

Unit 1

Healthy Eating Habits

Practical Problem:

How do I develop eating patterns that will promote good health now and for the future?

Missouri Family and Consumer Sciences Competencies:

- (C-1) Propose eating patterns that promote health.
- (C-2) Examine special nutritional needs (e.g., sports nutrition, modified diets, food supplements).
- (C-3) Examine changes in food and nutrient needs across the life span.

Enabling Objectives for Competency Mastery:

1. Recommend diet planning principles for good health.
2. Apply the Dietary Guidelines for Americans to overall health habits.
3. Describe characteristics of individuals who may have special nutritional needs.
4. Propose meal plans for individuals with special nutritional needs.
5. Compare nutritional needs of children, adolescents, adults, pregnant women, and the elderly.

Teacher Background Information

Rationale

The nutrition and lifestyle habits that students develop now will influence their health and wellness in later years. Americans spend billions of dollars annually to lose weight, get in shape, or purchase supplements to improve their overall health and physical fitness. Many of these practices are not healthy and can cause long-term health consequences. Poor habits, lack of accurate information, overwhelming misinformation and peer pressure cause many adolescents to jeopardize their health. Accurate information about nutrition and good decision-making skills will help teens improve their health now and for the future.

Background

Good health habits contribute to wellness throughout a person's life. Nutritional needs begin even before birth and continue throughout the life cycle. In Missouri today there are nearly twice as many overweight children and almost three times as many overweight adolescents as there were in 1980 (roughly one generation ago). Missouri ranks higher than the national average for overweight youth.

A 2003 survey by the American Dietetic Association Foundation reports that parents outrank all others as children's role models for health habits. Parents outranked sports celebrities and actors by all groups surveyed. Children ages 8-12 reported their top role

model was their mother (23%) or father (17.4%). Teens age 13 to 17 said their mother was most influential (13.8%) and no one (13.4%). The survey shows that the influence of any role model does decrease as the children get older.¹

While parents are very important in helping children develop healthy eating habits, schools play an important role as well. The Missouri Coordinated School Health Coalition developed recommendations to help schools, families and communities work together in many ways such as:

- Developing policy and program guidelines for schools.
- Strengthening physical activity requirements, standards and programs in schools.
- Implementing nutrition policies and education programs.
- Fostering school and community partnerships that promote regular physical activity.
- Engaging students, school faculty, families and communities in promoting healthy eating and regular physical activity.
- Increasing awareness of the problem and of solutions.

The full report by the Missouri Coordinated School Health Coalition is available online at: <http://dese.mo.gov/divimprove/curriculum/hp/HealthyWeight.pdf>

Information Does Not Change Behavior

Several independent reports state that providing only factual information about health-related topics does not influence students to develop or change their behavior. It is essential to include the skills for weight management and behavior change in addition to the nutrition knowledge. Programs that involve students in peer education have also shown positive outcomes. Research indicates that the best predictor of future behaviors is the intention to engage in the behavior (this relates to goal-setting).

Nutrition knowledge, eating patterns, and physical activity levels are all essential to overall health and long-term wellness. Risk factors related to obesity include: diabetes, high blood pressure, high cholesterol and triglycerides, arthritis, gall bladder disease, some cancers, and even lung problems. In efforts to help many consumers “lose more weight faster,” a variety of fad diets have received a great deal of media attention. It can be overwhelming to sort out the facts from the promises, and to determine the long-term health risks associated with many of these “proven successful diets.” The American Dietetic Association recommends *Variety*, *Balance* and *Moderation* in food choices. These guidelines are generally not a part of a fad diet.

Important lifestyle factors also play a large role in maintaining good health. Positive health habits include:

- 7 to 8 hours of sleep each night
- healthy eating habits
- maintaining a healthy weight (yo-yo dieting can be as harmful as being overweight)
- regular physical exercise
- carefully selecting and using equipment to avoid risk of injury

- performing self-examinations frequently
- 6 to 8 glasses of water each day (approx 64 oz)

Guidelines for Healthy Eating

- Aiming for regular meals and snacks
- Hitting most of the major food groups each day to meet your needs for growth and health
- Balancing nutrition-rich foods with moderate amounts of other foods like sweets or fast foods
- Eating when hungry and stopping when full
- Learning about nutrition, but keeping your food as just one important part of your life

Weight Helps Determine Health

Good health begins with a healthy weight. Body Mass Index (BMI) is one “tool” for comparing body weight relative to height. The greater your weight compared to your height, the greater your risk for weight-related health problems. BMI does not measure body fat; however individuals with a higher BMI tend to have higher percentages of body fat. A BMI between 18.5 and 24.9 is considered optimal.

Health professionals advise those who are overweight to lose weight gradually. Approximately two pounds per week in weight loss is maximum recommended. Sometimes, people with serious health problems associated with obesity may have legitimate reasons for losing weight rapidly. If so, a physician's supervision is required. A person's weight is the result of several factors:

- how much and what kinds of food you eat
- whether your lifestyle includes regular physical activity
- whether you use food to respond to stress and other situations in your life
- your physiologic and genetic make-up
- your age and health status

Successful weight loss and weight management should address all of these factors. Products and programs that promise quick and easy results, or that promise permanent results without permanent changes in lifestyle are not based on healthful practices.

Inches, Pounds, and Calories

Inches measure height; pounds measure weight; and calories measure energy. One calorie is the amount of energy needed to raise the temperature of 1 gram of water by 1 degree Celsius. In food, calories are found in three nutrients: carbohydrates, proteins, and fats. During digestion the nutrients are taken from the foods and absorbed into the bloodstream. The nutrients are then converted into glucose. The food energy held in the glucose is delivered to every cell in the body. Energy may be burned immediately to

power activities such as your heartbeat, blinks of your eye, sit-ups, or swimming. Energy not needed immediately is stored in fat in case it is needed later.

Calories are available in most foods. The amount of calories will vary widely among foods. The calories are locked in the nutrients carbohydrates, proteins, and fats. Calories are also provided by alcohol, however alcohol contains no nutrients. Fueling the body with alcohol actually starves the body of the nutrients it needs to maintain health.

Source of Energy	Calories Per Gram
Fats	9
Alcohol	7
Carbohydrates	4
Proteins	4

Source: *American Dietetic Association Complete Food and Nutrition Guide*, 2nd ed. 2002, page 25.

Special Nutritional Needs

Throughout a person's life their body will always need the same nutrients. However, the amount of the nutrients will change over time. Some groups of people have special nutritional needs that are different from the general population. A few examples are pregnant women, children, older adults, and athletes.

The *Dietary Guidelines for Americans, 2005* may not always apply to people who need special diets because of diseases or conditions that affect normal dietary needs. By making minor changes to regular recipes, many people who have special dietary needs can eat the same things as other members of the family. Special needs might include a lower sodium diet, a lower fat diet, a lower cholesterol diet, or food allergies.

Pregnant Women

A pregnant woman needs more nutrients to help her baby grow and get a healthy start in life. If the mother is eating a well-balanced diet before becoming pregnant, she will only need to make a few dietary changes. According to the American College of Obstetricians and Gynecologists (ACOG), pregnant women should increase their usual servings of a variety of foods from the four basic food groups to include the following:

- Four or more servings of fruits and vegetables for vitamins and minerals
- Four or more servings of whole-grain or enriched bread and cereal for energy
- Four or more servings of milk and milk products for calcium
- Three or more servings of meat, poultry, fish, eggs, nuts, dried beans and peas for protein

Most physicians agree that the Recommended Daily Allowances (RDAs), except those for iron, can be obtained through a proper diet. Pregnant and lactating adult women require an additional 40% of calcium a day (1200-1500 mg per day). Almost all of the extra calcium goes into the baby's developing bones. To get this extra calcium, 3 extra servings (3 cups) of milk or dairy products are needed. The mother should consume 2,000 to 8,000 milligrams of sodium a day during pregnancy. There are 2,325 milligrams

of sodium in one teaspoon of salt, and because salt is in most foods, the increased need for it during pregnancy is not too difficult to achieve. Sodium helps to regulate the water in the body.

Pregnant women need plenty of fluids, especially water. A woman's blood volume increases dramatically during pregnancy. Drinking at least eight glasses of water a day can help prevent common problems such as dehydration and constipation. Pregnancy doubles a woman's need for folate (folic acid or folacin). Folic acid has been shown to be important in preventing neural tube defects, such as spina bifida and anencephaly and is essential to the formation of red blood cells. Folic acid can be found in many foods, including kidney beans, leafy green vegetables, peas, and liver. Women in their childbearing years should consume plenty of these foods. In fact, folate is so important to the health of women and their babies that the Food and Drug Administration (FDA) recently required the addition of folic acid to prepackaged bread and cereals.

Infants and Children

For the first few months babies need only mother's milk or formula. Mother's milk is rich with nutrients and antibodies an infant needs. Infant formula is fortified with essential nutrients. Most doctors recommend using a formula enriched with iron. MyPyramid will help a breastfeeding mother be sure she is meeting her nutritional needs.

At four to six months babies are able to eat infant cereals and strained fruits and vegetables. Around seven to nine months babies can digest strained meat and poultry, unsweetened juice, and teething crackers. Chopped foods that are soft, unsweetened dry cereal, cooked pasta such as macaroni can be served to infants when they are about 10 to 12 months old.

After the first year toddlers will begin to eat many of the foods the family eats. By introducing new foods to the toddler one at a time, the parent can determine if the child may have a food allergy. Since a toddler cannot eat a lot of food at one time, they should have two to three snacks throughout the day. Refer to MyPyramid at www.MyPyramid.gov for needs of children at specific ages.

Calcium, iron and fiber are especially important for children. Calcium is the major mineral that strengthens bones. Bone calcium begins to decrease in young adulthood and progressive loss of bone calcium occurs throughout life, particularly in women. The school-age and teen years are the time to prevent the bone disease osteoporosis because peak bone mass and calcium content of the skeleton is reached during the teen years.

Iron is another essential nutrient in a child's diet. Iron deficiency can lead to fatigue, irritability, headaches, lack of energy, and tingling in the hands and feet. Significant iron deficiency can lead to iron-deficiency anemia. Teen boys need extra iron to support their rapid growth, and teen girls need enough iron to replace what they lose once they begin menstruating. Many teenage girls are at risk for iron deficiency because they often don't eat enough foods containing iron to offset the blood loss. Teens can lose significant amounts of iron through sweating during intense exercise.

Dietary fiber can help in reducing the chances of heart disease and cancer later in life, and fiber helps promote bowel regularity. MyPyramid provides suggestions for fruit and vegetable consumption each day along with whole-grain breads and cereals to ensure

that each child gets enough fiber. Too much fiber in the diet can interfere with the body's absorption of essential vitamins and minerals.

Breakfast is essential for children to maintain overall health and have the energy needed to succeed in school. Breakfast really is the most important meal of the day. Snacks also are important to maintain a steady supply of nutrients throughout the day. However, snacks should be nutrient dense, not foods high in calories and low in nutrients.

Can food cause behavior problems in children? Research indicates that there is no connection between food and behaviors such as hyperactivity or poor impulse control. Hyperactivity, or attention-deficit/hyperactivity disorder (ADHD) is a learning disability. Dietary 'treatments' that some parents insist cure the disorder are more likely related to the 'placebo effect' than to the influence of food.

All children can feel 'hyper' or overly stressed at times. Common causes for children to act out may include:

- Too much caffeine from sodas or chocolate
- The desire for attention
- Lack of sleep or too much excitement
- Too much television
- Lack of exercise
- Chronic hunger

Older Adults

Energy needs often decrease for older adults as a result of lower metabolism and reduced physical activity. Nutrient needs are more likely determined by the individual's medical history and genetics, than by age. Needs are much more individual than for other age groups. Use the MyPyramid calculator at www.MyPyramid.gov to determine needs for adults over 70.

The quality of life for people living to age 85 and older is steadily improving. In the United States the segment of the population that is 85 or older is growing faster than any other age group in our society. Chronic disabilities have decreased and quality of life for this age group has increased in general. There are several factors that challenge older adults to choose a healthy diet such as whether they live alone, some medical conditions, difficulty chewing due to tooth loss, or a loss of taste sensitivity. Other factors include whether the older adult takes multiple medications or abuses alcohol.

Tips for older adults

- Eat breakfast every day.
- Select high-fiber foods like whole grain breads and cereals, beans, vegetables, and fruits.
- Have three servings of low-fat milk, yogurt, or cheese a day. Dairy products are high in calcium and vitamin D and help keep bones strong, or take a calcium and vitamin D supplement.

- Drink plenty of water. Some older adults say they feel less thirsty, but their bodies still need the same amount of water.
- Talk with a health care provider about ways to safely increase physical activity. For example, take short walks throughout the day.
- Get enough sleep.
- Stay connected with family, friends, and community.

Source: Healthy Eating & Physical Activity Across Your Lifespan.

Life expectancy is the average number of years people in a given society live. The life expectancy for white males in the United States is different than the life expectancy for males in the Czech Republic, for example. Life expectancy is influenced by gender, race, genetics, and many lifestyle factors. Advances in medical technology led to almost a 100% increase in life expectancy during the twentieth century.

Life Span is the maximum number of years of life that a member of a species can attain. Human have a life span of about 130 years although very few people have actually attained that age.

Longevity is the duration of one person's life. Scientists who study the aging process have found no diet or nutrient supplement that will increase longevity, though there are many claims to the contrary by the manufacturers of nutritional supplements.

Athletes

The physical demands of athletic training and competition increase the athlete's need for nutrients. Whether competitive or recreational, the body cannot perform at its peak without proper nutrition. Athletes need a diet that provides enough energy in the form of carbohydrates and fats as well as essential protein, vitamins and minerals for the added physical activity. A diet containing 55-60 percent of calories from carbohydrates (10 to 15 percent from sugars and the rest from starches), no more than 30 percent of calories from fat and the remaining (about 10-15 percent) from protein is recommended.

Nutrition and fitness experts recommend eating a variety of foods every day - grains, vegetables, fruits, beans, lean meats, and low fat dairy products. The foundation of the athlete's diet should come from carbohydrates in the form of starches and sugars. Fluids, especially water, are also important to the winning combination.

Dehydration can be a threat to good athletic performance. Heat stroke caused by severe dehydration ranks second among the reported causes of death among high school athletes.

Modified Diets for Health

Special modified diets are recommended for those with, or at risk for, a number of medical conditions such as diabetes, heart disease, hypertension, lactose intolerance. Many people with one of these conditions can eat regular foods by making some modifications to their overall diet.

A heart healthy approach to diet will include consuming a variety of fruits, vegetables, and grains (especially whole grains). To achieve a healthy balance of cholesterol, limit

foods high in saturated fats. Lower the amount of sodium consumed to less than 6 grams per day.

The American Cancer Institute provides information online for diet modifications for those who have been diagnosed with cancer. See the Web Resources section for the URL.

Dietary Supplements

Some have suggested that it would be easier to ensure a healthful diet by relying solely on food supplements such as pills, liquids, or powders that contain purified nutrients in specific amounts. Scientists have been successful in developing diets containing precise chemical compositions for people who are hospitalized and cannot eat ordinary foods. However, healthy people do not need these types of supplements and cannot survive long-term on this form of nutrition. Foods are chemically complex and cannot be fully reproduced in a laboratory.

The human body is designed to digest food using the digestive organs and processes. When the digestive organs such as the stomach and intestines are not used to digest foods they begin to weaken and eventually cannot function fully. The intestine releases hormones during the digestive process, these hormones send messages to the brain that trigger satisfaction.

Nutrition supplements have not been found to be better solutions for health than a balanced diet. Yet consumers spend an estimated \$5 to \$10 million. The Dietary Supplement Health and Education Act (DSHEA) of 1994 requires manufacturers to provide labels on their products to help consumers make informed choices. The FDA does *not regulate* dietary supplements. Unlike foods, food additives and drugs, supplements do not require government approval to be marketed to the consumer. The definition of a dietary supplement is very broad to the point of being almost meaningless. High doses or 'mega' doses of a nutrient are harmful rather than beneficial. An appropriate supplement should provide the nutrients in an amount that is smaller than, or close to, the actual DRI recommended.

More people in the United States suffer from 'overnutrition' and poor lifestyle choices than from nutrient deficiencies. Better decisions about food choices and exercise generally are more effective than a dietary supplement.

Web Resources for Teachers

http://www.health.state.mo.us/DietManual/Diet_manual.pdf

The *Missouri Diet Manual* was first printed in 1958 and is in its ninth revision. The purpose of the manual is to provide clear-cut practical information and guidelines in diet therapy for normal nutrition and modified diets. This manual has been prepared primarily for use by food and nutrition service personnel in Missouri hospitals and nursing homes. It includes information on modifying the diet for a number of special needs.

<http://www.youngwomenshealth.org/healthyeating.html>

Children's Hospital of Boston has created an important new initiative-- the creation of a Center for Young Women's Health-- the first of its kind in the nation.

<http://www.nal.usda.gov/fnic/etext/000008.html>

Federal government Food and Nutrition Information Center website with many links to sites such as “Nutrition throughout the Lifecycle,” or “vegetarianism.”

<http://www.kidshealth.org/>

KidsHealth for Parents sponsored by the Nemours Foundation. KidsHealth is the largest and most visited site on the Web providing doctor-approved health information about children from before birth through adolescence. Provides families with accurate, up-to-date, and jargon-free health information.

<http://www.cancer.gov/cancertopics/eatinghints/page1>

The National Cancer Institute provides extensive information on types of cancer and diet suggestions.

<http://nirc.cas.psu.edu/lifecyc.cfm>

Penn State College of Agricultural Sciences houses the Nutrition Information and Resource Center (NIRC). This website includes links with additional resources for nutrition throughout the life cycle and for modifying recipes for special dietary needs.

References:

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¹Children’s role models for health: Parents outrank all others. August 1, 2003.

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http://win.niddk.nih.gov/publications/young_heart.htm

Missouri Coordinated School Health Coalition. *Promoting Healthy Weight in Missouri’s Children: A Guide for Schools, Families and Communities*. 2003.

http://www.cdc.gov/nchs/data/dvs/nvsr52_09p9.pdf. National Center for Health Statistics. National Vital Statistics Reports, vol. 52, no 9, Nov 7, 2003.

http://www.kidshealth.org/parent/nutrition_fit/nutrition/index.html Nutrients Your Child Needs: Calcium, Iron and Fiber. Updated and reviewed: Kim Rutherford, MD Date reviewed: October 2001

Instructional Strategies

1. **Recommend diet planning principles for good health. (Competencies C-1, C-2, C-3)**
 - a. Use the Buzz Group technique to discuss diet and dieting. Divide into groups of 3-5 students with one leader and one recorder in each group. The leader is to keep the group on task with the discussion and the recorder to summarize the ideas. Use Activity Sheet #1: **Is Everyone On a Diet?** or display the information on an overhead transparency. Work in groups for about 10 minutes, then the recorders from each group will share the ideas from their group with the whole class.
 - b. Access the *Dietary Guidelines For Americans*, 2005, 5th Edition, USDA at: www.health.gov/dietaryguidelines/dga2005/document/. Either print out the full report or view the document online. Create posters to illustrate these guidelines and post them throughout the building for other students to view.

Questions for Discussion/Formative Assessment

- *What are the guidelines for healthy eating?*
- *Who developed these guidelines? What motives might they have for selecting these guidelines?*
- *How often are the guidelines revised or updated?*
- *When will they be reviewed again?*
- *Are there some people who could not follow these guidelines, or could anyone follow these guidelines for good health?*
- *Which guideline is the most difficult for you to follow?*
- *What changes might you make in your eating habits to meet these recommendations?*

- c. Use Fact Sheet #1: **Tips for Healthy Eating** to discuss how habits can affect eating behavior. Rank these tips for yourself. Which tip do you feel will help you the most? List that tip as number 1, etc.
- d. Work individually if there are enough computers available for every student, otherwise divide into groups to explore nutrition facts. Use the Webquest Activity Sheet #2: **Search for the Perfect Food** to examine various food sources that contribute to a balanced diet. Use your nutrition knowledge to select the one food that you believe is the most perfect in terms of nutrient density. Develop an advertisement to “sell” the rest of the class on your idea.
- e. Access one of the online information sources below related to Nutrition Supplements:

National Institutes of Health, Office of Dietary Supplements, Dietary Supplements: Background Information.

<http://ods.od.nih.gov/factsheets/dietarysupplements.asp>

U.S. Food and Drug Administration
<http://www.cfsan.fda.gov/~dms/ds-oview.html>

U.S. Food and Drug Administration, Center for Food Safety and Applied Nutrition
<http://www.cfsan.fda.gov/~dms/ds3strfs.html> updated November 4, 2004.

Gateway to Government Food Safety Information
<http://www.foodsafety.gov/~fsg/dietsupp.html>

Review the information about possible health risks, label information, and lack of FDA regulation. Take a poll of students in the class to determine how many believe these foods should be regulated and how many believe the consumer should have the freedom from this type of government regulation. Discuss the implications to the consumer and manufacturer when there are tight regulations and when the regulations are very loose.

2. Apply the Dietary Guidelines for Americans to overall health habits. (Competencies C-1, C-3)

- a. Examine the *Dietary Guidelines For Americans, 2005*. Conduct a school survey to determine how many students are aware of the *Guidelines*. How many know that these *Guidelines* exist? How many students know where to find more information about the *Guidelines*? How many students say they would like to learn more about healthy eating? Report back to class on your survey findings. Compile the survey data for the school newspaper.

Questions for Discussion/Formative Assessment

- *How many of the guidelines are related to foods and nutrition, and how many are related to physical activity?*
- *Which guidelines require the consumer to have information, and which guidelines are based on consumer behavior? (Knowing facts vs. making decisions)*

- b. The following website from the Food and Information Center includes a link to dietary guidelines from around the world:
<http://www.nal.usda.gov/fnic/dga/index.html> There are guidelines for many countries including Canada, Ireland, Germany, Hong Kong, Italy and many more. Assign students to groups of two or three to research one country and compare the guidelines to the United States. Report back to the full class with the comparisons.
- c. The *Dietary Guidelines for Americans* are reviewed every five years to determine if revisions are needed based on recent scientific findings. The current guidelines were published in 2005. The Dietary Guidelines Advisory Committee, a committee of prominent experts in nutrition and health, reviewed the 2000 *Dietary Guidelines* and determined that a revision was appropriate. Develop public service announcements to submit to local media to raise awareness about the Dietary Guidelines in your community. This can

be part of an FCCLA Student Body Project for community awareness. If a new review is underway, monitor the progress of the review committee to determine what revisions, if any, are recommended.

Questions for Discussion/Formative Assessment

- *Why do the Guidelines change?*
- *Are all groups of people such as children, pregnant women, or older adults included in these recommendations?*
- *Do you believe most people follow the Guidelines?*

3. Describe characteristics of individuals who may have special nutritional needs. (C-1, C-2)

- a. Access MyPyramid at www.MyPyramid.gov to calculate needs for various groups such as Young Children, Vegetarians, or for Older Adults. Compare similarities and differences. Create a Venn diagram to illustrate your comparisons.

Questions for Discussion/Formative Assessment

- *Why do these guidelines **not** apply to children younger than 2 years old?*
- *What recommendations would apply for these infants and young children?*

- b. Use the Internet or classroom resources to learn more about vegetarian diets, vegan diet needs, and macrobiotic diets. Complete Activity Sheet #3: **Thinking It Over** in this unit to summarize your thoughts. Internet sources could include the American Dietetic Association at <http://www.eatright.org> or the Vegetarian Resource Group at <http://www.vrg.org>
- c. Use the Guided Reading Activity Sheet #4: **Pregnant Women Have Special Dietary Needs**, to examine the additional nutritional needs of pregnant women compared to women in the same age range who are not pregnant.
- d. Divide into groups of 5 students with the same role to play. Use the Webquest Activity Sheet #5: **Sports Nutrition in the Media** to investigate sports nutrition issues that are relevant for student athletes. Allow time for the groups to share their research. Regroup so that the new groups include one member from each role. Create and videotape a 5-minute television interview that summarizes the information learned about sports nutrition.

4. Propose meal plans for individuals with special nutritional needs. (Competencies C-1, C-2)

- a. Women need about 300 additional calories each day during the second and third trimesters of their pregnancy. Find a reference chart in your textbook or on the Internet that lists the nutritive value of foods. (USDA, Home and

Garden Bulletin Number 72, Nutritive Value of Foods at www.nal.usda.gov/fnic/foodcomp/data/HG72/hg72_2002.pdf is one resource.) Suggest healthful choices of foods to add to a regular balanced meal plan that will total about 300 calories per day for a week. Select a variety of nutrient dense foods.

- b. Children are often selective in the foods they will eat. It can be difficult to ensure that some children eat a variety of foods, especially fruits and vegetables. Create a 7-day menu of healthful snacks that parents can use to 'fill in the gaps' during the day for a child who typically does not eat enough servings of these food groups.
 - c. Breakfast is essential for children to function well in school, grow and develop normally, and have enough energy to get through their day. Yet, many children do not eat breakfast. Develop a menu for one week of breakfast choices that an elementary school child could prepare. Follow the Recommended Dietary Allowances in choosing your foods.
 - d. Divide class into food labs to prepare one of the breakfast menus developed in Instructional Strategy 4(c) above. Adapt cooking and food preparation requirements to the skill level that a child age 7-10 could be expected to perform. For example, if the meal plan calls for a poached egg, students could prepare the poached egg in the microwave rather than using the stove-top. Discuss the nutritional needs and food preparation skill level that is appropriate for a child age 7-10 years.
 - e. Adapt the menu developed in Instructional Strategy 4(c) above for a child who prefers a vegan diet. Explain how your choices fit the vegan requirements.
 - f. Divide into groups to create a typical menu for a special meal such as a birthday or a holiday. Choose one diet modification or draw slips of paper with various modifications listed such as low sodium, low cholesterol, low fat, low sugar, increased fiber, or lactose intolerance. Modify the original menu and identify what ingredients might be substituted, what cooking methods might be altered, or other types of modifications recommended for the menu. This website from Penn State has useful information for modifying recipes: <http://nirc.cas.psu.edu/online.cfm?area=100>
- 5. Compare nutritional needs of children, adolescents, adults, pregnant women, and the elderly. (Competencies C-2, C-3)**
- a. Use the Jigsaw learning strategy to explore the nutritional needs of various groups. Compare facts about each group to understand what needs they all share and what needs are unique. Try to establish at least 5 study groups. One group will focus on each segment such as the special nutritional needs of children, the special nutritional needs of adolescents, etc. You may want to add other study groups to focus on special needs of athletes or vegetarians. If your class is not large enough, use the jigsaw two times with different combinations of students in the groups.

Teacher Note: Jigsaw is a learning strategy that requires students to exchange information. The active process of teaching and learning together can be highly effective. This strategy works well when the material can be segmented or divided into chunks, and the order in which the material is learned does not matter.

Divide the class into study groups of 3-5 students. Assign each study group a segment or chunk to read, discuss, and learn. All students in the original study group should number off. A new study group is now formed with all students whose number is one, another group with all students whose number is two, etc.

All of the new groups will teach each other the one segment of the information that each learned in the original study group. Thus in the first study group the students focus on one chunk of information and in the second study group they teach each other their one chunk so that all students have an opportunity to hear about all of the information.

Here is a diagram showing how the groups would work in a class of 15 students:

6	6	6
v	v	v
n	n	n
4	4	4
m	m	m

Divide into 5 study groups with 3 students in each group to focus on one chunk of information. This allows for 5 chunks of information to be discussed:

6		v		n		4		m	
6	6	v	v	n	n	4	4	m	m

Number each student in the groups above 1, 2, 3. All students with #1 divide into a new group, etc. to teach each other what they learned:

	6		v		n
v	n	6	m	4	6
4	m	n	4	m	v

- b. Create a cafeteria bulletin board featuring nutrition guidelines for groups who may have special nutritional needs. Divide into groups to research and prepare parts of the overall bulletin board. Special populations might include pregnant women, infants and young children, older adults, athletes, people with food allergies, or those who are lactose intolerant.
- c. Invite a local dietitian as a special class speaker. A dietitian for patients in a nursing home might talk about special needs of the elderly. A dietitian or personal trainer may be able to focus on special needs of athletes. A dietitian or physician may talk about special needs of pregnant women and infants.

Another alternative is to invite a panel of professionals to discuss all of these special populations.

Summative Assessments

Paper and Pencil

1. Use Assessment #1: **Menu Scramble** to create one daily meal plan. The meal plan must use the recommendations from MyPyramid. (Competency C-1)
2. Create a brochure for parents of preschoolers. The brochure should include nutrition advice regarding nutrient needs, food groups and serving sizes appropriate for young children. The brochure should include recipes and a meal plan for one full day. (Competencies C-1, C-3)
3. Write a research report describing a medical condition and recommendations for a modified diet. Your report should include a description of the medical condition, how diet relates to the condition, and what types of diet changes would a health professional recommend. Examples for topics might include diabetes, cancer, lactose intolerance, hypertension, or heart disease. (Competency C-2)

Classroom Experiences

1. Work in groups to develop the perfect pizza recipe. Many traditional pizza recipes are high in fat and calories compared to nutrient density. Create a recipe for a pizza that is lower in total fat and yet is nutrient dense. Prepare the pizza in your food lab and share with other groups. Use teacher evaluation and peer assessment to determine the nutritive value and appeal of each pizza recipe. Use Assessment Sheet #2: **Pizza Lab** for teacher evaluation component. (Competency C-1)
2. Invite a panel of professionals from the community to evaluate the videotaped television interviews in Instructional Strategy 3(e). Include one or more personal trainers, dietitians, and coaches. (Competency C-2)
3. Recommend a pasta dish suitable to be served as a main dish for a toddler. This dish should provide at least 40% of the toddler's daily protein requirement. You may search for an existing recipe or develop one of your own. (Competencies C-1, C-3)
4. Research the special nutritional needs of the elderly. Create a poster display for your local senior center to educate senior citizens about their special nutrition needs. Your poster should be informative, attractive, and focus on one important fact regarding nutritional needs of the elderly. Be sure to list specific actions needed and provide reliable sources to contact for additional information on your topic. (Competencies C-1, C-3)
5. Develop an omelet recipe for someone who is trying to reduce cholesterol and sodium intake. (Competencies C-1, C-2)
6. Divide into groups of 5 students. Use Assessment #3: **Making Headline News** to develop a one-minute television news feature related to good nutrition. (Competencies C-1, C-3)

Application to Real Life

1. Help a local Meals on Wheels volunteer make deliveries for one day. Interview the people who receive these meals to learn more about how and why this nonprofit organization benefits people in your community. Organize an FCCLA fund-raising activity in your community to benefit the Meals on Wheels organization. (Competency C-3)
2. Work with student athletes in your school to develop weekly menus for their physical training needs. Take into account when the athletes practice, the types of physical activity they are involved in, individual food likes and dislikes, and develop menus that meet the recommendations of MyPyramid. (Competency C-2)
3. Visit a local pharmacy, health foods store, or Internet online sources to look for various food supplements. Read the labels to determine the type of information the manufacturer claims about the products. Does the manufacturer make: (1) a health claim about the dietary supplement reducing the risk for a disease or illness; (2) a claim regarding the nutrient content; or (3) a structure/function claim about the product. Write down the claims the manufacturer makes on the label, then research the dietary supplement using non-biased sources to determine if those claims can be supported by fact. Write a 2-3 paragraph summary of your findings. (Competency C-2)

Fact Sheet #1**Tips for Healthy Eating****1. Don't skip meals - plan for meals and snacks.**

Believe it or not, 3 meals and 2 snacks are best to maintain both energy levels and healthy weight. You are more likely to overeat or choose nutrition-poor foods when you skip meals and are over-hungry. Eating away from home? Don't leave yourself stranded—take foods with you or know where you can go to buy something healthy and satisfying.

2. Learn about simple, healthy ways to prepare foods.

Think about baking, boiling, grilling, stir-frying, or microwaving as healthy ways to cook foods instead of deep frying your foods. Try dried herbs (basil, oregano, parsley) and spices (lemon pepper, chili powder, and garlic powder) to spice up your food, instead of adding toppings like butter, margarine, or gravy. Try trimming off the skin and fat on your meat: you'll still get plenty of flavor and it's more nutritious and heart-healthy!

3. Sugar is "empty energy" - avoid getting too much.

Sugary drinks are a big source of empty energy. This means that they contain a lot of energy (in the form of calories) that your body may not need and they don't have vitamins, minerals, protein, or even fiber. Try sugar-free sodas, sugar-free drink mixes, and water instead of regular drinks or juice. Even "natural" unsweetened juices contain a lot of energy you may not need. Don't go overboard—2 small glasses a day of regular soda or juice is fine. Lots of sugar is also found in desserts like cakes, cookies and candies. Make a place for these foods once in a while, but don't give up nutrition-rich foods to do it.

4. Pay attention to your eating and your body.

Slow down when you eat. Try to relax and pace yourself so that your meals last at least 20 minutes, since it takes 20 minutes for you to feel full. Listen to your body. Eating when you are hungry and stopping when you are full will help your body to balance its energy needs and stay comfortable. Ask yourself: Am I eating because I'm hungry, or because I'm stressed or bored? Try warm foods (soup, hot cereal, cocoa) and high-fiber foods (whole grains, vegetables, beans) to increase your feeling of comfortable fullness.

5. Stay healthy and happy—avoid "diet thinking."

There are no good foods or bad foods. All foods can be part of healthy eating, in moderation. You do not need to buy fat-free or dietetic foods. Fat-free or dietetic foods are not necessarily lower in calories -they usually have lots of added sugar to replace the fat! YOU are more important than your weight or body size—believe it! And your health and happiness can be hurt by drastic weight loss plans. If you have not yet reached your adult height, too much weight loss could interfere with your growth, even if you are overweight. For younger teens that are overweight but still growing, it may be important to keep your weight steady as you continue to grow, instead of focusing on weight loss. If you feel you are overweight and want to make some changes in your food intake, it's a good idea to contact your health care provider. You may also want to ask your health care provider for a referral to see a nutritionist (a person who has studied nutrition, and knows all about food and healthy ways to lose weight).

Written by Heather Bell, MPH, RD, CHES.

Competencies C-1, C-3

Activity Sheet #1

Team Leader: _____ Recorder _____

Group Members: _____

Is Everyone on a Diet?

Work in groups of 3-5 students to discuss your thoughts about the definition of a diet. Select one person from your group to be the leader and one person to be the recorder. The leader is responsible for keeping the group on task, while the recorder is responsible for writing down the main ideas and responses to the following questions. Once your group finishes its discussion you will share your ideas with the class.

1. What is a diet? Is it something you do or something you eat?
2. Is it true that everyone is 'on a diet?' Explain your answer.
3. What does it mean to "watch what you eat?"
4. How would you describe a good diet?
5. Are there foods that are 'bad' for you? Why?
6. Can a 'good food' be bad for your diet? Explain.
7. How can a person know if their diet is healthy? What are some signs to look for that signal a good diet or a poor diet?
8. What advice would you give a teen about a healthy diet?
9. Who might you contact for more information if you have questions about choosing a healthy diet? Who would be a knowledgeable source?
10. Do you think a person who knows a lot about nutrition has a healthy diet?

Competencies C-1, C-2, C-3



WebQuest Activity Sheet #2

Search for the Perfect Food

Did you know that Americans are rumored to eat 18 acres of pizza on average every day! Now that's a lot of pepperoni! In all its cheesy splendor, pizza might seem like the perfect food – but with all that fat and cholesterol, it's not the healthiest treat around. So what is the perfect food? That's for you to discover.

Your mission: Use the Internet and the websites below to gather information about food sources for good nutrition and overall health. Then make a recommendation for the one "perfect food" – something that is both nutritious and delicious. Then create an advertisement to convince your classmates that your recommendation is indeed the perfect food. Be sure to explain why that food is nutritious, how it contributes to your body's nutritional needs, and why you think it is a good food choice.

Begin your quest using the links below. Feel free to also consult books, magazines, and other library resources as you research information on the "perfect food."

How to Understand the Nutrition Facts Panel on Food Labels

Start here to discover what information you have easily at your fingertips every time you shop for foods.

<http://www.cfsan.fda.gov/~dms/foodlab.html>

http://kidshealth.org/teen/food_fitness/nutrition/food_labels.html

Got Milk?

Learn more about 3-A-Day for better health, and the connection between cows and strong bones.

<http://www.got-milk.com>

I Love Cheese

You may love it, but it is really good for you. What is all the chatter about cheese? Ya gotta try ricotta, nothin's better than cheddar, take home provolone, then there's cottage, cream, and string.

<http://www.ilovecheese.com>

The American Egg Board

Yes it's edible, but what is so incredible about the egg? Is an egg a day really okay? Be prepared to burst into song at this website.

<http://www.aeb.org>

National Chicken Council & US Poultry and Egg Association

Not sure whether the chicken or the egg is the best choice? Try this website for important facts to help you decide.

<http://www.eatchicken.com/>



WebQuest *Activity Sheet #2 Continued*

Pork the Other White Meat

What are the benefits of the other white meat compared to the 'real' white meat? Go whole hog and find out the nutrition facts, food safety tips, and chef's recommendations.

<http://www.otherwhitemeat.com/>

Beef Council and Cattlemen's Association

Beef may be what's for dinner; but should it be? Check out these facts to help you narrow your list of choices for the perfect food.

<http://www.beef.org>

Personal Health Zone

Compare nutrient facts for a variety of meat and poultry sources

http://www.personalhealthzone.com/nutrition/nutrients/meat_poultry/meat_poultry.html

Essential Fruits and Vegetables

Find out if these are the perfect choice. Examine the nutritional content of fruits and vegetables. Dole recommends 5-A-Day, what do you say? Discover how color contributes to health. Try the link for 'parents' to find the most grown-up facts.

<http://www.dole5aday.com>

<http://www.health.state.mo.us/5aday/>

Wheat Foods Council

For a few grains of truth about good nutrition, and the stamina to finish your search for the perfect food see what the Wheat Foods Council has to say about this important staple.

<http://www.wheatfoods.org/>

Adapted and updated from Nutrition: A Quest for the Perfect Food a lesson plan at DiscoverySchool.com

Competencies C-2, C-3
Activity Sheet #4

Name _____

Pregnant Women Have Special Dietary Needs

Access the National Women's Health Information Center website, *4 Woman.Gov*, at:

www.4woman.gov/fag/preg-nutr.htm/ Use the information from this website to find the answers to the following questions.

1. Eating too many foods that are high in fat during pregnancy leads to _____
_____.
2. According to the American Dietetic Association, pregnant women should increase their usual servings of a variety of foods from the following basic food groups _____
_____.
3. The three nutrients needed for a healthy pregnancy include _____
_____.
4. Recent research shows that women who gain more than the recommended amount during pregnancy and who fail to lose this weight within six months after giving birth are at much higher risk of being obese nearly _____ years later.
5. Total weight gained during pregnancy includes _____ to _____ pounds for the weight of the baby. The remaining weight consists of a higher fluid volume, larger breasts, larger uterus, amniotic fluid, and the placenta.
6. During pregnancy when is it safe to drink alcohol? _____.
7. _____ is a group of birth defects caused by drinking alcohol during pregnancy.
8. What do some studies suggest regarding caffeine intake during pregnancy? _____
_____.
9. _____ is a form of diabetes that begins during pregnancy and usually goes away after the birth of the baby.
10. Morning sickness and nausea are common problems for pregnant women. List one suggestion to help reduce nausea. _____

Answer Key

Name _____

Pregnant Women Have Special Dietary Needs

Access the National Women's Health Information Center website, *4 Woman.Gov*, at: www.4woman.gov/fag/preg-nutr.htm/ Use the information from this website to find the answers to the following questions.

1. Eating too many foods that are high in fat during pregnancy leads to *too much weight gain without meeting increased needs for nutrients.*
2. According to the American Dietetic Association, pregnant women should increase their usual servings of a variety of foods from the following basic food groups
fruits and vegetables; whole grains, breads and cereals; dairy products and proteins.
3. The three nutrients needed for a healthy pregnancy include
1. Folic acid 2. Iron 3. Water
4. Recent research shows that women who gain more than the recommended amount during pregnancy and who fail to lose this weight within six months after giving birth are at much higher risk of being obese nearly 10 years later.
5. Total weight gained during pregnancy includes 6 to 8 pounds for the weight of the baby. The remaining weight consists of a higher fluid volume, larger breasts, larger uterus, amniotic fluid, and the placenta.
6. During pregnancy when is it safe to drink alcohol? *It is never safe during pregnancy.*
7. *Fetal Alcohol Syndrome* is a group of birth defects caused by drinking alcohol during pregnancy.
8. What do some studies suggest regarding caffeine intake during pregnancy? *That caffeine can harm the fetus.*
9. *Gestational diabetes* is a form of diabetes that begins during pregnancy and usually goes away after the birth of the baby.
10. Morning sickness and nausea are common problems for pregnant women. List one suggestion to help reduce nausea. *Eat 6-8 smaller meals each day rather than 3 larger ones; avoid being without food for a long period of time; drink fluids between, but not with meals; avoid greasy foods; avoid foods with strong odors; or rest when you are tired.*



WebQuest Activity Sheet #5

Sports Nutrition in the Media

Choose one role below to research facts and issues related to sports nutrition. Use the Internet websites provided for the role you selected to learn more about the topic from that perspective. You may use other sources of information for your research as well.

Once you have gathered all of the information you need, get together with others in your group who have the same role. Compare your notes and develop one fact sheet that summarizes the information your group feels is most important about sports nutrition.

ABC Sports is interviewing athletes, personal trainers, coaches and dietitians for a television feature on sports nutrition. The show will attempt to expose misinformation about sports nutrition and will focus on facts and recent research to help young athletes avoid the dangers that can result from poor eating habits.

Roles:

1. TV Reporter
2. Personal Trainer
3. Athlete
4. Coach
5. Dietitian

tv reporter

Centers for Disease Control

http://www.cdc.gov/nccdphp/dnpa/physical/pdf/exec_summary_2000.pdf

Mayo Clinic

<http://www.mayoclinic.com/invoke.cfm?objectid=2F776F30-10D2-49FC-BA32D2D61AD736E1>

American College of Sports Medicine

<http://www.acsm.org/health+fitness/pdf/fitsociety/fitsc203.pdf>

personal trainer

American Council on Exercise

http://www.acefitness.org/fitfacts/fitfacts_list.cfm#12

The President's Council on Physical Fitness and Sports

http://www.fitness.gov/digest_jun1998.htm

<http://www.fitness.gov/fastfacts.htm#top>

http://www.fitness.gov/Reading_Room/Digests/Digest-March2004.pdf

<http://www.fitness.gov/faq.html>

Colorado State University Extension

<http://www.ext.colostate.edu/pubs/foodnut/09362.pdf>

Cleveland Clinic

<http://www.clevelandclinic.org/health/health-info/docs/1800/1842.asp?index=8184>



WebQuest

Activity Sheet #5 Continued

athlete

Sports and Nutrition: The Winning Connection. University of Illinois Extension
<http://www.urbanext.uiuc.edu/hsnut/>

Nutrition Knowledge: Answers to the Top Ten Questions Nancy Clark, MS, RD *The Physician and Sports Medicine* http://www.physsportsmed.com/issues/1996/10_96/top_ten.htm

Boston Hospital website with healthy eating tips.
<http://www.youngwomenshealth.org/nutrition-sports.html#nutrition>

Nemours Foundation provides information for the student athlete
http://www.kidshealth.org/teen/food_fitness/sports/eatnrun.html

The President's Council on Physical Fitness and Sports
<http://www.fitness.gov/10tips.htm>

coach

National Health Information Center, U.S. Department of Health & Human Services
<http://www.healthfinder.gov/news/newsstory.asp?docid=519985>

Nemours Foundation provides information on the nutritional needs of young athletes
http://kidshealth.org/parent/nutrition_fit/fitness/feed_child_athlete.html

MomsTeam Youth Sport Parenting Information
<http://www.momsteam.com/alpha/features/nutrition/>

Gatorade Sports Science Institute
<http://www.gssiweb.com/>

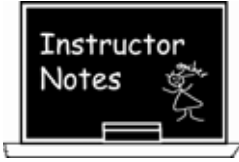
University of Oregon Sports Nutrition
<http://darkwing.uoregon.edu/~soar/nutrition/top10.htm>

dietitian

American Dietetic Association
http://www.eatright.org/Public/Other/index_adap1200.cfm
http://www.eatright.org/Public/index_16503.cfm
http://www.eatright.org/Public/Media/PublicMedia_10758.cfm

Cleveland Clinic
<http://www.clevelandclinic.org/health/health-info/docs/1900/1900.asp?index=8423>

Mayo Clinic
<http://www.mayoclinic.com/findinformation/conditioncenters/centers.cfm?objectid=000BDE1A-6219-1B37-8D7E80C8D77A0000>



WebQuest

Activity Sheet #5 Continued

On with the Show

Divide into new groups with one member from each role. Each group should have one reporter, one personal trainer, one athlete, one coach, and one dietitian. The reporter from each group will interview the other group members for the ABC Sports television show. The show should be about 5-minutes in length. Every member of the group should contribute to the interview. The reporter can decide the theme or focus of the interview questions, but the overall show should focus on teen athletes and nutrition. Video tape each team individually, then allow time for the whole class to watch the shows.

**Competency C-1
Assessment #1**

Name _____

Menu Scramble

Imagine that your kitchen includes all of the foods on the list below in addition to staples such as sugar, flour, salt or margarine. Plan a one-day menu for yourself based on the recommendations from MyPyramid.

Breakfast

Midmorning Snack

Lunch

Afternoon Snack

Dinner

Food List

- 1 cup fresh strawberries
- 1 med. head lettuce
- 8 oz orange juice concentrate
- 1 can refrigerated biscuits
- 8 oz. tomato sauce
- 1 gal. 2% milk
- 1 doz. eggs
- 16 oz. can applesauce
- 16 oz. grated cheddar cheese
- 1 lb. fresh hamburger
- 3 cups dry rice
- 16 oz. dry spaghetti noodles
- 1 loaf bread
- 10 oz. frozen corn
- 1 box graham crackers
- 10 oz. frozen green beans
- 16 oz. jar peanut butter
- 1 pkg. ramen noodles
- 1 can tuna
- 1 box cereal
- 32 oz. bag frozen French fries
- 1 bottle Ranch dressing
- 1 bottle Italian dressing
- 1 lb. apples
- 8 oz. jar grape jelly
- 8 oz. shelled pecans
- 16 box raisins

Competency C-1
Assessment #2

Name _____

The Perfect Pizza Lab Planning Sheet

Period _____ Recipe _____ Date of Lab _____

Recipe Ingredients

Instructions for Preparation

Estimate Preparation Time _____ Amount of Cooking Time _____

List the nutritive values per serving for

total fat _____

cholesterol _____

sodium _____

carbohydrates _____

protein _____

calories _____

serving size _____

The Perfect Pizza Lab Evaluation Sheet

Lab Team Duties:

Chef	Read the recipe; Fill out lab sheet; Main cook for the recipe; Clean Range; Supervise other cleaning jobs.
Cook	Assemble equipment; Assist Chef; Clean the table; Wipe the counters and walls; Put laundry in basket; Check clean-up.
Assistant Cook	Preheat oven; Get supplies for the recipe; Wash dishes; Clean the sink; Wipe off table.
Manager	Dry dishes and put away; Sweep floor; Assist others as needed;

Evaluation

Lab Sheet:	Completed neatly, correctly and turned in on time.	_____
Group Work:	Completed tasks, managed time, followed directions, everyone contributed and cooperated during the lab.	_____
Lab Management:	Equipment used correctly; supplies returned to storage areas, lab area was clean and neat	_____
Product Evaluation:	Recipe was prepared according to the instructions using appropriate lab techniques. The pizza was prepared following the instructions, it was nicely browned and attractive.	_____
Nutritive Values:	The nutritive values were calculated correctly and the overall pizza was lower in fat and more nutrient dense than average frozen types.	_____
Total Points		_____

Competencies C-1, C-3
Assessment #3

Making Headline News

Divide into groups of 5 students to brainstorm answers to the following questions. Develop a one-minute 'segment' for tonight's local news report. Provide facts, information, interview local 'experts' and provide recommendations for actions your community should take.

WHO

- ...needs to know more about eating right? being fit? making healthy choices?
- ...among local young people sets a good example of healthy lifestyle choices?
- ...can help young people make positive choices?

WHAT

- ...are the facts and myths about eating right, being fit, and making healthy choices?
- ...are the "secrets" to making healthy lifestyle choices?
- ...are the costs and consequences of diet and fitness fads?
- ...messages do young people hear about eating right, being fit, and making lifestyle choices?
- ...challenges lead young people to make risky health choices?

WHERE

- ...can young people obtain financial information about eating right, being fit, and making healthy choices?
- ...are young people most likely to make risky health choices?
- ...do young people eat and exercise?

WHEN

- ...do young people's eating and fitness habits start to affect their health? How long do the effects last?
- ...do nutrition and fitness needs change across the life cycle?
- ...is there time to eat right and be fit?
- ...are young people most likely to make risky health choices?

WHY

- ...should young people care about eating right, being fit, and making healthy choices?
- ...do young people's healthy lifestyle choices matter?
- ...are some young people better able than others to deal with stress and resist risky health choices?