eating salads:

- Cut it with a knife, if you like.
- Cut it all up at one time.
- Cut a few bites only.
- Never cut it with a knife.
- Leave the salad fork on the dinner plate not on the salad plate.
- Eat olives, radishes, celery curls with the fingers.
- Place the entire olive, radish or celery curl in the mouth at one
time. They are round and easy to drop.
- Leave the salad fork on the salad plate with the tines up.
- Leave the salad fork on the salad plate with the tines down.
- The salad to your left is usually yours whenever individual
salad plates are used at the table.

3. If you drop food on your clothes, it is least embarrassing to all
if you –

- Remove it immediately and make no comments.
- Ignore it.
- Remove it immediately and apologize for being so clumsy.
- Treat it as a joke and try to get everyone else to laugh.

4. Specific Objective: Knowledge of conventional practices in setting
the table.

GIVEN: Jane and Stan wish to set the table in the conventional way.
Below in Column A is a list of dishes, glassware and silver to
be used. In Column B possible positions are indicated.

REQUIRED: Place the number corresponding to desired position for each
item listed in Column B.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Knife</td>
<td>(1) to the left of the bread and butter plate.</td>
</tr>
<tr>
<td>B. Bread and butter plate</td>
<td>(2) to the right of the spoon.</td>
</tr>
<tr>
<td>C. Teaspoon</td>
<td>(3) to the right of the plate</td>
</tr>
<tr>
<td>D. Water glass</td>
<td>(4) to the right of the knife</td>
</tr>
<tr>
<td>E. Salad plate</td>
<td>(5) to the left of the plate</td>
</tr>
<tr>
<td>F. Fork</td>
<td>(6) at the tip of the knife</td>
</tr>
<tr>
<td></td>
<td>(7) at the tip of the fork.</td>
</tr>
</tbody>
</table>

GIVEN: A list of statements and phrases relating to table setting
and service.

REQUIRED: Place an X (X-mark) in the blank to the left of each phrase
which correctly completes the statement. Place a 0 (zero)
in the blank to the left of each phrase which completes the
statement incorrectly.
An "individual cover" is a phrase conventionally used to designate.

A. all the dishes on the table.
B. the linen and silverware on the table.
X 6. all appointments used by one person
D. a silence cloth for the table.

D. Management

General Objective: To develop the ability to organize work.

I. Specific Objectives: (1) Ability to work in a sequence producing the best quality of food nutritionally.
   (2) Ability to work in a sequence which saves time and energy.

GIVEN: (1) The story of Mrs. Smith
       (2) Tasks to be done (Column B)
       (3) Estimates of time (Column A)

REQUIRED: To indicate in blanks in Column A the time when each task should be done in order to serve the most nutritious food and to conserve time and energy.

Story: At 10 o'clock in the morning, Mrs. Smith receives a telephone call from Mrs. Jones. Mrs. Smith invites Mrs. Jones and her four-year-old son to visit her at 3 o'clock that afternoon. At 12 noon Mrs. Smith must serve dinner to her family. She decides to serve cupcakes and lemonade to her afternoon guests. Mrs. Smith has already done her general housecleaning.

<table>
<thead>
<tr>
<th>Column A - Estimates of Time</th>
<th>Column B - Tasks to be done</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. 10:00 - 10:15 A.M.</td>
<td>(1) Straighten kitchen.</td>
</tr>
<tr>
<td>B. 10:15 - 10:45</td>
<td>(2) Make cupcakes.</td>
</tr>
<tr>
<td>C. 10:45 - 11:45</td>
<td>(3) Wash dinner dishes.</td>
</tr>
<tr>
<td>D. 12:45 - 1:00 P.M.</td>
<td>(4) Make lemonade.</td>
</tr>
<tr>
<td>E. 1:00 - 1:50</td>
<td>(5) Check on needed supplies for refreshments.</td>
</tr>
<tr>
<td>F. 1:50 - 2:10</td>
<td>(6) Prepare dinner.</td>
</tr>
<tr>
<td>G. 2:10 - 2:20</td>
<td>(7) Wash equipment used in making cupcakes.</td>
</tr>
<tr>
<td>H. 2:20 - 2:25</td>
<td>(8) Go to the grocery if necessary.</td>
</tr>
</tbody>
</table>

II. Specific Objective: Ability to solve problems often met in preparing nutritious menus in a short time

Situation: Below is a copy of a menu which one girl tried to prepare in one hour. She was very late with the meal. Her kitchen was equipped with a 4-burner, 1 oven gas range, a refrigerator, a freezer, sink and cabinets.

GIVEN: (1) Copy of menu
       (2) List of changes
       (3) List of reasons for changes
REQUIRED: (1) Replan menu so that it can be prepared in one hour.

(2) Retain nutritive values similar to the original menu.

(3) Give reasons for your choice of changes.

Directions: In Column I, place the letter which represents the changes you choose. In Column II, place the numbers which represent your reasons for the change.

<table>
<thead>
<tr>
<th>Column I - Changes</th>
<th>Column II - Reasons</th>
<th>Menu</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>1, 2, 3, 4, 7</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>1, 2, 4, 7</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>2, 3</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>1, 2, 3, 4, 7</td>
<td></td>
</tr>
</tbody>
</table>

Changes which are desirable to reduce preparation time, retain nutritive, aesthetic values in the menu.

A. Hot bread muffins
B. Whole tomato stuffed with shredded cabbage
C. Eggplant and cheese casserole
D. Fried fish
E. Cornbread
F. Peaches and cream
G. Peach mousse
H. Tossed tomato-cabbage salad
I. Roast beef

Reasons for changes.

1. Reduces number of manipulations required.
2. Nutritive value similar to nutritive value in original menu.
3. Simplifies use of equipment
5. Creates a more aesthetic menu.
6. Reduces cost of menu.
7. Reduces time required to prepare a ready-to-eat dish.

III. Specific Objectives: (1) To develop the ability to organize laboratory work in high school so that others will not be inconvenienced.

(2) To develop an appreciation of the time problems involved.

Situation: Janet planned to serve the dinner menu which is listed below to three guests and herself at school in Home Economics department. She plans to serve this meal at 12:15 on Wednesday. She has one assistant who has the 8:00 hour free. Janet will be able to work on the luncheon on Monday, Tuesday, and Wednesday at 11:00 and in the Home Economics period at 2:00. In the blank before each job listed write the number which indicates the time when she should do the job.
MENU
Rolled Baked Flank Steak
Baked Potatoes  Buttered Carrots
Green Tossed Salad  Salad Dressing (bought)
Hot Rolls (precooked)  Butter
Iced Tea
Lemon  Sugar
Canned Peaches

Directions: In the blanks to the left of the list of jobs to be done, place the number which represents a time when the work can be done at school.

Jobs to be done

1. A. Check linen, china, and silver to be used.
2. B. Set table and arrange centerpiece.
3. C. Plan centerpiece to be used.
4. D. Stuff steak and store it in freezer.
5. E. Make out grocery list.
6. F. Wash and store salad in ingredients.
7. G. Place peaches in the refrigerator.
8. H. Do shopping for groceries.
9. I. Check ice in refrigerator.
10. J. Wash potatoes, oil them, and place in pan.
11. K. Wash and store carrots.
12. L. Make tea.
14. N. Fill water glasses.
15. O. Put potatoes in oven.
16. P. Remove peaches from refrigerator.
17. Q. Place food on the table.
18. R. Shred lettuce and cut up tomatoes and other ingredients.
19. S. Mix vegetables with salad dressing.
20. T. Put carrots on to boil.
21. U. Fill glasses with tea and ice.
22. V. Slice lemon
23. W. Light oven.
24. X. Wash and store dishes.
25. Y. Temporary care of dishes and linens.

Time Schedule

(1) At 11:00 Monday.
(2) During Home Economics period on Monday.
(3) At 11:00 Tuesday.
(4) During Home Economics period on Tuesday.
(5) At 8:00 Wednesday.
(6) At 11:00 Wednesday.
(7) During the last 10 minutes before the meal is served.
(8) Just before people sit down to the table.
(9) Between the main course and the dessert course.
(10) At Home Economics period on Wednesday.
(11) At home.
(12) Immediately after the meal.
(13) Between 11:00 and 12:00 Wednesday.

* Mackensen, Kathryn. Interdepartmental problems in time planning for meal service in a high school.
No one response in the above need be the only response. If the student shows ability to organize in a manner which makes cooperation with other departments in the school possible, and also shows an appreciation of the problems involved then the purpose will have been achieved. This study followed a study of tasks to be performed in order to serve the meal.

Competency in Caring for Food and Equipment

IV. Objective: To be able to solve problems met in cleaning up and dishwashing*. (Knowledge, understanding, and ability to apply.)

Directions: Below are three columns. Column III states problems which you may meet in caring for foods and in dishwashing. In Column I write the number of the solution from the list below which is correct for the problem. In Column III write the letter of the reason for your choice of solution.

<table>
<thead>
<tr>
<th>Column I</th>
<th>Column II - Reason for Choice</th>
<th>Column III - Problems which may be met in caring for food and dishwashing.</th>
</tr>
</thead>
<tbody>
<tr>
<td>______</td>
<td>_________________</td>
<td>How to care for:</td>
</tr>
<tr>
<td>______</td>
<td>_________________________</td>
<td>Left-over foods</td>
</tr>
<tr>
<td>______</td>
<td>_________________________</td>
<td>Greasy pans</td>
</tr>
<tr>
<td>______</td>
<td>_________________________</td>
<td>Soiled dishes (uncooked eggs. (milk.</td>
</tr>
<tr>
<td>______</td>
<td>_________________________</td>
<td>Soiled dishes (sirups or sugar. (most cooked foods.</td>
</tr>
<tr>
<td>______</td>
<td>_________________________</td>
<td>Pans in which food scorched.</td>
</tr>
<tr>
<td>______</td>
<td>_________________________</td>
<td>Aluminum pans containing scorched food.</td>
</tr>
<tr>
<td>______</td>
<td>_________________________</td>
<td>Tumblers and fragile cups.</td>
</tr>
<tr>
<td>______</td>
<td>_________________________</td>
<td>Woodenware</td>
</tr>
<tr>
<td>______</td>
<td>_________________________</td>
<td>Dish towels</td>
</tr>
<tr>
<td>______</td>
<td>_________________________</td>
<td>Sinks.</td>
</tr>
<tr>
<td>______</td>
<td>_________________________</td>
<td>Black spots on silver.</td>
</tr>
<tr>
<td>______</td>
<td>_________________________</td>
<td>Sanitation in dishwashing.</td>
</tr>
</tbody>
</table>

Solutions

1. Soak in hot water, then scour with fine steel wool or powder.
2. Cover and place in cool place when necessary.
3. In drying place where air can get to all parts.
4. Soak in hot water
5. Wipe with absorbent paper.
6. Soap in fine powder

Reasons for Choice

A. Prevents formation of silver sulfide.
B. Prevents mildewing
C. Prevents spoilage and absorption of odors.
D. Destroys bacteria and other harmful organisms.
E. Removes coating of fat clinging to utensil
F. Cleans without scratching or roughening surface.

*Broossard, Theresa.
7. Hot, soapy water followed by rinse in scalding water.
8. Soak in cold water.
9. Hot, soapy water followed by rinse in hot water.
10. Hot water and a little washing soda.
11. Wash promptly to remove egg, mustard and salad dressing.

G. Dissolves or softens the food.

H. Prevents "Tattle-tale" gray and the harboring of bacteria.

I. Cleans and does not darken the metal.

J. Scalding may cause breaking

K. Prevents hardening of food by preventing coagulation of the protein.

V. Specific Objective: Ability to purchase maximum nutritive values at lowest cost possible.

GIVEN: 1. A list of uses to be made of a milk supply by a family.
        (Column A)
        2. A list of forms in which the family may purchase the milk (Column B)

REQUIRED: In Column A, circle the numeral which represents the most economical and nutritious purchase for the purpose indicated.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ways in Which Milk is to be Used:</td>
<td>Possible Forms in Which it may Be Purchased</td>
</tr>
<tr>
<td>To be used in a formula for an infant - 1 2 3 (4)</td>
<td>1. Dried, skimmed.</td>
</tr>
<tr>
<td>5 6 7 8</td>
<td>2. Raw, skimmed</td>
</tr>
<tr>
<td>To be used as a beverage by a 4 year old child</td>
<td>3. Condensed.</td>
</tr>
<tr>
<td>1 2 3 4</td>
<td>4. Evaporated.</td>
</tr>
<tr>
<td>(5) 6 7 8</td>
<td>5. Pasteurized, whole.</td>
</tr>
<tr>
<td>To be used in cooking processes -</td>
<td>6. Homogenized</td>
</tr>
<tr>
<td>(1) 2 3 4</td>
<td>7. Certified, whole</td>
</tr>
<tr>
<td>5 6 7 8</td>
<td>8. Buttermilk</td>
</tr>
</tbody>
</table>

VI. Specific Objective: Knowledge of practices which affect the cost of operating and maintaining electric refrigerators.

GIVEN: A list of practices seen in the use of electric refrigerators (Column I).
        A list of possible results when these practices are followed.

REQUIRED: In Column I, circle the numeral which represents the likely result when the practices are followed.

<table>
<thead>
<tr>
<th>Column I</th>
<th>Column II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practices</td>
<td>Results</td>
</tr>
<tr>
<td>Permitting heavy frost to form on the ice compartment.</td>
<td>1. Will result in need for replacement in a short time.</td>
</tr>
<tr>
<td>1 2 (3) 4 5</td>
<td></td>
</tr>
</tbody>
</table>
Touching rubber gasket with hands.
1 2 3 4 5

Opening the door frequently.
1 2 3 4 5

Exposing to acids.
1 2 3 4 5

Placing hot water in trays to make ice cubes.
1 2 3 4 5

V. Specific Objective: To recognize practices in food preparation which save time and energy.

GIVEN: (1) A list of practices observed in some kitchens
(2) A list of foods preparation processes which are usually associated with specific manipulative practices.

REQUIRED: In Column I, circle the numeral which represents the process that will save time and energy.

Column I - Food Preparation Processes

Paring potatoes
1 2 3 4 5 6 7

Peeling citrus fruit
1 2 3 4 5 6 7

Measuring shortening
(1) 2 3 4 5 6 7

Measuring flour
1 2 3 4 5 6 7

Sifting flour
1 2 3 4 5 6 7

Column II - Practices Associated with the Process

1. Using a measured amount of water.
2. Using standard measuring cup that does not have a lip.
3. Using a paper on the work table surface.
4. Using a spatula.
5. Directly into a bowl.
6. Working near a sink.
7. None of the above applies.

2. Will cause stains.
3. Will cause motor to run for longer periods.
4. Will decrease freezing time required.
5. None of the above four results apply.
APPENDIX B

FOOD HABIT RECORD FORM

Directions For Keeping Your Food Record

1. Write Down How Much You Eat of Each Food. Tell how many teaspoonfuls or tablespoonfuls you eat; tell whether you eat 1/4 or 1/2 or 1 cupful, and tell how many slices of bread.

2. Be Sure to Write the Kind of Food you Eat. If you eat cereal, write oatmeal, shredded wheat biscuit or whatever kind of cereal it is. Be sure to tell the kind if you eat any of these foods: bread, meat peas, beans, potatoes, soups, salads, or sandwiches - like this:

   Soups - cream of tomato, navy bean, split pea, vegetable

   Salads - mixed vegetable (raw), fruit (cooked), tuna

   Sandwiches - 2 slices of whole wheat bread, butter, peanut butter

   2 slices of white bread, mayonnaise; American cheese.

After you finish writing your record, see if you did these things:

1. Did you write down only the foods you put in your mouth and swallowed?

2. Did you write down HOW MUCH you ate or drank?

3. Did you miss a meal? If so, did you write the word NOTHING in the space for that meal? If you didn't eat between meals, did you write the word NOTHING in the space for between-meal foods?
Name ______________________________________ Date_____________________

School__________________________________________

BREAKFAST:

Kind of fruit____________________________________ Amount__________

Cereal: Kind____________________________________ Amount__________

(Whole wheat_______ Amount________
(White _______ toasted (Yes________
(Biscuits _______
(Other kind _______

Butter: Amount______________________________

Egg: Amount__________________________________ How cooked?________

Bacon: Number of slices________________________

Milk: (On cereal________________
(To drink________________
(Amount ____________________
(In coffee _________________
(Other_____________________

Sugar: Amount_______________________________

Other foods eaten:________________________________

BETWEEN BREAKFAST AND LUNCH:

Foods eaten__________________________________ Amount__________

______________________________________________ Amount__________

______________________________________________ Amount__________
LUNCH:

Meat or fish: Kind_________________ Amount__________
Potatoes: White____________________ Amount__________

Kind_________________ How Cooked?__________
Sweet____________________ Amount__________
Rice: Amount______________________
Spaghetti: Amount________________________

Gravy: Amount____________________
Vegetables: Cooked. Kind____________________ Amount__________
Kind____________________ Amount__________

Raw Kind____________________ Amount__________
Kind____________________ Amount__________

Bread: Kind____________________ Amount__________
Butter: Amount____________________
Sandwich Filling: Kind____________________ Amount__________
Fruit: Cooked. Kind____________________ Amount__________

Raw Kind____________________ Amount__________
Salad dressing: Kind____________________ Amount__________
Dessert: Kind____________________ Amount__________
Milk: Amount____________________
Other beverages: Kind____________________ Amount__________
Sugar: Amount____________________
Other food eaten: Kind____________________ Amount__________

Kind____________________ Amount__________
FOODS EATN BETWEEN LUNCH AND SUPPER:

Kind____________________ Amount__________
Kind____________________ Amount__________
Kind____________________ Amount__________
Name_________________________ Date_____________________

School__________________________

**BREAKFAST:**

Kind of fruit________________________________________  Amount________________

Cereal: Kind________________________________________  Amount________________

  (Whole wheat_______                   Amount(yes_______
  (________                          (no_______

Bread:   Amount________________

  (White ________

  (Biscuits ________

  (Other kind ________

Butter: Amount_______________________

Egg:   Amount_________________________ How cooked?____________________

Bacon: Number of slices________

Milk:  (On cereal________________

    (To drink________________

Amount (________________________________

  (In coffee________________

  (Other____________________

Sugar: Amount____________________

Other foods eaten: ______________________ Amount____________________

_________________________________ Amount____________________

_________________________________ Amount____________________

**BETWEEN BREAKFAST AND LUNCH:**

Foods eaten_________________________________ Amount____________________

_________________________________ Amount____________________

_________________________________ Amount____________________