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Relationships among nutrition knowledge, attitudes and behavior of Appalachian middle school children

Halverson, Lillian Smith, Ph.D.
The Ohio State University, 1987

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RELATIONSHIPS AMONG NUTRITION KNOWLEDGE, ATTITUDES
AND BEHAVIOR OF
APPALACHIAN MIDDLE SCHOOL CHILDREN

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of the Ohio State University

By

Lillian Smith Halverson, B.S., M.S.

The Ohio State University
1987

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Department of Human Nutrition and Food Management
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CHAPTER I

INTRODUCTION

One of the ways in which people express their cultural differences is by the foods that they choose to eat or choose not to eat (1). The choices made in what food to eat, how much to eat, how to prepare the food, and the conditions under which the food is consumed are influenced by geographic location, socio-economic status, available technology, and political and cultural processes (1,2). Children and adolescents, as well as adults, have knowledge, attitudes, and behaviors relevant to what foods they wish to consume for pleasure and to sustain their bodies (3). Children and adolescents, as well as adults, express their knowledge, attitudes, and beliefs toward nutrition as behavior responses to food choices, thus forming dietary habits or patterns.

Adolescence is a developmental period of time in the growth pattern of the human, roughly including the ages of 11 to 21 years. Pubescence is a term used to distinguish the first two to three years of adolescence from the later part of adolescence (4,5). It is during the pubescent years that secondary sex characteristics begin to develop and the capability for sexual
reproduction is attained. Girls usually experience pubescence between the ages of 11 to 13 and boys between the ages of 13 to 15 years. A portion of the middle school student population, more of the girls than the boys, are experiencing pubescence, the early part of adolescence.

However, the period of adolescence is more closely associated with physiological age than with chronological age. This period is characterized by spurts of rapid growth accompanied by physical and emotional changes, the seeking and acquiring of independence from parents, and the establishing of individual identity in the society in which that person is a member (5,6). The adolescent experiences feelings of indestructibility and immortality and is preoccupied with immediate concerns and a new sense of self-importance (7). During adolescence, energy and nutrient intakes needed to sustain the physical changes vary widely, but in general, the adolescent is not interested in nutrition, and surely not in the long range benefits of good nutritional habits.

Persons who wish to understand why teenagers eat as they do must ask two questions: 1) why they are sometimes poorly nourished and/or have poor food habits, and 2) what forms of communication may effectively reach them (8,9). Many researchers have attempted to find some answers to these two questions by conducting studies to find what relationships exist among nutrition knowledge, attitudes, and behavior. Studies of this nature are difficult to design, administer, and extrapolate from the
data collected because of the complex physiological and psychological characteristics of human beings. These relationships have been studied with preschool children and their mothers/parents, lactating women, elementary school students, high school graduates, college and university students, elementary and secondary teachers, professional persons, and senior citizens (10-39).

Eppright et al. (11) studied the nutrition knowledge and attitudes of mothers with preschool children. They found nutrition knowledge to be highly and positively related with attitudes toward nutrition. The findings also suggested that the education level of the mother seemed more significant than income in determining whether nutritious foods were selected, prepared, and served to the family.

Beavers, Kelley, and Flenner (13) in a study of nutrition knowledge, attitudes, and food purchasing practices of parents found that the level of education was the predominant variable influencing nutrition knowledge. However, nutrition attitudes had the greatest influence on, but did not truly explain food purchasing practices. Other factors which might influence food purchasing are stage in life cycle, race, marital status, and income.

A study by Bell and Lamb (15) measured the effects of nutrition education on nutrition knowledge and food behavior of fifth grade students. The groups which received special nutrition education did better on the post-written nutrition knowledge test
than did the control groups. Retention of nutrition knowledge after six weeks was also documented by a written test. The researchers reported that dietary behavior was not modified or changed to the extent found in nutrition knowledge. Studies done by Head (17) and Graves et al. (18) measured change in nutrition knowledge and attitudes after exposure to specific nutrition education programs. The findings reported from both studies showed a greater amount change in the nutrition knowledge and attitudes of students in the lower grades than in students in the upper grade levels. Shannon, Graves, and Hart (19) did a study of the food behavior of elementary school students after they had received nine weeks of nutrition education. They too found that the nutrition education had the greatest effect on nutrition behavior at the lower grade levels. Sims (14) did a study with 61 lactating women to measure the relationship of nutrition knowledge and attitude to nutrient intake. She found that favorable attitudes toward nutrition, such as "nutrition is important", consistently correlated with higher nutrient intakes.

Schwartz (22) examined the relationships of nutrition knowledge, attitudes, and practices of high school graduates. She found that enrollment in high school home economics classes was not consistently correlated with higher scores on the nutrition knowledge questions. It was also noted that positive attitudes toward nutrition were gained from experiences other than having been a student in high school home economics classes.
The nutrition knowledge, attitudes and food patterns of women athletes were studied by Werblow, Fox, and Henneman (27). They found a positive relationship between nutrition knowledge and attitudes.

Behavior is represented by patterns and practices of eating and is influenced by many variables. Marrale, Shipman, and Rhodes (28), when discussing what college students eat, stated that psychological needs often determine what they choose to eat.

Petersen and Kies (29) studied the nutrition knowledge and attitudes of early elementary teachers. They found nutrition knowledge scores to be low. They did find a relationship between nutrition knowledge and a favorable attitude toward teaching nutrition. However, they found that the higher the knowledge score, the more aware that the teacher was that more than nutrition knowledge is needed to improve the eating habits of children.

The nutrition knowledge, attitudes, dietary behavior, and commitment to nutrition education of nutrition educators were examined by Byrd-Bredbenner and Shear (31). They found nutrition knowledge and attitudes were significantly related, but they did not find a relationship between nutrition knowledge and dietary behavior. A positive correlation was found between nutrition attitude and dietary behavior.

Penner and Kolasa (32) studied secondary teachers’ nutrition knowledge, attitudes, and practices. Home economics teachers scored higher than other secondary teachers on the research
instrument. Those teachers who included information about food or nutrition in their classes had higher nutrition knowledge and attitude scores.

The nutrition knowledge and attitudes of 292 physicians was studied by Krause and Fox (35). They found the physicians to be more knowledgeable of normal than therapeutic nutrition. No significant relationship was found between nutrition knowledge and attitudes.

Grotkowski and Sims (38) studied the nutrition knowledge, attitudes, and dietary practices of 64 senior citizens. Nutrition knowledge was found to have a positive correlation with socioeconomic status and with the specific attitude that 'nutrition is important'.

In general, it was found that nutrition knowledge has little influence on nutrition attitudes and eating behavior. These findings are both frustrating and challenging to community nutritionists and nutrition educators who have and are trying to improve the nutritional status of people through many and varied types of nutrition education programs (40,41). Nutrition knowledge is being integrated into school curricula and public education programs and delivered to individuals, groups, and the general public through classes, group programs and the mass media (15,17-19,42,43).

Zunich and Fults (44), Steelman (45), and Sims (12) all reported that food likes and dislikes vary from region to region, that attitudes toward food vary with subcultures, and that
demographic characteristics influence nutrition knowledge. It seems that data bases reflecting nutrition knowledge, attitudes, and behavior should be compiled for existing subcultures within given populations. Appalachia represents a subculture within our population for which a greater data base descriptive of the nutrition knowledge, attitudes, and behavior should be compiled.

The Appalachian Region is one-fourth larger than the state of California and extends over almost exactly the same span of latitude (46). The topography of the Appalachian Region varies from rugged mountains to extended flat valleys. The distribution of population, income, and wealth are as uneven as the physical terrain of the area. Comparatively, the per capita income and level of attained education are lower in the Appalachian Region than those of the United States as a whole.

West Virginia is the only state that is completely within the boundaries of the Appalachian Region. Most of the state is part of the Northern Appalachian Subregion, with approximately nine of the southern counties of West Virginia being in the Central Appalachia subregion. Upshur County is located in central West Virginia, a part of the Northern Appalachian Subregion.

Even though many studies have been conducted in the area of nutrition, knowledge, attitudes, and behavior, the populations studied have not usually included the children in the grades of 6, 7, and 8, the middle school student. Therefore, the purpose in this research project is two fold; 1) to add to the limited data base
defining relationships among nutrition attitudes, behavior, and knowledge, of the middle school student, and 2) to make the findings specific to the middle school student of West Virginia, which for many is an area synonymous with Appalachia.

Statement of the Problem

The purpose in this study was to determine the relationships among nutrition knowledge, attitudes, and behavior of Appalachian middle school children. The specific objectives of this study were the following:

1. To measure the nutrition knowledge of middle school children by grade, gender, age, and self-perceived grade average.
2. To identify specific nutrition attitudes and behavior of middle children by grade, age, gender, and self-perceived grade average.
3. To determine relationships among nutrition knowledge, attitudes, and behavior of middle school children on the bases of grade, age, gender and self-perceived grade average.
Definitions of Terms

For the purpose of this dissertation, the following definitions have been utilized.

Knowledge: a body of information accepted as facts and theories resulting from research or the opinion of experts (47).

Attitude: a learned or effected predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object; a mental position or emotional feeling or belief toward a fact (48).

Behavior: a response or reaction of a subject, such as a verbal response, a physical reaction, or an observed overt practice resulting from a given stimulus (48, 49).

Middle school children: students in grades six, seven, and eight, approximately 11, 12, and 13 years of age.

Appalachia: a 195,000-square-mile region of the United States which follows the spine of the Appalachian Mountains from the Catskill Mountains in southern New York to northeastern Mississippi. The region includes all of West Virginia and parts of twelve other states including Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, and Virginia (46).
Limitations of the Study

The following limitations were acknowledged as restricting the scope of the findings from this study.

1. The population used for this study is a selected sample of middle school children located in central Appalachia rather than a random sample from the middle school population of Appalachia.

2. Use of a greater number of knowledge questions would allow for a more inclusive survey of nutrition information.

3. Inclusion of socio-economic data would help to elucidate the relationship of parental income to the nutritional behavior and indirectly to the nutritional attitudes of Appalachian middle school student.

4. Completion of a one-day food record or a 24-hour recall would more accurately define the nutritional behavior of the students than the use of verbal responses to selected printed statements.
Assumptions

The following assumptions were utilized in conducting this research project.

1. The children can read, are knowledgeable in regard to the words used in the testing instrument, and are familiar with the format used in the testing instrument.

2. The children represent a normal distribution of academic abilities and aptitudes.

3. The children have not been exposed to any intensive nutrition education program not ordinarily taught in the school system, nor have they been denied routine nutrition education in the school system.

4. The children have been exposed to the prevailing nutrition knowledge, beliefs, attitudes, and behavior patterns of their families, of their peers, and of those presented to the public by the mass media.
Significance of the Problem

Results generated in this study can be used to add information to the limited nutrition data base defining the nutrition knowledge, attitudes, and behavior of Appalachian middle school children. The findings may be used to assist nutrition educators develop nutrition programs which would present the needed knowledge and develop the motivation to create the appropriate nutrition attitudes and behavior in middle school children. Specifically, the findings may be used to assist program specialists in organizations such as Scouts and 4-H develop activity guidelines which would foster and promote optimum nutrition attitudes and behavior.
In this chapter literature relevant to nutrition knowledge, attitudes and behavior is reviewed. Specific research related to influences on nutrient intakes and food choices is also reviewed.

Nutrition Status

It would seem that with all the current nutrition information which is readily available, that all segments of the American population would be well nourished, or at least adequately nourished. However, the nutritional status of the adolescent has been the concern of nutritionists for many years. The findings of several national nutrition surveys have shown that adolescents, particularly adolescent girls, to be the most poorly nourished segment of the United States population (50-52). From a review of selected reported assessment studies it is noted that children and adolescents tend to be deficient in calcium, iron, and vitamins A and C (16, 53 - 54).

Johnson and Jensen (16) studied the influence of the noon meal on nutrient intakes and meal patterns of a representative group of
60 fifth-grade students attending public schools. A combination of food records and 24-hour food recalls were used to collect data. Protein and riboflavin were found to be consumed in adequate amounts, while wide variations existed in the consumption of calcium, iron, thiamin, niacin, vitamin A and ascorbic acid. The findings also showed that the students who ate a school lunch or consumed the noon meal at home had more nutritious meals than the students who ate brown-bag lunches. Newell et al. (55) studied more than 3,000 fifth grade students and concluded that dietary quality varied in direct relationship to the level of energy intake.

McCoy et al. (56) evaluated the nutrient intake of 1247 teenaged girls, 55 percent white and 45 percent black, from eight southern states. Two 24-hour food recalls from each participant were used in the evaluation. In general, the white teenage girls consumed a more nutritious diet than did the black girls. The intake of calcium for the white teenage girls and magnesium for both decreased with age.

Kenny et al. (57) studied the effects of race, age, place of residence, and per capita income on nutrients furnished by food groups for 1195 southern girls, aged 12, 14, and 16. They found that foods of low nutrient density provided the greatest amounts of energy, fat, and carbohydrate. Dairy products which supplied the greatest amounts of vitamin D, riboflavin, and pantothenate, and the minerals calcium, phosphorus, and potassium of any food group, were used more by white, urban, or younger girls. Black teenaged
girls received more vitamin A from vegetables and more thiamin from meat than did the white girls. Consumption of starches and eggs decreased and fruit increased as income increased.

Driskell, Clark, and Bazzarre (58) studied the vitamin B-6 status of 583 white and black southern adolescent girls aged 12, 14, and 16. The sample was divided into three per capita income groups. Data was obtained by the use of two 24-hour food recalls. Approximately half of the girls reported consuming less than 66 percent of the Recommended Dietary Allowance (RDA) of B-6. Approximately 20 percent of the girls had marginal vitamin B-6 and 13 percent had deficient status. They concluded that vitamin B-6 inadequacy appears to be rather prevalent among black and white southern adolescent girls. In a follow-up study done by Driskell, Clark, and Moak (59) two years later, the research team found that approximately half of the girls had marginal or deficient B-6 status.

Bailey et al. (60) studied food frequency related to folacin status in 372 black, hispanic, and white adolescents. They concluded that the low consumption of fruits and vegetables accounted for the low folacin status in the adolescents.

Thompson et al. (61) studied zinc status and sexual development in 48 black adolescent girls, aged 8 to 16 years. Evaluation of the 24-hour diet recalls of the adolescent girls in the later half of puberty, showed that the mean zinc intakes averaged 66 percent of the RDA. The research team concluded that the zinc
intake in the sample population was adequate even though it fell below the recommended level.

A review article which discussed unwarranted dieting in adolescents who had a fear of obesity pointed out that this behavior may retard stature and puberty (62). The energy deficient diets were also deficient in minerals and vitamin D.

Eating Patterns

As adolescents become independent, they acquire more control over what they eat and when they eat (8,9). They are not fed, they eat (8). Pressure resulting from the involvement in numerous activities and from peers has prompted the adolescent to develop some general eating patterns.

Truswell and Darnton-Hill (63) noted ten features of the diet of the typical adolescent living in North America, Northern Europe and Australia: 1) they miss many meals on a regular basis; 2) they make-up for the meals omitted by snacking more than adults; 3) many of their meals are selected from "fast" and/or carry-out food establishments; 4) they eat unconventional foods at unconventional meal times; 5) many begin the consumption of alcoholic beverages; 6) they have a high consumption of soft drinks; 7) their likes and dislikes of foods are very much influenced by their peers; 8) their diets are characterized by foods of high energy content; 9) their diets are often deficient in the critical nutrients of calcium,
iron, and vitamins A and C; and 10) they are sensitive to even mild degrees of obesity and often go on "fad" weight reduction diets.

Researchers have studied the diets of adolescents over the past thirty years and have found over time a pattern of more frequent snacking and meal skipping (64-74). In 1952 Steele, Clayton, and Tucker (64) studied 316 junior and senior high school students from three Eastern states using seven-day food diaries. They found that breakfast contributed one-fifth of the daily nutrient intake and RDA for both genders in all three states. Snacks contributed 10 percent or less of the daily nutrient intake and RDA of the students from Maine and New York, but made a much higher contribution to the diets of the students from Rhode Island.

In a study done in 1968 with 122 eleventh and twelfth graders, Huenemann et al. (68) noted that snacking was a common dietary pattern and that the snacks improved the overall nutrient intake. Using 10-day dietary records of 205 female and 73 male home economics students, ages 13 and 14 years, Brown, Bergan and Murgo (69) found that snacks contributed more to the total intake of nutrients of the female student than for the male student.

In 1985 Skinner et al. (70) reported the findings of a study of the eating patterns and nutrient intakes of 225 Appalachian adolescents, ages 15 to 18 years, from eastern Tennessee. The students were from four metropolitan and three rural randomly selected high schools with a racial balance of 94 percent white and six percent black. The researchers used a 24-hour food record and a written questionnaire. The results of the study showed that 34
percent of the respondents skipped breakfast, while 27 percent either skipped lunch or ate a snack-type lunch. Ezell, Skinner, and Pennfield (71) reporting on the snacking patterns of the same study population, found that 89 percent of the respondents ate at least one snack on the day of the survey. Morning snacks, selected at school, were of a less nutritious quality than those selected in the afternoon and evening hours at home.

After studying the dietary habits of 1224 adolescent girls from eight southern states, McCoy et al. (72) concluded that snacks provided an appreciable amount of essential nutrients to the diets. Cala, Morgan, and Zabik (73) found that snacks made a positive contribution for 657 children ranging in age from 5 to 12 years. They noted that meals eaten on the days of no snacking contained more kilocalories, but were not necessarily more nutritious.

Nutrition Knowledge

O'Rourke and Koizuni (75) measured the nutrition knowledge of 4630 kindergarten through sixth grade students from Illinois. Their nutrition knowledge was assessed on the basis of the seven broad concepts identified by the White House Conference on Nutrition. The mean score on the nutrition knowledge test was 48.6 percent. Most teachers would consider these results an indication of an inadequate knowledge of nutrition.

Dwyer, Feldman, and Mager (76) conducted a study of students from several high schools in the Boston area to determine the level
of interest in nutrition and to measure nutrition knowledge. The subjects were from different socioeconomic levels and had various nutritional instructional experiences. The mean score on the nutrition knowledge test was slightly above 55 percent with the girls scoring higher than the boys. The girls expressed a greater interest in weight control, but scored lower on knowledge question in this area than did the boys.

The nutrition knowledge of 1193 Oregon high school students was assessed by Skinner and Woodburn (77) using 28 multiple choice items. The mean score on the knowledge test was 39.4 percent. The teenagers did well on questions which offered traditional meal choices. However, they did not do well when presented with balanced non-traditional meal choices. They tended to select traditional combinations even when they were deficient in essential nutrients. The students did not do well on questions relating to food sources of nutrients unless a very common best source was given. Food sources of calcium and iron were particularly difficult for the students to identify. The students recognized that the ingestion of too many high caloric foods is a common problem in American diets. They acknowledged that weight reduction diets should reduce kilocalories from all food groups, not eliminate one or more of the food groups totally from the daily diet. However, they were not able to identify high kilocalorie foods with any degree of accuracy.

A study of upper-class women was made by Wilson and Lamb (78) who evaluated beliefs concerning food fads and fallacies.
They found that women who had a general college education tended
to believe more food fallacies whereas those women whose
education included some home economics classes had fewer
misconceptions about food and nutrition. McCarthy and Sabry (79)
studied the prevalence of nutrition knowledge and misconceptions
among Canadian university freshman students. They found little
difference between males and females in nutrition knowledge and
misconceptions regarding food and nutrition.

Cho, and Fryer (80) studied the nutrition knowledge of and food
recommendations for athletes made by physical education majors
or basic nutrition students. The basic nutrition students scored
higher on the nutrition knowledge test than did the physical
education majors, but both groups made many food
recommendations based on sound nutrition and some which had no
scientific basis.

Sims (12) conducted a study in which the nutritional
knowledge of a group of mothers of preschool children was studied
in relation to selected demographic and attitudinal variables. Some
of the demographic variables considered included education level
and occupation of parents, number of persons in household, gross
income, and amount of money spent on food. The attitudes of the
mothers toward child rearing were measured using a Parent
Attitude Research Instrument. She found that child rearing
attitudes appear to bear as consistent an influence on nutrition
knowledge as do demographic characteristics.
Nutrition Knowledge and Behavior

Perkin (81) evaluated a nutrition education program for pregnant teenagers. The program had 19 participants. The difference between the pretest and posttest was significant, indicating that appropriate cognitive learning had occurred. However, an evaluation of their three day dietary records showed only a slight improvement in their food selection. Nutrition knowledge was not effectively translated into improved dietary behavior.

Nutrition Attitudes

A study of homemakers from two communities conducted by Steelman (45) examined the relationships of situational attitudes toward food, a social and cultural object, to the subcultural variables of race, religion, and age of homemaker. She noted a racial subcultural difference in attitudes toward food. The black homemakers expressed attitudes of frugality and less concern for the details of three meals per day. Older white women and younger black women held the attitude that change was possible and good. More Protestant than Catholic homemakers expressed the attitude that specific foods might be served to impress someone.

Story and Resnick (82) asked the Minnesota Youth Poll, an ongoing research project that asks high school students across the state for their opinions on various topics relating to adolescent
issues, for their views on food and nutrition. More than 900 high school students from more than 25 schools distributed around the state participated in the study. The students strongly supported the attitude that teenagers do not eat the right kinds of foods. They cited such reasons as skipping meals, unbalanced meals, too many snacks, and unavailability of healthy foods as the reasons to support this attitude. The reasons given for eating as they do included lack of time, the inconvenience of eating properly, and lack of a sense of needing to eat nutritious foods. These students recognized that they did not eat well balanced diets, gave reasons for doing so, also cited ways in which they could improve their intakes, but indicated that too many obstacles were present which made dietary change impossible.

Nutrition Knowledge and Attitudes

Werblow, Fox, and Henneman (27) surveyed women athletes and found a positive relationship between nutrition knowledge and attitudes; higher knowledge and attitude scores were associated with those women who had had some nutrition education. The women athletes were primarily interested in weight control and used weight control food patterns as a reference point for all eating patterns.

Vickstrom and Fox (34) studied the nutrition knowledge and attitudes of a sample of Nebraska registered nurses. The questionnaire used in the study contained knowledge questions and
attitude statements. The nurses had a mean score of 75 percent on the nutrition knowledge questions, with the older nurses scoring lower than the younger nurses. However, the older nurses had a more favorable attitude toward nutrition. Stansfield, and Fox (36) studied nutrition knowledge and attitudes of 217 grocery store managers. They found a positive correlation between nutrition attitudes and age, education, and experience. Also a positive correlation was found between nutrition knowledge and level of education.

Nutrition Behavior

In an early study of food preferences, Zunich and Fults (44) used a sample of low socioeconomic level sixth-grade children drawn from the states of Florida, Texas, and Ohio to compare food preference of children living in various geographic locations. They reported that likes and dislikes differ from one geographic region to another.

In 1983 Hertzler (83) reviewed children's food patterns. She stated that not all cultural groups reported having feeding and food preference problems with their children. She concluded that most of the studies done with very young children indicate that parents/caretakers determine the food habits of the preschool child. She theorized that it is also possible that the preschool child may exert an independent influence on his/her food habits. She questioned whether the parents/caretakers make available the
food which the child likes or if the child likes what the parents/caretakers provide.

Macdonald, Wearing, and Moase (84) looked at factors affecting the quality of the diet of adolescent girls, ages 14 to 18 years. They found that the girls with the poorest diets were heavier and had more total body fat than did the girls consuming the more nutritious diets. The girls consuming the poorest diets were more apt to go on 'weight reduction diets', skip meals and were physically inactive.

Haley, Aucoin, and Rae (85), in a longitudinal study of families in Nova Scotia, found that the food habits of the children had deteriorated between the ages of 10 to 15 years. Decreases were noted in the consumption of milk and vegetables, while a small, insignificant increase was found in the consumption of fruit.

Way (86) in a study of food related behaviors seen on prime-time television, reported that comedy programs talked about, or used, less nutritious foods more often than they referred to or used the more nutritious foods. She also noted that television characters ate less nutritious foods than what they were shown purchasing, preparing or serving to others.

The food choices of 591 women of above average education and income from Johnson County, Kansas, were studied by Cosper and Wakefield (21). These researchers found that the husband exerted the greatest influence on the wife as to her willingness to try a new food, while advertising exerted the least effect.
Schorr, Sonjar, and Erickson (87) studied 182 students from western New York in grades 7 through 12. They found that the nutrient intake of the teenage male was considerably more adequate than the teenage female. Also, it was found that as dietary patterns increased in complexity, so did other sociological parameters. Thus, food habits are an integral part of a person's life-style and may be used to measure other behavioral patterns.

Nutrition Knowledge, Attitudes, and Behavior

Eppright et al. (11) studied the association among the scores of mothers on nutrition knowledge and attitudes tests and the nutritional quality of their children's diets. The mothers were from 12 North Central states. They found no difference on attitude scales related to site of residence, but knowledge of nutrition was highly and positively related with attitudes toward nutrition. They also suggested that mothers with favorable attitudes toward nutrition gave more nutrient supplements, but did no better than other mothers in providing nutritious diets. The mothers realized that children needed a good diet to support growth, but didn't really practice good diet selection and presentation of food.

The relationship of nutrition knowledge, attitudes, and practices of high school graduates was studied by Schwartz (22). It is noted from the findings that enrollment in high school home economics classes was not consistently correlated with higher scores on the nutrition knowledge questions, attitudes or practices.
The high school graduates studied did not apply their nutrition knowledge when making food selections. She also noted from the findings that positive attitudes toward nutrition were gained from other experiences, rather than from having been a student in a high school home economics class.

Changing of Nutrition Attitudes and Behavior

Nutrition related attitudes have been studied and evaluated in terms of their affect on nutrition behavior (11-13,18,20,22, 27, 29,30-36,38,39). Foley, Hertzler, and Anderson (88), in an extensive review of the literature relating to attitudes and food habits, focussed on the multidimensional attributes of the word attitudes as used in the study of the development and change of food habits. The authors classified attitudes into five definitional categories: 1) preferences, likes or dislikes, and feelings; 2) observable food behaviors; 3) flexibility, rigidity or the willingness or ability to change; 4) agreement or similarity among family members; and 5) complexity of meanings. Being aware of the various ways in which attitudes may be defined may help to effect a positive change in food behavior in particular cultural settings. They concluded that findings from nutrition attitude studies can promote understanding of the tie between nutrition knowledge and actual dietary behavior. This information can be used by nutrition educators to formulate more obtainable objectives and select appropriate techniques for nutrition
education which will produce a change in nutrition behavior.

Food attitudes are not isolated from the total sociological development of the individual. In a sociologic study of food habits, Hertzler and Owen (89) concluded that more than nutritional knowledge is needed to change nutrition attitudes and dietary habits. They argued that the nutrition information must be provided to the family as a unit and that change is most apt to occur in units where the information is socially reinforced. Change most often occurs in family units which exhibit a high degree of solidarity. Hertzler (90) reemphasized these findings in a 1983 review of how family and group behavior affects children's food patterns. Carruth, Mangel, and Anderson (91) studied a group of Missouri Nutrition Education Assistants to determine if a relationship existed among the variables of nutrition knowledge, attitudes, personality traits and nutrition related behavior. The assistants with more flexible personality traits were more receptive to change in nutrition knowledge and attitudes.

Wang (92) conducted a study with indigenous nutrition aides working with the Expanded Food and Nutrition Education Program (EFNEP) and the Family Aid Program (FAP). This research found that the indigenous aides were effective agents-of-change of the nutrition behavior in their clients.

Food attitudes and behaviors are not simple and easy to identify nor change. Food attitudes and behaviors are influenced by many factors and become integrated with the total social development of the individual.
CHAPTER III

METHODS AND PROCEDURES

In this chapter the design of the study will be discussed along with the selection of the population and drawing of the sample. The instrument selected for use in the collection of data will be described. How the data were collected and the statistical procedures used to analyze the data will be discussed.

The purpose in this study was to measure the relationships among nutrition knowledge, attitudes, and behavior of Appalachian middle school children. Specifically, nutrition knowledge, attitudes, and behaviors were identified and relationships among nutrition knowledge, attitudes, and behavior were measured on the basis of grade, gender, age, and self-perceived grade average.

Permission to do this study was granted by the Buckhannon-Upshur Board of Education and the Buckhannon-Upshur Superintendent of Schools (Appendix A).
Design of the Study

This study was a combination of descriptive survey research and correlational research (93,94). It was descriptive survey research in that it identifies nutrition attitudes and behaviors and measures nutrition knowledge of Appalachian middle school children. It was correlational research in that it was designed to determine or measure the direction and degree of relationship(s) that exist between and/or among the variables nutrition knowledge, attitudes, and behavior, on the basis of grade in school, gender, age, and self-perceived grade average.

Population and Sample

The population in this study consisted of middle school students from the Appalachian Region (46). Consequently, the population is limited to a specific geographic area of the United States.

The sample of sixth, seventh, and eighth grade students was drawn from the Buckhannon-Upshur Middle School by the researcher and was not a randomly selected sample. This school services all the middle school students who reside in the county of Upshur (Fig.1). The total enrollment in the selected middle school was 1051 students with 339 sixth graders, 348 in the seventh grade and 364 eighth graders. Fifty-one percent of the students were male and 49 percent female.
FIG 1. Map of West Virginia showing the location of Buckhannon in Upshur County.
Measurements and Instrument

The instrument selected to measure the identified variables was a written multidimensional measure of nutrition beliefs, the Comprehensive Assessment of Nutrition Knowledge, Attitudes, and Practices (CANKAP) (95). A complete description of the development and evaluation of the instrument, CANKAP, is presented by Cunningham et al. (95). The CANKAP was developed and evaluated by an interdisciplinary research team from the University of Tennessee and Carson-Newman College. The instrument was developed to evaluate a general framework of nutrition education, not a specific nutrition program. A panel of 99 professionals validated the framework of the instrument which can be used to evaluate a variety of programmatic approaches to nutrition education around four broad nutrition goals defined by specific objectives. In the instrument, Likert-type scales are used for responses to the items testing attitudes and behavior and a multiple-choice format with four alternatives from which to select a response for the testing of knowledge.

Eleven separate but comparable forms of the instrument were developed for use with students from kindergarten through 12th grade and six groups of adults. The separate but comparable forms of the instrument were designed for use in grades K-1, 2-3, 4-6, 7-9, and 10-12. Two of the forms of the instrument were selected for use in the present project, the form for grades 4-6 and 7-9 (Appendix B).
The instrument was pilot tested with 878 students and 195 adults from seven Tennessee schools, representative of both rural and urban settings with varied sociodemographic populations. Based on the pilot test results, some changes were made in the instrument. Following the revisions, CANKAP was administered to over 4000 students and more than 2000 adults in the state of Tennessee.

The reliability and validity evaluations of this instrument were made with populations in the Appalachian Region. Content validity of the instrument was determined by several methods. First, the researchers plotted the distribution of items by goal and objective in relation to development level and/or subject matter. Second, professionals in the fields of nutrition and food science, education, and human development reviewed the instrument. Third, a reading specialist evaluated the instrument for level of readability. The research team assessed only the content validity of the CANKAP. However, the designers stated "the scope of content makes it logical to project that the instrument has construct and predictive validity". Reliability indices for all scales were computed and an item analysis was conducted for all items testing knowledge. Each knowledge scale was determined to have a Cronbach's alpha reliability coefficient of 0.70 or greater. Item analysis showed acceptable difficulty and discrimination indices when compared to the acceptable values set by the developers.
The test CANKAP is divided into 3 sections (Appendix B). Section 1 consists of 10 questions which measure nutrition attitudes and 10 questions in Section II which measure nutrition practices or behavior on both the 4-6 grade and the 7-9 grade form. However, on the 4-6 grade form there are 20 questions and 25 questions on the 7-9 grade form in Section III designed to measure nutrition knowledge.

The middle school is composed of students in the grades of six, seven, and eight. So as to use the instruments as written and tested at the appropriate grade level, the 4-6 grade form was used with the sixth grade and the 7-9 grade form was used with the seventh and eighth grade students. The questionnaire was administered by the classroom teachers to the students in pre-existing groups (home-rooms). A predetermined amount of time, 30 minutes, was allowed for the completion of the questionnaire. The questionnaire was given to all the students in the middle school at the same time during the first class period. Students who were absent the day that the questionnaire was administered were not given the opportunity to answer the questionnaire.

Data Collection

The day on which the questionnaire was administered 978 students were present in the Buckhannon-Upshur Middle School. The sixth-grade was composed of 152 females and 174 males, the seventh and eighth-grade consisted of 324 females and 328 males.
Attendance records showed that 13 of the sixth-grade, 26 of the seventh and 34 of the eighth-grade students were absent on the day that the questionnaires were administered. Therefore, the questionnaires were administered to 978 students.

Response to the statements and questions on the questionnaire generated data used to measure the nutrition knowledge, attitudes, and behavior of the middle school student. The students were asked to identify their grade in school, gender, age, and self-perceived grade average.

Data Analysis

Answers from the questionnaire, were transferred to computer scan sheets. The scan sheets were read by a computer, with the collected information put on a magnetic computer readable tape. The tape was used to place the collected data into the Statistical Package for the Social Sciences (SPSSX) computer program for statistical analysis.

Nutrition knowledge was measured by answers to 20 questions in the questionnaire for the sixth-grade and 25 questions in the questionnaire for the seventh and eighth-grade (Appendix B, Forms 1 and 2, Section III).

The knowledge questions were scored by giving one point for the alternative selected that was considered the "best response" to the question by the developers of the questionnaire. No penalty
was imposed for choosing an incorrect response. The total number of correct responses was the student's score.

The sixth-grade students expressed their attitudes by selecting a face from four alternatives representing a scale of 'I do not like it all' to 'I like it a lot'. The seventh and eighth-grade students expressed their nutrition attitudes using a five-point scale ranging from 'strongly disagree' to 'strongly agree' (Appendix B, Form 1, 2, Section I).

The sixth-grade students identified their behavior by selecting from the three responses, 'never', 'sometimes', and 'often' (Appendix B, Form 1, Section II). The seventh and eighth-grade students identified their nutrition behavior using a five-point scale, ranging from 'never' to 'always' (Appendix B, Form 2, Section II).

Each scale-response to an attitude or behavior question or statement was given a numerical value. The response considered the "best choice" by the researchers who developed the questionnaire was given the numerical value equal to the total number of alternatives offered for the question or statement. The remaining alternatives were given numerical values in descending order with the least desirable response having a value of one. The numerical value of the responses chosen in response to the questions or statements relating to attitudes or behavior were summed and then divided by the total number of questions or statements in the specific section to obtain the mean score.

Data were grouped into nominal scales to show the number of students at each grade in school, gender, age, and self-perceived
grade average who completed the questionnaire (91). Frequency distributions for all the scales on the questionnaire were generated and quantified. The distributions were evaluated for central tendencies and variability of distributions. Using the values which these procedures provided, correlations of the variables nutrition knowledge, attitudes, and behavior were determined on the bases of grade in school, gender, age, and self-perceived grade average using Pearson product-moment correlation. This statistical procedure indicated the direction and magnitude of relationship between the variables. Regression analysis was done to determine if, and how strong a relationship(s), existed among the variables of nutrition knowledge, attitudes, behavior on the basis of grade, gender, age, and self-perceived grade average. One-way analysis of variance was done to test for significant differences between scores of specific groups of students within the sample. The analyses were done with gender, age, and self-perceived grade average groups.
CHAPTER IV

FINDINGS

Questionnaires were administered in the homerooms, some of which contained more than one level of students. Secretaries and/or teachers separated the questionnaires into packets for each homeroom teacher. Protocol established by the Superintendent of Schools and the Principal of the selected middle school precluded direct contact between the teachers and the researcher.

Of the 326 sixth-grade students present, 276 completed the sixth-grade form of the questionnaire while 32 responded on the seventh and eighth-grade form of the questionnaire which could not be counted. Eighteen sixth-grade students were either tardy or chose not to return a completed questionnaire to the classroom teacher directing the administration of the instrument. The sixth grade sample of 276 included 128 females and 148 males. The number of questionnaires usable for analysis represented 81.4 percent of the potential sample.

Of the 652 seventh- and eighth-grade students present, 621 completed the seventh-eighth-grade form of the questionnaire. However 13 completed the questionnaire in such a manner that they could not be included in the sample. Thirty of the seventh- and
eighth-grade students responded on the sixth-grade form of the questionnaire which could not be used. One student was either tardy or chose not to return a completed questionnaire to the classroom teacher. The seventh-grade was composed of 142 females and 147 males while the eighth-grade included 160 females and 159 males for a total sample of 608 students. This number of questionnaires usable for analysis represented 85.4 percent of the potential sample.

Copies of both forms of the questionnaire with student responses recorded may be found in Appendix C. The responses have been noted on copies of the questionnaire by entire samples, grade, and gender.

Nutrition Knowledge

Sixth-Grade Knowledge Scores

The over-all mean score on the knowledge portion of the questionnaire completed by the sixth-grade students was 13.1 out of a possible score of 20 points. The highest score attained by a sixth-grader was 20 while the lowest was a 0. The knowledge scores were calculated also by gender, age, and perceived grade average (Table 1).

Using one-way analysis of variance it was found that the mean knowledge scores of both the 11 and 12 year olds were significantly different from that of the 13 year olds. Also, the nutrition knowledge scores of the 11 year olds were significantly
different from the 12 year olds. The students who perceived their average grade to be a D were significantly different in nutrition knowledge scores from those who perceived their grade average to be either an A or a B. Those who perceived their grade average to be either an A or a B were significantly different in nutrition knowledge scores from those who perceived their grade to be a C.

<table>
<thead>
<tr>
<th>TABLE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge scores of sixth-grade students</td>
</tr>
<tr>
<td><strong>Group</strong></td>
</tr>
<tr>
<td>All students</td>
</tr>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>Males</td>
</tr>
<tr>
<td>Females</td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td>11 years</td>
</tr>
<tr>
<td>12 years</td>
</tr>
<tr>
<td>13 years</td>
</tr>
<tr>
<td>Perceived grade</td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
<tr>
<td>D</td>
</tr>
</tbody>
</table>

*20 possible
The knowledge scores of the sixth grade students were analyzed by multiple regression using the independent variables of gender, age, and perceived grade average (Table 2). It was found that perceived grade, and age were significant predictors of knowledge while gender was not a significant predictor of nutrition knowledge.

TABLE 2
Regression of knowledge scores on perceived grade, gender, and age: sixth-grade students (n=276)

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Partial regression coefficient</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived grade</td>
<td>-1.53</td>
<td>-5.91</td>
<td>.001</td>
</tr>
<tr>
<td>Gender*</td>
<td>-.87</td>
<td>-1.83</td>
<td>.069</td>
</tr>
<tr>
<td>Age</td>
<td>-1.17</td>
<td>-3.24</td>
<td>.001</td>
</tr>
<tr>
<td>(constant)</td>
<td>21.72</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* females=1; males=2
\[ R^2 = .21 \quad F = 23.72 \quad p < .001 \]
Standard error of estimate 3.77

Using Pearson correlation, a significant relationship was found to exist between the nutrition knowledge and nutrition attitudes of the sixth-grade students. No significant relationship was found to exist between their nutrition knowledge and nutrition behavior (Table 3).
TABLE 3
Correlation* of knowledge, attitudes, and behavior of sixth grade students

<table>
<thead>
<tr>
<th></th>
<th>Attitudes</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>$r = -0.1531$</td>
<td>$r = 0.222$</td>
</tr>
<tr>
<td></td>
<td>$p = 0.011$</td>
<td>$p = 0.714$</td>
</tr>
<tr>
<td>Attitudes</td>
<td>$r = 0.3607$</td>
<td>$p &lt; 0.001$</td>
</tr>
</tbody>
</table>

*Pearson correlation

When the sixth-grade sample was analyzed by gender, a significant correlation was found between the nutrition knowledge and attitudes of the female group. No significant relationships were found between the nutrition knowledge and nutrition attitudes or behavior of the male group (Table 4).

TABLE 4
Correlation* of knowledge, attitudes, and behavior of sixth-grade students by gender

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Attitudes</td>
<td>Behavior</td>
</tr>
<tr>
<td>Knowledge</td>
<td>$r = 0.0961$</td>
<td>$r = 0.0296$</td>
</tr>
<tr>
<td></td>
<td>$p = 0.247$</td>
<td>$p = 0.721$</td>
</tr>
<tr>
<td>Attitudes</td>
<td>$r = 0.3733$</td>
<td>$p &lt; 0.001$</td>
</tr>
</tbody>
</table>

*Pearson correlation
Seventh- and Eighth-Grade Knowledge Scores

The over-all mean score on the knowledge portion of the questionnaire completed by seventh- and eighth-grade students was 12.7 out of a possible score of 25 points (Table 5). The highest score attained was 23 while the lowest score was 2.0.

The knowledge scores of the seventh- and eighth-grade students were calculated by gender, age and perceived grade average (Table 5). The highest mean score on the knowledge portion of the questionnaire completed by the seventh- and eighth-grade students when analyzed by age was attained by the 13 year olds. One-way analysis of variance showed a significant difference in the nutrition knowledge scores of 13 year olds from both the 14 and 12 year olds.
<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Low</th>
<th>High*</th>
</tr>
</thead>
<tbody>
<tr>
<td>All students</td>
<td>608</td>
<td>12.8</td>
<td>3.91</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>306</td>
<td>11.8</td>
<td>4.05</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td>Females</td>
<td>302</td>
<td>13.7</td>
<td>3.51</td>
<td>3</td>
<td>23</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 years</td>
<td>149</td>
<td>12.5</td>
<td>3.57</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>13 years</td>
<td>278</td>
<td>13.3</td>
<td>3.89</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td>14 years</td>
<td>153</td>
<td>12.4</td>
<td>4.02</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>Perceived grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>128</td>
<td>13.8</td>
<td>4.18</td>
<td>3</td>
<td>23</td>
</tr>
<tr>
<td>B</td>
<td>216</td>
<td>13.6</td>
<td>3.72</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td>C</td>
<td>201</td>
<td>11.9</td>
<td>3.53</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>D</td>
<td>46</td>
<td>10.3</td>
<td>3.13</td>
<td>2</td>
<td>17</td>
</tr>
</tbody>
</table>

*25 possible

The mean score on the nutrition knowledge portion for the seventh- and eighth-grade students as a group, who perceived their grade average to be an C was 11.9, while for grade D it was 10.3. One-way analysis showed a significant difference in nutrition knowledge scores between the perceived grade average C group from the perceived grade D group. The perceived grade B group was significantly different in nutrition knowledge score from both the perceived grade C and D groups. Also, the perceived grade average
A group was significantly different in nutrition knowledge scores from the perceived C and D groups.

When the sample was analyzed by grade and gender, it was found that the highest score achieved was 23 by the seventh-grade males and eighth-grade female students. A low score of 2.0 was recorded by both seventh- and eighth-grade male students (Table 6, 7). One-way analysis of variance showed that the eighth-grade female students were significantly different in nutrition knowledge scores from the eighth-grade male students.

When the seventh-grade sample was analyzed by age, the highest mean nutrition knowledge score of 12.8 was obtained by the 12 year olds (Table 6). Within the eighth-grade sample, the 13 year olds had the highest mean score of 13.74 on nutrition knowledge (Table 7).

One-way analysis of variance with the seventh-grade sample showed a significant difference in nutrition knowledge scores between the perceived grade average B group from the perceived grade D and C groups. Also, there was a significant difference between the perceived A group from the perceived grade D and C groups.
<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Low</th>
<th>High*</th>
</tr>
</thead>
<tbody>
<tr>
<td>All students</td>
<td>289</td>
<td>12.5</td>
<td>3.85</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>147</td>
<td>11.8</td>
<td>4.05</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td>Females</td>
<td>142</td>
<td>13.2</td>
<td>3.50</td>
<td>3</td>
<td>21</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 years</td>
<td>137</td>
<td>12.8</td>
<td>3.48</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>13 years</td>
<td>115</td>
<td>12.6</td>
<td>3.98</td>
<td>2</td>
<td>21</td>
</tr>
<tr>
<td>14 years</td>
<td>25</td>
<td>10.6</td>
<td>4.43</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>Perceived grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>56</td>
<td>14.0</td>
<td>3.92</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>B</td>
<td>101</td>
<td>13.1</td>
<td>4.09</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td>C</td>
<td>103</td>
<td>11.7</td>
<td>3.23</td>
<td>4</td>
<td>19</td>
</tr>
<tr>
<td>D</td>
<td>26</td>
<td>10.5</td>
<td>3.10</td>
<td>6</td>
<td>17</td>
</tr>
</tbody>
</table>

*25 possible

One-way analysis of variance showed a significant difference in the eighth-grade nutrition knowledge scores of the 14-year-olds from the 12-year-olds, and between the nutrition knowledge scores of the 13-year-old from the 12 and 14-year-olds.

One-way analysis of variance with the eighth-grade sample showed a significant difference in nutrition knowledge scores between the perceived grade average D group from the perceived grade C, A and B groups. The perceived grade average C group
was significantly different in nutrition knowledge scores from the perceived grade average A and B groups.

TABLE 7
Knowledge scores of eighth-grade students

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Low</th>
<th>High*</th>
</tr>
</thead>
<tbody>
<tr>
<td>All students</td>
<td>319</td>
<td>13.0</td>
<td>3.95</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>159</td>
<td>11.8</td>
<td>4.06</td>
<td>2</td>
<td>19</td>
</tr>
<tr>
<td>Females</td>
<td>160</td>
<td>14.2</td>
<td>3.47</td>
<td>6</td>
<td>23</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 years</td>
<td>12</td>
<td>9.2</td>
<td>3.04</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>13 years</td>
<td>163</td>
<td>13.2</td>
<td>3.77</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>14 years</td>
<td>128</td>
<td>12.8</td>
<td>3.86</td>
<td>4</td>
<td>19</td>
</tr>
<tr>
<td>Perceived grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>72</td>
<td>13.8</td>
<td>4.40</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>B</td>
<td>115</td>
<td>14.0</td>
<td>3.31</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>C</td>
<td>98</td>
<td>12.2</td>
<td>3.82</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>D</td>
<td>20</td>
<td>10.1</td>
<td>3.24</td>
<td>2</td>
<td>17</td>
</tr>
</tbody>
</table>

*25 possible

Analysis of the nutrition knowledge mean scores of the combined seventh- and eighth-grade sample by multiple regression using the independent variables of gender, age, and perceived grade average showed that perceived grade average and gender were significant predictors of nutrition knowledge (Table 8).
TABLE 8
Regression of knowledge scores on perceived grade, gender, and age of seventh- and eighth-grade students (n=608)

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Partial regression coefficient</th>
<th>B</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived grade</td>
<td>-1.05</td>
<td>-6.10</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td>Gender*</td>
<td>1.66</td>
<td>5.44</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.05</td>
<td>-.23</td>
<td>.822</td>
<td></td>
</tr>
<tr>
<td>(constant)</td>
<td>12.97</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*males=1; females=2

$R^2 = .11$  $F = 23.64$  $P < .001$
Standard error of estimate 3.63

When the seventh-grade was analyzed by multiple regression, perceived grade and gender were significant predictors of nutrition knowledge, while age was not a significant predictor (Table 9). Analysis of the eighth grade sample revealed that gender and perceived grade were significant predictors, while age was not a significant predictor of nutrition knowledge (Table 10).

When the scores obtained from the seventh- and eighth-grade nutrition knowledge questions were analyzed using Pearson correlation it was found that there was a low positive correlation, but a significant relationship between their nutrition knowledge and attitudes (Table 11).
### TABLE 9
Regression of knowledge scores on perceived grade, gender, and age: seventh-grade students (n=289)

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Partial regression coefficient</th>
<th>B</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived grade</td>
<td>-1.11</td>
<td>-4.50</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td>Gender*</td>
<td>1.19</td>
<td>2.74</td>
<td>.006</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>- .43</td>
<td>-1.32</td>
<td>.187</td>
<td></td>
</tr>
<tr>
<td>(constant)</td>
<td>14.85</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*males=1; females=2

$R^2 = .10$  $F= 10.55$  $p< .001$

Standard error of estimate 3.63

### TABLE 10
Regression of knowledge scores on perceived grade, gender, and age: eighth-grade students (n=319)

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Partial regression coefficient</th>
<th>B</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived grade</td>
<td>-.90</td>
<td>-3.67</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td>Gender*</td>
<td>2.07</td>
<td>4.86</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.35</td>
<td>-.88</td>
<td>.378</td>
<td></td>
</tr>
<tr>
<td>(constant)</td>
<td>13.64</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*males=1; females=2

$R^2 = .13$  $F= 13.93$  $p< .001$

Standard error of estimate 3.60
TABLE 11
Correlation* of knowledge, attitudes, and behavior of seventh- and eighth-grade students

<table>
<thead>
<tr>
<th></th>
<th>Attitudes</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>r = .1683</td>
<td>r = .0753</td>
</tr>
<tr>
<td></td>
<td>p &lt; .001</td>
<td>p = .064</td>
</tr>
<tr>
<td>Attitudes</td>
<td></td>
<td>r = .5373</td>
</tr>
<tr>
<td></td>
<td></td>
<td>p &lt; .001</td>
</tr>
</tbody>
</table>

*Pearson correlation

When the sample was analyzed by grade and gender, a low correlation, but a significant relationship was found between nutrition knowledge and nutrition attitudes of the seventh-grade male students. No relationship between nutrition knowledge and nutrition attitudes or behavior was found in the sample of seventh-grade female students (Table 12).

A low correlation, but a significant relationship was found between nutrition knowledge and attitudes in the eighth-grade male students. No relationship between nutrition knowledge and nutrition attitudes or nutrition behavior was found in the sample of eighth-grade female students (Table 13).
TABLE 12
Correlation* of knowledge, attitudes, and behavior of seventh-grade students by gender

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th></th>
<th>Females</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Attitudes</td>
<td>Behavior</td>
<td>Attitudes</td>
<td>Behavior</td>
</tr>
<tr>
<td>Knowledge</td>
<td>r=.2546</td>
<td>r=.0568</td>
<td>r=.1603</td>
<td>r=.0877</td>
</tr>
<tr>
<td></td>
<td>p=.002</td>
<td>p=.494</td>
<td>p=.057</td>
<td>p=.299</td>
</tr>
<tr>
<td>Attitudes</td>
<td>r=.5181</td>
<td></td>
<td>r=.5513</td>
<td></td>
</tr>
<tr>
<td></td>
<td>p&lt;.001</td>
<td></td>
<td>p&lt;.001</td>
<td></td>
</tr>
</tbody>
</table>

*Pearson correlation

TABLE 13
Correlation* of knowledge, attitudes, and behavior of eighth-grade students by gender

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th></th>
<th>Females</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Attitudes</td>
<td>Behavior</td>
<td>Attitudes</td>
<td>Behavior</td>
</tr>
<tr>
<td>Knowledge</td>
<td>r=.2427</td>
<td>r=.1220</td>
<td>r=.0641</td>
<td>r=.0621</td>
</tr>
<tr>
<td></td>
<td>p=.002</td>
<td>p=.125</td>
<td>p=.421</td>
<td>p=.437</td>
</tr>
<tr>
<td>Attitudes</td>
<td>r=.5305</td>
<td></td>
<td>r=.5204</td>
<td></td>
</tr>
<tr>
<td></td>
<td>p&lt;.001</td>
<td></td>
<td>p&lt;.001</td>
<td></td>
</tr>
</tbody>
</table>

*Pearson correlation
Nutrition Attitudes

Sixth-Grade Attitude Scores

The over-all mean score on the attitude portion of the questionnaire completed by sixth-grade students was 3.2 out of a possible score of 4.0 points. The highest score for the sixth-grade on attitude was 4.0, while the lowest score obtained was 2.2 (Table 14).

TABLE 14
Attitude scores of sixth-grade students

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Low</th>
<th>High*</th>
</tr>
</thead>
<tbody>
<tr>
<td>All students</td>
<td>275</td>
<td>3.2</td>
<td>.31</td>
<td>2.2</td>
<td>4.0</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>147</td>
<td>3.2</td>
<td>.32</td>
<td>2.3</td>
<td>4.0</td>
</tr>
<tr>
<td>Females</td>
<td>128</td>
<td>3.2</td>
<td>.31</td>
<td>2.2</td>
<td>3.8</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 years</td>
<td>143</td>
<td>3.2</td>
<td>.29</td>
<td>2.2</td>
<td>3.8</td>
</tr>
<tr>
<td>12 years</td>
<td>103</td>
<td>3.2</td>
<td>.31</td>
<td>2.2</td>
<td>3.8</td>
</tr>
<tr>
<td>13 years</td>
<td>25</td>
<td>3.2</td>
<td>.39</td>
<td>2.3</td>
<td>3.8</td>
</tr>
<tr>
<td>Perceived grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>81</td>
<td>3.2</td>
<td>.28</td>
<td>2.5</td>
<td>3.7</td>
</tr>
<tr>
<td>B</td>
<td>109</td>
<td>3.2</td>
<td>.31</td>
<td>2.2</td>
<td>4.0</td>
</tr>
<tr>
<td>C</td>
<td>57</td>
<td>3.1</td>
<td>.37</td>
<td>2.3</td>
<td>3.8</td>
</tr>
<tr>
<td>D</td>
<td>25</td>
<td>3.2</td>
<td>.30</td>
<td>2.5</td>
<td>3.8</td>
</tr>
</tbody>
</table>

*4.0 possible
The highest score achieved by sixth-grade females was 3.8 and 4.0 for the males. The lowest score for the females and males was 2.2 and 2.3, respectively. Using one-way analysis of variance, it was found that gender was not a significant predictor of attitudes for sixth-graders.

When mean scores on the attitude portion of the sixth grade questionnaire were calculated on the basis of age, the mean score was 3.2 for all age groups. Using one-way analysis of variance found that the scores of no two age groups were significantly different from each other in terms of nutrition attitudes scores.

Using one-way analysis of variance, it was found that the students who perceived their average grade to be an A were significantly different in nutrition attitudes scores from those who perceived their grade to be a C. The students who perceived their grade to be a D were also significantly different in nutrition attitudes scores from those who perceived their grade to be a C.

The scores obtained by the sixth-grade students on the attitude section were evaluated by multiple regression using the independent variables of perceived grade, age and gender (Table 15). It was found that the combination of the three variables was not a significant, predictor of nutrition attitudes.
TABLE 15
Regression of attitude scores on perceived grade, gender, and age: sixth-grade students (n=276)

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Partial regression coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
</tr>
<tr>
<td>Perceived grade</td>
<td>-.03</td>
</tr>
<tr>
<td>Gender*</td>
<td>.01</td>
</tr>
<tr>
<td>Age</td>
<td>.01</td>
</tr>
<tr>
<td>(constant)</td>
<td>3.16</td>
</tr>
</tbody>
</table>

* females=1; males=2
$R^2 = .01$  $F = .45$  $p = .718$
Standard error of estimate .32

Using Pearson correlation, a low positive, but significant correlation (Table 3), was observed between nutrition attitudes and behavior. A slight, almost negligible but significant relationship was found to exist between the nutrition attitudes and knowledge of the sixth-grade students. When the sample was analyzed by gender, a low correlation, but significant relationship existed between nutrition attitudes and knowledge for the female students (Table 4). A significant positive correlation of similar strength existed between nutrition attitudes and behavior for both females and males in the sixth-grade.
Seventh- and Eighth-Grade Attitude Scores

The over-all mean score on the attitude portion of the questionnaire completed by seventh- and eighth-grade sample was 3.2 out of a possible score of 5.0 (Table 16). The highest score was 4.8 while the lowest score was 1.2 out of a possible score of 5.0

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Low</th>
<th>High*</th>
</tr>
</thead>
<tbody>
<tr>
<td>All students</td>
<td>608</td>
<td>3.3</td>
<td>.64</td>
<td>1.2</td>
<td>4.8</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>306</td>
<td>3.2</td>
<td>.64</td>
<td>1.4</td>
<td>4.8</td>
</tr>
<tr>
<td>Females</td>
<td>302</td>
<td>3.2</td>
<td>.64</td>
<td>1.2</td>
<td>4.8</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 years</td>
<td>149</td>
<td>3.2</td>
<td>.70</td>
<td>1.4</td>
<td>4.8</td>
</tr>
<tr>
<td>13 years</td>
<td>278</td>
<td>3.1</td>
<td>.60</td>
<td>1.2</td>
<td>4.8</td>
</tr>
<tr>
<td>14 years</td>
<td>153</td>
<td>3.1</td>
<td>.64</td>
<td>1.4</td>
<td>4.6</td>
</tr>
<tr>
<td>Perceived grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>128</td>
<td>3.2</td>
<td>.68</td>
<td>1.4</td>
<td>4.8</td>
</tr>
<tr>
<td>B</td>
<td>216</td>
<td>3.1</td>
<td>.61</td>
<td>1.6</td>
<td>4.6</td>
</tr>
<tr>
<td>C</td>
<td>201</td>
<td>3.2</td>
<td>.62</td>
<td>1.2</td>
<td>4.8</td>
</tr>
<tr>
<td>D</td>
<td>46</td>
<td>3.0</td>
<td>.60</td>
<td>2.0</td>
<td>4.4</td>
</tr>
</tbody>
</table>

*5.0 possible
The mean score (3.2) of the seventh-grade males and females was the same. The mean score for the eighth grade males was 3.0 and for the females it was 3.1 (Table 17,18).

When the seventh- and eighth-grade sample was analyzed by age, the mean nutrition attitude score was 3.1 for the 13 and 14 year olds (Table 16). When the seventh- and eighth-grade students were analyzed separately by age, the 13 year old eight graders had the lowest mean (Tables 17, 18). Using one-way analysis of variance, it was found that the nutrition attitude scores of no two age groups were significantly different from each other.

The mean score on the nutrition attitude portion for the seventh- and eighth-grade students who perceived their average grade to be an A was 3.2. Using one-way analysis of variance, it was found that there was a significant difference between the nutrition attitudes scores of the seventh- and eighth-grade sample who reported a perceived grade of A from those with a perceived grade of D.

A significant difference in nutrition attitudes was found for the seventh-grade students who indicated a perceived grade of A from those with a perceived grade of B and a difference between those who reported a perceived grade of A from those with a perceived grade of D. No significant differences were found between any two groups in nutrition attitude scores for the eighth-grade students.
TABLE 17
Attitude scores of seventh-grade students

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Low</th>
<th>High*</th>
</tr>
</thead>
<tbody>
<tr>
<td>All students</td>
<td>289</td>
<td>3.2</td>
<td>.66</td>
<td>1.4</td>
<td>4.8</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>147</td>
<td>3.2</td>
<td>.68</td>
<td>1.7</td>
<td>4.8</td>
</tr>
<tr>
<td>Females</td>
<td>142</td>
<td>3.2</td>
<td>.64</td>
<td>1.4</td>
<td>4.8</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 years</td>
<td>137</td>
<td>3.2</td>
<td>.69</td>
<td>1.4</td>
<td>4.8</td>
</tr>
<tr>
<td>13 years</td>
<td>115</td>
<td>3.3</td>
<td>.59</td>
<td>1.8</td>
<td>4.8</td>
</tr>
<tr>
<td>14 years</td>
<td>25</td>
<td>3.1</td>
<td>.74</td>
<td>1.8</td>
<td>4.6</td>
</tr>
<tr>
<td>Perceived grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>56</td>
<td>3.5</td>
<td>.68</td>
<td>2.1</td>
<td>4.8</td>
</tr>
<tr>
<td>B</td>
<td>101</td>
<td>3.2</td>
<td>.64</td>
<td>1.8</td>
<td>4.6</td>
</tr>
<tr>
<td>C</td>
<td>103</td>
<td>3.3</td>
<td>.64</td>
<td>1.4</td>
<td>4.8</td>
</tr>
<tr>
<td>D</td>
<td>26</td>
<td>3.1</td>
<td>.64</td>
<td>2.0</td>
<td>4.4</td>
</tr>
</tbody>
</table>

*5.0 possible
TABLE 18
Attitude scores of eighth-grade students

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Low</th>
<th>High*</th>
</tr>
</thead>
<tbody>
<tr>
<td>All students</td>
<td>319</td>
<td>3.1</td>
<td>.61</td>
<td>1.2</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Low</th>
<th>High*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>159</td>
<td>3.1</td>
<td>.59</td>
<td>1.4</td>
<td>4.4</td>
</tr>
<tr>
<td>Females</td>
<td>160</td>
<td>3.1</td>
<td>.63</td>
<td>1.2</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Age

<table>
<thead>
<tr>
<th>Age</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Low</th>
<th>High*</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 years</td>
<td>12</td>
<td>3.1</td>
<td>.83</td>
<td>2.0</td>
<td>4.4</td>
</tr>
<tr>
<td>13 years</td>
<td>163</td>
<td>3.0</td>
<td>.60</td>
<td>1.2</td>
<td>4.5</td>
</tr>
<tr>
<td>14 years</td>
<td>128</td>
<td>3.1</td>
<td>.62</td>
<td>1.4</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Perceived grade

<table>
<thead>
<tr>
<th>Grade</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Low</th>
<th>High*</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>72</td>
<td>3.1</td>
<td>.63</td>
<td>1.4</td>
<td>4.5</td>
</tr>
<tr>
<td>B</td>
<td>115</td>
<td>3.1</td>
<td>.58</td>
<td>1.6</td>
<td>4.2</td>
</tr>
<tr>
<td>C</td>
<td>98</td>
<td>3.1</td>
<td>.60</td>
<td>1.2</td>
<td>4.5</td>
</tr>
<tr>
<td>D</td>
<td>20</td>
<td>2.8</td>
<td>.54</td>
<td>2.2</td>
<td>3.9</td>
</tr>
</tbody>
</table>

*5.0 possible

The mean attitude scores of the seventh- and eighth-grade students were analyzed as a group and by grade, using multiple regression. It was found that neither gender, age, nor perceived grade had predictive value for nutrition attitudes of seventh- and eighth-grade students (Tables 19, 20, 21).
### TABLE 19
Regression of attitude scores on perceived grade, gender, and age: seventh- and eighth-grade students \((n=608)\)

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Partial regression coefficient</th>
<th>(B)</th>
<th>(t)</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived grade</td>
<td>-0.05</td>
<td>-1.50</td>
<td>.134</td>
<td></td>
</tr>
<tr>
<td>Gender*</td>
<td>-0.06</td>
<td>-1.55</td>
<td>.122</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-0.03</td>
<td>-0.50</td>
<td>.616</td>
<td></td>
</tr>
<tr>
<td>(constant)</td>
<td>3.52</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*males=1; females=2

\(R^2 = .01\) \(\text{F} = 1.63\) \(p = .182\)

Standard error of estimate .63

### TABLE 20
Regression of attitude scores on perceived grade, gender, and age: seventh-grade students \((n=289)\)

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Partial regression coefficient</th>
<th>(B)</th>
<th>(t)</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived grade</td>
<td>-0.07</td>
<td>-1.48</td>
<td>.140</td>
<td></td>
</tr>
<tr>
<td>Gender*</td>
<td>-0.01</td>
<td>-0.04</td>
<td>.968</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>9.38</td>
<td>0.02</td>
<td>.987</td>
<td></td>
</tr>
<tr>
<td>(constant)</td>
<td>3.40</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*males=1; females=2

\(R^2 = .01\) \(\text{F} = .73\) \(p = .534\)

Standard error of estimate .65
**TABLE 21**
Regression of attitude scores on perceived grade, gender, and age: eighth-grade students (n=319)

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Partial regression coefficient</th>
<th>B</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived grade</td>
<td></td>
<td>-.05</td>
<td>-1.14</td>
<td>.255</td>
</tr>
<tr>
<td>Gender*</td>
<td></td>
<td>-.04</td>
<td>- .54</td>
<td>.587</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td>.54</td>
<td>.81</td>
<td>.420</td>
</tr>
<tr>
<td>(constant)</td>
<td></td>
<td>2.99</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*males=1; females=2

\[ R^2 = .01 \quad F = .67 \quad p = .572 \]

Standard error of estimate .60

Using Pearson correlation, a significant relationship existed between the nutrition attitudes and behavior of seventh- and eighth-grade students (Table 11). A slight, almost negligible, but significant relationship was found between their nutrition attitudes and knowledge. When the sample was analyzed by grade and gender, it was found that a low correlation but significant relationship existed between nutrition attitudes and nutrition knowledge, and a significant correlation existed between nutrition attitudes and nutrition behavior for seventh-grade males (Table 12). For the seventh-grade females and the eighth-grade males and females, a significant relationship existed between nutrition attitudes and nutrition behavior (Table 13). For eighth-grade males a significant relationship existed between nutrition
attitudes and knowledge. A significant positive correlation existed between nutrition attitudes and nutrition behavior for these seventh and eighth-grade students. A low but significant positive correlation existed between nutrition attitudes and nutrition knowledge for seventh and eighth-grade males.

Nutrition Behavior

Sixth-Grade Behavior Scores

The over-all mean score on the behavior portion of the questionnaire completed by the sixth-grade students was 1.9 out of a possible score of 3.0 points. The highest score attained by the sixth-grade sample was 2.7 while the lowest score recorded was 1.4 (Table 22).

The mean score on the behavior section completed by sixth-grade students when computed by age groups was 2.0 for all the age groups. The use of one-way analysis of variance found that no two groups were significantly different in nutrition behavior from each other when divided by age.

The mean score on the behavior portion for the students who perceived their grade average to be an A was 2.1. Using one-way analysis of variance, it was found that the students who perceived their grade to be an A were significantly different in nutrition behavior scores from those who perceived their grade average to a B or D.
### TABLE 22
Behavior scores of sixth-grade students

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Low</th>
<th>High*</th>
</tr>
</thead>
<tbody>
<tr>
<td>All students</td>
<td>275</td>
<td>2.0</td>
<td>.28</td>
<td>1.4</td>
<td>2.6</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>148</td>
<td>2.0</td>
<td>.27</td>
<td>1.4</td>
<td>2.6</td>
</tr>
<tr>
<td>Females</td>
<td>128</td>
<td>2.0</td>
<td>.28</td>
<td>1.4</td>
<td>2.6</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 years</td>
<td>144</td>
<td>2.0</td>
<td>.28</td>
<td>1.4</td>
<td>2.6</td>
</tr>
<tr>
<td>12 years</td>
<td>103</td>
<td>2.0</td>
<td>.26</td>
<td>1.4</td>
<td>2.6</td>
</tr>
<tr>
<td>13 years</td>
<td>25</td>
<td>2.0</td>
<td>.30</td>
<td>1.5</td>
<td>2.6</td>
</tr>
<tr>
<td>Perceived grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>81</td>
<td>2.1</td>
<td>.25</td>
<td>1.6</td>
<td>2.6</td>
</tr>
<tr>
<td>B</td>
<td>109</td>
<td>2.0</td>
<td>.29</td>
<td>1.4</td>
<td>2.6</td>
</tr>
<tr>
<td>C</td>
<td>57</td>
<td>2.0</td>
<td>.28</td>
<td>1.4</td>
<td>2.6</td>
</tr>
<tr>
<td>D</td>
<td>26</td>
<td>2.0</td>
<td>.29</td>
<td>1.4</td>
<td>2.6</td>
</tr>
</tbody>
</table>

*3.0 possible

The mean behavior scores of the sixth grade students were evaluated by multiple regression using the variables of gender, age, and perceived grade average. It was found that the variables of perceived grade, gender, and age were not significant predictors of nutrition behavior scores the sixth-graders (Table 23).
TABLE 23
Regression of behavior scores on perceived grade, gender, and age: sixth-grade students (n=276)

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Partial regression coefficient</th>
<th>B</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived grade</td>
<td>-.04</td>
<td>-2.04</td>
<td>.043</td>
<td></td>
</tr>
<tr>
<td>Gender*</td>
<td>.01</td>
<td>.04</td>
<td>.973</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>6.64</td>
<td>.03</td>
<td>.980</td>
<td></td>
</tr>
<tr>
<td>(constant)</td>
<td>2.07</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* females=1; males=2
R² = .02  F = 1.51  p = .210
Standard error of estimate .28

The nutrition behavior frequency scores were analyzed using Pearson correlation (Table 3). A low correlation resulting in a definite, but a significant relationship was found to exist between nutrition behavior and nutrition attitudes. No relationship was found to exist between nutrition behavior and nutrition knowledge. When the sample was analyzed by gender (Table 4), a significant relationship was found between nutrition behavior and nutrition attitudes for the sixth-grade male students and female students.
Seventh- and Eighth-Grades Behavior Scores

The over-all mean score on the behavior portion of the questionnaire completed by seventh- and eighth-grade students was 2.9 out of a possible score of 5.0 points (Table 24). When the mean scores were analyzed by grade and gender, it was found that the overall seventh-grade mean score as well as the mean score of both genders was 2.9 (Table 25). Analysis of the eighth-grade revealed a mean score of 2.7 for the males and 2.8 for the females (Table 26). Evaluation of the mean nutrition scores using one-way analysis of variance showed no significant differences in nutrition behavior scores between any two gender groups.
### TABLE 24
Behavior scores of seventh and eighth-grade students

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Low</th>
<th>High*</th>
</tr>
</thead>
<tbody>
<tr>
<td>All students</td>
<td>607</td>
<td>2.9</td>
<td>.60</td>
<td>1.0</td>
<td>4.5</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>306</td>
<td>2.8</td>
<td>.61</td>
<td>1.0</td>
<td>4.5</td>
</tr>
<tr>
<td>Females</td>
<td>301</td>
<td>2.9</td>
<td>.59</td>
<td>1.7</td>
<td>4.4</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 years</td>
<td>149</td>
<td>3.0</td>
<td>.05</td>
<td>1.0</td>
<td>4.4</td>
</tr>
<tr>
<td>13 years</td>
<td>278</td>
<td>2.9</td>
<td>.03</td>
<td>1.4</td>
<td>4.5</td>
</tr>
<tr>
<td>14 years</td>
<td>152</td>
<td>2.7</td>
<td>.05</td>
<td>1.1</td>
<td>4.2</td>
</tr>
<tr>
<td><strong>Perceived grade</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>128</td>
<td>2.9</td>
<td>.67</td>
<td>1.1</td>
<td>4.5</td>
</tr>
<tr>
<td>B</td>
<td>215</td>
<td>2.9</td>
<td>.55</td>
<td>1.5</td>
<td>4.4</td>
</tr>
<tr>
<td>C</td>
<td>201</td>
<td>2.9</td>
<td>.60</td>
<td>1.0</td>
<td>4.3</td>
</tr>
<tr>
<td>D</td>
<td>46</td>
<td>2.7</td>
<td>.60</td>
<td>1.4</td>
<td>4.0</td>
</tr>
</tbody>
</table>

*5.0 possible

When the mean scores on the behavior portion of the questionnaire completed by the seventh- and eighth-grade students were analyzed according to age groups, it was found that the 12 year olds had the highest mean score of 3.0. (Table 24) One-way analysis of variance found the nutrition behavior scores of the 12 year old students was significantly different from the 14 year olds. When the seventh- and eighth-grade students were analyzed by grade and age, a high mean score of 3.0 was obtained by the seventh-grade 12 year olds. The highest score obtained was 4.5 by
13 year old seventh-grade students, while the lowest score 1.0, was recorded by the seventh-grade 12 year olds.

**TABLE 25**
Behavior scores of seventh-grade students

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Low</th>
<th>High*</th>
</tr>
</thead>
<tbody>
<tr>
<td>All students</td>
<td>289</td>
<td>3.0</td>
<td>.59</td>
<td>1.0</td>
<td>4.5</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>147</td>
<td>3.0</td>
<td>.59</td>
<td>1.0</td>
<td>4.5</td>
</tr>
<tr>
<td>Females</td>
<td>142</td>
<td>3.0</td>
<td>.58</td>
<td>1.7</td>
<td>4.4</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 years</td>
<td>137</td>
<td>3.0</td>
<td>.62</td>
<td>1.0</td>
<td>4.4</td>
</tr>
<tr>
<td>13 years</td>
<td>115</td>
<td>3.0</td>
<td>.55</td>
<td>1.5</td>
<td>4.5</td>
</tr>
<tr>
<td>14 years</td>
<td>25</td>
<td>2.9</td>
<td>.63</td>
<td>1.6</td>
<td>4.2</td>
</tr>
<tr>
<td>Perceived grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>56</td>
<td>3.1</td>
<td>.68</td>
<td>1.5</td>
<td>4.5</td>
</tr>
<tr>
<td>B</td>
<td>101</td>
<td>3.0</td>
<td>.53</td>
<td>1.5</td>
<td>4.4</td>
</tr>
<tr>
<td>C</td>
<td>103</td>
<td>3.0</td>
<td>.59</td>
<td>1.0</td>
<td>4.3</td>
</tr>
<tr>
<td>D</td>
<td>26</td>
<td>2.8</td>
<td>.57</td>
<td>1.6</td>
<td>4.0</td>
</tr>
</tbody>
</table>

*5.0 possible

The mean score on the nutrition behavior portion for the students who perceived their grade average to be an A, B or C was 2.9 for the total seventh and eighth-grade sample (Table 24). One-way analysis of variance showed that the perceived grade C group to be significantly different in nutrition behavior scores.
from the perceived grade D group. When the seventh- and eighth-grade were analyzed as separate sample groups, the highest mean score, 3.1 was obtained by seventh-grade students who had a perceived grade of an A while the lowest mean score of 2.7 was recorded by the eighth-grade sample who reported a perceived grade of A and D (Tables 25, 26) One-way analysis of variance showed no significant difference between the mean nutrition behavior scores of the seventh-grade students when analyzed by perceived grade. With the eighth-grade sample, one-way analysis of variance found a significant difference in nutrition behavior scores between the perceived grade B group and the perceived grade D group. A significant difference in nutrition behavior scores was also found between the perceived grade C group and the perceived grade D group.
The nutrition behavior scores of the seventh- and eighth-grade students as a group were analyzed by multiple regression using the variables of gender, age, and perceived grade average (Table 27). For the seventh- and eighth-grade students as a group, age showed a very weak predictive value for nutrition behavior.

When multiple regression was done using the same independent variables with the seventh-grade and the eighth-grade students as separate samples, no predictive relationship was found (Tables 28,29).
### TABLE 27
Regression of behavior scores on perceived grade, gender, and age: seventh and eighth-grade students (n=608)

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Partial regression coefficient</th>
<th>B</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived grade</td>
<td></td>
<td>-.02</td>
<td>-.61</td>
<td>.540</td>
</tr>
<tr>
<td>Gender*</td>
<td></td>
<td>-.10</td>
<td>-3.09</td>
<td>.001</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td>.01</td>
<td>.28</td>
<td>.781</td>
</tr>
<tr>
<td>(constant)</td>
<td></td>
<td>3.31</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*males=1; females=2  
R$^2$ = .02  
F = 3.37  
p = .018  
Standard error of estimate .60

### TABLE 28
Regression of behavior scores on perceived grade, gender, and age: seventh-grade students (n=289)

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Partial regression coefficient</th>
<th>B</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived grade</td>
<td></td>
<td>-.05</td>
<td>-1.26</td>
<td>.225</td>
</tr>
<tr>
<td>Gender*</td>
<td></td>
<td>-.02</td>
<td>-.22</td>
<td>.828</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td>-.04</td>
<td>-.76</td>
<td>.451</td>
</tr>
<tr>
<td>(constant)</td>
<td></td>
<td>3.25</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*males=1; females=2  
R$^2$ = .01  
F = .73  
p = .534  
Standard error of estimate .59
TABLE 29
Regression of behavior scores on perceived grade, gender, and age: eighth-grade students (n=318)

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Partial regression coefficient</th>
<th>B</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived grade</td>
<td></td>
<td>-.01</td>
<td>-.10</td>
<td>.919</td>
</tr>
<tr>
<td>Gender*</td>
<td></td>
<td>-.06</td>
<td>.77</td>
<td>.438</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td>-.03</td>
<td>-.45</td>
<td>.656</td>
</tr>
<tr>
<td>(constant)</td>
<td></td>
<td>2.83</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*males=1; females=2

\( R^2 = .01 \quad F = .28 \quad p = .840 \)

Standard error of estimate .60

When the seventh- and eighth-grade samples were analyzed by Pearson correlation, a moderate correlation and significant relationship was found between nutrition behavior and attitudes (Table 11). When the sample was analyzed by grade and gender, it was found that a moderate correlation and significant relationship existed between the nutrition behavior and attitudes of the seventh-grade male and female students and the eighth-grade male and female students (Tables 12, 13).
CHAPTER V
DISCUSSION

In this chapter an interpretation of the findings is presented. Implications of the research are also identified as well as recommendations for future research.

Nutrition Knowledge

Sixth-Grade

Answers to only six of the 20 nutrition knowledge questions provided a direct of knowledge of nutrient sources and functions. The remaining 14 questions assessed food patterns influenced by cultural differences, psychological reactions to food, and time, money, and task management in relation to food preparation and purchasing (Appendix C, Form 1, Section III). The number of correct responses varied considerably from one question to another.

Forty-five percent of the students said that carbohydrates allowed protein to be used for body building, while 49 percent thought that carbohydrates helped the body to conserve water or build muscle. Seventy-five percent did know that it is important for growing children to obtain adequate protein and
minerals and 60 percent knew that carbohydrate, fats, and protein provided energy for the body. Likewise, 75 percent were aware that diseases may develop if people do not eat foods that contain all the needed nutrients. Two-thirds of the students identified the potato as a vegetable. They were not as knowledgeable, though, about sources of protein, as only one-third selected turkey from the group of protein choices, while the rest of the students spread their responses rather evenly among sweet potato, tomato, or rice. Skinner and Woodburn (77) noted similar results in their study. These students obviously need to be taught the protein content of food so that they can identify good and poor sources of this nutrient.

When questions measuring knowledge of psychological influences on perception of nutrition were asked, the students demonstrated a better understanding of peer and cultural expectations than they did of nutritional facts. The students were aware that manufacturers make food packages attractive in an attempt to sell more of the product. They also realized that they would not like to eat green mashed potatoes because the color is different from the usual expected color. The answers to the preceding two questions reflect psychological reaction to the way in which food is or might be presented. They do not measure knowledge of specific nutrition relationships. The students were able to perceive a relationship between appearance of the food product and its acceptance. It appears that students are much more
apt to choose to eat a food because it is visually attractive than because it is nutrient dense.

A majority of students (59 percent) indicated that they chose to eat candy, potato chips and coke because their friends ate them. The answer to this question is evidence that friends and peers exert a large influence on what adolescents choose to eat. This finding agrees with one of the dietary characteristics (their likes and dislikes of foods are very much influenced by their peers) identified by Truswell and Darnton-Hill (57). Nutrition educators need to recognize and utilize the magnetism of peer influence when designing nutrition programs.

Students were asked why some families eat three meals a day while others may eat only when they are hungry. More than four-fifths of the students recognized that people have different life styles.

The students showed variation from question to question relating to the cultural aspects of the use of food. Answers to the following six questions were used to assess general food knowledge. The directions were to select a best response. Therefore, their perceptions were expressed and evaluated in accordance with the designers of the questionnaire. They knew that Mexicans eat more corn and corn products than they eat themselves because there is more corn than wheat in Mexico, that Italians are apt to eat more of the pasta type products than other people, Chinese children might use chopsticks because they are
traditional in China, and that Southwest Asians use more rice than wheat because rice grows better in their climate. They realized that persons in the middle portion of the United States are less apt to eat seafood than those who live along the sea coast because of the expense of long distance shipping. They also had learned that the Indians of the Southwest preserved most of their foods by drying.

Questions of this type do not achieve a true assessment of food and nutrition knowledge. Instead, they tend to measure or reflect the stereotyped images that have been perpetuated regarding people and/or cultures of specific geographic regions. Would it not be better, when it is possible to travel to any part of the world in just a few hours, to teach students that all humans need the same basic nutrients for growth and maintenance of the body. However, they should be taught that these nutrients may be obtained from a wide variety of foods, some of which are more available in specific geographic areas than in other areas.

Three of the knowledge questions related to the use of time and money. Nearly 90 percent of the students stated that many families in the United States are now eating more "TV dinners" because they take less time to prepare than home-cooked meals. Likewise, three-fourths of the students indicated that many people often eat in restaurants because they do not like to spend time preparing food. When asked what the family should do when they want to try a new cereal, they thought that a small box of a
new cereal should be purchased first to determine if the family will like it. These preceding questions could have been answered on the basis of common sense or reasoning rather than on the basis of factual knowledge.

In one question the students were asked to select the task needed to be done first when planning what to serve at a party. Approximately half of the students indicated that they would obtain several ideas about what to serve while 21 percent would first go to the grocery store. It is an accepted fact that students may accomplish given tasks in different ways. Perhaps those who chose to go to the grocery store first use the store as a visual resource offering ideas and suggestions as to what foods might be suitable to serve at a party. By doing their "idea shopping" in the grocery store they will learn what is readily available for purchase and may also note the cost of the items.

Seventh and Eighth-Grade

The students knowledge of the functions, needs, and sources of nutrients and food energy were measured by answers to 10 specific questions (Appendix C, Form II, Section III). Accuracy of answers varied considerably. Only slightly more than half of the students knew that age, amount of exercise and gender were of more importance than personal beliefs when determining nutrient and caloric needs. Approximately the same number of students were
aware that a pregnant woman needs more protein than an active, non-pregnant young person.

It has been reported from many national surveys that many adolescents have weight problems. Findings in this study provide evidence that students need to be made aware of how age, gender and exercise affect nutrient and caloric needs. West Virginia has a high percentage of pregnant teenage girls. It is important for these young women to know that protein, along with other nutrients, is of vital importance during pregnancy to enhance the probability of delivery of a healthy baby.

Forty-five percent of the students were aware that iron was needed to prevent anemia and 47 percent realized that iron was needed for the making of red blood cells. Twice as many students selected milk over hamburger, and more chose pineapple than hamburger, as good sources of iron. Students studied by Skinner and Woodburn (77) also had difficulty identifying food sources of iron and calcium. Iron and calcium have been identified as two of several vital nutrients in which children and adolescents tend to be deficient. Teaching the use of various general food guides to assist in the daily selection of food items has not proven effective in meeting the needs of such nutrients as iron and calcium. It appears that nutrition educators need to make a more effective impact on students when teaching them food sources of iron and calcium.

In addition, 55 percent of the students thought that 10 potato chips contained more calories than 4 oz of steak. The inability to
correctly identify high calorie foods agrees with the findings from the Skinner and Woodburn study (77). Nearly half of the students in the current study thought that the nutritional advantage of an expensive piece of steak compared to a cheaper piece would be that it probably would have less fat. Less than 25 percent selected the response that it probably would have no nutritional advantage. However, three-fourths were aware that raw green pepper would provide more vitamin C than green pepper cooked in some manner.

The prevailing attitude of many people is that the more expensive an item, the better it will be. This attitude includes food items as well as other tangible items and human services. Therefore, it is difficult for adolescents to realize that the less expensive cuts of meat contain the same nutrients as the highly-prized, and consequently expensive cuts of meat. Peppers are a popular vegetable in the region in which this research was done and are used extensively in both the raw and cooked form. It is important to know how food preparation methods affect the nutritive value of a given food item so that intelligent decisions can be made regarding the availability of nutrients resulting from the various ways of serving a food product.

When asked to select the most nutritious fast-food meal of four, more than half selected chicken, mashed potatoes, and roll, while less than a third chose sausage-cheese pizza and salad. Pizza has been identified by many people as a junk food, not realizing its true nutrient value. Thus, not being aware of the
nutrient value of pizza, the students selected a menu representative of what they considered good nutritious food. Also, when asked to select nutritious food combinations for breakfast, less than twenty-five percent selected correctly. Perhaps this was because one of the menus offered non-traditional breakfast items such as a hamburger and banana milkshake compared to the traditional juice, egg, cereal, and milk. Skinner and Woodburn (77) noted similar findings. Most adolescents tend to be traditional and are not willing to try new foods or food combinations. Also, many people think that particular foods are to be eaten at only certain times of the day. For instance, the eating of a piece of pie or a hamburger in morning and eggs in the evening is regarded by many as inappropriate behavior.

More than three-fourths of the students said that young people do not eat many different vegetables because they have not learned to like them. Perhaps this reflects the effects of a passive philosophy of parenting that has predominated in our country for the last several generations as compared to the more authoritarian philosophy of earlier generations.

Similar percentages of correct responses are recorded regarding cooking methods. Most students correctly selected fried potatoes as being more crisp than baked, mashed or steamed. They were also aware that when frying a food, one should use moderate heat. Frying food is one of the predominate methods of food preparation in the area in which this research study was
conducted.

Somewhat fewer numbers of students demonstrated an understanding of food preparation times. Two-thirds of the students did know that hamburgers could be prepared in 20 minutes or less without using a microwave oven. However, 15 percent selected homemade vegetable-beef soup as a quick meal, probably because many families in this area can such items during the summer months and just heat and use the product during the rest of the year. The students do not count the preparation time for canning into the preparation time as they observe it being served in their home. Preparation times are not important to students of this age as they are not apt to be involved in food preparation.

There also is inconsistency in students' knowledge of where to find answers to nutrition questions. When presented with the problem of burning the toast every morning, 66 percent said that they should try to figure out what they were doing wrong rather than trade chores or make something else for breakfast. A majority of the students decided that they should ask a doctor about a new weight-loss diet before trying it. Sixty-one percent of the students indicated that the value of information found in a book should be evaluated relative to the background of the author. However, they were not knowledgeable as to what person might be most helpful in planning a low-cost party menu. Forty percent of the students selected the food chemist, with the home economics teacher being selected by less than one-third of the students. This
response leaves a question of why they chose the food chemist as there are no food chemists in the community. All of the students in the middle school are in a home economics class for one-half a semester each year. Home economics teachers must be aware of the interests of adolescents and utilize these interests when developing curriculum and planning classroom activities to make their programs of study more attractive to the students.

When comparing searches to find recipes for nutritious snacks by either asking teachers or using cookbooks for ideas, four-fifths of the students realized that the searches could yield either the same or different ideas. To make a meal more enjoyable the students chose to talk with the others present at the meal rather than settle a family problem, play with a pet, or eat as quickly as possible. If, however, they did not like the foods served in the school cafeteria, more than half chose to organize a group of students to talk with the cafeteria manager rather than not eat or cause a major disturbance. Perhaps this response reflects the mandate of West Virginia that food vending machines in schools can not be used during lunch hours.

Slightly more than half of the students realized that nutrition would not be likely to help solve poor social skills. About two-thirds recognized that there is a relationship between self-image and physical appearance of teenagers for both boys and girls. Knowing that most students in middle school realize that
there is a relationship between self-image and physical appearance is a factor that should be utilized when developing nutrition education curriculum for these students. Information or knowledge is more effectively internalized by the student when it appears relevant to something else that they feel is important.

The students appear to not be as knowledgeable about the production and use of foods. Many did not know the resources needed to grow soybeans nor that soybeans are used in the manufacturing of imitation bacon. Perhaps this is because many hogs are raised in the area but soybeans are not. Also, real bacon is a highly regarded and often used food item.

The CANKAP questionnaire was used with a sample of students in Tennessee to gather baseline data. The reported mean knowledge score for the fourth through sixth-grade was 10.8 or 54.0 percent of the possible score (97). The mean knowledge score recorded for the sixth-grade students in this study was 13.1 or 65.5 percent of the possible score. Likewise, in the seventh through ninth-grade sample from Tennessee the mean knowledge score was 12.7 or 50.7 percent of the possible score. The seventh- and eighth-grade sample in the West Virginia study achieved a mean knowledge score of 12.8 or a 50.8 percent of the possible score. These two groups of Appalachian students are similar in their achieved scores.

From the findings of several nutrition knowledge surveys of students, scores of 40 to 60 percent out of the possible scores have been reported (20,75,76,77). The findings from this study are
very similar to the reported findings from other studies done in various parts of the United States.

Nutrition Attitudes

Sixth Grade

The sixth grade students expressed their attitudes by selecting a face from four alternatives representing a scale of 'I do not like it at all' to 'I like it a lot'. The attitude statement to which the sixth-grade students responded with the greatest consensus was how they felt when they thought about people not having enough to eat. Three-fourths selected the sad, 'I do not like face', as representative of their feelings toward this statement.

The sixth-grade students expressed a very positive attitude (93 percent) toward eating foods from the different food groups, but were not as positive (87 percent) about eating fruits and vegetables. Seventy-nine percent expressed the attitude that they would rather drink cola than milk with a meal and that they liked drinking a lot of water. The responses to these attitude statements reflect preferences. Constant emphasis on and availability of nutritious foods must be maintained and perhaps a preference for these foods will be developed.

Nearly three-fourths of the students expressed a positive attitude toward working with others to find the answers to questions about food. However, 56 percent expressed a negative
attitude about taking the advice of people who advertise food on TV. Students need positive encouragement and reinforcement of nutrition attitudes. Parents, teachers, and other influential individuals need to be positive in their reference to and use of nutrient dense foods. Students need to be taught by example that empty calorie foods have a special place in diet patterns and that they be used only occasionally.

The responses of the sixth-grade students toward several of the attitude statements were very evenly distributed along the attitude scales, making it difficult to identify a predominant attitude. The students expressed a slightly favorable attitude (67 percent) toward trying foods served in different ways but expressed a more positive attitude (76 percent) toward tasting food from other countries. The attitude that they expressed toward the eating of foods produced near where they lived was very evenly distributed between the four alternatives ranging from 'I do not like it at all' to 'I like it a lot'. Such responses reflect an attitude of staying with the familiar rather than trying something different.

Seventh and Eighth-Grade

The seventh and eighth-grade students expressed their nutrition attitudes using a five-point scale. The scale ranged from "strongly disagree" to "strongly agree".

Approximately fifty-two percent of the seventh and
eighth-grade students (complete sample and by grade) would rather drink cola beverages than milk with their meals. This agrees with findings reported by Story and Resnick (82).

Forty-four percent of the students indicated that they liked to eat a variety of foods each day and 62 percent "strongly disagreed" with taking vitamin pills rather than learning to eat new foods. A majority (55 percent) of the students expressed the feeling that they liked low-cost food as well as high-cost foods. However, nearly half (45 percent) of the students indicated that it bothered them to eat a food which they had not had before. These attitudes reflect the desire to stay with the familiar, in this case, familiar foods. This study was done in a rural setting in which unemployment rates are currently very high. Many of these students have been forced to eat, and perhaps have learned to like, inexpensive foods.

Only twenty-six percent of the students liked to think about the nutrients in foods when deciding what to eat, while more than half (52 percent) expressed the desire to know about foods that were "good" for them. Forty-four percent of the students did not care to find out about the background of people who give advice about food and nutrition. Sixty-five percent of the students would rather cook or prepare food for themselves than skip a meal. Their attitude toward how they ate affected other people was evenly expressed along the attitudinal scale.

Not many people really like to think about nutrients when
selecting a food item for consumption. It is really much more enjoyable to select and eat a food because it is pleasing to the sense of taste. Students of this age do not like to be told what to do. They are seeking independence, and choosing what one is going to eat is a way of expressing independence. Students of this age are interested in themselves, not in how they might share with or assist someone else in accomplishing goals or tasks.

Nutrition Behavior

Sixth-Grade

A majority of the sixth-students responded with a "sometimes" response to 5 of the 10 behavior statements. These five statements reflected their nutrition behavior relative to eating foods fixed in new ways, how often they ate orange and yellow vegetables, how often they ate foods from other cultures, how often they would try to find out why someone gave them nutrition advice before they would try it, and how often they would buy foods because they were advertised on television. A "sometimes" response would be expected of young adolescents who are in the process of establish their own identity (5,6). They are impressionable and their behavior often differs from time to time.

A majority (59 percent) of the sixth-grade students indicated that they did not consider the nutritional value of the food they
chose to eat. Fifty percent indicated that they "sometimes" or "often" wished to work with someone to learn about the nutritional value of a food and 55 percent would try to find out why a food was traditional in their family. Ninety-three percent of the students said that they "sometimes" or "often" ate green and yellow vegetables and 99 percent drank milk or ate food products made from milk.

When comparing the nutrition attitude responses of the sixth-grade students to their nutrition behavior responses, it appears that they eat yellow and green vegetables more often than they would like to have them. Also, they drink milk or eat products made from milk much more often than their attitude toward milk indicated they would. Perhaps, if given the opportunity, they would drink both milk and cola beverages with their meals. The difference between what the students expressed as attitudes and indicated as behavior may reflect the influence of parental guidance and the kinds of foods offered by the school breakfast and lunch programs. This would be in agreement with the findings of Johnson and Jensen (16) who found that fifth grade children who ate school lunches or ate their noon meal at home consumed more nutritious foods than those who carried a brown bag lunch. More emphasis needs to be placed on preparing tasty and nutritious foods that are easily carried in a 'brown bag'.
Seventh- and Eighth-Grade

The seventh and eighth-grade students identified their nutrition behavior using a five-point scale, ranging from "never" to "always". Eighty-two percent of the seventh and eighty-grade students indicated that they do not use a food guide to help choose the foods which they eat. Over half (60 percent) indicated that they do not think about nutrient or calorie needs when deciding what to eat and 55 percent did not try to select a balanced meal when they ate in a restaurant. These students are expressing their desire for independence from authority figures of any type. Also, they probably do not see persons whom they respect selecting balanced meals.

Fifty-three percent indicated that they did not use different ways to solve food and nutrition problems. However, 55 percent of the complete seventh and eighth-grade sample did skip meals to reduce intake of food energy. More of the female (41 percent) than the male (20 percent) students indicated that they engaged in this behavior. Thirty-nine percent of the seventh-grade and 43 percent of the eighty-grade females reported skipping meals to reduce intake of food energy.

Nearly two-thirds (62 percent) of the students indicated that they used good safety rules when handling and tasting food. Half of the students never or seldom used "different" cooking methods when preparing food, while 36 percent indicated that they tasted familiar foods when prepared in new ways. More indicated that
they do (44 percent), than do not (27 percent) eat several kinds of fruits and vegetables each day. These findings reflect a typical American characteristic of not liking and of not eating adequate amounts of fruits and vegetables.

Seventy percent of the students indicated that they did try to make mealtime pleasant for the people with whom they ate. However, they did not express a concern about how the way they ate might affect other people. Table manners are developed and are practiced to help make people feel more comfortable in a dining situation. Presently in our society, the learning and practicing of table manners is not considered important.

Nutrition Knowledge, Attitudes, and Behavior

A significant positive relationship between nutrition knowledge scores and nutrition attitude scores was found for the composite sample of the sixth-graders and the seventh- and eighth-graders. Eppright et al. (11) and Werblow, Fox, and Henneman (27) reported finding a positive relationship between nutrition knowledge and nutrition attitudes.

No significant relationship was found to exist between the nutrition knowledge scores and the nutrition behavior scores of these middle school students. Perkin (81) cited similar findings from her study in which she instructed a group of 19 teenagers who were either pregnant or who already had a child. For a month the
teenagers were instructed in the importance of nutrition, nutrient requirements, and food sources of the nutrients. She reported that the actual dietary improvement after exposure to the nutrition program was slight.

A significant positive relationship was found between nutrition attitude scores and nutrition behavior scores for all groups of these middle school students. However, this relationship was weak and may not portray a relationship of importance. Foley et al. (20) found a significant positive correlation between attitude scores and nutrition behavior of fifth-grade students. Findings from a study done by Byrd-Bredbenner and Shear (31) with college graduates indicated a significant positive relationship between nutrition attitudes and behavior. Carruth, Mangel, and Anderson (91) also reported that nutrition attitudes were a more accurate predictor of dietary behavior than nutrition knowledge.

Johnson and Johnson (98) argue that attitudes appear to be a stronger predictor of behavior than knowledge. They continue by stating that attitudes formed by having direct experience with objects have a stronger influence on behavior than those formed without direct experience.
Implications

The nutrition knowledge of the students as measured by the questionnaires used in this study is low. The students appear not to be concerned about nutrition in their lives. The relationships found between nutrition knowledge and attitudes and between nutrition attitudes and behavior were weak. No significant relationship was found between nutrition knowledge and behavior.

The goal of nutrition educators should be to change nutrition behavior. The nutrition behavior of the middle school students needs to be modified. For this to be accomplished, middle school curriculum needs to emphasize the importance of nutrition. Nutrition behavior modification may be accomplished by specific programs and activities that could be included in home economics, science, and health related courses. However, nutrition is generally not a course requirement for persons in early childhood, elementary, intermediate and physical education. Therefore, these persons do not have sufficient background to teach effectively nutrition knowledge and behavior. A required course in nutrition should be offered and taught by a person with academic preparation in nutrition and methods of teaching middle school students.

Recommendations

If this study were to be repeated the following recommendations are made. First, the questionnaire should be redesigned so that specific nutrition knowledge relating to the
identification, functions and sources of the nutrients would be measured. Second, to evaluate nutrition behavior, some measurement of dietary intake should be utilized. Third, evaluation of nutrition knowledge, attitudes and behavior should be done in terms of socio-economic status so differences can be determined. Fourth, it would also be helpful to obtain information relating the nutrition knowledge, attitudes, and behavior of the care-givers of the students.
CHAPTER VI
SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

A descriptive study was conducted to determine if there is a relationship among nutrition knowledge, attitudes, and behavior of Appalachian middle school children. The specific objectives of this study included measuring nutrition knowledge of middle school children by grade, gender, age, and self-perceived grade average; identification of nutrition attitudes and behaviors of middle school children by grade, gender, age, and self-perceived grade average; and determine relationships among nutrition knowledge, attitudes, and behavior of middle school children on the bases of grade, age, gender, and self-perceived grade average.

A questionnaire, CANKAP, which was developed and tested by a research team from Tennessee, was used to collect the data. Two comparable forms of the questionnaire were used, one for the sixth-grade students and one for the seventh- and eighth-grade students. The questionnaires contained 10 attitude questions or statements and 10 behavior questions or statements which were answered with Likert-like scaled responses. Knowledge was tested by 20 (sixth-grade) and 25 (seventh- and eighth-grade) multiple choice questions with four alternatives from which to select the best response.
The sample consisted of the students who attend a central West Virginia middle school. The homeroom teachers administered the questionnaire at the same time to all the students present on the selected morning.

The data were transferred to computer readable forms and entered into the SSPSX statistical program for analysis. The data were analyzed by frequency distribution, Pearson correlation, multiple regression, and one-way analysis of variance.

The mean knowledge score for the sixth-grade students was higher (65.5%) than the mean knowledge score for the seventh and eighth-grade students (50.8%). The knowledge scores for the females from all three grades was higher than the mean scores recorded by the male students. The students scored higher on the questions relating to the cultural and psychological aspects of nutrition and food than they did on identification of nutrient functions, need, and food sources. The students had difficulty identifying food sources of iron, food combinations which would supply adequate amounts of essential nutrients, and the potential energy value of foods.

It was found for this sample of Appalachian middle school students that a significant positive, but weak relationship exists between nutrition attitudes and nutrition behavior. A significant, positive relationship between nutrition knowledge and attitudes was found to exist for both the sixth-grade and the seventh- and eighth-grade sample. No significant relationship between nutrition knowledge and behavior was found.
Self-perceived grade average and gender were found to be significant, but weak, predictors of nutrition knowledge. The independent variables, perceived grade, gender, and age were not found to be significant predictors of nutrition attitudes and behavior.

Students reported that they prefer cola beverages over milk, but they consumed milk regularly. They also indicated that they ate more vegetables than they really would like. Students were not particularly interested in the nutrient composition of the foods which they ate, nor were they really interested in what nutrients they needed. Female students were more interested than males in weight control and indicated that they skipped more meals to accomplish this goal than did the male students.

Nutrition knowledge of the middle school students in this study is low. Because of the weak relationship between nutrition attitudes and behavior and the insignificant relationship found between nutrition knowledge and behavior, corrective measures need to be implemented in the middle school to modify nutrition behavior. Middle school curriculum needs to emphasize the importance of nutrition in the life of the student. This emphasis could be implemented by incorporating programs and activities into home economics, science, and health courses. A nutrition course should be developed with nutrition behavior modification as its primary goal and taught by an individual with expertise in nutrition knowledge and methods of middle school education.
APPENDIX A

Documents Granting Permission for Doing the Research
January 7, 1987

Mrs. Lillian Halverson
118 Fayette Street
Buckhannon, West Virginia 26201

Dear Mrs. Halverson:

The purpose of this letter is to affirm that the survey that you wish to do with students in the Upshur County schools as part of your doctoral dissertation will be considered as an integral part of the students' classwork and will have no effect upon the grades of the students. As a consequence, I see no reason to secure parental permission for the students to participate in the survey nor do I foresee any possible liability on the part of the Ohio State University as a result of the students' participating in the survey since the survey questions do not in any way constitute any invasion of a student's privacy. They are, rather, questions which garner the knowledge that students already possess regarding nutrition.

I am happy that the Upshur County Schools is able to assist you in gathering data for your dissertation.

Sincerely yours,

Lynn E. Westfall
Superintendent

LW9/1mf
MINUTES OF THE REGULAR MEETING OF THE BOARD OF EDUCATION OF
THE COUNTY OF UPSHUR, STATE OF WEST VIRGINIA, HELD AT 7:00 O'CLOCK
P.M. ON THE 2ND DAY OF DECEMBER, 1986

The meeting was called to order by the President. The following
Board members were present: 1. John L. Tenney, President; 2. Dr. Robert
L. Chamberlain; 3. Gary A. Frush; 4. Henrietta Hartman; and 5. Donald E.
Henderson.

The following were also present: 1. Lynn E. Westfall, Secretary;
2. Richard G. Hoover, Clerk; 3. Lewis A. Simon, Business Manager;
4. Carl Ashley, Curriculum Director; 5. Paul Price and Sue Gould,
teachers new to the Upshur County Schools; 6. Scott Lampinen, President
of the Principals' Association; 7. Frank Hartman, President of the
senior class at Buckhannon-Upshur High School; 8. Nancy Eshelman and
her attorney, Roy Law; 9. Peggy Hall and Patricia Marsh, delegation;

Approval
of minutes

Upon motion duly made by Mr. Henderson, seconded by Mr. Frush,
and carried, the Board approved the minutes of the regular meeting
of November 3, 1986.

Additions

The Board agreed to add the following items to the agenda:
1. Additional transportation items
2. Trip to the Scholastic Press Association in New York City
3. Additional requests for attendance outside attendance area
4. Executive session for personnel
5. Additional personnel
6. Football practice field.

Introduction
of new personnel

The Assistant Superintendent introduced the teachers new to the
school system: Sue Gould and Paul Price. The Superintendent introduced
the Board to the new staff members and also introduced Frank Hartman.

Executive
session/
Regular
session

The Board reconvened in regular session as per West Virginia Code 6-9A-4 to
discuss a personnel matter and invited Nancy Eshelman and Roy Law to
sit with the Board. Upon motion duly made by Mr. Henderson, seconded by
Mr. Frush, and carried, the Board reconvened in regular session, no
action being taken during the executive session nor after regarding Nancy
Eshelman. The Board directed the Superintendent to make another attempt
with representatives of the CNA Insurance Company to resolve Mrs.
Eshelman's claim.

Request to
rescind
decision to
not allow trip
to Martinique

Patricia Marsh, acting as the spokesman, and Peggy Hall, French
teachers at Buckhannon-Upshur High School, appeared before the Board to
request that the travel policy and action taken at a previous meeting be
modified to allow French students to travel to Martinique during spring
break. Mrs. Marsh presented eight reasons for traveling to Martinique:
1. Educational and cultural benefits using the native language
2. Travel during spring break requiring that only one day of
   school be missed
3. Martinique is a department of the country of France and is
   not bilingual
4. Quebec is bilingual
5. The monetary unit in Canada is a dollar whereas the monetary
   unit in Martinique is the French franc
6. Martinique has weather conducive to touring; Quebec is very
   cold during spring break
7. Canada is a neighbor that is easy to visit because of its
   close proximity to the United States while Martinique is
   probably a once-in-a-lifetime trip
8. Terrorism is not a factor.
Upon recommendation of the Superintendent and upon motion duly made by Mr. Henderson, seconded by Mr. Chamberlain, and carried, the Board rescinded action taken at the meeting of November 17, 1966, which directed the French Martique trip to tour Quebec and now grants permission for the classes to go to Martinique:

Upon recommendation of the Superintendent and upon motion duly made by Mr. E. F. Rush, seconded by Mr. Henderson, and carried, the Board approved the following transportation items:

A. Requests for the use of school bus transportation for curricular and extracurricular bus trips

**BUCKHANNON-UPSHUR HIGH SCHOOL**

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<th>Teacher</th>
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<td>Hawkins/Abel</td>
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and the following parent chaperons:

- Mr. or Mrs. Robert Wright
- Mr. or Mrs. Anna Chisenhall
- Mr. or Mrs. William Page
- Mr. or Mrs. Martin Riffle
- Mr. or Mrs. Hanson Chadester
- Mr. or Mrs. Mason Ware
- Mr. or Mrs. Pat Gould

- Mr. or Mrs. Gary Bonnett
- Mr. or Mrs. Rocky Chadester
- Mr. or Mrs. Jeff Gourley
- Mr. or Mrs. Wayne Gregory
- Mr. or Mrs. William Page
- Mr. or Mrs. Martin Ryan
- Mr. or Mrs. Dana Jarrett
- Mr. or Mrs. Thomas Powers
- Mr. or Mrs. Jerry Riley
- Mr. or Mrs. James Simons
- Mr. or Mrs. Helen Hayes

**ROCK CAVE/ADRIAN**

- Mr. or Mrs. Robert Wright
- Mr. or Mrs. Anna Chisenhall
- Mr. or Mrs. William Page
- Mr. or Mrs. Martin Riffle
- Mr. or Mrs. Hanson Chadester
- Mr. or Mrs. Mason Ware
- Mr. or Mrs. Pat Gould

- Mr. or Mrs. Gary Bonnett
- Mr. or Mrs. Rocky Chadester
- Mr. or Mrs. Jeff Gourley
- Mr. or Mrs. Wayne Gregory
- Mr. or Mrs. William Page
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- Mr. or Mrs. Dana Jarrett
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- Mr. or Mrs. Helen Hayes

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<tr>
<td>12/28/86</td>
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and the following parent chaperons:

- Larry Bailey
- Charles Connor
- Beverly Cutlip
- Gerry Hoover
- Richard Jackson
- Rita Tuckey
- Jimmy Seckman
- Debra Simons
- William McCollum
- Timothy Vinney
- Holly Williams

- Ms. Susan Bailey
- Ms. Joyce Ommer
- Ms. Elizabeth Hoover
- Ms. Elizabeth Hoover
- Ms. Sheila Seckman
- Ms. Marah Small
- Ms. Kris McCollum
- Ms. Beth Smith
- Ms. Helen Williams

- Ms. Harold Ball
- Ms. Martha Caster
- Ms. Larry Cutlip
- Ms. Rose Jackson
- Ms. Millie Justice
- Ms. Melody McCollum
- Ms. Roy Simons
- Ms. Diane Vincent
- Ms. Gary Williams
- Ms. Paula Limbetti
Academy Chaperon Parent volunteer Wrestling team Trip to New York/ Scholastic Press Approval for L. Halverson to do survey at BUNS Teacher/pupil ratio exception Approval for tour for BUNS students

BUCKHANNON-UPSHUR MIDDLE SCHOOL

Date Place Teacher
12/13/86 Elkins Lorentz/Dye
12/20/86 Elkins Lorentz/Dye
12/20/87 Elkins Lorentz/Dye
1/24/87 Lewis County Lorentz/Dye
1/21/87 Morgantown Lorentz/Dye

and permission for Mrs. Lorentz and Mrs. Dye to accompany the team to away matches and assist with chaperon responsibilities:

12/17/86 Lewis County Chips
12/18/86 Philippi Chips
1/19/86 Parsons Chips
1/22/87 Bellington Chips
1/29/87 Kason Chips
2/2/87 Elkins Chips
2/12/87 Grafoon Chips
12/15/86 St. Joseph's Hospital Withers

WORK ADJUSTMENT CENTER

Date Place Teacher
12/15/86 Meadowbrook Mall Johnson

B. permission for Patricia Queen to serve as a chaperon for Academy field trips;

C. permission for Jacqueline Wansley to ride the bus to serve as a parent volunteer at Washington District;

D. permission for Larry Loudin to transport the wrestling team in his personal vehicle to Milton for a wrestling tournament on December 5, 1986, and return on December 6, 1986;

E. request by Betsy Levier, publications advisor, Buckhannon-Upshur High School, to travel with students to the Columbia Scholastic Press Association Spring Convention, March 10-13, 1987, in New York City. Approximately 20 students with advisors Mike Sharpolsky, Betsy Levier, and Millie McCoy will travel from Fairmont, West Virginia, by chartered bus.

Upon recommendation of the Superintendent and upon motion duly made by Mr. Henderson, seconded by Mrs. Hartman, and carried, the Board granted permission for Lillian Halverson, a teacher at West Virginia Wesleyan College who is doing a doctoral dissertation under the direction of Ohio State University, to conduct a survey of students at Buckhannon-Upshur Middle School using a thirty-minute questionnaire.

Upon recommendation of the Superintendent and upon motion duly made by Mrs. Hartman, seconded by Dr. Chamberlain, and carried, the Board approved an exception to the teacher/pupil ratio for a kindergarten class at Hodgesville School.

Upon recommendation of the Superintendent and upon motion duly made by Mr. Frush, seconded by Mr. Henderson, and carried, the Board approved a request from Nancy Lentz, teacher, at Buckhannon-Upshur High School, to conduct a tour for Buckhannon-Upshur High School students during the spring break to New York City, Newport, Boston, and Connecticut at a cost of $657.00 per student.
Upon recommendation of the Superintendent and upon motion duly made by Mrs. Hartman, seconded by Mr. Frush, and carried, the Board approved a request from Liliene Vilacce-Cooper, Spanish teacher, Buckhannon-Upshur High School, to take students from all Spanish classes on a tour of the Yucatan Peninsula. Mrs. Cooper's husband, George, will help chaperon the Spanish students. The approval of this tour included approval for transportation to the Pittsburgh Airport on Friday, March 27, and transportation from the Pittsburgh Airport to Buckhannon on April 4. The need for the return trip is contingent upon whether students' parents will agree to meet the students at their airport on their return from the Yucatan.

Upon recommendation of the Superintendent and upon motion duly made by Mr. Henderson, seconded by Mr. Frush, and carried, the Board approved a request from Alan Sturm, principal, Buckhannon-Upshur Middle School, for financial assistance for transportation for the wrestling team in the amount of $400 for the season.

Upon recommendation of the Superintendent and upon motion duly made by Mr. Frush, seconded by Mr. Henderson, and carried, the Board approved the Comprehensive Educational Facilities Plan.

Upon recommendation of the Superintendent and upon motion duly made by Mr. Henderson, seconded by Mr. Frush, and carried, the Board approved the following personnel items:

A. Employment and/or assignments
   1. Kermit L. Pugh, senior substitute custodian, as Custodian III at Adrian School effective December 3, 1986
   2. Virgil Perkins, substitute custodian
   3. Vernon Louk, freshman boys' basketball coach, Buckhannon-Upshur High School, effective December 1, 1986
   4. Jolanda Holmes, substitute teacher

B. Resignations
   1. Louise Smith, head cook, Central School, effective December 25, 1986
   2. Tressie Bennett, Custodian III, French Creek, effective December 11, 1986
   3. Ellouise Ferrell, substitute cook, effective immediately
   4. Gary Gordon, substitute custodian

C. Medical leave
   1. Loretta Shokey, kindergarten aide, Tennerton, to be absent for approximately two weeks when needed by daughter due to complications of daughter's pregnancy. The daughter lives in Florida. Mrs. Shokey will use her two remaining personal days.

D. Leave without pay
   1. Victoria J. Poundstone, teacher, Buckhannon-Upshur High School, to be absent on Wednesday, November 26, 1986, to be in Tennessee

E. Waiver of wages
   1. Patricia Queen
   2. Rita Lowther

The Treasurer presented the Treasurer's Report. (See Addendum A.)

Upon recommendation of the Superintendent and upon motion duly made by Mr. Henderson, seconded by Mr. Frush, and carried, the Board approved the following budgetary item:

<table>
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<tr>
<th>BUDGET TRANSFER REQUEST</th>
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<tr>
<td>From</td>
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<tr>
<td>Equipment</td>
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<td>$5,000.00</td>
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</table>
Upon recommendation of the Superintendent and upon motion duly made by Mr. Frush, seconded by Mr. Henderson, and carried, the Board approved payment of the following bills: (See Addendum B).

The next meeting will be December 11, 1986, at 6:00 a.m. at the Board of Education office.

The Superintendent discussed the school aid formula with the Board by presenting the ten steps of the formula.

The Superintendent reminded the Board to note the calendar of upcoming events listed under Agenda Item XIX.

Upon recommendation of the Superintendent and upon motion duly made by Mr. Frush, seconded by Mr. Henderson, and carried, the Board approved requests for attendance outside regular attendance areas for the following students:

- Amanda Blackwell to attend Buckhannon-Upshur Intermediate School rather than Tennerton
- Brenda and April Pringle to attend Academy rather than Main Street
- Amanda Vance to continue to attend the Main Street kindergarten.

Mr. Henderson asked when the football practice field at Buckhannon-Upshur High School would be resown and seeded. After discussion, the Board agreed to ask Larry West, athletic director at Buckhannon-Upshur High School, to prepare a proposal for upgrading the football practice field and a proposal for finding an alternate practice field in case the practice field at the high school cannot be gotten ready for the next season's practice.

Upon motion duly made by Mr. Henderson, seconded by Mr. Frush, and carried, the meeting adjourned at 10:35 p.m.

<table>
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<tr>
<th>Approval of Payment of bills</th>
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<tr>
<td>926 52 Insurance $10,000.00 $15,000.00</td>
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<td>927 51 Pur. SVC-Student Trans. 5,000.00</td>
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86
APPENDIX B

Copies of the Questionnaire as Given to the Students
SECTION I

Directions: For each item in this section, mark an X in the circle below the question which indicates how you really feel about the idea. Use the following scale

a = 🙁 I do not like it at all
b = 😞 I do not like it very much
c = 😊 I like it a little bit
d = 😊😊 I like it a lot

1. How do you feel about eating vegetables and fruits?
   a = 🙁 b = 😞 c = 😊 d = 😊😊

2. How do you feel about trying to eat foods served in different ways?
   a = 🙁 b = 😞 c = 😊 d = 😊😊

3. How do you feel about taking the advice of people who advertise food on TV?
   a = 🙁 b = 😞 c = 😊 d = 😊😊

4. How do you feel when you think about some people not having enough to eat?
   a = 🙁 b = 😞 c = 😊 d = 😊😊

5. How do you feel about having Coke rather than milk with a meal?
   a = 🙁 b = 😞 c = 😊 d = 😊😊

6. How do you feel about working with other people to find the answers to questions about food?
   a = 🙁 b = 😞 c = 😊 d = 😊😊

7. How do you feel about tasting new foods from other countries?
   a = 🙁 b = 😞 c = 😊 d = 😊😊

8. How do you feel about eating foods from different food groups?
   a = 🙁 b = 😞 c = 😊 d = 😊😊

9. How do you feel about eating only foods produced near where you live?
   a = 🙁 b = 😞 c = 😊 d = 😊😊

10. How do you feel about drinking a lot of water?
    a = 🙁 b = 😞 c = 😊 d = 😊😊
SECTION II

Directions: For each item in this section, circle the answer below the question which indicates how often you do what is described, using the following scale:

a = Never
b = Sometimes
c = Often

11. How often do you eat foods that are fixed in new ways?
   a. Never    b. Sometimes    c. Often

12. How often do you buy foods you see advertised on TV?
   a. Never    b. Sometimes    c. Often

13. How often do you eat foods from other cultures?
   a. Never    b. Sometimes    c. Often

14. How often do you ask someone about the nutrients in the foods you eat?
   a. Never    b. Sometimes    c. Often

15. How often do you eat orange or yellow vegetables?
   a. Never    b. Sometimes    c. Often

16. How often do you try to find out why someone gives you advice on food before you follow their suggestions?
   a. Never    b. Sometimes    c. Often

17. How often do you eat green vegetables?
   a. Never    b. Sometimes    c. Often

18. How often do you try to find out why certain foods are traditional in your family?
   a. Never    b. Sometimes    c. Often

19. How often do you drink milk or eat foods made from milk?
   a. Never    b. Sometimes    c. Often

20. How often do you work with someone to find the answer to a question about food?
   a. Never    b. Sometimes    c. Often
SECTION III

Direction: For each item in this section, place a check mark in the blank beside the best (most correct) of the four response choices.

21. Why does the body need carbohydrates?
   ___ a. to allow protein to be used for body building
   ___ b. to help in weight loss
   ___ c. to help the body conserve water
   ___ d. to build muscles

22. What is the main reason that people in Iowa do not eat as much seafood as the people in Florida?
   ___ a. fresh ocean fish are expensive because they have to be shipped long distance.
   ___ b. many people in Iowa catch their own fish in local lakes.
   ___ c. most people in Iowa do not like seafood.
   ___ d. polluted water in Iowa has caused a shortage of fish.

23. How did the American Indians in the Southwest preserve most of their food?
   ___ a. canning
   ___ b. drying
   ___ c. freezing.
   ___ d. pickling

24. What is the main reason that companies sometimes put food in attractive packages?
   ___ a. attractive packages sell more of their products.
   ___ b. food companies like to help stores look nice.
   ___ c. people like to use the containers after they empty them.
   ___ d. the government requires food companies to package things in a certain way.

25. In which category of foods does a potato belong?
   ___ a. grains
   ___ b. legumes and nuts
   ___ c. meat, fish, poultry, and egg
   ___ d. vegetables and fruit
26. What is the major reason many families in the U.S. eat more TV dinners that they used to?
   ___ a. cookbooks are too expensive for most families.
   ___ b. home-cooked meals usually are less nutritious than TV dinners.
   ___ c. TV dinners always taste better than home-cooked meals.
   ___ d. TV dinners take less time to fix than home-cooked foods.

27. What is a major reason that children choose to eat candy, potato chips, and Cokes even though they know these foods are not the most nutritious snacks?
   ___ a. their parents tell them to eat these foods.
   ___ b. these foods always are cheaper than more nutritious snacks.
   ___ c. these foods are easier to digest.
   ___ d. they like to eat the same foods their friends do.

28. Why do some diseases occur only in some parts of the world?
   ___ a. people in areas do not have food that contains all the nutrients they need.
   ___ b. people in some parts of the world do not get enough sleep.
   ___ c. people in some parts of the world do not take enough vitamin pills.
   ___ d. people who live in cold climates get more diseases.

29. How would people probably react if green food coloring were added to their mashed potatoes?
   ___ a. everyone would like them just as well because the taste would be the same.
   ___ b. many people would like them better because they would be prettier.
   ___ c. many people would not like them because the color is not what they are used to.
   ___ d. most people would like them if butter were added.

30. Why are corn tortillas often eaten in Mexico?
   ___ a. corn tortillas are more nutritious than flour tortillas.
   ___ b. it is easier to grind corn than wheat.
   ___ c. not many people are allergic to corn.
   ___ d. there is more corn than wheat in Mexico.
31. What is the most likely reason that your parents might tell you to eat three meals a day and your friend's parents tell her to eat only when she is hungry?
   ___ a. different people have different ideas about ways to keep healthy.
   ___ b. her parents do not have a dining room.
   ___ c. her parents give her vitamin pills.
   ___ d. your parents do not know as much about nutrition as her parents.

32. Why is it especially important for children to get a lot of protein and minerals?
   ___ a. they are growing rapidly.
   ___ b. they have skin problems.
   ___ c. they no longer take naps.
   ___ d. they often get cavities in their teeth.

33. Why do Chinese children use chopsticks instead of knives and forks?
   ___ a. chopsticks are easier for children to use.
   ___ b. chopsticks are more fun to use.
   ___ c. chopsticks are safer for young children.
   ___ d. chopsticks are traditional in China.

34. One family bought a big box of a new dry cereal because it had a prize in the box, but no one liked the cereal. What should they do next time they want to try a new cereal?
   ___ a. buy a cereal that looks like one they have tried before.
   ___ b. buy a cereal they can cook.
   ___ c. buy a small box of the new cereal.
   ___ d. do not buy cereal with a prize in the box.

35. What do carbohydrates, fats, and proteins all do?
   ___ a. help regulate body temperature
   ___ b. prevent cavities
   ___ c. provide for the growth of muscles
   ___ d. provide energy for the body

36. What kind of food would a family with Italian background probably eat?
   ___ a. almost all fried foods
   ___ b. many dishes made with macaroni and spaghetti
   ___ c. mostly high-protein foods
   ___ d. very mild-tasting food combinations
37. Which of these foods contains the most protein?
   ___ a. baked sweet potato
   ___ b. fresh tomato
   ___ c. roast turkey
   ___ d. steamed rice

38. What is a main reason many people eat a lot of their meals in restaurants?
   ___ a. eating out always costs less than eating at home.
   ___ b. restaurant food usually is more nutritious.
   ___ c. they do not like to spend their time cooking.
   ___ d. they like to meet new people.

39. Why do people in Southeast Asia use rice instead of wheat as a basic food?
   ___ a. rice is a better source of carbohydrate.
   ___ b. rice is better for Asian people.
   ___ c. rice goes better with Chinese foods.
   ___ d. rice grows better in their climate.

40. If you are planning what to serve at a party, which of these things do you need to do first?
   ___ a. get recipes for your favorite foods.
   ___ b. get several ideas about what to serve.
   ___ c. go to the grocery store.
   ___ d. prepare the foods that can be fixed early.

41. Circle whether you are a girl or boy.
   a. girl     b. boy

42. Circle the number which indicates your grade in school.
   a. 6         b. 7         c. 8

43. Circle the number which is the same as your age.
   a. 9         b. 10        c. 11         d. 12        e. 13

44. Circle the letter which you think is your average grade.

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE!
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<th>Knowledge</th>
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* is the best answer
SECTION I

Directions: For each item in this section write the number in the blank which indicates how you really feel about the statements, using the following scale:

a. = Strongly disagree
b. = Mildly disagree
c. = Undecided
d. = Mildly agree
e. = Strongly agree

___1. I would rather have Coke than milk with a meal.
___2. I like to find out about the backgrounds of people who give advice about food and nutrition.
___3. I would rather take vitamin pills than learn to eat new foods.
___4. I like to eat a variety of foods each day.
___5. I would rather skip a meal than to cook it myself.
___6. I like to eat low-cost foods as well as high-cost ones.
___7. It bothers me to eat foods I have not tried before.
___8. I like to know about foods that are good for me.
___9. I like to think about the nutrients in foods when I am deciding what to eat.
___10. I like to think about how the way I eat affects other people.
SECTION II

Directions: For each item in this section write the number in the blank which indicates how you really feel about the statement, using the following scale:

a = Never
b = Seldom
c = Sometimes
d = Usually
e = Always

____11. I use a daily food guide to help choose the foods I eat.
____12. I prepare meals using different cooking methods.
____13. I follow good safety rules when I store and handle food.
____14. I think about my nutrient and caloric needs when I decide what to eat.
____15. When I eat at a restaurant, I try to select a balanced meal.
____16. I taste familiar foods when they are prepared in new ways.
____17. I skip meals to cut down on calories.
____18. I eat several kinds of fruits and vegetables each day.
____19. I try to make mealtime pleasant for the people with whom I eat.
____20. I use different ways to solve my food and nutrition problems.
SECTION III

Direction: For each item in this section, place a check mark in the blank beside the best (most correct) of the four response choices.

21. If a friend tells you about a new weight-loss diet, which of these is the way to decide if it is good?
   ___a. ask your doctor about the diet.
   ___b. find out how many people have used the diet.
   ___c. see how much weight your friend has lost on the diet.
   ___d. try the diet for a week to see how you feel.

22. Which of the following factors is least important in determining your nutrient and caloric needs?
   ___a. age
   ___b. amount of exercise
   ___c. gender (sex)
   ___d. personal beliefs

23. Which of these potatoes would be crispier?
   ___a. baked potato
   ___b. fried potato
   ___c. mashed potato
   ___d. steamed

24. In which of these ways that green pepper might be fixed would it provide the most vitamin C?
   ___a. baked
   ___b. broiled
   ___c. fried
   ___d. raw

25. Which of the following people probably would be the most helpful in planning a low-cost menu for a party?
   ___a. food chemist
   ___b. home economics teacher
   ___c. school business manager
   ___d. waitress
26. Which of the following health conditions would be most likely to occur in teenagers who do not get enough iron in their diets?
   ___ a. acne
   ___ b. anemia
   ___ c. diabetes
   ___ d. obesity

27. What is the most likely reason that some young people do not eat many kinds of vegetables?
   ___ a. their families cannot afford many kinds.
   ___ b. they cannot get many kinds in the grocery store.
   ___ c. they do not know how to cook many kinds.
   ___ d. they have not learned to like many kinds.

28. Which of the following foods would be possible to prepare in 20 minutes without use of a microwave oven?
   ___ a. hamburgers
   ___ b. homemade vegetable-beef soup
   ___ c. pork chops
   ___ d. roast beef

29. If one of your responsibilities at home is fixing breakfast for your family and you burn the toast almost every morning, which of these would be the thing to do?
   ___ a. ask to trade chores with another family member.
   ___ b. figure out what you have been doing wrong and try to correct it.
   ___ c. keep serving the burned toast and hope your family will learn to like it.
   ___ d. make biscuits rather than toast for breakfast.

30. Which of the following nutrients is needed for making red blood cells?
   ___ a. calcium
   ___ b. iron
   ___ c. vitamin A
   ___ d. vitamin D

31. What nutritional advantages does an expensive piece of steak have compared to a cheaper piece?
   ___ a. it probably has less fat than the cheaper piece.
   ___ b. it probably has more protein than the cheaper piece.
   ___ c. it probably has more vitamins and minerals than the cheaper piece.
   ___ d. it probably has no nutritional advantage over the cheaper piece.
32. Which of the following foods is the main ingredient used in the manufacture of imitation bacon?
   ___ a. beef
   ___ b. corn
   ___ c. milk
   ___ d. soybeans

33. Which of these problems would food and nutrition information be least likely to help solve?
   ___ a. frequent colds and minor illnesses
   ___ b. midmorning energy slumps
   ___ c. overweight
   ___ d. poor social skills

34. Which of these fast-food meals would provide the most nutrients?
   ___ a. chicken, mashed potatoes, and roll
   ___ b. hamburger, french fries, and Coke
   ___ c. hot dog and milk shake
   ___ d. sausage-cheese pizza and salad

35. Which of these activities that could be done during a meal probably would help people enjoy the meal more?
   ___ a. eating as quickly as possible
   ___ b. playing with a pet
   ___ c. settling family problems
   ___ d. talking with others

36. Which of the following foods contains the most iron?
   ___ a. cake
   ___ b. hamburger
   ___ c. milk
   ___ d. pineapple

37. If you read about ideal weight in a book on physical fitness, how can you tell how good the information is?
   ___ a. by the background of the author of the book
   ___ b. by the length of the book
   ___ c. by the length of the chapter on the ideal weight
   ___ d. by the number of pictures in the book

38. Which of the following family members needs the most protein?
   ___ a. 10-year-old daughter who takes ballet
   ___ b. 15-year-old son who plays football
   ___ c. 35-year-old mother who is pregnant
   ___ d. 37-year-old father who is a farmer
39. Which of the following foods requires use of the fewest resources to produce?
   ___ a. cheese
   ___ b. ham
   ___ c. soybeans
   ___ d. steak

40. Which of the following safety rules is important for frying foods?
   ___ a. cool the hot fat quickly with cold running water.
   ___ b. drop frozen foods quickly into the fat.
   ___ c. heat the fat quickly.
   ___ d. use moderate heat.

41. If one student trying to find recipes for nutritious snacks looks through several cookbooks and another student asks several teachers for suggestions, what will they probably find?
   ___ a. if the books are good ones, both students probably will come up with the same ideas.
   ___ b. if the teachers all are good cooks, both students probably will come up with the same ideas.
   ___ c. the two students may come up with either the same or different ideas.
   ___ d. the two students probably will come up with very different ideas.

42. Three students compared what they ate for breakfast. Karen had a hard-cooked egg, tomato juice, and cereal with milk. Bill had a hamburger and a banana milkshake. Pat had toast and orange juice. Who had nutritionally balanced breakfast(s)?
   ___ a. none of the students
   ___ b. only Pat
   ___ c. both Karen and Bill
   ___ d. all the students

43. Which of the following foods contains the most calories?
   ___ a. 1 dinner roll
   ___ b. 1 cup whole milk
   ___ c. 4 ounces of steak
   ___ d. 10 potato chips
44. If the students in your school do not like the foods served in the school cafeteria, which of the following would be the best thing to do?
   ___ a. encourage all students to return their food uneaten as a protest.
   ___ b. hope that other people in the school will do something about the situation.
   ___ c. organize a group of students to talk to the cafeteria manager.
   ___ d. stop eating in the school lunch program.

45. What is the relationship between self-image and physical appearance of teenagers?
   ___ a. they are related for both girls and boys.
   ___ b. they are related for boys but not for girls.
   ___ c. they are related for girls but not for boys.
   ___ d. they are not related for either girls or boys.

46. Circle whether you are a male or female.
   a. male    b. female

47. Circle the number which indicates your grade in school.
   a. 7        b. 8

48. Circle the number which is the same as your age.
   a. 10       b. 11       c. 12       d. 13       e. 14

49. Circle the letter which you think is your average grade.

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE!
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<td>2. e</td>
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<td>3. a</td>
<td>23. b</td>
</tr>
<tr>
<td>4. e</td>
<td>24. d</td>
</tr>
<tr>
<td>5. a</td>
<td>25. b</td>
</tr>
<tr>
<td>6. e</td>
<td>26. b</td>
</tr>
<tr>
<td>7. a</td>
<td>27. d</td>
</tr>
<tr>
<td>8. e</td>
<td>28. a</td>
</tr>
<tr>
<td>9. e</td>
<td>29. b</td>
</tr>
<tr>
<td>10. e</td>
<td>30. b</td>
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<tr>
<td></td>
<td>31. d</td>
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<tr>
<td></td>
<td>32. d</td>
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<tr>
<td></td>
<td>33. d</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Practices*</th>
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</thead>
<tbody>
<tr>
<td>11. e</td>
<td>34. d</td>
</tr>
<tr>
<td>12. e</td>
<td>35. d</td>
</tr>
<tr>
<td>13. e</td>
<td>36. b</td>
</tr>
<tr>
<td>14. e</td>
<td>37. a</td>
</tr>
<tr>
<td>15. e</td>
<td>38. c</td>
</tr>
<tr>
<td>16. e</td>
<td>39. c</td>
</tr>
<tr>
<td>17. a</td>
<td>40. d</td>
</tr>
<tr>
<td>18. e</td>
<td>41. c</td>
</tr>
<tr>
<td>19. e</td>
<td>42. c</td>
</tr>
<tr>
<td>20. e</td>
<td>43. c</td>
</tr>
</tbody>
</table>

* is the best answer
APPENDIX C

Copies of the Questionnaire with Student Responses Noted
Directions: For each item in this section, mark an X in the circle below the question which indicates how you really feel about the idea. Use the following scale:

- **a** = I do not like it at all
- **b** = I do not like it very much
- **c** = I like it a little bit
- **d** = I like it a lot

1. How do you feel about eating vegetables and fruits?
   - **a** =
   - **b** =
   - **c** =
   - **d** =
   - 7, 28, 138, 102, 1 missing
   - 25% 10.1% 50.0% 37.0% **d**=best response

2. How do you feel about trying to eat foods served in different ways?
   - **a** =
   - **b** =
   - **c** =
   - **d** =
   - 21, 66, 138, 46, 5 missing
   - 7.6% 23.9% 50.0% 16.7% **d**=best response

3. How do you feel about taking the advice of people who advertise food on TV?
   - **a** =
   - **b** =
   - **c** =
   - **d** =
   - 59, 96, 95, 22, 4 missing
   - 21.0% 34.8% 34.4% 8.0% **a**=best response

4. How do you feel when you think about some people not having enough to eat?
   - **a** =
   - **b** =
   - **c** =
   - **d** =
   - 209, 54, 5, 1, 4 missing
   - 75.7% 19.6% 1.8% 1.4% **a**=best response

5. How do you feel about having Coke rather than milk with a meal?
   - **a** =
   - **b** =
   - **c** =
   - **d** =
   - 27, 25, 72, 146, 6 missing
   - 9.8% 9.7% 26.1% 52.9% **a**=best response
6. How do you feel about working with other people to find the answers to questions about food?

   a  =  ©  b  =  (  c  =  ©  d  =  ©

   27  47  125  72  5 missing

   9.8%  17.0%  45.3%  26.1%  d=best response

7. How do you feel about tasting new foods from other countries?

   a  =  ©  b  =  (  c  =  ©  d  =  ©

   26  40  109  100  1 missing

   9.4%  14.5%  39.5%  36.2%  d=best response

8. How do you feel about eating foods from different food groups?

   a  =  ©  b  =  (  c  =  ©  d  =  ©

   4  9  107  152  4 missing

   1.4%  3.3%  38.3%  55.1%  d=best response

9. How do you feel about eating only foods produced near where you live?

   a  =  ©  b  =  (  c  =  ©  d  =  ©

   65  78  89  40  4 missing

   23.6%  28.3%  32.2%  14.5%  a=best response

10. How do you feel about drinking a lot of water?

    a  =  ©  b  =  (  c  =  ©  d  =  ©

    27  29  114  105  1 missing

    9.8%  10.5%  41.3%  38.0%  d=best response
### SECTION II

**Directions:** For each item in this section, circle the answer below the question which indicates how often you do what is described, using the following scale:

- **a** = Never
- **b** = Sometimes
- **c** = Often

11. How often do you eat foods that are fixed in new ways?
   - **a. Never**
   - **b. Sometimes**
   - **c. Often**
   
<p>| | | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>7</strong></td>
<td><strong>220</strong></td>
<td><strong>49</strong></td>
</tr>
<tr>
<td><strong>25%</strong></td>
<td><strong>79.7%</strong></td>
<td><strong>17.8%</strong></td>
</tr>
</tbody>
</table>

12. How often do you buy foods you see advertised on TV?
   - **a. Never**
   - **b. Sometimes**
   - **c. Often**
   
<p>| | | |</p>
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<tbody>
<tr>
<td><strong>16</strong></td>
<td><strong>167</strong></td>
<td><strong>92</strong></td>
</tr>
<tr>
<td><strong>5.5%</strong></td>
<td><strong>60.5%</strong></td>
<td><strong>33.3%</strong></td>
</tr>
</tbody>
</table>

13. How often do you eat foods from other cultures?
   - **a. Never**
   - **b. Sometimes**
   - **c. Often**
   
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</thead>
<tbody>
<tr>
<td><strong>48</strong></td>
<td><strong>184</strong></td>
<td><strong>43</strong></td>
</tr>
<tr>
<td><strong>15.6%</strong></td>
<td><strong>66.7%</strong></td>
<td><strong>17.0%</strong></td>
</tr>
</tbody>
</table>

14. How often do you ask someone about the nutrients in the foods you eat?
   - **a. Never**
   - **b. Sometimes**
   - **c. Often**
   
<p>| | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>163</strong></td>
<td><strong>80</strong></td>
<td><strong>32</strong></td>
</tr>
<tr>
<td><strong>59.1%</strong></td>
<td><strong>29.0%</strong></td>
<td><strong>11.6%</strong></td>
</tr>
</tbody>
</table>

15. How often do you eat orange or yellow vegetables?
   - **a. Never**
   - **b. Sometimes**
   - **c. Often**
   
<p>| | | |</p>
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<thead>
<tr>
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<tbody>
<tr>
<td><strong>14</strong></td>
<td><strong>154</strong></td>
<td><strong>106</strong></td>
</tr>
<tr>
<td><strong>5.1%</strong></td>
<td><strong>55.4%</strong></td>
<td><strong>38.4%</strong></td>
</tr>
</tbody>
</table>

16. How often do you try to find out why someone gives you advice on food before you follow their suggestions?
   - **a. Never**
   - **b. Sometimes**
   - **c. Often**
   
<p>| | | |</p>
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<tbody>
<tr>
<td><strong>103</strong></td>
<td><strong>139</strong></td>
<td><strong>33</strong></td>
</tr>
<tr>
<td><strong>37.3%</strong></td>
<td><strong>50.4%</strong></td>
<td><strong>12.0%</strong></td>
</tr>
</tbody>
</table>

17. How often do you eat green vegetables?
   - **a. Never**
   - **b. Sometimes**
   - **c. Often**
   
<p>| | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>18</strong></td>
<td><strong>115</strong></td>
<td><strong>142</strong></td>
</tr>
<tr>
<td><strong>6.5%</strong></td>
<td><strong>41.7%</strong></td>
<td><strong>51.4%</strong></td>
</tr>
</tbody>
</table>

18. How often do you try to find out why certain foods are traditional in your family?
   - **a. Never**
   - **b. Sometimes**
   - **c. Often**
   
<p>| | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>125</strong></td>
<td><strong>113</strong></td>
<td><strong>36</strong></td>
</tr>
<tr>
<td><strong>45.0%</strong></td>
<td><strong>41.0%</strong></td>
<td><strong>13.7%</strong></td>
</tr>
</tbody>
</table>

19. How often do you drink milk or eat foods made from milk?
   - **a. Never**
   - **b. Sometimes**
   - **c. Often**
   
<p>| | | |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>4</strong></td>
<td><strong>61</strong></td>
<td><strong>211</strong></td>
</tr>
<tr>
<td><strong>1.4%</strong></td>
<td><strong>22.1%</strong></td>
<td><strong>76.4%</strong></td>
</tr>
</tbody>
</table>
20. How often do you work with someone to find the answer to a question about food?

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Never</td>
<td>136</td>
<td>49.0%</td>
</tr>
<tr>
<td>b. Sometimes</td>
<td>116</td>
<td>42.0%</td>
</tr>
<tr>
<td>c. Often</td>
<td>23</td>
<td>8.3%</td>
</tr>
</tbody>
</table>

1 missing c=best response
SECTION III

Direction: For each item in this section, place a check mark in the blank beside the best (most correct) of the four response choices.

21. Why does the body need carbohydrates?
   - a. to allow protein to be used for body building 124 44.9%
   - b. to help in weight loss 14 5.1%
   - c. to help the body conserve water 66 23.9%
   - d. to build muscles 69 25.0%
   - miss
   - best response

22. What is the main reason that people in Iowa do not eat as much seafood as the people in Florida?
   - a. fresh ocean fish are expensive because they have to be shipped long distance. 146 52.9%
   - b. many people in Iowa catch their own fish in local lakes. 36 13.0%
   - c. most people in Iowa do not like seafood. 24 8.7%
   - d. polluted water is Iowa has caused a shortage of fish. 66 23.9%
   - miss
   - best response

23. How did the American Indians in the Southwest preserve most of their food?
   - a. canning 35 12.7%
   - b. drying 183 66.3%
   - c. freezing 22 8.0%
   - d. pickling 31 11.2%
   - miss
   - best response

24. What is the main reason that companies sometimes put food in attractive packages?
   - a. attractive packages sell more of their products. 172 62.3%
   - b. food companies like to help stores look nice. 25 9.1%
   - c. people like to use the containers after they empty them. 28 10.1%
   - d. the government requires food companies to package things in a certain way. 46 16.7%
   - miss
   - best response

25. In which category of foods does a potato belong?
   - a. grains 20 7.3%
   - b. legumes and nuts 17 6.2%
   - c. meat, fish, poultry, and egg 48 17.5%
   - d. vegetables and fruit 189 68.0%
   - miss
   - best response
26. What is the major reason many families in the U.S. eat more TV dinners than they used to?

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>7</td>
<td>22%</td>
<td>a. cookbooks are too expensive for most families.</td>
</tr>
<tr>
<td>18</td>
<td>65%</td>
<td>b. home-cooked meals usually are less nutritious than TV dinners.</td>
</tr>
<tr>
<td>8</td>
<td>2.9%</td>
<td>c. TV dinners always taste better than home-cooked meals.</td>
</tr>
<tr>
<td>243</td>
<td>88.0%</td>
<td>d. TV dinners take less time to fix than home-cooked foods.</td>
</tr>
</tbody>
</table>

27. What is a major reason that children choose to eat candy, potato chips, and Cokes even though they know these foods are not the most nutritious snacks?

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>11</td>
<td>4.0%</td>
<td>a. their parents tell them to eat these foods.</td>
</tr>
<tr>
<td>69</td>
<td>25.0%</td>
<td>b. these foods are cheaper than more nutritious snacks.</td>
</tr>
<tr>
<td>29</td>
<td>10.5%</td>
<td>c. these foods are easier to digest.</td>
</tr>
<tr>
<td>164</td>
<td>59.0%</td>
<td>d. they like to eat the same foods their friends do.</td>
</tr>
</tbody>
</table>

28. Why do some diseases occur only in some parts of the world?

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>207</td>
<td>75.0%</td>
<td>a. people in areas do not have food that contains all the nutrients they need.</td>
</tr>
<tr>
<td>11</td>
<td>4.0%</td>
<td>b. people in some parts of the world do not get enough sleep.</td>
</tr>
<tr>
<td>29</td>
<td>10.5%</td>
<td>c. people in some parts of the world do not take enough vitamin pills.</td>
</tr>
<tr>
<td>28</td>
<td>10.1%</td>
<td>d. people who live in cold climates get more diseases.</td>
</tr>
</tbody>
</table>

29. How would people probably react if green food coloring were added to their mashed potatoes?

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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>32</td>
<td>11.6%</td>
<td>a. everyone would like them just as well because the taste would be the same.</td>
</tr>
<tr>
<td>19</td>
<td>6.9%</td>
<td>b. many people would like them better because they would be prettier.</td>
</tr>
<tr>
<td>211</td>
<td>76.4%</td>
<td>c. many people would not like them because the color is not what they are used to.</td>
</tr>
<tr>
<td>12</td>
<td>4.3%</td>
<td>d. most people would like them if butter were added.</td>
</tr>
</tbody>
</table>

30. Why are corn tortillas often eaten in Mexico?

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<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>48</td>
<td>17.4%</td>
<td>a. corn tortillas are more nutritious than flour tortillas.</td>
</tr>
<tr>
<td>24</td>
<td>8.7%</td>
<td>b. it is easier to grind corn than wheat.</td>
</tr>
<tr>
<td>21</td>
<td>7.6%</td>
<td>c. not many people are allergic to corn.</td>
</tr>
<tr>
<td>182</td>
<td>65.9%</td>
<td>d. there is more corn that wheat in Mexico.</td>
</tr>
</tbody>
</table>


31. What is the most likely reason that your parents might tell you to eat three meals a day and your friend's parents tell her to eat only when she is hungry?

<table>
<thead>
<tr>
<th>Option</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. different people have different ideas about ways to keep healthy.</td>
<td>83.0%</td>
</tr>
<tr>
<td>b. her parents do not have a dining room.</td>
<td>4.7%</td>
</tr>
<tr>
<td>c. her parents give her vitamin pills.</td>
<td>3.6%</td>
</tr>
<tr>
<td>d. your parents do not know as much about nutrition as her parents.</td>
<td>7.6%</td>
</tr>
<tr>
<td>missing</td>
<td>3%</td>
</tr>
<tr>
<td>a best response</td>
<td></td>
</tr>
</tbody>
</table>

32. Why is it especially important for children to get a lot of protein and minerals?

<table>
<thead>
<tr>
<th>Option</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. they are growing rapidly.</td>
<td>74.3%</td>
</tr>
<tr>
<td>b. they have skin problems.</td>
<td>4.3%</td>
</tr>
<tr>
<td>c. they no longer take naps.</td>
<td>4.7%</td>
</tr>
<tr>
<td>d. they often get cavities in their teeth.</td>
<td>15.6%</td>
</tr>
<tr>
<td>missing</td>
<td>3%</td>
</tr>
<tr>
<td>best response</td>
<td></td>
</tr>
</tbody>
</table>

33. Why do Chinese children use chopsticks instead of knives and forks?

<table>
<thead>
<tr>
<th>Option</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. chopsticks are easier for children to use.</td>
<td>7%</td>
</tr>
<tr>
<td>b. chopsticks are more fun to use.</td>
<td>5.6%</td>
</tr>
<tr>
<td>c. chopsticks are safer for young children.</td>
<td>9.1%</td>
</tr>
<tr>
<td>d. chopsticks are traditional in China.</td>
<td>83.7%</td>
</tr>
<tr>
<td>missing</td>
<td>4%</td>
</tr>
<tr>
<td>best response</td>
<td></td>
</tr>
</tbody>
</table>

34. One family bought a big box of a new dry cereal because it had a prize in the box, but no one liked the cereal. What should they do next time they want to try a new cereal?

<table>
<thead>
<tr>
<th>Option</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. buy a cereal that looks like one they have tried before.</td>
<td>16.7%</td>
</tr>
<tr>
<td>b. buy a cereal they can cook.</td>
<td>62%</td>
</tr>
<tr>
<td>c. buy a small box of the new cereal.</td>
<td>61.2%</td>
</tr>
<tr>
<td>d. do not buy cereal with a prize in the box.</td>
<td>14.5%</td>
</tr>
<tr>
<td>missing</td>
<td>4%</td>
</tr>
<tr>
<td>best response</td>
<td></td>
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</tbody>
</table>

35. What do carbohydrates, fats, and proteins all do?

<table>
<thead>
<tr>
<th>Option</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. help regulate body temperature</td>
<td>8.7%</td>
</tr>
<tr>
<td>b. prevent cavities</td>
<td>6.5%</td>
</tr>
<tr>
<td>c. provide for the growth of muscles</td>
<td>21.0%</td>
</tr>
<tr>
<td>d. provide energy for the body</td>
<td>60.5%</td>
</tr>
<tr>
<td>missing</td>
<td>9%</td>
</tr>
<tr>
<td>best response</td>
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</table>

36. What kind of food would a family with Italian background probably eat?

<table>
<thead>
<tr>
<th>Option</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. almost all fried foods</td>
<td>8.7%</td>
</tr>
<tr>
<td>b. many dishes made with macaroni and spaghetti</td>
<td>60.9%</td>
</tr>
<tr>
<td>c. mostly high-protein foods</td>
<td>13.4%</td>
</tr>
<tr>
<td>d. very mild-tasting food combinations</td>
<td>14.5%</td>
</tr>
<tr>
<td>missing</td>
<td>7%</td>
</tr>
<tr>
<td>b best response</td>
<td></td>
</tr>
</tbody>
</table>
37. Which of these foods contains the most protein?
   a. baked sweet potato 17.0%
   b. fresh tomato 33.0%
   c. roast turkey 33.3%
   d. steamed rice 15.6%
   missing
   best response

38. What is a main reason many people eat a lot of their meals in restaurants?
   a. eating out always costs less than eating at home. 5.1%
   b. restaurant food usually is more nutritious. 12.7%
   c. they do not like to spend their time cooking. 76.4%
   d. they like to meet new people. 5.8%
   best response

39. Why do people in Southeast Asia use rice instead of wheat as a basic food?
   a. rice is a better source of carbohydrate. 14.9%
   b. rice is better for Asian people. 7.6%
   c. rice goes better with Chinese foods. 14.9%
   d. rice grows better in their climate. 62.7%
   best response

40. If you are planning what to serve at a party, which of these things do you need to do first?
   a. get recipes for your favorite foods. 12.0%
   b. get several ideas about what to serve. 52.5%
   c. go to the grocery store. 21.4%
   d. prepare the foods that can be fixed early. 13.0%
   best response

41. Circle whether you are a girl or boy.
   a. girl 46.4%
   b. boy 53.6%

42. Circle the number which indicates your grade in school.
   a. 6 276
   b. 7 100%
   c. 8

43. Circle the number which is same as your age.
   a. 9 0
   b. 10 1
   c. 11 114
   d. 12 103
   e. 13 25
   3 missing
   .4% 52.2% 37.3% 9.0%

44. Circle the letter which you think is your average grade.
   a. A 81
   b. B 109
   c. C 57
   d. D 26
   3 missing
   29.0% 39.5% 20.7% 9.4%

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE!
Sixth-Grade Male Responses
SECTION I

Directions: For each item in this section, mark an X in the circle below the question which indicates how you really feel about the idea. Use the following scale

a = ☹️ I do not like it at all
b = 😞 I do not like it very much
c = 😊 I like it a little bit
d = ☻ I like it a lot

1. How do you feel about eating vegetables and fruits?

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2. How do you feel about trying to eat foods served in different ways?

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3. How do you feel about taking the advice of people who advertise food on TV?

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<td>34.5%</td>
<td>10.8%</td>
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4. How do you feel when you think about some people not having enough to eat?

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<td>68.9%</td>
<td>23.6%</td>
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5. How do you feel about having Coke rather than milk with a meal?

<table>
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<td>10.1%</td>
<td>26.4%</td>
<td>49.3%</td>
<td>a=best response</td>
</tr>
</tbody>
</table>
6. How do you feel about working with other people to find the answers to questions about food?

   a = ☒  b = ☐  c = ☐  d = ☒  
   18 27 64 35 4 missing
   12.2% 18.2% 43.2% 23.6% d=best response

7. How do you feel about tasting new foods from other countries?

   a = ☐  b = ☐  c = ☒  d = ☒  
   15 23 57 52 1 missing
   10.1% 15.5% 38.5% 35.1% d=best response

8. How do you feel about eating foods from different food groups?

   a = ☒  b = ☐  c = ☒  d = ☒  
   3 4 59 78 4 missing
   20% 2.7% 39.9% 52.7% d=best response

9. How do you feel about eating only foods produced near where you live?

   a = ☐  b = ☒  c = ☐  d = ☒  
   35 36 51 24 2 missing
   23.6% 24.3% 34.5% 16.2% a=best response

10. How do you feel about drinking a lot of water?

    a = ☐  b = ☒  c = ☐  d = ☒  
    10 16 60 61 1 missing
    6.8% 10.8% 40.5% 41.2% d=best response
SECTION II

Directions: For each item in this section, circle the answer below the question which indicates how often you do what is described, using the following scale:

a = Never
b = Sometimes
c = Often

11. How often do you eat foods that are fixed in new ways?
   a. Never  b. Sometimes  c. Often
   6  120  22  0 missing
c=best response

12. How often do you buy foods you see advertised on TV?
   a. Never  b. Sometimes  c. Often
   13  86  48  1 missing
a=best response

13. How often do you eat foods from other cultures?
   a. Never  b. Sometimes  c. Often
   22  98  27  0 missing
a=best response

14. How often do you ask someone about the nutrients in the foods you eat?
   a. Never  b. Sometimes  c. Often
   93  37  18  0 missing
c=best response

15. How often do you eat orange or yellow vegetables?
   a. Never  b. Sometimes  c. Often
   9  78  59  2 missing
a=best response

16. How often do you try to find out why someone gives you advice on food before you follow their suggestions?
   a. Never  b. Sometimes  c. Often
   55  76  16  1 missing
c=best response

17. How often do you eat green vegetables?
   a. Never  b. Sometimes  c. Often
   11  62  74  1 missing
a=best response

18. How often do you try to find out why certain foods are traditional in your family?
   a. Never  b. Sometimes  c. Often
   61  68  17  2 missing
c=best response

19. How often do you drink milk or eat foods made from milk?
   a. Never  b. Sometimes  c. Often
   3  32  113  0 missing
c=best response
20. How often do you work with someone to find the answer to a question about food?

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<td>Sometimes</td>
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<td>39.2%</td>
</tr>
<tr>
<td>Often</td>
<td>9</td>
<td>6.1%</td>
</tr>
</tbody>
</table>

0 missing

c=best response
SECTION III

Direction: For each item in this section, place a check mark in the blank beside the best (most correct) of the four response choices.

21. Why does the body need carbohydrates?
   - 64 43.2% a. to allow protein to be used for body building
   - 9 61% b. to help in weight loss
   - 31 20.3% c. to help the body conserve water
   - 41 27.7% d. to build muscles
   - 3 missing

   - a best response

22. What is the main reason that people in Iowa do not eat as much seafood as the people in Florida?
   - 76 52.7% a. fresh ocean fish are expensive because they have to be shipped long distance.
   - 21 14.2% b. many people in Iowa catch their own fish in local lakes.
   - 16 10.8% c. most people in Iowa do not like seafood.
   - 30 20.3% d. polluted water is Iowa has caused a shortage of fish.
   - 3 missing

   - a best response

23. How did the American Indians in the Southwest preserve most of their food?
   - 18 12.2% a. canning
   - 98 66.2% b. drying
   - 11 7.4% c. freezing
   - 17 11.5% d. pickling
   - 4 missing

   - b best response

24. What is the main reason that companies sometimes put food in attractive packages?
   - 77 52.0% a. attractive packages sell more of their products.
   - 21 14.2% b. food companies like to help stores look nice.
   - 18 12.2% c. people like to use the containers after they empty them.
   - 27 18.2% d. the government requires food companies to package things in a certain way.
   - 5 missing

   - a best response

25. In which category of foods does a potato belong?
   - 14 95% a. grains
   - 7 4.7% b. legumes and nuts
   - 24 16.2% c. meat, fish, poultry, and egg
   - 101 68.2% d. vegetables and fruit
   - 2 missing

   - d best response
26. What is the major reason many families in the U.S. eat more TV dinners than they used to?

- 5 34% a. cookbooks are too expensive for most families.
- 10 68% b. home-cooked meals usually are less nutritious than TV dinners.
- 7 4.7% c. TV dinners always taste better than home-cooked meals.
- 126 85.1% d. TV dinners take less time to fix than home-cooked foods.

27. What is a major reason that children choose to eat candy, potato chips, and Cokes even though they know these foods are not the most nutritious snacks?

- 6 4.1% a. their parents tell them to eat these foods.
- 42 28.4% b. these foods always are cheaper than more nutritious snacks.
- 19 12.8% c. these foods are easier to digest.
- 81 54.7% d. they like to eat the same foods their friends do.

28. Why do some diseases occur only in some parts of the world?

- 104 70.3% a. people in areas do not have food that contains all the nutrients they need.
- 10 6.8% b. people in some parts of the world do not get enough sleep.
- 19 12.8% c. people in some parts of the world do not take enough vitamin pills.
- 15 10.1% d. people who live in cold climates get more diseases.

29. How would people probably react if green food coloring were added to their mashed potatoes?

- 24 16.2% a. everyone would like them just as well because the taste would be the same
- 13 8.8% b. many people would like them better because they would be prettier.
- 101 68.2% c. many people would not like them because the color is not what they are used to.
- 9 6.1% d. most people would like them if butter were added.

30. Why are corn tortillas often eaten in Mexico?

- 26 17.6% a. corn tortillas are more nutritious than flour tortillas.
- 15 10.1% b. it is easier to grind corn than wheat.
- 16 10.8% c. not many people are allergic to corn.
- 91 51.5% d. there is more corn that wheat in Mexico.
31. What is the most likely reason that your parents might tell you to eat three meals a day and your friend's parents tell her to eat only when she is hungry?
   1. different people have different ideas about ways to keep healthy.
   2. her parents do not have a dining room.
   3. her parents give her vitamin pills.
   4. your parents do not know as much about nutrition as her parents.

   118 79.7%  a. different people have different ideas about ways to keep healthy.
   10 6.8%    b. her parents do not have a dining room.
   7 4.7%     c. her parents give her vitamin pills.
   11 7.4%    d. your parents do not know as much about nutrition as her parents.

32. Why is it especially important for children to get a lot of protein and minerals?
   1. they are growing rapidly.
   2. they have skin problems.
   3. they no longer take naps.
   4. they often get cavities in their teeth.

   101 68.2%  a. they are growing rapidly.
   10 6.8%    b. they have skin problems.
   8 5.4%     c. they no longer take naps.
   27 18.2%    d. they often get cavities in their teeth.

33. Why do Chinese children use chopsticks instead of knives and forks?
   1. chopsticks are easier for children to use.
   2. chopsticks are more fun to use.
   3. chopsticks are safer for young children.
   4. chopsticks are traditional in China.

   1 7%    a. chopsticks are easier for children to use.
   12 8.1%   b. chopsticks are more fun to use.
   20 13.5%  c. chopsticks are safer for young children.
   112 75.7%  d. chopsticks are traditional in China.

34. One family bought a big box of a new dry cereal because it had a prize in the box, but no one liked the cereal. What should they do next time they want to try a new cereal?
   1. buy a cereal that looks like one they have tried before.
   2. buy a cereal they can cook.
   3. buy a small box of the new cereal.
   4. do not buy cereal with a prize in the box.

   31 20.9%  a. buy a cereal that looks like one they have tried before.
   14 9.5%    b. buy a cereal they can cook.
   77 52.0%   c. buy a small box of the new cereal.
   23 15.5%    d. do not buy cereal with a prize in the box.

35. What do carbohydrates, fats, and proteins all do?
   1. help regulate body temperature
   2. prevent cavities
   3. provide for the growth of muscles
   4. provide energy for the body

   16 10.8%  a. help regulate body temperature
   14 9.5%    b. prevent cavities
   28 18.9%   c. provide for the growth of muscles
   64 56.8%    d. provide energy for the body

36. What kind of food would a family with Italian background probably eat?
   1. almost all fried foods
   2. many dishes made with macaroni and spaghetti
   3. mostly high-protein foods
   4. very mild-tasting food combinations

   19 12.8%  a. almost all fried foods
   68 59.5%   b. many dishes made with macaroni and spaghetti
   18 12.2%   c. mostly high-protein foods
37. Which of these foods contains the most protein?
- 26 b. baked sweet potato
- 39 b. fresh tomato
- 55 c. roast turkey
- 28 d. steamed rice
- 0 missing

38. What is a main reason many people eat a lot of their meals in restaurants?
- 11 a. eating out always costs less than eating at home.
- 22 b. restaurant food usually is more nutritious.
- 106 c. they do not like to spend their time cooking.
- 19 d. they like to meet new people.
- 0 missing

39. Why do people in Southeast Asia use rice instead of wheat as a basic food?
- 25 a. rice is a better source of carbohydrate.
- 11 b. rice is better for Asian people.
- 28 c. rice goes better with Chinese foods.
- 83 d. rice grows better in their climate.
- 1 missing

40. If you are planning what to serve at a party, which of these things do you need to do first?
- 22 a. get recipes for your favorite foods.
- 70 b. get several ideas about what to serve.
- 36 c. go to the grocery store.
- 18 d. prepare the foods that can be fixed early.
- 2 missing

41. Circle whether you are a girl or boy.
- a. girl
- b. boy

42. Circle the number which indicates your grade in school.
- a. 6
- b. 7
- c. 8

43. Circle the number which is same as your age.
- a. 9
- b. 10
- c. 11
- d. 12
- e. 13

44. Circle the letter which you think is your average grade.
- a. A
- b. B
- c. C
- d. D

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE!
Directions: For each item in this section, mark an X in the circle below the question which indicates how you really feel about the idea. Use the following scale:

- **a** = I do not like it at all
- **b** = I do not like it very much
- **c** = I like it a little bit
- **d** = I like it a lot

### 1. How do you feel about eating vegetables and fruits?

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### 2. How do you feel about trying to eat foods served in different ways?

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### 3. How do you feel about taking the advice of people who advertise food on TV?

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### 4. How do you feel when you think about some people not having enough to eat?

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<td>1.6%</td>
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### 5. How do you feel about having Coke rather than milk with a meal?

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<td>57.0%</td>
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</table>
6. How do you feel about working with other people to find the answers to questions about food?

a = ⬧ b = ⬧ c = ⬧ d = ⬧
9 20 61 37 1 missing
7.0% 15.6% 47.7% 28.9% d=best response

7. How do you feel about tasting new foods from other countries?

a = ⬧ b = ⬧ c = ⬧ d = ⬧
11 17 52 48 0 missing
8.6% 13.3% 40.6% 37.5% d=best response

8. How do you feel about eating foods from different food groups?

a = ⬧ b = ⬧ c = ⬧ d = ⬧
1 5 48 74 0 missing
.8% 3.9% 37.5% 57.8% d=best response

9. How do you feel about eating only foods produced near where you live?

a = ⬧ b = ⬧ c = ⬧ d = ⬧
30 42 38 16 2 missing
23.4% 32.8% 29.7% 12.5% a=best response

10. How do you feel about drinking a lot of water?

a = ⬧ b = ⬧ c = ⬧ d = ⬧
17 13 54 44 0 missing
13.3% 10.2% 42.2% 34.4% d=best response
SECTION II

Directions: For each item in this section, circle the answer below the question which indicates how often you do what is described, using the following scale:

a = Never
b = Sometimes
c = Often

11. How often do you eat foods that are fixed in new ways?

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<td>c=best response</td>
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12. How often do you buy foods you see advertised on TV?

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<td>a=best response</td>
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13. How often do you eat foods from other cultures?

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14. How often do you ask someone about the nutrients in the foods you eat?

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15. How often do you eat orange or yellow vegetables?

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16. How often do you try to find out why certain foods are traditional in your family?

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<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>48</td>
<td>63</td>
<td>17</td>
</tr>
<tr>
<td>37.5%</td>
<td>49.2%</td>
<td>13.3%</td>
<td></td>
</tr>
<tr>
<td>c=best response</td>
<td></td>
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</tbody>
</table>

17. How often do you eat green vegetables?

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>7</td>
<td>53</td>
<td>68</td>
</tr>
<tr>
<td>5.5%</td>
<td>41.4%</td>
<td>53.1%</td>
<td></td>
</tr>
<tr>
<td>c=best response</td>
<td></td>
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</tbody>
</table>

18. How often do you try to find out why certain foods are traditional in your family?

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>64</td>
<td>45</td>
<td>19</td>
</tr>
<tr>
<td>50.0%</td>
<td>35.2%</td>
<td>14.8%</td>
<td></td>
</tr>
<tr>
<td>c=best response</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
19. How often do you drink milk or eat foods made from milk?
   a. Never  
   1 \( \cdot 8\% \)
   b. Sometimes  
   29 \( 22.7\% \)
   c. Often  
   98 \( 76.6\% \)
   0 missing  
   c=best response

20. How often do you work with someone to find the answer to a question about food?
   a. Never  
   55 \( 43.0\% \)
   b. Sometimes  
   58 \( 45.3\% \)
   c. Often  
   14 \( 10.9\% \)
   1 missing  
   c=best response
SECTION III

Direction: For each item in this section, place a check mark in the blank beside the best (most correct) of the four response choices.

21. Why does the body need carbohydrates?
   - 60 46.9% a. to allow protein to be used for body building
   - 35 27.3% b. to help in weight loss
   - 28 21.9% c. to help the body conserve water
   - 0   missing
c. to build muscles
   - a  best response

22. What is the main reason that people in Iowa do not eat as much seafood as the people in Florida?
   - 68 53.1% a. fresh ocean fish are expensive because they have to be shipped long distance.
   - 15 11.7% b. many people in Iowa catch their own fish in local lakes.
   - 8   6.3% c. most people in Iowa do not like seafood.
   - 36 28.1% d. polluted water is Iowa has caused a shortage of fish.
   - 1   missing
   - a  best response

23. How did the American Indians in the Southwest preserve most of their food?
   - 17 13.3% a. canning
   - 85 66.4% b. drying
   - 11  8.6% c. freezing
   - 14 10.9% d. pickling
   - 1   missing
   - b  best response

24. What is the main reason that companies sometimes put food in attractive packages?
   - 35 74.2% a. attractive packages sell more of their products.
   - 10  7.8% b. food companies like to help stores look nice.
   - 19 14.8% c. people like to use the containers after they empty them.
   - 0   missing
   - a  best response

25. In which category of foods does a potato belong?
   - 6   4.7% a. grains
   - 10  7.8% b. legumes and nuts
   - 24 18.8% c. meat, fish, poultry, and egg
   - 88 68.8% d. vegetables and fruit
   - 0   missing
   - d  best response
26. What is the major reason many families in the U.S. eat more TV dinners that they used to?

- 117 91.4% d. TV dinners take less time to fix than home-cooked foods.
- 0
- 1 8% c. TV dinners always taste better than home-cooked meals.
- 8 63% b. home-cooked meals usually are less nutritious than TV dinners.
- 2 16% a. cookbooks are too expensive for most families.

27. What is a major reason that children choose to eat candy, potato chips, and Cokes even though they know these foods are not the most nutritious snacks?

- 83 64.8% d. they like to eat the same foods their friends do.
- 27 21.1% b. these foods always are cheaper than more nutritious snacks.
- 10 7.8% c. these foods are easier to digest.
- 5 3.9% a. their parents tell them to eat these foods.

28. Why do some diseases occur only in some parts of the world?

- 103 80.5% a. people in areas do not have food that contains all the nutrients they need.
- 1 8% b. people in some parts of the world do not get enough sleep.
- 13 10.2% c. people in some parts of the world do not take enough vitamin pills.
- 10 7.8% d. people who live in cold climates get more diseases.

29. How would people probably react if green food coloring were added to their mashed potatoes?

- 110 85.9% c. many people would not like them because the color is not what they are used to.
- 3 23% d. most people would like them if butter were added missing
- 6 4.7% b. many people would like them better because they would be prettier.
- 8 63% a. everyone would like them just as well because the taste would be the same.

30. Why are corn tortillas often eaten in Mexico?

- 91 71.1% d. there is more corn that wheat in Mexico.
- 1
- 9 7.0% b. it is easier to grind corn than wheat.
- 22 17.3% a. corn tortillas are more nutritious than flour tortillas.
31. What is the most likely reason that your parents might tell you to eat three meals a day and your friend's parents tell her to eat only when she is hungry?

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<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>111</td>
<td>86.7%</td>
<td>a. different people have different ideas about ways to keep healthy.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>23%</td>
<td>b. her parents do not have a dining room.</td>
<td></td>
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<tr>
<td>3</td>
<td>23%</td>
<td>c. her parents give her vitamin pills.</td>
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<tr>
<td>10</td>
<td>7.8%</td>
<td>d. your parents do not know as much about nutrition as her parents.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>missing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>best response</td>
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</table>

32. Why is it especially important for children to get a lot of protein and minerals?

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<tbody>
<tr>
<td>104</td>
<td>81.3%</td>
<td>a. they are growing rapidly.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>16%</td>
<td>b. they have skin problems.</td>
<td></td>
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<tr>
<td>3</td>
<td>3%</td>
<td>c. they no longer take naps.</td>
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<tr>
<td>16</td>
<td>12.5%</td>
<td>d. they often get cavities in their teeth.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>missing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>best response</td>
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33. Why do Chinese children use chopsticks instead of knives and forks?

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<tbody>
<tr>
<td>1</td>
<td>8%</td>
<td>a. chopsticks are easier for children to use.</td>
<td></td>
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<tr>
<td>4</td>
<td>31%</td>
<td>b. chopsticks are more fun to use.</td>
<td></td>
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<tr>
<td>5</td>
<td>3.5%</td>
<td>c. chopsticks are safer for young children.</td>
<td></td>
</tr>
<tr>
<td>117</td>
<td>91.4%</td>
<td>d. chopsticks are traditional in China.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>missing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>best response</td>
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</table>

34. One family bought a big box of a new dry cereal because it had a prize in the box, but no one liked the cereal. What should they do next time they want to try a new cereal?

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<tbody>
<tr>
<td>15</td>
<td>11.7%</td>
<td>a. buy a cereal that looks like one they have tried before.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>23%</td>
<td>b. buy a cereal they can cook.</td>
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<tr>
<td>32</td>
<td>71.9%</td>
<td>c. buy a small box of the new cereal.</td>
<td></td>
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<tr>
<td>17</td>
<td>13.3%</td>
<td>d. do not buy cereal with a prize in the box.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>missing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>best response</td>
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</tbody>
</table>

35. What do carbohydrates, fats, and proteins all do?

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<tbody>
<tr>
<td>8</td>
<td>63%</td>
<td>a. help regulate body temperature</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>31%</td>
<td>b. prevent cavities</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>23.4%</td>
<td>c. provide for the growth of muscles</td>
<td></td>
</tr>
<tr>
<td>63</td>
<td>64.8%</td>
<td>d. provide energy for the body</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>missing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>best response</td>
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</table>

36. What kind of food would a family with Italian background probably eat?

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</thead>
<tbody>
<tr>
<td>5</td>
<td>3.9%</td>
<td>a. almost all fried foods</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>62.5%</td>
<td>b. many dishes made with macaroni and spaghetti</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>14.8%</td>
<td>c. mostly high-protein foods</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>16.4%</td>
<td>d. very mild-tasting food combinations</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>missing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>best response</td>
<td></td>
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</tr>
</tbody>
</table>
37. Which of these foods contains the most protein?

- **21** 16.4% a. baked sweet potato
- **52** 40.6% b. fresh tomato
- **37** 28.9% c. roast turkey
- **15** 11.7% d. steamed rice
- missing

38. What is a main reason many people eat a lot of their meals in restaurants?

- **3** 23% a. eating out always costs less than eating at home.
- **13** 10.2% b. restaurant food usually is more nutritious.
- **105** 82.0% c. they do not like to spend their time cooking.
- **7** 5.5% d. they like to meet new people.

39. Why do people in Southeast Asia use rice instead of wheat as a basic food?

- **16** 12.5% a. rice is a better source of carbohydrate.
- **10** 78% b. rice is better for Asian people.
- **12** 9.4% c. rice goes better with Chinese foods.
- **90** 70.3% d. rice grows better in their climate.

40. If you are planning what to serve at a party, which of these things do you need to do first?

- **11** 8.6% a. get recipes for your favorite foods.
- **75** 58.6% b. get several ideas about what to serve.
- **23** 18.0% c. go to the grocery store.
- **18** 14.1% d. prepare the foods that can be fixed early.
- missing

41. Circle whether you are a girl or boy.

- a. girl
- b. boy

42. Circle the number which indicates your grade in school.

- a. 6
- b. 7
- c. 8

43. Circle the number which is same as your age.

- a. 9
- b. 10
- c. 11
- d. 12

44. Circle the letter which you think is your average grade.

- a. A
- b. B
- c. C
- d. D

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE!
Seventh and Eighth-Grade Responses
SECTION I

Directions: For each item in this section write the number in the blank which indicates how you really feel about the statements, using the following scale:

a. = Strongly disagree
b. = Mildly disagree
c. = Undecided
d. = Mildly agree
e. = Strongly agree

1. I would rather have Coke than milk with a meal.
   a  b  c  d  e
   57 46 70 115 318 2 missing
   9.4% 7.6% 11.5% 18.9% 52.3% a=best response

2. I like to find out about the backgrounds of people who give advice about food and nutrition.
   a  b  c  d  e
   161 106 206 80 54 1 missing
   26.5% 17.4% 33.9% 13.2% 8.9% e=best response

3. I would rather take vitamin pills than learn to eat new foods.
   a  b  c  d  e
   287 87 110 66 55 3 missing
   47.2% 14.3% 18.1% 10.9% 9.0% a=best response

4. I like to eat a variety of foods each day.
   a  b  c  d  e
   38 45 67 189 265 5 missing
   6.3% 7.4% 11.0% 31.1% 43.6% e=best response

5. I would rather skip a meal than to cook it myself.
   a  b  c  d  e
   319 97 58 53 77 4 missing
   52.5% 16.0% 9.5% 8.7% 12.7% a=best response

6. I like to eat low-cost foods as well as high-cost ones.
   a  b  c  d  e
   69 35 163 159 174 3 missing
   11.3% 5.8% 27.6% 26.2% 28.6% e=best response

7. It bothers me to eat foods I have not tried before.
   a  b  c  d  e
   134 104 96 126 147 1 missing
   22.0% 17.1% 15.8% 20.7% 24.2% a=best response

8. I like to know about foods that are good for me.
   a  b  c  d  e
   83 89 119 147 166 5 missing
   13.7% 14.6% 19.6% 24.2% 27.3% e=best response
9. I like to think about the nutrients in foods when I am deciding what to eat.

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>187</td>
<td>109</td>
<td>153</td>
<td>98</td>
<td>59</td>
</tr>
<tr>
<td>%</td>
<td>30.8%</td>
<td>17.9%</td>
<td>25.2%</td>
<td>16.1%</td>
<td>9.7%</td>
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<tr>
<td></td>
<td>2 missing</td>
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</table>

10. I like to think about how the way I eat affects other people.

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<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>156</td>
<td>67</td>
<td>166</td>
<td>108</td>
<td>108</td>
</tr>
<tr>
<td>%</td>
<td>25.7%</td>
<td>11.0%</td>
<td>27.3%</td>
<td>17.8%</td>
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<tr>
<td></td>
<td>3 missing</td>
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</tbody>
</table>

e=best response
### SECTION II

**Directions:** For each item in this section write the number in the blank which indicates how you really feel about the statement, using the following scale:

- **a** = Never
- **b** = Seldom
- **c** = Sometimes
- **d** = Usually
- **e** = Always

<table>
<thead>
<tr>
<th>Question</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>11.</strong> I use a daily food guide to help choose the foods I eat.</td>
<td>496</td>
<td>62</td>
<td>29</td>
<td>11</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>81.6%</td>
<td>10.2%</td>
<td>4.8%</td>
<td>1.6%</td>
<td>1.0%</td>
<td>e=best response</td>
</tr>
<tr>
<td><strong>12.</strong> I prepare meals using different cooking methods.</td>
<td>167</td>
<td>132</td>
<td>213</td>
<td>69</td>
<td>23</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>27.8%</td>
<td>21.7%</td>
<td>35.0%</td>
<td>11.3%</td>
<td>3.8%</td>
<td>e=best response</td>
</tr>
<tr>
<td><strong>13.</strong> I follow good safety rules when I store and handle food.</td>
<td>63</td>
<td>59</td>
<td>103</td>
<td>213</td>
<td>162</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>10.4%</td>
<td>9.7%</td>
<td>16.9%</td>
<td>35.0%</td>
<td>26.6%</td>
<td>e=best response</td>
</tr>
<tr>
<td><strong>14.</strong> I think about my nutrient and caloric needs when I decide what to eat.</td>
<td>213</td>
<td>149</td>
<td>145</td>
<td>62</td>
<td>34</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>35.0%</td>
<td>24.5%</td>
<td>23.8%</td>
<td>10.2%</td>
<td>5.6%</td>
<td>e=best response</td>
</tr>
<tr>
<td><strong>15.</strong> When I eat at a restaurant, I try to select a balanced meal.</td>
<td>200</td>
<td>129</td>
<td>117</td>
<td>105</td>
<td>48</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>33.4%</td>
<td>21.2%</td>
<td>19.2%</td>
<td>17.3%</td>
<td>7.9%</td>
<td>e=best response</td>
</tr>
<tr>
<td><strong>16.</strong> I taste familiar foods when they are prepared in new ways.</td>
<td>66</td>
<td>98</td>
<td>219</td>
<td>162</td>
<td>56</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>10.9%</td>
<td>16.1%</td>
<td>36.0%</td>
<td>26.6%</td>
<td>9.2%</td>
<td>e=best response</td>
</tr>
<tr>
<td><strong>17.</strong> I skip meals to cut down on calories.</td>
<td>335</td>
<td>84</td>
<td>116</td>
<td>33</td>
<td>36</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>55.1%</td>
<td>13.8%</td>
<td>19.1%</td>
<td>5.4%</td>
<td>5.9%</td>
<td>a=best response</td>
</tr>
<tr>
<td><strong>18.</strong> I eat several kinds of fruits and vegetables each day.</td>
<td>51</td>
<td>112</td>
<td>169</td>
<td>151</td>
<td>117</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>8.4%</td>
<td>18.4%</td>
<td>27.8%</td>
<td>24.8%</td>
<td>19.2%</td>
<td>e=best response</td>
</tr>
</tbody>
</table>
19. I try to make mealtime pleasant for the people with whom I eat.

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<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>5 missing</th>
</tr>
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<td>52</td>
<td>45</td>
<td>83</td>
<td>219</td>
<td>204</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8.6%</td>
<td>7.4%</td>
<td>13.7%</td>
<td>36.0%</td>
<td>33.6%</td>
<td>e=best response</td>
</tr>
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</table>

20. I use different ways to solve my food and nutrition problems.

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<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>5 missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>195</td>
<td>129</td>
<td>169</td>
<td>75</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td></td>
<td>32.1%</td>
<td>21.2%</td>
<td>27.8%</td>
<td>12.3%</td>
<td>5.8%</td>
<td>e=best response</td>
</tr>
</tbody>
</table>
SECTION III

Direction: For each item in this section, place a check mark in the blank beside the best (most correct) of the four response choices.

21. If a friend tells you about a new weight-loss diet, which of these is the way to decide if it is good?
   - a. ask your doctor about the diet. 402 (66.1%)
   - b. find out how many people have used the diet. 25 (4.1%)
   - c. see how much weight your friend has lost on the diet. 63 (10.4%)
   - d. try the diet for a week to see how you feel. 106 (17.4%)
   - 12 missing
   a. best response

22. Which of the following factors is least important in determining your nutrient and caloric needs?
   - a. age 81 (13.3%)
   - b. amount of exercise 76 (12.5%)
   - c. gender (sex) 129 (21.2%)
   - d. personal beliefs 313 (51.5%)
   - 9 missing
   d. best response

23. Which of these potatoes would be crispiest?
   - a. baked potato 58 (9.5%)
   - b. fried potato 484 (79.6%)
   - c. mashed potato 16 (2.6%)
   - d. steamed 33 (5.4%)
   - 17 missing
   b. best response

24. In which of these ways that green pepper might be fixed would it provide the most vitamin C?
   - a. baked 41 (6.7%)
   - b. broiled 53 (8.7%)
   - c. fried 35 (5.8%)
   - d. raw 466 (76.5%)
   - 14 missing
   d. best response

25. Which of the following people probably would be the most helpful in planning a low-cost menu for a party?
   - a. food chemist 244 (40.1%)
   - b. home economics teacher 193 (31.0%)
   - c. school business manager 34 (5.6%)
   - d. waitress 129 (21.2%)
   - 8 missing
   b. best response
26. Which of the following health conditions would be most likely to occur in teenagers who do not get enough iron in their diets?

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>acne</td>
<td>22.4%</td>
</tr>
<tr>
<td>anemia</td>
<td>45.2%</td>
</tr>
<tr>
<td>diabetes</td>
<td>19.2%</td>
</tr>
<tr>
<td>obesity</td>
<td>10.0%</td>
</tr>
<tr>
<td>missing</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

27. What is the most likely reason that some young people do not eat many kinds of vegetables?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>their families cannot afford many kinds.</td>
<td>7.6%</td>
</tr>
<tr>
<td>they cannot get many kinds in the grocery store.</td>
<td>5.6%</td>
</tr>
<tr>
<td>they do not know how to cook many kinds.</td>
<td>6.6%</td>
</tr>
<tr>
<td>they have not learned to like many kinds.</td>
<td>73.6%</td>
</tr>
<tr>
<td>missing</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

28. Which of the following foods would be possible to prepare in 20 minutes without use of a microwave oven?

<table>
<thead>
<tr>
<th>Food</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>hamburgers</td>
<td>66.7%</td>
</tr>
<tr>
<td>homemade vegetable-beef soup</td>
<td>14.6%</td>
</tr>
<tr>
<td>pork chops</td>
<td>7.6%</td>
</tr>
<tr>
<td>roast beef</td>
<td>4.9%</td>
</tr>
<tr>
<td>missing</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

29. If one of your responsibilities at home is fixing breakfast for your family and you burn the toast almost every morning, which of these would be the thing to do?

<table>
<thead>
<tr>
<th>Action</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>ask to trade chores with another family member.</td>
<td>14.0%</td>
</tr>
<tr>
<td>figure out what you have been doing wrong and try to correct it.</td>
<td>65.8%</td>
</tr>
<tr>
<td>keep serving the burned toast and hope your family will learn to like it</td>
<td>11.0%</td>
</tr>
<tr>
<td>make biscuits rather than toast for breakfast.</td>
<td>7.1%</td>
</tr>
<tr>
<td>missing</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

30. Which of the following nutrients is needed for making red blood cells?

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>calcium</td>
<td>15.6%</td>
</tr>
<tr>
<td>iron</td>
<td>46.9%</td>
</tr>
<tr>
<td>vitamin A</td>
<td>23.4%</td>
</tr>
<tr>
<td>vitamin D</td>
<td>9.2%</td>
</tr>
<tr>
<td>missing</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

31. What nutritional advantages does an expensive piece of steak have compared to a cheaper piece?

<table>
<thead>
<tr>
<th>Advantage</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>it probably has less fat than the cheaper piece.</td>
<td>45.9%</td>
</tr>
<tr>
<td>it probably has more protein than the cheaper piece.</td>
<td>14.5%</td>
</tr>
<tr>
<td>it probably has more vitamins and minerals than the cheaper piece.</td>
<td>14.1%</td>
</tr>
<tr>
<td>it probably has no nutritional advantage over the cheaper piece.</td>
<td>23.5%</td>
</tr>
<tr>
<td>missing</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
32. Which of the following foods is the main ingredient used in the manufacture of imitation bacon?

- **a. beef** (57.9%)
- **b. corn** (5.1%)
- **c. milk** (4.6%)
- **d. soybeans** (30.3%)

*d. best response*

33. Which of these problems would food and nutrition information be least likely to help solve?

- **a. frequent colds and minor illnesses** (14.1%)
- **b. midmorning energy slumps** (10.2%)
- **c. overweight** (19.2%)
- **d. poor social skills** (53.4%)

*d. missing*

34. Which of these fast-food meals would provide the most nutrients?

- **a. chicken, mashed potatoes, and roll** (51.5%)
- **b. hamburger, french fries, and Coke** (8.1%)
- **c. hot dog and milk shake** (5.6%)
- **d. sausage-cheese pizza and salad** (31.7%)

*d. missing*

35. Which of these activities that could be done during a meal probably would help people enjoy the meal more?

- **a. eating as quickly as possible** (5.6%)
- **b. playing with a pet** (6.7%)
- **c. settling family problems** (9.7%)
- **d. talking with others** (76.0%)

*d. missing*

36. Which of the following foods contains the most iron?

- **a. cake** (5.9%)
- **b. hamburger** (20.6%)
- **c. milk** (42.6%)
- **d. pineapple** (28.8%)

*b. best response*

37. If you read about ideal weight in a book on physical fitness, how can you tell how good the information is?

- **a. by the background of the author of the book** (60.9%)
- **b. by the length of the book** (9.2%)
- **c. by the length of the chapter on the ideal weight** (17.8%)
- **d. by the number of pictures in the book** (9.5%)

*a. missing*

*a. best response*
38. Which of the following family members needs the most protein?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>87</td>
<td>14.3%</td>
<td>a. 10-year-old daughter who takes ballet</td>
</tr>
<tr>
<td>126</td>
<td>20.7%</td>
<td>b. 15-year-old son who plays football</td>
</tr>
<tr>
<td>316</td>
<td>52.0%</td>
<td>c. 35-year-old mother who is pregnant</td>
</tr>
<tr>
<td>353</td>
<td>8.7%</td>
<td>d. 37-year-old father who is a farmer</td>
</tr>
<tr>
<td>26</td>
<td>missing</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>best response</td>
<td></td>
</tr>
</tbody>
</table>

39. Which of the following foods requires use of the fewest resources to produce?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>160</td>
<td>29.6%</td>
<td>a. cheese</td>
</tr>
<tr>
<td>104</td>
<td>17.1%</td>
<td>b. ham</td>
</tr>
<tr>
<td>243</td>
<td>40.0%</td>
<td>c. soybeans</td>
</tr>
<tr>
<td>68</td>
<td>11.2%</td>
<td>d. steak</td>
</tr>
<tr>
<td>13</td>
<td>missing</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>best response</td>
<td></td>
</tr>
</tbody>
</table>

40. Which of the following safety rules is important for frying foods?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>43</td>
<td>7.2%</td>
<td>a. cool the hot fat quickly with cold running water.</td>
</tr>
<tr>
<td>41</td>
<td>6.5%</td>
<td>b. drop frozen foods quickly into the fat.</td>
</tr>
<tr>
<td>54</td>
<td>9.1%</td>
<td>c. heat the fat quickly.</td>
</tr>
<tr>
<td>452</td>
<td>76.8%</td>
<td>d. use moderate heat.</td>
</tr>
<tr>
<td>13</td>
<td>missing</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>best response</td>
<td></td>
</tr>
</tbody>
</table>

41. If one student trying to find recipes for nutritious snacks looks through several cookbooks and another student asks several teachers for suggestions, what will they probably find?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>5.6%</td>
<td>a. if the books are good ones, both students probably will come up with the same ideas.</td>
</tr>
<tr>
<td>73</td>
<td>12.0%</td>
<td>b. if the teachers all are good cooks, both students probably will come up with the same ideas.</td>
</tr>
<tr>
<td>248</td>
<td>40.8%</td>
<td>c. the two students may come up with either the same or different ideas.</td>
</tr>
<tr>
<td>238</td>
<td>39.1%</td>
<td>d. the two students probably will come up with very different ideas.</td>
</tr>
<tr>
<td>14</td>
<td>missing</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>best response</td>
<td></td>
</tr>
</tbody>
</table>

42. Three students compared what they ate for breakfast. Karen had a hard-cooked egg, tomato juice, and cereal with milk. Bill had a hamburger and a banana milkshake. Pat had toast and orange juice. Who had nutritionally balanced breakfast(s)?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>105</td>
<td>17.3%</td>
<td>a. none of the students</td>
</tr>
<tr>
<td>226</td>
<td>37.7%</td>
<td>b. only Pat</td>
</tr>
<tr>
<td>151</td>
<td>24.6%</td>
<td>c. both Karen and Bill</td>
</tr>
<tr>
<td>111</td>
<td>18.3%</td>
<td>d. all the students</td>
</tr>
<tr>
<td>12</td>
<td>missing</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>best response</td>
<td></td>
</tr>
</tbody>
</table>

43. Which of the following foods contains the most calories?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>57</td>
<td>9.4%</td>
<td>a. 1 dinner roll</td>
</tr>
<tr>
<td>87</td>
<td>14.3%</td>
<td>b. 1 cup whole milk</td>
</tr>
<tr>
<td>122</td>
<td>20.1%</td>
<td>c. 4 ounces of steak</td>
</tr>
<tr>
<td>333</td>
<td>54.8%</td>
<td>d. 10 potato chips</td>
</tr>
<tr>
<td>9</td>
<td>missing</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>best response</td>
<td></td>
</tr>
</tbody>
</table>
44. If the students in your school do not like the foods served in the school cafeteria, which of the following would be the best thing to do?

| 50 | 8.2% | a. encourage all students to return their food uneaten as a protest. |
| 67 | 11.0% | b. hope that other people in the school will do something about the situation. |
| 316 | 52.0% | c. organize a group of students to talk to the cafeteria manager. |
| 153 | 25.2% | d. stop eating in the school lunch program. |
| 22 | missing | best response |

45. What is the relationship between self-image and physical appearance of teenagers?

| 398 | 65.5% | a. they are related for both girls and boys. |
| 49 | 8.1% | b. they are related for boys but not for girls. |
| 55 | 9.0% | c. they are related for girls but not for boys. |
| 133 | 21.4% | d. they are not related for either girls or boys. |
| 13 | missing | best response |

46. Circle whether you are a male or female.

| a. male | b. female |
| 306 | 302 |
| 50.3% | 49.7% |

47. Circle the number which indicates your grade in school.

| a. 7 | b. 8 |
| 289 | 319 |
| 47.5% | 52.3% |

48. Circle the number which is the same as your age.

| a. 10 | b. 11 | c. 12 | d. 13 | e. 14 |
| 6 | 5 | 142 | 278 | 153 |
| 1.0% | 0.8% | 23.4% | 45.7% | 25.2% |

49. Circle the letter which you think is your average grade.

| 128 | 216 | 201 | 46 |
| 128 | 216 | 201 | 7.6% |
| 18 missing |

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE.
Directions: For each item in this section write the number in the blank which indicates how you really feel about the statements, using the following scale:

a. = Strongly disagree  
b. = Mildly disagree  
c. = Undecided  
d. = Mildly agree  
e. = Strongly agree

1. I would rather have Coke than milk with a meal.
   a b c d e
   38 29 25 50 146 1 missing
   13.1% 10.0% 8.7% 17.3% 50.5%  a = best response

2. I like to find out about the backgrounds of people who give advice about food and nutrition.
   a b c d e
   61 52 89 50 36 1 missing
   21.1% 18.0% 30.8% 17.3% 12.5%  e = best response

3. I would rather take vitamin pills than learn to eat new foods.
   a b c d e
   133 45 46 30 32 3 missing
   46.0% 15.6% 15.9% 10.4% 11.1%  a = best response

4. I like to eat a variety of foods each day.
   a b c d e
   18 22 27 90 130 2 missing
   6.2% 7.6% 9.3% 31.1% 45.0%  e = best response

5. I would rather skip a meal than to cook it myself.
   a b c d e
   160 48 26 17 35 3 missing
   55.4% 16.6% 9.0% 5.9% 12.1%  a = best response

6. I like to eat low-cost foods as well as high-cost ones.
   a b c d e
   36 14 77 76 84 2 missing
   12.5% 4.8% 26.6% 26.3% 29.1%  e = best response

7. It bothers me to eat foods I have not tried before.
   a b c d e
   58 57 41 63 69 1 missing
   20.1% 19.7% 14.2% 21.8% 23.9%  a = best response

8. I like to know about foods that are good for me.
   a b c d e
   36 31 50 78 91 3 missing
   12.5% 10.7% 17.3% 27.0% 31.5%  e = best response
9. I like to think about the nutrients in foods when I am deciding what to eat.

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
</thead>
</table>
| 1 | 85 | 50 | 72 | 49 | 31 | 2 missing
| % | 29.4% | 17.3% | 24.9% | 17.0% | 10.7% |
| e | best response

10. I like to think about how the way I eat affects other people.

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>missing</th>
</tr>
</thead>
</table>
| 1 | 67 | 24 | 78 | 55 | 62 | 3 missing
| % | 23.2% | 8.3% | 27.0% | 19.0% | 21.5% |
| e | best response
SECTION II

Directions: For each item in this section write the number in the blank which indicates how you really feel about the statement, using the following scale:

a = Never
b = Seldom
c = Sometimes
d = Usually
e = Always

___ 11. I use a daily food guide to help choose the foods I eat.

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>226</td>
<td>37</td>
<td>15</td>
<td>5</td>
<td>4</td>
<td>2 missing</td>
</tr>
<tr>
<td>78.2%</td>
<td>12.8%</td>
<td>52%</td>
<td>1.7%</td>
<td>1.4%</td>
<td>e=best response</td>
</tr>
</tbody>
</table>

___ 12. I prepare meals using different cooking methods.

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>76</td>
<td>60</td>
<td>101</td>
<td>36</td>
<td>15</td>
<td>1 missing</td>
</tr>
<tr>
<td>26.3%</td>
<td>20.8%</td>
<td>34.9%</td>
<td>12.5%</td>
<td>5.2%</td>
<td>e=best response</td>
</tr>
</tbody>
</table>

___ 13. I follow good safety rules when I store and handle food.

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>27</td>
<td>40</td>
<td>105</td>
<td>92</td>
<td>5 missing</td>
</tr>
<tr>
<td>6.9%</td>
<td>9.3%</td>
<td>13.8%</td>
<td>36.3%</td>
<td>31.8%</td>
<td>e=best response</td>
</tr>
</tbody>
</table>

___ 14. I think about my nutrient and caloric needs when I decide what to eat.

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>79</td>
<td>71</td>
<td>86</td>
<td>29</td>
<td>20</td>
<td>4 missing</td>
</tr>
<tr>
<td>27.3%</td>
<td>24.6%</td>
<td>29.8%</td>
<td>10.0%</td>
<td>6.9%</td>
<td>e=best response</td>
</tr>
</tbody>
</table>

___ 15. When I eat at a restaurant, I try to select a balanced meal.

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>79</td>
<td>62</td>
<td>69</td>
<td>53</td>
<td>21</td>
<td>5 missing</td>
</tr>
<tr>
<td>27.3%</td>
<td>21.5%</td>
<td>23.9%</td>
<td>18.3%</td>
<td>7.3%</td>
<td>e=best response</td>
</tr>
</tbody>
</table>

___ 16. I taste familiar foods when they are prepared in new ways.

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>49</td>
<td>94</td>
<td>80</td>
<td>32</td>
<td>5 missing</td>
</tr>
<tr>
<td>10.0%</td>
<td>17.0%</td>
<td>32.5%</td>
<td>27.7%</td>
<td>11.1%</td>
<td>e=best response</td>
</tr>
</tbody>
</table>

___ 17. I skip meals to cut down on calories.

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
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<td>54.0%</td>
<td>14.9%</td>
<td>21.8%</td>
<td>3.8%</td>
<td>4.8%</td>
<td>a=best response</td>
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___ 18. I eat several kinds of fruits and vegetables each day.

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<tr>
<td>8.0%</td>
<td>16.6%</td>
<td>27.0%</td>
<td>24.2%</td>
<td>23.2%</td>
<td>e=best response</td>
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</table>
19. I try to make mealtimes pleasant for the people with whom I eat.

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<td>7.3%</td>
<td>4.8%</td>
<td>13.1%</td>
<td>35.6%</td>
<td>38.4%</td>
<td>e = best response</td>
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20. I use different ways to solve my food and nutrition problems.

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<td>26.0%</td>
<td>20.4%</td>
<td>30.4%</td>
<td>14.2%</td>
<td>8.3%</td>
<td>e = best response</td>
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SECTION III

Direction: For each item in this section, place a check mark in the blank beside the best (most correct) of the four response choices.

21. If a friend tells you about a new weight-loss diet, which of these is the way to decide if it is good?
   - 196 67.8% a. ask your doctor about the diet.
   - 9 3.1% b. find out how many people have used the diet.
   - 33 11.4% c. see how much weight your friend has lost on the diet.
   - 46 15.9% d. try the diet for a week to see how you feel.

22. Which of the following factors is least important in determining your nutrient and caloric needs?
   - 40 13.8% a. age
   - 41 14.2% b. amount of exercise
   - 48 16.6% c. gender (sex)
   - 155 53.6% d. personal beliefs

23. Which of these potatoes would be crispiest?
   - 27 9.3% a. baked potato
   - 228 78.9% b. fried potato
   - 11 3.8% c. mashed potato
   - 15 5.2% d. steamed

24. In which of these ways that green pepper might be fixed would it provide the most vitamin C?
   - 17 59% a. baked
   - 22 7.6% b. broiled
   - 17 59% c. fried
   - 226 78.2% d. raw

25. Which of the following people probably would be the most helpful in planning a low-cost menu for a party?
   - 127 43.5% a. food chemist
   - 76 26.3% b. home economics teacher
   - 14 4.8% c. school business manager
   - 67 23.2% d. waitress

   5 missing
   b best response
26. Which of the following health conditions would be most likely to occur in teenagers who do not get enough iron in their diets?

- a. acne 24.2%
- b. anemia 39.1%
- c. diabetes 23.5%
- d. obesity 11.4%

b. best response

27. What is the most likely reason that some young people do not eat many kinds of vegetables?

- a. their families cannot afford many kinds. 8.7%
- b. they cannot get many kinds in the grocery store. 5.2%
- c. they do not know how to cook many kinds. 6.2%
- d. they have not learned to like many kinds. 77.2%

b. best response

28. Which of the following foods would be possible to prepare in 20 minutes without use of a microwave oven?

- a. hamburgers 64.4%
- b. homemade vegetable-beef soup 18.0%
- c. pork chops 8.0%
- d. roast beef 3.8%

b. best response

29. If one of your responsibilities at home is fixing breakfast for your family and you burn the toast almost every morning, which of these would the thing to do?

- a. ask to trade chores with another family member. 13.5%
- b. figure out what you have been doing wrong and try to correct it. 70.2%
- c. keep serving the burned toast and hope your family will learn to like it 8.7%
- d. make biscuits rather than toast for breakfast. 4.5%

b. best response

30. Which of the following nutrients is needed for making red blood cells?

- a. calcium 16.6%
- b. iron 43.6%
- c. vitamin A 24.6%
- d. vitamin D 11.1%

b. best response

31. What nutritional advantages does an expensive piece of steak have compared to a cheaper piece?

- a. it probably has less fat than the cheaper piece. 41.2%
- b. it probably has more protein than the cheaper piece. 14.2%
- c. it probably has more vitamins and minerals than the cheaper piece. 17.3%
- d. it probably has no nutritional advantage over the cheaper piece. 24.2%

g. missing
d. best response
32. Which of the following foods is the main ingredient used in the manufacture of imitation bacon?

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<tbody>
<tr>
<td>174</td>
<td>60.2%</td>
<td>a. beef</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>3.1%</td>
<td>b. corn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>6.6%</td>
<td>c. milk</td>
<td></td>
<td></td>
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<tr>
<td>81</td>
<td>26.0%</td>
<td>d. soybeans</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>missing</td>
<td></td>
<td></td>
<td></td>
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<td>d</td>
<td>best response</td>
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33. Which of these problems would food and nutrition information be least likely to help solve?

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<tr>
<td>48</td>
<td>16.6%</td>
<td>a. frequent colds and minor illnesses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>10.7%</td>
<td>b. midmorning energy slumps</td>
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<tr>
<td>58</td>
<td>20.1%</td>
<td>c. overweight</td>
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<tr>
<td>144</td>
<td>49.5%</td>
<td>d. poor social skills</td>
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<td>8</td>
<td>missing</td>
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<tr>
<td>d</td>
<td>best response</td>
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34. Which of these fast-food meals would provide the most nutrients?

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<tbody>
<tr>
<td>151</td>
<td>52.2%</td>
<td>a. chicken, mashed potatoes, and roll</td>
<td></td>
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</tr>
<tr>
<td>26</td>
<td>9.0%</td>
<td>b. hamburger, french fries, and Coke</td>
<td></td>
<td></td>
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<tr>
<td>13</td>
<td>4.5%</td>
<td>c. hot dog and milk shake</td>
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<td></td>
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<tr>
<td>69</td>
<td>20.8%</td>
<td>d. sausage-cheese pizza and salad</td>
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<td></td>
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<tr>
<td>10</td>
<td>missing</td>
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<td></td>
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<tr>
<td>d</td>
<td>best response</td>
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35. Which of these activities that could be done during a meal probably would help people enjoy the meal more?

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<tbody>
<tr>
<td>17</td>
<td>5.5%</td>
<td>a. eating as quickly as possible</td>
<td></td>
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<tr>
<td>12</td>
<td>4.2%</td>
<td>b. playing with a pet</td>
<td></td>
<td></td>
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<tr>
<td>34</td>
<td>11.8%</td>
<td>c. settling family problems</td>
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<tr>
<td>218</td>
<td>75.4%</td>
<td>d. talking with others</td>
<td></td>
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<tr>
<td>8</td>
<td>missing</td>
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<tr>
<td>d</td>
<td>best response</td>
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36. Which of the following foods contains the most iron?

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<tbody>
<tr>
<td>59</td>
<td>20.4%</td>
<td>a. cake</td>
<td></td>
<td></td>
</tr>
<tr>
<td>112</td>
<td>38.8%</td>
<td>b. hamburger</td>
<td></td>
<td></td>
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<tr>
<td>97</td>
<td>33.6%</td>
<td>c. milk</td>
<td></td>
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<td>9</td>
<td>missing</td>
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<td></td>
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<tr>
<td>b</td>
<td>best response</td>
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37. If you read about ideal weight in a book on physical fitness, how can you tell how good the information is?

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<tbody>
<tr>
<td>176</td>
<td>60.9%</td>
<td>a. by the background of the author of the book</td>
<td></td>
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<tr>
<td>30</td>
<td>10.4%</td>
<td>b. by the length of the book</td>
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<tr>
<td>49</td>
<td>17.0%</td>
<td>c. by the length of the chapter on the ideal weight</td>
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<tr>
<td>25</td>
<td>8.7%</td>
<td>d. by the number of pictures in the book</td>
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<tr>
<td>9</td>
<td>missing</td>
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<tr>
<td>a</td>
<td>best response</td>
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</table>
38. Which of the following family members needs the most protein?
   a. 10-year-old daughter who takes ballet
   b. 15-year-old son who plays football
   c. 35-year-old mother who is pregnant
   d. 37-year-old father who is a farmer

39. Which of the following foods requires use of the fewest resources to produce?
   a. cheese
   b. ham
   c. soybeans
   d. steak

40. Which of the following safety rules is important for frying foods?
   a. cool the hot fat quickly with cold running water.
   b. drop frozen foods quickly into the fat.
   c. heat the fat quickly.
   d. use moderate heat.

41. If one student trying to find recipes for nutritious snacks looks through several cookbooks and another student asks several teachers for suggestions, what will they probably find?
   a. If the books are good ones, both students probably will come up with the same ideas.
   b. if the teachers all are good cooks, both student probably will come up with the same ideas.
   c. the two students may come up with either the same or different ideas.
   d. the two students probably will come up with very different ideas.

42. Three students compared what they ate for breakfast. Karen had a hard-cooked egg, tomato juice, and cereal with milk. Bill had a hamburger and a banana milkshake. Pat had toast and orange juice. Who had nutritionally balanced breakfast(s)?
   a. none of the students
   b. only Pat
   c. both Karen and Bill
   d. all the students

43. Which of the following foods contains the most calories?
   a. 1 dinner roll
   b. 1 cup whole milk
   c. 4 ounces of steak
   d. 10 potato chips
44. If the students in your school do not like the foods served in the school cafeteria, which of the following would be the best thing to do?

- 28 9.7% a. encourage all students to return their food uneaten as a protest.
- 34 11.8% b. hope that other people in the school will do something about the situation.
- 148 51.2% c. organize a group of students to talk to the cafeteria manager.
- 66 22.8% d. stop eating in the school lunch program.
- 13 missing
- e best response

45. What is the relationship between self-image and physical appearance of teenagers?

- 174 60.2% a. they are related for both girls and boys.
- 21 7.3% b. they are related for boys but not for girls.
- 28 9.7% c. they are related for girls but not for boys.
- 60 20.8% d. they are not related for either girls or boys.
- 1 missing
- a best response

46. Circle whether you are a male or female.

- a. male
- b. female

147 142
50.9% 49.1%

47. Circle the number which indicates your grade in school.

- a. 7
- b. 8

289 0.0
100%

48. Circle the number which is the same as your age.

- a. 10
- b. 11
- c. 12
- d. 13
- e. 14

1 3 137 115 25 8 missing
.3% 1.0% 47.4% 39.8% 8.7%

49. Circle the letter which you think is your average grade.

- a. A
- b. B
- c. C
- d. D

56 101 103 26 3 missing
19.4% 34.9% 35.6% 9.0%

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE!
**Seventh-Grade Male Responses**

**SECTION I**

**Directions:** For each item in this section write the number in the blank which indicates how you really feel about the statements, using the following scale:

- a. = Strongly disagree
- b. = Mildly disagree
- c. = Undecided
- d. = Mildly agree
- e. = Strongly agree

1. I would rather have Coke than milk with a meal.
   - a. 24
   - b. 16
   - c. 13
   - d. 24
   - e. 70
   - 0 missing
   - 16.3% 10.4% 8.8% 16.3% 47.6% e=best response

2. I like to find out about the backgrounds of people who give advice about food and nutrition.
   - a. 34
   - b. 24
   - c. 44
   - d. 22
   - e. 23
   - 0 missing
   - 23.1% 16.3% 29.9% 15.0% 15.6% e=best response

3. I would rather take vitamin pills than learn to eat new foods.
   - a. 76
   - b. 21
   - c. 23
   - d. 12
   - e. 14
   - 1 missing
   - 51.7% 14.3% 15.6% 8.2% 9.5% a=best response

4. I like to eat a variety of foods each day.
   - a. 9
   - b. 12
   - c. 19
   - d. 42
   - e. 64
   - 1 missing
   - 6.1% 8.2% 12.9% 23.1% 43.5% e=best response

5. I would rather skip a meal than to cook it myself.
   - a. 80
   - b. 21
   - c. 14
   - d. 13
   - e. 19
   - 0 missing
   - 54.4% 14.3% 9.5% 8.8% 12.9% a=best response

6. I like to eat low-cost foods as well as high-cost ones.
   - a. 21
   - b. 11
   - c. 34
   - d. 41
   - e. 40
   - 0 missing
   - 14.3% 7.5% 23.1% 27.9% 27.2% e=best response

7. It bothers me to eat foods I have not tried before.
   - a. 30
   - b. 26
   - c. 26
   - d. 31
   - e. 33
   - 1 missing
   - 20.4% 17.7% 17.7% 21.1% 22.4% a=best response

8. I like to know about foods that are good for me.
   - a. 16
   - b. 16
   - c. 31
   - d. 30
   - e. 32
   - 2 missing
   - 10.9% 10.9% 21.1% 20.4% 35.4% e=best response
9. I like to think about the nutrients in foods when I am deciding what to eat.

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<td>36</td>
<td>24</td>
<td>14</td>
<td>0 missing</td>
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<tr>
<td>32.0%</td>
<td>17.7%</td>
<td>24.5%</td>
<td>16.3%</td>
<td>9.5%</td>
<td>e=best response</td>
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10. I like to think about how the way I eat affects other people.

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<td>9</td>
<td>42</td>
<td>23</td>
<td>33</td>
<td>2 missing</td>
</tr>
<tr>
<td>25.9%</td>
<td>6.1%</td>
<td>26.6%</td>
<td>15.6%</td>
<td>22.4%</td>
<td>e=best response</td>
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SECTION II

Directions: For each item in this section write the number in the blank which indicates how you really feel about the statement, using the following scale:

a = Never
b = Seldom
c = Sometimes
d = Usually
e = Always

___ 11. I use a daily food guide to help choose the foods I eat.

\[
\begin{array}{cccccc}
a & b & c & d & e & \\
117 & 16 & 9 & 2 & 2 & 1 \text{ missing}
\end{array}
\]

79.6% 10.9% 6.1% 1.4% 1.4% e = best response

___ 12. I prepare meals using different cooking methods.

\[
\begin{array}{cccccc}
a & b & c & d & e & \\
44 & 33 & 47 & 14 & 9 & 0 \text{ missing}
\end{array}
\]

29.9% 22.4% 32.0% 9.5% 6.1% e = best response

___ 13. I follow good safety rules when I store and handle food.

\[
\begin{array}{cccccc}
a & b & c & d & e & \\
12 & 14 & 16 & 54 & 48 & 3 \text{ missing}
\end{array}
\]

82% 9.5% 10.9% 36.7% 32.7% e = best response

___ 14. I think about my nutrient and caloric needs when I decide what to eat.

\[
\begin{array}{cccccc}
a & b & c & d & e & \\
47 & 33 & 38 & 15 & 11 & 3 \text{ missing}
\end{array}
\]

32.0% 22.4% 25.9% 10.2% 7.5% e = best response

___ 15. When I eat at a restaurant, I try to select a balanced meal.

\[
\begin{array}{cccccc}
a & b & c & d & e & \\
44 & 27 & 36 & 24 & 13 & 3 \text{ missing}
\end{array}
\]

29.9% 18.4% 24.5% 16.3% 8.8% e = best response

___ 16. I taste familiar foods when they are prepared in new ways.

\[
\begin{array}{cccccc}
a & b & c & d & e & \\
20 & 26 & 39 & 41 & 17 & 4 \text{ missing}
\end{array}
\]

13.6% 17.7% 26.5% 27.9% 11.6% e = best response

___ 17. I skip meals to cut down on calories.

\[
\begin{array}{cccccc}
a & b & c & d & e & \\
97 & 16 & 25 & 3 & 5 & 1 \text{ missing}
\end{array}
\]

66.0% 10.9% 17.0% 20% 3.4% a = best response

___ 18. I eat several kinds of fruits and vegetables each day.

\[
\begin{array}{cccccc}
a & b & c & d & e & \\
12 & 19 & 46 & 34 & 36 & 0 \text{ missing}
\end{array}
\]

8.2% 12.9% 31.3% 23.1% 24.5% e = best response
19. I try to make mealtime pleasant for the people with whom I eat.

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<th>d</th>
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<td></td>
<td>14</td>
<td>6</td>
<td>15</td>
<td>57</td>
<td>55</td>
<td>9.5%</td>
</tr>
<tr>
<td></td>
<td>9.5%</td>
<td>4.1%</td>
<td>10.2%</td>
<td>38.8%</td>
<td>37.4%</td>
<td>e=best response</td>
</tr>
</tbody>
</table>

20. I use different ways to solve my food and nutrition problems.

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<th>c</th>
<th>d</th>
<th>e</th>
<th>1 missing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>34</td>
<td>33</td>
<td>45</td>
<td>21</td>
<td>13</td>
<td>23.1%</td>
</tr>
<tr>
<td></td>
<td>23.1%</td>
<td>22.4%</td>
<td>30.6%</td>
<td>14.3%</td>
<td>8.8%</td>
<td>e=best response</td>
</tr>
</tbody>
</table>
SECTION III

Direction: For each item in this section, place a check mark in the blank beside the best (most correct) of the four response choices.

21. If a friend tells you about a new weight-loss diet, which of these is the way to decide if it is good?

- a. ask your doctor about the diet. 104 (70.7%)
- b. find out how many people have used the diet. 5 (3.4%)
- c. see how much weight your friend has lost on the diet. 16 (10.9%)
- d. try the diet for a week to see how you feel. 18 (12.2%)

22. Which of the following factors is least important in determining your nutrient and caloric needs?

- a. age 27 (18.4%)
- b. amount of exercise 23 (15.6%)
- c. gender (sex) 25 (17.0%)
- d. personal beliefs 70 (47.6%)

23. Which of these potatoes would be crispiest?

- a. baked potato 15 (10.2%)
- b. fried potato 108 (73.3%)
- c. mashed potato 7 (4.8%)
- d. steamed 10 (6.8%)

24. In which of these ways that green pepper might be fixed would it provide the most vitamin C?

- a. baked 5 (3.4%)
- b. broiled 14 (9.5%)
- c. fried 9 (6.1%)
- d. raw 113 (76.9%)

25. Which of the following people probably would be the most helpful in planning a low-cost menu for a party?

- a. food chemist 54 (36.7%)
- b. home economics teacher 39 (26.5%)
- c. school business manager 9 (6.1%)
- d. waitress 40 (27.2%)

26. Which of the following health conditions would be most likely to occur in teenagers who do not get enough iron in their diets?

- 24.5% acne
- 38.8% anemia
- 21.1% diabetes
- 13.6% obesity
- missing

27. What is the most likely reason that some young people do not eat many kinds of vegetables?

- 95% their families cannot afford many kinds.
- 68% they cannot get many kinds in the grocery store.
- 4.8% they do not know how to cook many kinds.
- 75.5% they have not learned to like many kinds.
- missing

28. Which of the following foods would be possible to prepare in 20 minutes without use of a microwave oven?

- 61.2% hamburgers
- 19.0% homemade vegetable-beef soup
- 6.8% pork chops
- 4.8% roast beef
- missing

29. If one of your responsibilities at home is fixing breakfast for your family and you burn the toast almost every morning, which of these would be the thing to do?

- 11.6% ask to trade chores with another family member.
- 66.0% figure out what you have been doing wrong and try to correct it.
- 12.2% keep serving the burned toast and hope your family will learn to like it.
- 6.1% make biscuits rather than toast for breakfast.
- missing

30. Which of the following nutrients is needed for making red blood cells?

- 12.2% calcium
- 38.8% iron
- 28.6% vitamin A
- 13.6% vitamin D
- missing

31. What nutritional advantages does an expensive piece of steak have compared to a cheaper piece?

- 40.1% it probably has less fat than the cheaper piece.
- 10.9% it probably has more protein than the cheaper piece.
- 19.7% it probably has more vitamins and minerals than the cheaper piece.
- 25.9% it probably has no nutritional advantage over the cheaper piece.
- missing
32. Which of the following foods is the main ingredient used in the manufacture of imitation bacon?

- 83 a. beef 56.5%
- 8 b. corn 54%
- 11 c. milk 75%
- 40 d. soybeans 27.2%
- 5 missing

33. Which of these problems would food and nutrition information be least likely to help solve?

- 26 a. frequent colds and minor illnesses 17.7%
- 15 b. midmorning energy slumps 10.2%
- 30 c. overweight 20.4%
- 20 d. poor social skills 47.6%
- 6 missing

34. Which of these fast-food meals would provide the most nutrients?

- 63 a. chicken, mashed potatoes, and roll 42.9%
- 13 b. hamburger, french fries, and Coke 12.9%
- 65 c. hot dog and milk shake 30.6%
- 12 d. sausage-cheese pizza and salad missing

35. Which of these activities that could be done during a meal probably would help people enjoy the meal more?

- 13 a. eating as quickly as possible 8.8%
- 8 b. playing with a pet 5.4%
- 19 c. settling family problems 12.9%
- 101 d. talking with others 68.7%
- 6 missing

36. Which of the following foods contains the most iron?

- 7 a. cake 45.8%
- 33 b. hamburger 22.4%
- 49 c. milk 33.3%
- 52 d. pineapple 35.4%
- 6 missing

37. If you read about ideal weight in a book on physical fitness, how can you tell how good the information is?

- 82 a. by the background of the author of the book 55.8%
- 20 b. by the length of the book 13.6%
- 25 c. by the length of the chapter on the ideal weight 17.0%
- 14 d. by the number of pictures in the book 9.5%
- 6 missing
38. Which of the following family members needs the most protein?

- a. 10-year-old daughter who takes ballet, 14.3%
- b. 15-year-old son who plays football, 25.9%
- c. 35-year-old mother who is pregnant, 41.5%
- d. 37-year-old father who is a farmer, 10.9%

39. Which of the following foods requires use of the fewest resources to produce?

- a. cheese, 29.3%
- b. ham, 15.6%
- c. soybeans, 42.2%
- d. steak, 10.5%

40. Which of the following safety rules is important for frying foods?

- a. cool the hot fat quickly with cold running water, 6.8%
- b. drop frozen foods quickly into the fat, 7.5%
- c. heat the fat quickly, 15.6%
- d. use moderate heat, 65.0%

41. If one student trying to find recipes for nutritious snacks looks through several cookbooks and another student asks several teachers for suggestions, what will they probably find?

- a. if the books are good ones, both students probably will come up with the same ideas, 75.0%
- b. if the teachers all are good cooks, both students probably will come up with the same ideas, 17.0%
- c. the two students may come up with either the same or different ideas, 34.7%
- d. the two students probably will come up with very different ideas, 36.7%

42. Three students compared what they ate for breakfast. Karen had a hard-cooked egg, tomato juice, and cereal with milk. Bill had a hamburger and a banana milkshake. Pat had toast and orange juice. Who had nutritionally balanced breakfast(s)?

- a. none of the students, 19.0%
- b. only Pat, 43.0%
- c. both Karen and Bill, 23.8%
- d. all the students, 19.7%

43. Which of the following foods contains the most calories?

- a. 1 dinner roll, 12.2%
- b. 1 cup whole milk, 18.4%
- c. 4 ounces of steak, 20.4%
- d. 10 potato chips, 45.6%

best response
44. If the students in your school do not like the foods served in the school cafeteria, which of the following would be the best thing to do?
   a. encourage all students to return their food uneaten as a protest. 19 12.9%
   b. hope that other people in the school will do something about the situation. 18 12.2%
   c. organize a group of students to talk to the cafeteria manager. 67 45.6%
   d. stop eating in the school lunch program. 33 22.4%
   
45. What is the relationship between self-image and physical appearance of teenagers?
   a. they are related for both girls and boys. 75 51.0%
   b. they are related for boys but not for girls. 15 10.2%
   c. they are related for girls but not for boys. 19 12.9%
   d. they are not related for either girls or boys. 34 23.1%
   
46. Circle whether you are a male or female.
   a. male 147 100%
   b. female

47. Circle the number which indicates your grade in school.
   a. 7 147 100%
   b. 8

48. Circle the number which is the same as your age.
   a. 10 b. 11 c. 12 d. 13 e. 14
   1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
   1.7% 2.3% 4.3% 6.0% 6.0% 9.1% 11.1% 14.5% 23.1% 24.4% 36.5% 46.4% 51.0% 56.8% 64.0% 71.4% 78.6% 85.8% 93.0% 100.0%

49. Circle the letter which you think is your average grade.
   1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
   21.1% 31.3% 34.0% 11.6% 3 missing

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE!
Directions: For each item in this section write the number in the blank which indicates how you really feel about the statements, using the following scale:

a. = Strongly disagree
b. = Mildly disagree
c. = Undecided
d. = Mildly agree
e. = Strongly agree

1. I would rather have Coke than milk with a meal.
   
<table>
<thead>
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<th>a</th>
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<tbody>
<tr>
<td>14</td>
<td>13</td>
<td>12</td>
<td>26</td>
<td>76</td>
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</table>

   9.9% 9.2% 8.5% 18% 53.5% a=best response

2. I like to find out about the backgrounds of people who give advice about food and nutrition.

<table>
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<tr>
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<tr>
<td>27</td>
<td>28</td>
<td>45</td>
<td>28</td>
<td>13</td>
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</table>

   19.0% 19.7% 31.7% 19.7% 9.2% e=best response

3. I would rather take vitamin pills than learn to eat new foods.

<table>
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<tr>
<td>57</td>
<td>24</td>
<td>23</td>
<td>18</td>
<td>18</td>
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   40.1% 16.9% 16.2% 12.7% 12.7% 2 missing

4. I like to eat a variety of foods each day.

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<tr>
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<tr>
<td>9</td>
<td>10</td>
<td>8</td>
<td>48</td>
<td>66</td>
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</table>

   6.3% 7.0% 5.6% 33.8% 46.5% e=best response

5. I would rather skip a meal than to cook it myself.

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<tr>
<td>80</td>
<td>27</td>
<td>12</td>
<td>4</td>
<td>16</td>
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   56.3% 19.0% 8.5% 28% 11.3% a=best response

6. I like to eat low-cost foods as well as high-cost ones.

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<tr>
<td>15</td>
<td>3</td>
<td>43</td>
<td>35</td>
<td>44</td>
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</table>

   10.6% 2.1% 30.3% 24.6% 31.0% 2 missing

7. It bothers me to eat foods I have not tried before.

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<td>31</td>
<td>15</td>
<td>32</td>
<td>36</td>
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</table>

   19.7% 21.8% 10.6% 22.5% 25.4% a=best response

8. I like to know about foods that are good for me.

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<tr>
<td>20</td>
<td>15</td>
<td>19</td>
<td>48</td>
<td>39</td>
</tr>
</tbody>
</table>

   14.1% 10.6% 13.4% 33.8% 27.5% 1 missing e=best response
9. I like to think about the nutrients in foods when I am deciding what to eat.

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<thead>
<tr>
<th></th>
<th>a</th>
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<tr>
<td>%</td>
<td>26.8%</td>
<td>16.9%</td>
<td>25.4%</td>
<td>17.6%</td>
<td>12.0%</td>
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<td></td>
<td>2 missing</td>
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<td>e=best response</td>
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</table>

10. I like to think about how the way I eat affects other people.

<table>
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<td>29</td>
<td>15</td>
<td>36</td>
<td>32</td>
<td>29</td>
</tr>
<tr>
<td>%</td>
<td>20.4%</td>
<td>10.6%</td>
<td>25.4%</td>
<td>22.5%</td>
<td>20.4%</td>
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<tr>
<td></td>
<td>1 missing</td>
<td></td>
<td></td>
<td></td>
<td>e=best response</td>
</tr>
</tbody>
</table>
SECTION II

Directions: For each item in this section write the number in the blank which indicates how you really feel about the statement, using the following scale:

\[
a = \text{Never} \\
b = \text{Seldom} \\
c = \text{Sometimes} \\
d = \text{Usually} \\
e = \text{Always}
\]

11. I use a daily food guide to help choose the foods I eat.
   
   \[
   \begin{array}{ccccc}
   a & b & c & d & e \\
   109 & 21 & 6 & 3 & 2 \\
   76.8\% & 14.8\% & 4.2\% & 2.1\% & 1.4\% \\
   \end{array}
   
   1 missing e=best response
   
12. I prepare meals using different cooking methods.
   
   \[
   \begin{array}{ccccc}
   a & b & c & d & e \\
   32 & 27 & 54 & 22 & 6 \\
   22.5\% & 19.0\% & 38.0\% & 15.5\% & 4.2\% \\
   \end{array}
   
   1 missing e=best response
   
13. I follow good safety rules when I store and handle food.
   
   \[
   \begin{array}{ccccc}
   a & b & c & d & e \\
   8 & 13 & 24 & 51 & 44 \\
   5.6\% & 9.2\% & 16.9\% & 35.9\% & 31.0\% \\
   \end{array}
   
   2 missing e=best response
   
14. I think about my nutrient and caloric needs when I decide what to eat.
   
   \[
   \begin{array}{ccccc}
   a & b & c & d & e \\
   32 & 38 & 48 & 14 & 9 \\
   22.5\% & 26.8\% & 33.8\% & 9.9\% & 6.3\% \\
   \end{array}
   
   1 missing e=best response
   
15. When I eat at a restaurant, I try to select a balanced meal.
   
   \[
   \begin{array}{ccccc}
   a & b & c & d & e \\
   35 & 35 & 33 & 29 & 8 \\
   24.6\% & 24.6\% & 23.2\% & 20.4\% & 5.6\% \\
   \end{array}
   
   2 missing e=best response
   
16. I taste familiar foods when they are prepared in new ways.
   
   \[
   \begin{array}{ccccc}
   a & b & c & d & e \\
   9 & 23 & 55 & 39 & 15 \\
   6.3\% & 16.2\% & 38.7\% & 27.5\% & 10.6\% \\
   \end{array}
   
   1 missing e=best response
   
17. I skip meals to cut down on calories.
   
   \[
   \begin{array}{ccccc}
   a & b & c & d & e \\
   59 & 27 & 38 & 8 & 9 \\
   41.5\% & 19.0\% & 26.8\% & 5.6\% & 6.3\% \\
   \end{array}
   
   1 missing a=best response
18. I eat several kinds of fruits and vegetables each day.

a b c d e
11 29 32 36 31 3 missing
7.7% 20.4% 22.5% 25.4% 21.8% e=best response

19. I try to make mealtimes pleasant for the people with whom I eat.

a b c d e
7 8 23 46 56 2 missing
4.9% 5.6% 16.2% 32.4% 39.4% e=best response

20. I use different ways to solve my food and nutrition problems.

a b c d e
41 26 43 20 11 1 missing
28.9% 18.3% 30.3% 14.1% 7.7% e=best response
SECTION III

Direction: For each item in this section, place a check mark in the blank beside the best (most correct) of the four response choices.

21. If a friend tells you about a new weight-loss diet, which of these is the way to decide if it is good?
   a. ask your doctor about the diet. 64.8%
   b. find out how many people have used the diet. 23.8%
   c. see how much weight your friend has lost on the diet. 12.0%
   d. try the diet for a week to see how you feel. 19.7%
   __ a. best response

22. Which of the following factors is least important in determining your nutrient and caloric needs?
   a. age 9.0%
   b. amount of exercise 12.7%
   c. gender (sex) 16.2%
   d. personal beliefs 59.5%
   __ d. best response

23. Which of these potatoes would be crispiest?
   a. baked potato 85.0%
   b. fried potato 84.5%
   c. mashed potato 28.6%
   d. steamed 35.0%
   __ a. best response

24. In which of these ways that green pepper might be fixed would it provide the most vitamin C?
   a. baked 85.0%
   b. broiled 56.0%
   c. fried 56.0%
   d. raw 79.5%
   __ 1. missing
   __ d. best response

25. Which of the following people probably would be the most helpful in planning a low-cost menu for a party?
   a. food chemist 51.4%
   b. home economics teacher 26.1%
   c. school business manager 9.5%
   d. waitress 19.0%
   __ 0. missing
   __ b. best response
26. Which of the following health conditions would be most likely to occur in teenagers who do not get enough iron in their diets?

- acne 23%
- anemia 39.4%
- diabetes 26.1%
- obesity 9.2%
- missing

(b) best response

27. What is the most likely reason that some young people do not eat many kinds of vegetables?

- their families cannot afford many kinds. 7.7%
- they cannot get many kinds in the grocery store. 3.5%
- they do not know how to cook many kinds. 7.7%
- they have not learned to like many kinds. 78.9%
- missing

(d) best response

28. Which of the following foods would be possible to prepare in 20 minutes without use of a microwave oven?

- hamburgers 67.6%
- homemade vegetable-beef soup 16.5%
- pork chops 9.2%
- roast beef 2.6%
- missing

(a) best response

29. If one of your responsibilities at home is fixing breakfast for your family and you burn the toast almost every morning, which of these would be the thing to do?

- ask to trade chores with another family member. 15.5%
- figure out what you have been doing wrong and try to correct it. 74.6%
- keep serving the burned toast and hope your family will learn to like it 4.9%
- make biscuits rather than toast for breakfast. 28%
- missing

(b) best response

30. Which of the following nutrients is needed for making red blood cells?

- calcium 21.1%
- iron 48.6%
- vitamin A 20.4%
- vitamin D 8.5%
- missing

(b) best response

31. What nutritional advantages does an expensive piece of steak have compared to a cheaper piece?

- it probably has less fat than the cheaper piece. 42.3%
- it probably has more protein than the cheaper piece. 17.6%
- it probably has more vitamins and minerals than the cheaper piece. 14.6%
- it probably has no nutritional advantage over the cheaper piece. 22.5%
- missing

(d) best response
32. Which of the following foods is the main ingredient used in the manufacture of imitation bacon?
   
   - a. beef 64.1%
   - b. corn 77%
   - c. milk 56.8%
   - d. soybeans 28.9%
   - Missing 1%
   - Best response

33. Which of these problems would food and nutrition information be least likely to help solve?
   
   - a. frequent colds and minor illnesses 15.5%
   - b. midmorning energy slumps 11.3%
   - c. overweight 19.7%
   - d. poor social skills 52.1%
   - Missing 2%
   - Best response

34. Which of these fast-food meals would provide the most nutrients?
   
   - a. chicken, mashed potatoes, and roll 62.0%
   - b. hamburger, french fries, and Coke 49.9%
   - c. hot dog and milk shake 7.7%
   - d. sausage-cheese pizza and salad 31.0%
   - Missing 2%
   - Best response

35. Which of these activities that could be done during a meal probably would help people enjoy the meal more?
   
   - a. eating as quickly as possible 28%
   - b. playing with a pet 28%
   - c. settling family problems 10.6%
   - d. talking with others 62.4%
   - Missing 2%
   - Best response

36. Which of the following foods contains the most iron?
   
   - a. cake 35%
   - b. hamburger 18.3%
   - c. milk 44.4%
   - d. pineapple 31.7%
   - Missing 3%
   - Best response

37. If you read about ideal weight in a book on physical fitness, how can you tell how good the information is?
   
   - a. by the background of the author of the book 56.2%
   - b. by the length of the book 7.0%
   - c. by the length of the chapter on the ideal weight 16.9%
   - d. by the number of pictures in the book 7.7%
   - Missing 3%
   - Best response
38. Which of the following family members needs the most protein?
   a. 10-year-old daughter who takes ballet  
   b. 15-year-old son who plays football  
   c. 35-year-old mother who is pregnant  
   d. 37-year-old father who is a farmer  
   missing  
   best response

39. Which of the following foods requires use of the fewest resources to produce?
   a. cheese  
   b. ham  
   c. soybeans  
   d. steak  
   missing  
   best response

40. Which of the following safety rules is important for frying foods?
   a. cool the hot fat quickly with cold running water.  
   b. drop frozen foods quickly into the fat.  
   c. heat the fat quickly.  
   d. use moderate heat.  
   missing  
   best response

41. If one student trying to find recipes for nutritious snacks looks through several cookbooks and another student asks several teachers for suggestions, what will they probably find?
   a. if the books are good ones, both students probably will come up with the same ideas.  
   b. if the teachers all are good cooks, both students probably will come up with the same ideas.  
   c. the two students may come up with either the same or different ideas.  
   d. the two students probably will come up with very different ideas.  
   missing  
   best response

42. Three students compared what they ate for breakfast. Karen had a hard-cooked egg, tomato juice, and cereal with milk. Bill had a hamburger and a banana milkshake. Pat had toast and orange juice. Who had nutritionally balanced breakfast(s)?
   a. none of the students  
   b. only Pat  
   c. both Karen and Bill  
   d. all the students  
   missing  
   best response

43. Which of the following foods contains the most calories?
   a. 1 dinner roll  
   b. 1 cup whole milk  
   c. 4 ounces of steak  
   d. 10 potato chips  
   missing  
   best response
44. If the students in your school do not like the foods served in the school cafeteria, which of the following would be the best thing to do?
   _ 9 63%  a. encourage all students to return their food uneaten as a protest.
   _ 16 11.3%  b. hope that other people in the school will do something about the situation.
   _ 81 57.0%  c. organize a group of students to talk to the cafeteria manager.
   _ 33 23.2%  d. stop eating in the school lunch program.
   _ 3 0  c. best response

45. What is the relationship between self-image and physical appearance of teenagers?
   _ 99 69.7%  a. they are related for both girls and boys.
   _ 16 4.2%  b. they are related for boys but not for girls.
   _ 26 6.3%  c. they are related for girls but not for boys.
   _ 2 0  d. they are not related for either girls or boys.
   _ 0 0  c. best response

46. Circle whether you are a male or female.
   a. male  b. female
       142 100%

47. Circle the number which indicates your grade in school.
   a. 7  b. 8
       142 100%

48. Circle the number which is the same as your age.
   a. 10  b. 11  c. 12  d. 13  e. 14
       1 73 55 8 5 missing
       7.7% 51.4% 38.7% 5.6%

49. Circle the letter which you think is your average grade.
       25 55 53 0 0 missing
       17.6% 38.7% 37.3% 6.3%

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE!
Eighth-Grade Responses

SECTION I

Directions: For each item in this section write the number in the blank which indicates how you really feel about the statements, using the following scale:

a. = Strongly disagree
b. = Mildly disagree
c. = Undecided
d. = Mildly agree
e. = Strongly agree

1. I would rather have Coke than milk with a meal.
   a  b  c  d  e
   19 17 45 65 172 1 missing
   6.0% 5.3% 14.1% 20.4% 53.9%  a=best response

2. I like to find out about the backgrounds of people who give advice about food and nutrition.
   a  b  c  d  e
   100 54 117 30 18 0 missing
   31.3% 16.9% 36.7% 9.4% 5.6%  e=best response

3. I would rather take vitamin pills than learn to eat new foods.
   a  b  c  d  e
   154 42 64 36 23 0 missing
   48.3% 13.2% 20.1% 11.3% 7.2%  a=best response

4. I like to eat a variety of foods each day.
   a  b  c  d  e
   20 23 40 99 135 2 missing
   6.3% 7.2% 12.5% 31.0% 42.3%  e=best response

5. I would rather skip a meal than to cook it myself.
   a  b  c  d  e
   159 49 32 36 42 1 missing
   49.8% 15.4% 10.0% 11.3% 13.2%  a=best response

6. I like to eat low-cost foods as well as high-cost ones.
   a  b  c  d  e
   33 21 91 83 90 1 missing
   10.3% 6.6% 28.5% 26.0% 28.2%  e=best response

7. It bothers me to eat foods I have not tried before.
   a  b  c  d  e
   76 47 55 63 78 0 missing
   23.6% 14.7% 17.2% 19.7% 24.5%  a=best response

8. I like to know about foods that are good for me.
   a  b  c  d  e
   47 58 69 69 75 1 missing
   14.7% 18.2% 21.6% 21.6% 23.5%  e=best response
9. I like to think about the nutrients in foods when I am deciding what to eat.

<table>
<thead>
<tr>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>102</td>
<td>59</td>
<td>81</td>
<td>49</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>32.0%</td>
<td>18.5%</td>
<td>25.4%</td>
<td>15.4%</td>
<td>8.8%</td>
<td>e=best response</td>
</tr>
</tbody>
</table>

10. I like to think about how the way I eat affects other people.

<table>
<thead>
<tr>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>89</td>
<td>43</td>
<td>88</td>
<td>53</td>
<td>46</td>
<td>0</td>
</tr>
<tr>
<td>27.9%</td>
<td>13.5%</td>
<td>27.6%</td>
<td>16.6%</td>
<td>14.4%</td>
<td>e=best response</td>
</tr>
</tbody>
</table>
SECTION II

Directions: For each item in this section write the number in the blank which indicates how you really feel about the statement, using the following scale:

a = Never
b = Seldom
c = Sometimes
d = Usually
e = Always

11. I use a daily food guide to help choose the foods I eat.

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>270 25 14 6 2</td>
<td>2 missing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>84.6% 7.8% 4.4% 1.9% 0.6%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e = best response</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

12. I prepare meals using different cooking methods.

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>93 72 112 33 8</td>
<td>1 missing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>29.2% 22.6% 35.1% 10.3% 25%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e = best response</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

13. I follow good safety rules when I store and handle food.

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>43 32 63 108 70</td>
<td>3 missing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13.5% 10.0% 19.7% 33.9% 21.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e = best response</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14. I think about my nutrient and caloric needs when I decide what to eat.

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>134 78 59 33 14</td>
<td>1 missing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>42.0% 24.5% 18.5% 10.3% 4.4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e = best response</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15. When I eat at a restaurant, I try to select a balanced meal.

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>121 67 48 52 27</td>
<td>4 missing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>37.9% 21.0% 15.0% 16.3% 8.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e = best response</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16. I taste familiar foods when they are prepared in new ways.

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>37 49 125 82 24</td>
<td>2 missing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11.6% 15.4% 39.2% 25.7% 7.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e = best response</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17. I skip meals to cut down on calories.

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>179 41 53 22 22</td>
<td>2 missing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>56.1% 12.9% 16.6% 6.9% 6.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a = best response</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

18. I eat several kinds of fruits and vegetables each day.

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>28 64 91 81 50</td>
<td>5 missing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8.8% 20.1% 28.5% 25.4% 15.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e = best response</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
19. I try to make mealtime pleasant for the people with whom I eat.

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>3 missing</th>
<th>e=best response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>31</td>
<td>31</td>
<td>45</td>
<td>116</td>
<td>93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>9.7</td>
<td>9.7</td>
<td>14.1</td>
<td>36.4</td>
<td>29.2</td>
<td>e=best response</td>
<td></td>
</tr>
</tbody>
</table>

20. I use different ways to solve my food and nutrition problems.

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>3 missing</th>
<th>e=best response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>120</td>
<td>70</td>
<td>81</td>
<td>34</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>37.6</td>
<td>21.9</td>
<td>25.4</td>
<td>10.7</td>
<td>3.4</td>
<td>e=best response</td>
<td></td>
</tr>
</tbody>
</table>
SECTION III

Direction: For each item in this section, place a check mark in the blank beside the best (most correct) of the four response choices.

18. What is the best way to decide if a new diet is good?
   - 206 (64.6%) a. ask your doctor about the diet.
   - 16 (5.0%) b. find out how many people have used the diet.
   - 30 (9.4%) c. see how much weight your friend has lost on the diet.
   - 60 (18.8%) d. try the diet for a week to see how you feel.
   - 7 missing
   - a best response

22. Which of the following factors is least important in determining your nutrient and caloric needs?
   - 41 (12.9%) a. age
   - 35 (11.0%) b. amount of exercise
   - 81 (25.4%) c. gender (sex)
   - 155 (49.5%) d. personal beliefs
   - 4 missing
   - d best response

23. Which of these potatoes would be crispiest?
   - 31 (9.7%) a. baked potato
   - 256 (80.3%) b. fried potato
   - 5 (1.6%) c. mashed potato
   - 18 (5.6%) d. steamed
   - 9 missing
   - b best response

24. In which of these ways that green pepper might be fixed would it provide the most vitamin C?
   - 24 (7.5%) a. baked
   - 31 (9.7%) b. broiled
   - 18 (5.6%) c. fried
   - 239 (74.9%) d. raw
   - 7 missing
   - d best response

25. Which of the following people probably would be the most helpful in planning a low-cost menu for a party?
   - 117 (36.7%) a. food chemist
   - 117 (36.7%) b. home economics teacher
   - 20 (6.3%) c. school business manager
   - 62 (19.4%) d. waitress
   - 3 missing
   - b best response
26. Which of the following health conditions would be most likely to occur in teenagers who do not get enough iron in their diets?

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. acne</td>
<td>20.7%</td>
</tr>
<tr>
<td>b. anemia</td>
<td>50.8%</td>
</tr>
<tr>
<td>c. diabetes</td>
<td>15.4%</td>
</tr>
<tr>
<td>d. obesity</td>
<td>8.6%</td>
</tr>
<tr>
<td>missing</td>
<td>14.2%</td>
</tr>
</tbody>
</table>

27. What is the most likely reason that some young people do not eat many kinds of vegetables?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. their families cannot afford many kinds.</td>
<td>66.8%</td>
</tr>
<tr>
<td>b. they cannot get many kinds in the grocery store.</td>
<td>16.2%</td>
</tr>
<tr>
<td>c. they do not know how to cook many kinds.</td>
<td>6.9%</td>
</tr>
<tr>
<td>d. they have not learned to like many kinds.</td>
<td>25.6%</td>
</tr>
<tr>
<td>missing</td>
<td>14.2%</td>
</tr>
</tbody>
</table>

28. Which of the following foods would be possible to prepare in 20 minutes without use of a microwave oven?

<table>
<thead>
<tr>
<th>Food</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. hamburgers</td>
<td>69.3%</td>
</tr>
<tr>
<td>b. homemade vegetable-beef soup</td>
<td>11.6%</td>
</tr>
<tr>
<td>c. pork chops</td>
<td>7.2%</td>
</tr>
<tr>
<td>d. roast beef</td>
<td>6.0%</td>
</tr>
<tr>
<td>missing</td>
<td>14.4%</td>
</tr>
</tbody>
</table>

29. If one of your responsibilities at home is fixing breakfast for your family and you burn the toast almost every morning, which of these would be the thing to do?

<table>
<thead>
<tr>
<th>Option</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ask to trade chores with another family member.</td>
<td>14.4%</td>
</tr>
<tr>
<td>b. figure out what you have been doing wrong and try to correct it.</td>
<td>61.8%</td>
</tr>
<tr>
<td>c. keep serving the burned toast and hope your family will learn to like it</td>
<td>13.2%</td>
</tr>
<tr>
<td>d. make biscuits rather than toast for breakfast.</td>
<td>9.4%</td>
</tr>
<tr>
<td>missing</td>
<td>14.4%</td>
</tr>
</tbody>
</table>

30. Which of the following nutrients is needed for making red blood cells?

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. calcium</td>
<td>14.7%</td>
</tr>
<tr>
<td>b. iron</td>
<td>49.8%</td>
</tr>
<tr>
<td>c. vitamin A</td>
<td>22.3%</td>
</tr>
<tr>
<td>d. vitamin D</td>
<td>7.5%</td>
</tr>
<tr>
<td>missing</td>
<td>14.7%</td>
</tr>
</tbody>
</table>

31. What nutritional advantages does an expensive piece of steak have compared to a cheaper piece?

<table>
<thead>
<tr>
<th>Advantage</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. it probably has less fat than the cheaper piece.</td>
<td>50.2%</td>
</tr>
<tr>
<td>b. it probably has more protein than the cheaper piece</td>
<td>14.7%</td>
</tr>
<tr>
<td>c. it probably has more vitamins and minerals than the cheaper piece.</td>
<td>11.3%</td>
</tr>
<tr>
<td>d. it probably has no nutritional advantages over the cheaper piece.</td>
<td>22.9%</td>
</tr>
<tr>
<td>missing</td>
<td>14.7%</td>
</tr>
</tbody>
</table>
32. Which of the following foods is the main ingredient used in the manufacture of imitation bacon?

- beef 55.6%
- corn 64%
- milk 28%
- soybeans 32.3%

33. Which of these problems would food and nutrition information be least likely to help solve?

- frequent colds and minor illnesses 11.9%
- midmorning energy slumps 9.7%
- overweight 18.5%
- poor social skills 57.4%

34. Which of these fast-food meals would provide the most nutrients?

- chicken, mashed potatoes, and roll 51.1%
- hamburger, french fries, and Coke 72%
- hot dog and milk shake 66%
- sausage-cheese pizza and salad 32.6%

35. Which of these activities that could be done during a meal probably would help people enjoy the meal more?

- eating as quickly as possible 53%
- playing with a pet 9.1%
- settling family problems 7.8%
- talking with others 76.5%

36. Which of the following foods contains the most iron?

- cake 7.5%
- hamburger 20.7%
- milk 46.1%
- pineapple 23.5%

37. If you read about ideal weight in a book on physical fitness, how can you tell how good the information is?

- by the background of the author of the book 60.5%
- by the length of the book 8.2%
- by the length of the chapter on the ideal weight 18.5%
- by the number of pictures in the book 10.5%
38. Which of the following family members needs the most protein?
   a. 10-year-old daughter who takes ballet
   b. 15-year-old son who plays football
   c. 35-year-old mother who is pregnant
   d. 37-year-old father who is a farmer
   best response

39. Which of the following foods requires use of the fewest resources to produce?
   a. cheese
   b. ham
   c. soybeans
   d. steak
   best response

40. Which of the following safety rules is important for frying foods?
   a. cool the hot fat quickly with cold running water.
   b. drop frozen foods quickly into the fat.
   c. heat the fat quickly.
   d. use moderate heat.
   best response

41. If one student trying to find recipes for nutritious snacks looks through several cookbooks and another student asks several teachers for suggestions, what will they probably find?
   a. if the books are good ones, both students probably will come up with the same ideas.
   b. if the teachers all are good cooks, both students probably will come up with the same ideas.
   c. the two students may come up with either the same or different ideas.
   d. the two students probably will come up with very different ideas.
   best response

42. Three students compared what they ate for breakfast. Karen had a hard-cooked egg, tomato juice, and cereal with milk. Bill had a hamburger and a banana milkshake. Pat had toast and orange juice. Who had nutritionally balanced breakfast(s)?
   a. none of the students
   b. only Pat
   c. both Karen and Bill
   d. all the students
   best response

43. Which of the following foods contains the most calories?
   a. 1 dinner roll
   b. 1 cup whole milk
   c. 4 ounces of steak
   d. 10 potato chips
   best response
44. If the students in your school do not like the foods served in the school cafeteria, which of the following would be the best thing to do?

22. 69% a. encourage all students to return their food uneaten as a protest.
10-3%

33. 10.3% b. hope that other people in the school will do something about the situation.

168. 52.7% c. organize a group of students to talk to the cafeteria manager.

27. 27.3% d. stop eating in the school lunch program.
missing

What is the relationship between self-image and physical appearance of teenagers?

224. 79.2% a. they are related for both girls and boys.
28. 8.6% b. they are related for boys but not for girls.
27. 8.5% c. they are related for girls but not for boys.

33. 10.3% d. they are not related for either girls or boys.
missing

46. Circle whether you are a male or female.
a. male b. female

159 160
60% 50.2%

47. Circle the number which indicates your grade in school.
a. 7 b. 8

391
100%

48. Circle the number which is the same as your age.
a. 10 b. 11 c. 12 d. 13 e. 14

12 163 12 16 missing

3.8% 51.1% 40.1%

49. Circle the letter which you think is your average grade.

72 115 98 20

22.6% 36.1% 30.7% 6.3%

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE!
Directions: For each item in this section write the number in the blank which indicates how you really feel about the statements, using the following scale:

a. = Strongly disagree
b. = Mildly disagree
c. = Undecided
d. = Mildly agree
e. = Strongly agree

___1. I would rather have Coke than milk with a meal.
   a b c d e
   10 12 18 39 80
   6.3% 7.5% 11.3% 24.5% 50.3% a=best response

___2. I like to find out about the backgrounds of people who give advice about food and nutrition.
   a b c d e
   53 28 51 17 10
   33.3% 17.6% 32.1% 10.7% 6.3% e=best response

___3. I would rather take vitamin pills than learn to eat new foods.
   a b c d e
   75 25 27 15 17
   47.2% 15.7% 17.0% 9.4% 10.7% a=best response

___4. I like to eat a variety of foods each day.
   a b c d e
   14 6 20 46 73
   8.8% 3.8% 12.6% 28.9% 45.9% e=best response

___5. I would rather skip a meal than to cook it myself.
   a b c d e
   85 20 20 14 19
   53.5% 12.6% 12.6% 8.8% 11.9% a=best response

___6. I like to eat low-cost foods as well as high-cost ones.
   a b c d e
   22 10 52 35 40
   13.8% 6.3% 32.7% 22.0% 25.25% e=best response

___7. It bothers me to eat foods I have not tried before.
   a b c d e
   45 25 24 29 36
   28.3% 15.7% 15.1% 18.2% 22.6% a=best response

___8. I like to know about foods that are good for me.
   a b c d e
   22 36 28 30 43
   13.8% 22.6% 17.6% 18.9% 27.0% e=best response
9. I like to think about the nutrients in foods when I am deciding what to eat.

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10. I like to think about how the way I eat affects other people.

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SECTION II

Directions: For each item in this section write the number in the blank which indicates how you really feel about the statement, using the following scale:

a = Never
b = Seldom
c = Sometimes
d = Usually
e = Always

11. I use a daily food guide to help choose the foods I eat.
   a b c d e
   138 7 9 3 2 0 missing
   86.6% 4.4% 5.7% 1.9% 1.3% e=best response

12. I prepare meals using different cooking methods.
   a b c d e
   58 32 49 16 4 0 missing
   36.5% 20.1% 30.8% 10.1% 25% e=best response

13. I follow good safety rules when I store and handle food.
   a b c d e
   30 18 26 46 38 1 missing
   18.9% 11.3% 16.4% 28.9% 23.9% e=best response

14. I think about my nutrient and caloric needs when I decide what to eat.
   a b c d e
   64 31 25 15 4 0 missing
   52.8% 19.5% 15.7% 9.4% 25% e=best response

15. When I eat at a restaurant, I try to select a balanced meal.
   a b c d e
   65 32 17 28 16 1 missing
   40.9% 20.1% 10.7% 17.6% 10.1% e=best response

16. I taste familiar foods when they are prepared in new ways.
   a b c d e
   20 23 60 37 18 1 missing
   12.6% 14.5% 37.7% 23.3% 11.3% e=best response

17. I skip meals to cut down on calories.
   a b c d e
   112 18 13 10 5 1 missing
   70.4% 11.3% 8.2% 6.3% 3.1% a=best response

18. I eat several kinds of fruits and vegetables each day.
   a b c d e
   17 36 40 36 28 2 missing
   10.7% 22.6% 25.2% 22.6% 17.6% e=best response
19. I try to make mealtime pleasant for the people with whom I eat.

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20. I use different ways to solve my food and nutrition problems.

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SECTION III

Direction: For each item in this section, place a check mark in the blank beside the best (most correct) of the four response choices.

21. If a friend tells you about a new weight-loss diet, which of these is the way to decide if it is good?
   a. ask your doctor about the diet. 104 (65.4%)
   b. find out how many people have used the diet. 13 (8.2%)
   c. see how much weight your friend has lost on the diet. 13 (8.2%)
   d. try the diet for a week to see how you feel. 24 (15.1%)
   best response

22. Which of the following factors is least important in determining your nutrient and caloric needs?
   a. age 25 (15.7%)
   b. amount of exercise 21 (13.2%)
   c. gender (sex) 43 (27.0%)
   d. personal beliefs 4 (2.5%)
   best response

23. Which of these potatoes would be crispiest?
   a. baked potato 19 (11.9%)
   b. fried potato 119 (74.8%)
   c. mashed potato 5 (3.1%)
   d. steamed 11 (6.9%)
   best response

24. In which of these ways that green pepper might be fixed would it provide the most vitamin C?
   a. baked 20 (12.6%)
   b. broiled 15 (9.4%)
   c. fried 13 (8.2%)
   d. raw 110 (69.2%)
   missing 1
   best response

25. Which of the following people probably would be the most helpful in planning a low-cost menu for a party?
   a. food chemist 59 (37.1%)
   b. home economics teacher 51 (32.1%)
   c. school business manager 13 (8.2%)
   d. waitress 34 (21.4%)
   missing 2
   best response
26. Which of the following health conditions would be most likely to occur in teenagers who do not get enough iron in their diets?

- acne: 18.9%
- anemia: 47.2%
- diabetes: 22.0%
- obesity: 8.8%

Which of the following conditions would be most likely to occur in teenagers who do not get enough iron in their diets?

- acne
- anemia
- diabetes
- obesity

27. What is the most likely reason that some young people do not eat many kinds of vegetables?

- a. their families cannot afford many kinds.
- b. they cannot get many kinds in the grocery store.
- c. they do not know how to cook many kinds.
- d. they have not learned to like many kinds.

28. Which of the following foods would be possible to prepare in 20 minutes without use of a microwave oven?

- hamburgers: 60.4%
- homemade vegetable-beef soup: 14.5%
- pork chops: 6.9%
- roast beef: 10.1%

Which of the following foods would be possible to prepare in 20 minutes without use of a microwave oven?

- hamburgers
- homemade vegetable-beef soup
- pork chops
- roast beef

29. If one of your responsibilities at home is fixing breakfast for your family and you burn the toast almost every morning, which of these would be the thing to do?

- a. ask to trade chores with another family member.
- b. figure out what you have been doing wrong and try to correct it.
- c. keep serving the burned toast and hope your family will learn to like it.
- d. make biscuits rather than toast for breakfast.

30. Which of the following nutrients is needed for making red blood cells?

- calcium: 15.7%
- iron: 46.5%
- vitamin A: 22.6%
- vitamin D: 8.2%

Which of the following nutrients is needed for making red blood cells?

- calcium
- iron
- vitamin A
- vitamin D

31. What nutritional advantages does an expensive piece of steak have compared to a cheaper piece?

- it probably has less fat than the cheaper piece: 48.4%
- it probably has more protein than the cheaper piece: 13.9%
- it probably has more vitamins and minerals than the cheaper piece: 11.9%
- it probably has no nutritional advantage over the cheaper piece: 20.1%

Which nutritional advantage does an expensive piece of steak have compared to a cheaper piece?
32. Which of the following foods is the main ingredient used in the manufacture of imitation bacon?

- beef 53.5%
- corn 88%
- milk 31%
- soybeans 32.1%
- missing 4%

33. Which of these problems would food and nutrition information be least likely to help solve?

- frequent colds and minor illnesses 13.2%
- midmorning energy slumps 10.7%
- overweight 20.8%
- poor social skills 32.2%
- missing 4%

34. Which of these fast-food meals would provide the most nutrients?

- chicken, mashed potatoes, and roll 44.0%
- hamburger, french fries, and Coke 8.2%
- hot dog and milk shake 11.3%
- sausage-cheese pizza and salad 32.7%
- missing 4%

35. Which of these activities that could be done during a meal probably would help people enjoy the meal more?

- eating as quickly as possible 82%
- playing with a pet 13.8%
- settling family problems 11.3%
- talking with others 65.4%
- missing 4%

36. Which of the following foods contains the most iron?

- cake 8.8%
- hamburger 24.5%
- milk 44.7%
- pineapple 20.1%
- missing 4%

37. If you read about ideal weight in a book on physical fitness, how can you tell how good the information is?

- by the background of the author of the book 54.1%
- by the length of the book 13.8%
- by the length of the chapter on the ideal weight 17.6%
- by the number of pictures in the book 11.9%
- missing 4%
38. Which of the following family members needs the most protein?
   - a. 10-year-old daughter who takes ballet (29, 18.2%)
   - b. 15-year-old son who plays football (47, 29.6%)
   - c. 35-year-old mother who is pregnant (57, 35.8%)
   - d. 37-year-old father who is a farmer (22, 13.8%)
   - missing (4, best response)

39. Which of the following foods requires use of the fewest resources to produce?
   - a. cheese (49, 30.8%)
   - b. ham (34, 21.4%)
   - c. soybeans (51, 32.1%)
   - d. steak (22, 13.8%)
   - missing (3, best response)

40. Which of the following safety rules is important for frying foods?
   - a. cool the hot fat quickly with cold running water (13, 8.2%)
   - b. drop frozen foods quickly into the fat (14, 8.6%)
   - c. heat the fat quickly (17, 10.7%)
   - d. use moderate heat (111, 69.8%)
   - missing (4, best response)

41. If one student trying to find recipes for nutritious snacks looks through several cookbooks and another student asks several teachers for suggestions, what will they probably find?
   - a. if the books are good ones, both students probably will come up with the same ideas (9, 5.7%)
   - b. if the teachers all are good cooks, both students probably will come up with the same ideas (27, 17.0%)
   - c. the two students may come up with either the same or different ideas (63, 39.6%)
   - d. the two students probably will come up with very different ideas (57, 35.8%)
   - missing (3, best response)

42. Three students compared what they ate for breakfast. Karen had a hard-cooked egg, tomato juice, and cereal with milk. Bill had a hamburger and a banana milkshake. Pat had toast and orange juice. Who had nutritionally balanced breakfast(s)?
   - a. none of the students (25, 15.7%)
   - b. only Pat (55, 34.6%)
   - c. both Karen and Bill (45, 28.3%)
   - d. all the students (31, 19.5%)
   - missing (3, best response)

43. Which of the following foods contains the most calories?
   - a. 1 dinner roll (16, 10.1%)
   - b. 1 cup whole milk (21, 13.2%)
   - c. 4 ounces of steak (41, 25.8%)
   - d. 10 potato chips (80, 50.3%)
   - missing (1, best response)
44. If the students in your school do not like the foods served in the school cafeteria, which of the following would be the best thing to do?

- 18 11.3% a. encourage all students to return their food uneaten as a protest.
- 18 11.3% b. hope that other people in the school will do something about the situation.
- 73 roces c. organize a group of students to talk to the cafeteria manager.
- 44 27.7% d. stop eating in the school lunch program.
missing c best response

45. What is the relationship between self-image and physical appearance of teenagers?

- 99 62.3% a. they are related for both girls and boys.
- 20 12.6% b. they are related for boys but not for girls.
- 19 11.9% c. they are related for girls but not for boys.
- 4 10.7% d. they are not related for either girls or boys.
missing c best response

46. Circle whether you are a male or female.

a. male  b. female
159 100%

47. Circle the number which indicates your grade in school.

a. 7  b. 8
159 100%

48. Circle the number which is the same as your age.

a. 10  b. 11  c. 12  d. 13  e. 14
9 75 65 10 missing
5.7% 47.2% 40.9%

49. Circle the letter which you think is your average grade.

34 54 46 16 9 missing
21.4% 34.0% 28.9% 10.1%

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE!
Eighth-Grade Female Responses

SECTION I

Directions: For each item in this section write the number in the blank which indicates how you really feel about the statements, using the following scale:

- a. = Strongly disagree
- b. = Mildly disagree
- c. = Undecided
- d. = Mildly agree
- e. = Strongly agree

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|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

---1. I would rather have Coke than milk with a meal.
   a | b | c | d | e
   9 | 5 | 27 | 26 | 92 | 1 missing
   9.6% | 7.1% | 22% | 22% | 62.7% | e=best response

---2. I like to find out about the backgrounds of people who give advice about food and nutrition.
   a | b | c | d | e
   47 | 26 | 66 | 13 | 8 | 0 missing
   29.4% | 15.6% | 41.2% | 8.1% | 5.0% | e=best response

---3. I would rather take vitamin pills than learn to eat new foods.
   a | b | c | d | e
   79 | 17 | 37 | 21 | 6 | 0 missing
   49.4% | 10.6% | 23.1% | 13.1% | 3.7% | a=best response

---4. I like to eat a variety of foods each day.
   a | b | c | d | e
   6 | 17 | 20 | 53 | 62 | 2 missing
   3.7% | 10.6% | 12.5% | 33.1% | 38.7% | e=best response

---5. I would rather skip a meal than to cook it myself.
   a | b | c | d | e
   74 | 29 | 12 | 22 | 23 | 0 missing
   46.2% | 18.1% | 7.5% | 13.7% | 14.4% | a=best response

---6. I like to eat low-cost foods as well as high-cost ones.
   a | b | c | d | e
   11 | 11 | 39 | 48 | 50 | 1 missing
   6.9% | 7.1% | 24.4% | 30.0% | 31.3% | e=best response

---7. It bothers me to eat foods I have not tried before.
   a | b | c | d | e
   31 | 22 | 31 | 34 | 42 | 0 missing
   19.4% | 13.7% | 19.4% | 21.2% | 26.2% | a=best response

---8. I like to know about foods that are good for me.
   a | b | c | d | e
   25 | 22 | 41 | 39 | 32 | 1 missing
   15.6% | 13.7% | 25.6% | 24.4% | 20.0% | e=best response
9. I like to think about the nutrients in foods when I am deciding what to eat.

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e = best response

10. I like to think about how the way I eat affects other people.

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e = best response
SECTIOII

Directions: For each item in this section write the number in the blank which indicates how you really feel about the statement, using the following scale:

a = Never
b = Seldom
c = Sometimes
d = Usually
e = Always

11. I use a daily food guide to help choose the foods I eat.
   a b c d e
   132 18 5 3 0 2 missing
   82.5% 11.2% 3.1% 1.9% e = best response

12. I prepare meals using different cooking methods.
   a b c d e
   35 40 63 17 4 1 missing
   21.9% 25.0% 39.4% 10.6% 25% e = best response

13. I follow good safety rules when I store and handle food.
   a b c d e
   13 14 37 62 32 2 missing
   8.1% 8.7% 23.1% 38.7% 20.0% e = best response

14. I think about my nutrient and caloric needs when I decide what to eat.
   a b c d e
   50 47 34 18 10 1 missing
   31.3% 29.4% 21.2% 11.2% 6.3% e = best response

15. When I eat at a restaurant, I try to select a balanced meal.
   a b c d e
   56 35 31 24 11 3 missing
   35.0% 21.9% 19.4% 15.0% 6.9% e = best response

16. I taste familiar foods when they are prepared in new ways.
   a b c d e
   17 26 65 45 6 1 missing
   10.6% 16.2% 40.6% 28.1% 3.7% e = best response

17. I skip meals to cut down on calories.
   a b c d e
   67 23 40 12 17 1 missing
   41.9% 14.4% 25.0% 7.5% 10.6% a = best response

18. I eat several kinds of fruits and vegetables each day.
   a b c d e
   11 28 51 45 22 3 missing
   6.9% 17.5% 31.9% 28.1% 13.7% e = best response
19. I try to make mealtime pleasant for the people with whom I eat.

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20. I use different ways to solve my food and nutrition problems.

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SECTION III

Direction: For each item in this section, place a check mark in the blank beside the best (most correct) of the four response choices.

21. If a friend tells you about a new weight-loss diet, which of these is the way to decide if it is good?
   - a. ask your doctor about the diet.
   - b. find out how many people have used the diet.
   - c. see how much weight your friend has lost on the diet.
   - d. try the diet for a week to see how you feel.

   102 63.7% 21.1% 17 10.6% 36 22.5% 2 missing

   best response

22. Which of the following factors is least important in determining your nutrient and caloric needs?
   - a. age
   - b. amount of exercise
   - c. gender (sex)
   - d. personal beliefs
   - e. personal habits

   16 10.0% 14 8.7% 38 23.7% 0 missing

   best response

23. Which of these potatoes would be crispiest?
   - a. baked potato
   - b. fried potato
   - c. mashed potato
   - d. steamed
   - e. raw

   12 7.5% 137 85.6% 24 4.4% 4 2.5% 2 missing

   best response

24. In which of these ways that green pepper might be fixed would it provide the most vitamin C?
   - a. baked
   - b. broiled
   - c. fried
   - d. raw
   - e. missing

   4 25% 16 10.0% 5 3.1% 129 80.6% 6 missing

   best response

25. Which of the following people probably would be the most helpful in planning a low-cost menu for a party?
   - a. food chemist
   - b. home economics teacher
   - c. school business manager
   - d. waitress

   58 36.2% 56 41.2% 7 4.4% 28 17.5% 1 missing

   best response
26. Which of the following health conditions would be most likely to occur in teenagers who do not get enough iron in their diets?

- acne  22.5%
- anemia  54.4%
- diabetes  8.7%
- obesity  8.7%
- missing

b best response

27. What is the most likely reason that some young people do not eat many kinds of vegetables?

- their families cannot afford many kinds.  44%
- they cannot get many kinds in the grocery store.  25%
- they do not know how to cook many kinds.  44%
- they have not learned to like many kinds.  86.1%

missing

b best response

28. Which of the following foods would be possible to prepare in 20 minutes without use of a microwave oven?

- hamburgers  78.1%
- homemade vegetable-beef soup  8.7%
- pork chops  7.5%
- roast beef  19%
- missing

a best response

29. If one of your responsibilities at home is fixing breakfast for your family and you burn the toast almost every morning, which of these would be the thing to do?

- ask to trade chores with another family member.  12.5%
- figure out what you have been doing wrong and try to correct it.  70.0%
- keep serving the burned toast and hope your family will learn to like it  7.5%
- make biscuits rather than toast for breakfast.  8.7%

missing

b best response

30. Which of the following nutrients is needed for making red blood cells?

- calcium  13.7%
- iron  53.1%
- vitamin A  21.9%
- vitamin D  6.9%
- missing

b best response

31. What nutritional advantages does an expensive piece of steak have compared to a cheaper piece?

- it probably has less fat than the cheaper piece.  51.9%
- it probably has more protein than the cheaper piece.  10.6%
- it probably has more vitamins and minerals than the cheaper piece.  10.6%
- it probably has no nutritional advantage over the cheaper piece.  25.6%

missing

d best response
32. Which of the following foods is the main ingredient used in the manufacture of imitation bacon?

- **a. beef** (58.1%)
- **b. corn** (50.0%)
- **c. milk** (25.0%)
- **d. soybeans** (32.5%)
- **missing**

33. Which of these problems would food and nutrition information be least likely to help solve?

- **a. frequent colds and minor illnesses** (10.6%)
- **b. midmorning energy slumps** (8.7%)
- **c. overweight** (16.2%)
- **d. poor social skills** (62.5%)
- **missing**

34. Which of these fast-food meals would provide the most nutrients?

- **a. chicken, mashed potatoes, and roll** (58.1%)
- **b. hamburger, french fries, and Coke** (63.0%)
- **c. hot dog and milk shake** (19.0%)
- **d. sausage-cheese pizza and salad** (32.5%)
- **missing**

35. Which of these activities that could be done during a meal probably would help people enjoy the meal more?

- **a. eating as quickly as possible** (25.0%)
- **b. playing with a pet** (4.4%)
- **c. settling family problems** (87.5%)
- **d. talking with others** (12.0%)
- **missing**

36. Which of the following foods contains the most iron?

- **a. cake** (6.3%)
- **b. hamburger** (16.9%)
- **c. milk** (47.5%)
- **d. pineapple** (26.3%)
- **missing**

37. If you read about ideal weight in a book on physical fitness, how can you tell how good the information is?

- **a. by the background of the author of the book** (67.5%)
- **b. by the length of the book** (25.0%)
- **c. by the length of the chapter on the ideal weight** (19.4%)
- **d. by the number of pictures in the book** (8.7%)
- **missing**
38. Which of the following family members needs the most protein?

a. 10-year-old daughter who takes ballet  19 11.9%
b. 15-year-old son who plays football  19 11.9%
c. 35-year-old mother who is pregnant  110 68.6%
d. 37-year-old father who is a farmer  6 3.7%
missing best response

39. Which of the following foods requires use of the fewest resources to produce?

a. cheese  50 31.3%
b. ham  22 13.7%
c. soybeans  59 36.1%
d. steak  15 9.4%
missing best response

40. Which of the following safety rules is important for frying foods?

a. cool the hot fat quickly with cold running water.  12 75%
b. drop frozen foods quickly into the fat.  10 62.5%
c. heat the fat quickly.  1 6.3%
d. use moderate heat.  134 83.7%
missing best response

41. If one student trying to find recipes for nutritious snacks looks through several cookbooks and another student asks several teachers for suggestions, what will they probably find?

a. if the books are good ones, both students probably will come up with the same ideas.  10 62.5%
b. if the teachers all are good cooks, both students probably will come up with the same ideas.  10 62.5%
c. the two students may come up with either the same or different ideas.  75 46.9%
d. the two students probably will come up with very different ideas.  62 36.1%
missing best response

42. Three students compared what they ate for breakfast. Karen had a hard-cooked egg, tomato juice, and cereal with milk. Bill had a hamburger and a banana milkshake. Pat had toast and orange juice. Who had nutritionally balanced breakfast(s)?

a. none of the students  20 12.5%
b. only Pat  66 41.2%
c. both Karen and Bill  41 25.6%
d. all the students  30 18.8%
missing best response

43. Which of the following foods contains the most calories?

a. 1 dinner roll  14 8.7%
b. 1 cup whole milk  18 11.2%
c. 4 ounces of steak  22 13.7%
d. 10 potato chips  104 65.0%
missing best response
44. If the students in your school do not like the foods served in the school cafeteria, which of the following would be the best thing to do?

- 4  25%  a. encourage all students to return their food uneaten as a protest.
- 15  9.4%  b. hope that other people in the school will do something about the situation.
- 95  59.4%  c. organize a group of students to talk to the cafeteria manager.
- 43  26.9%  d. stop eating in the school lunch program.
- 3  1.8%  
- c  

45. What is the relationship between self-image and physical appearance of teenagers?

- 125  78.1%  a. they are related for both girls and boys.
- 8  5.0%  b. they are related for boys but not for girls.
- 8  5.0%  c. they are related for girls but not for boys.
- 16  10.0%  d. they are not related for either girls or boys.
- 3  1.8%  
- a  

46. Circle whether you are a male or female.

a. male  b. female

160

100%

47. Circle the number which indicates your grade in school.

a. 7  b. 8

160

100%

48. Circle the number which is the same as your age.

a. 10  b. 11  c. 12  d. 13  e. 14

3  88  63  6 missing

1.5%  55.0%  39.4%

49. Circle the letter which you think is your average grade.


38  61  52  4  5 missing

23.7%  38.1%  32.5%  2.5%  

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE!
LIST OF REFERENCES


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