

Essential Nutrients - Daily Guides

Summary

Food categories supporting the selection of foods providing the six basic nutrients that keep the body healthy.

Main Core Tie

Food And Nutrition I

[Strand 6 Standard 1](#)

Additional Core Ties

Food and Science

[Strand 7](#)

Food and Science

[Strand 7 Standard 1](#)

Background for Teachers

A healthy mind and body require oxygen, exercise, sleep, water and nutrients. Nutrients are found in the foods we eat. Nutrients and water must be ingested (taken into the body and digested) in order to nurture and sustain life.

A nutrient is a substance needed for the body to develop and function properly. There are many nutrients, but six are absolutely necessary. Each nutrient plays a specific role in the body. Together they supply energy, provide materials for growth and maintenance, and control body functions.

Nutrients that do similar things are grouped together.

6 MAJOR CLASSES OF NUTRIENTS

water - "The" essential for all body functions"

carbohydrates - "go" foods

fats - concentrated "go" foods

proteins - "grow" foods

vitamins - "glow" foods

minerals - "glow" foods

The nutrients are either used to produce energy for the body to "grow and go" or they are used to regulate body systems. Explain the difference and have students categorize the nutrients:

Body Regulators

Energy Producers

Water

Protein

Vitamins

Carbohydrates

Minerals

Fats

Fiber

During World War II, the United States Department of Agriculture (USDA) announced the Basic Four as one food guide to help Americans make healthy food choices during the war shortages. The Basic Four divided food into groups according to their common characteristics:

Bread and Cereals - 4 servings a day

Fruits and Vegetables - 4 servings a day

Milk and Milk Products - 4 servings a day

Meats, Poultry, Fish, Eggs, Nuts, and Beans - 2 servings a day

The RDA (Recommended Daily Allowances) has since been another guide to good eating. It, along with the basic four, was meant to assure good nutrition. The basic four was updated to the Food Pyramid in 1992. It provided a better visual of what proportions we should eat, from the wide base of grains (6-11 recommended servings per day) to a narrow tip, specifying that fats and sweets should

be eaten "sparingly" (*What Should I Eat? A Complete Guide to the New Food Pyramid*, d'Elgin, 2005). The USDA felt the Food Pyramid still fell short in sending a complete message on attaining and maintaining a healthy body, so in 2005, the USDA turned the Food Pyramid on its side (literally) to create MyPyramid: Steps to a Healthier You (MyPyramid). Go to www.mypyramid.gov for educational downloads and links. Make sure you're on the correct site, not .org or .com!

"MyPyramid: Steps to a Healthier You", as the name indicates, is designed to individualize food recommendations and to emphasize the importance of physical activity--two major changes from the former Food Pyramid. It was developed to help consumers better understand the relationship of food intake and daily physical activity to overall health. (Background information and resources are available from the USDA and mypyramid.gov.)

On the MyPyramid logo, the six different-colored vertical bands represent variation in diet (from left to right on black and white diagram above: grains-orange, vegetables-green, fruits-red, fats-yellow, milk-blue, and meat & beans-purple). Each vertical band has a wide base and narrow tip, indicating that all foods from a certain group are not equal (whole wheat bread vs. donut in grains group). The base of each band represents foods with little or no added fat and sugar (whole wheat bread), while the tip represents foods with high amounts of solid fats and added sugars (donut). Make most of your food selections from the base of each group. The bands are of various widths, indicating proportions to eat from each group--grains band is the widest and fats band is the narrowest. You'll also see a new addition to the pyramid in the logo--a person walking up the side of the pyramid. This is to emphasize the importance of daily physical activity. (*What Should I Eat? A Complete Guide to the New Food Pyramid*, d'Elgin, 2005).

With more Americans overweight or obese than ever, it was important to emphasize daily physical activity in addition to food recommendations since obesity is a major contributor to many chronic and life-threatening diseases; including, some forms of cancer, diabetes, heart disease, stroke, high cholesterol, high blood pressure, pregnancy complications, among others. Below are some interesting facts about obesity:

- of 22 industrialized countries, the U.S. has the highest obesity statistics

- 2/3 of Americans over age 20 are overweight

- nearly 1/3 of Americans over age 20 are obese

- 56% of Utah adults are overweight or obese

- parental obesity is a stronger predictor of adult obesity than a child's weight

- ¼ of Utah students from kindergarten-8th grade is overweight or at risk of becoming overweight
- the number of overweight public high school students in the state (14,000 students) is enough to fill 410 classrooms

- Nationwide, only 10% of school kids walk to school

(sources: *What Should I Eat? A Complete Guide to the New Food Pyramid*, d'Elgin, 2005 and "UTHealth:Utah's Healthy Lifestyle Magazine," April 2006)

Because people were overeating with the ranges as provided by the Food Pyramid, MyPyramid no longer gives general recommendations of daily intake for each group. Instead, on the website, there is a section for the individual to input his/her gender, age, and activity level. The site then prescribes daily recommendations based on individual information.

The recommendations are no longer stated as "servings," which left some doubt, but are listed in either ounces or cups, a term more familiar with everyone. You also receive suggestions for food choices in each group that will best lead to optimal health. This is an excellent feature for the dietician working one-on-one with a client and for your students individually. For the purposes of teaching the concepts of MyPyramid in the classroom we will use throughout the course, the recommended servings for a 2,000 calorie/day eating plan. While male teens and very active female teens could consume more calories, this is a good average for the students that will be in your classroom. Page II-1-23 (source: U.S. Department of Agriculture, Center for Nutrition Policy and Promotion) has a

summary of the recommendations for the 2,000 calorie plan as found on www.mypyramid.gov:

Not only does the website give daily serving amounts, but MyPyramid recommends that:

- half of grain servings should be whole

- you eat vegetables from several subgroups (green leafy, orange, etc.) per day

- most fruit choices be actual fruit, not juice

- you choose fat-free or low fat foods from the milk group

- you choose lean meat and poultry and vary your choices, incorporating fish, beans, nuts, peas, and seeds

- you build more physical activity into your daily routine

Soon after the Food Pyramid was first introduced to the public, special interest groups, ethnic groups, and certain food manufacturers came out with their own version of the pyramid. Watch for this to happen to MyPyramid as people and organizations decide what they would do to improve upon MyPyramid's recommendations. Also, MyPyramid is put out by the United States Government. Other countries, like Canada, have their own recommendations and ways of depicting them (Guide to Good Food). Finding these various modifications would make interesting internet research.

All of the changes to the Food Pyramid came about as an effort to merge research from various fields for the most effective consumer tool. The USDA also used the 2005 Dietary Guidelines for Americans, as published jointly every 5 years by the United States Department of Health and Human Services (HHS) and the Department of Agriculture (USDA). The guidelines provide authoritative advice for people two years and older about how good dietary habits can promote health and reduce risk for major chronic diseases. The guidelines remind citizens to be physically active each day, get preventative screening, eat a nutritious diet, and avoid risky behaviors. Go to www.healthierus.gov for more information.

BMI

Body Mass Index (BMI) is a way health professionals use to determine if one's eating and physical activity levels need to be adjusted--if one is overweight or obese. It is a number calculated from a person's weight and height. BMI is a reliable indicator of body fatness for people. BMI does not measure body fat directly, but research has shown that BMI correlates to direct measures of body fat. BMI is a method of screening for weight categories that may lead to health problems. The use of BMI allows people to compare their own weight status to that of the general population. (See [Adult BMI Table](#), resource for option #13)

BMI and adolescents and children

"Although the BMI number is calculated the same way for children and adults, the criteria used to interpret the meaning of the BMI number for children and teens are different from those used for adults. For children and teens, BMI age- and sex-specific percentiles are used for two reasons:

- The amount of body fat changes with age.

- The amount of body fat differs between girls and boys.

The CDC BMI-for-age growth charts take into account these differences and allow translation of a BMI number into a percentile for a child's sex and age. For adults, on the other hand, BMI is interpreted through categories that do not take into account sex or age." (www.cdc.gov).

The use of BMI for children and teens allows one to determine risk factor for being overweight or obese as an adult. Go to www.cdc.gov for specifics on BMI and an interactive BMI calculator specifically for teens. (See [BMI Tables for Adolescents and Children](#), resource for option #13)

NOTE: BMI results can be skewed on the very athletic and muscular, as well as the elderly and those who have lost body mass due to dieting. Consult your health care provider for best information for you.

Perhaps more than any single substance, food in some way affects almost everything we do - how we look, feel, act, and grow. It even affects our abilities - how well we function mentally, physically, socially, and emotionally. One might assume that we would know or want to know as much as

possible about something as important as proper nutrition. If good food choices aid appearance, health and performance, then it seems reasonable that what we eat is important to us.

Instructional Procedures

LEARNING ACTIVITIES AND TEACHING STRATEGIES

NOTE: On all learning activities that use www.mypyramid.gov, make sure your students are on the correct site and not .com or .org!

OPTION #1

As an introduction use the following Bell Ringer question: What do all of the following have in common: tooth decay, allergies, headaches, indigestion, constipation, fatigue, unhealthy hair, unhealthy nails, dry skin, hyperactivity, low energy level, weight problems, eating disorders? Answer: All of the symptoms are the result of nutrient deficiency.

Have the students think about what they ate yesterday. Could they describe their diet as healthy choices? At their age (teen years) when they are growing fast (second to infants), changes in the body require good, balanced nutrition. The adolescent traditionally has the poorest nutrition and eating habits of any other group in the family life cycle.

Make a poster for permanent display in the classroom that says:

WHY DO WE EAT?

- To sustain physical well-being or to keep us fit
- To sustain energy
- To regulate body functions
- To sustain growth of body cells and tissues
- To alleviate hunger

OPTION #2

Discuss [MyPyramid](http://www.mypyramid.gov). Go to www.mypyramid.gov for helpful links, even a PowerPoint presentation on the development and explanation of the new USDA MyPyramid: Steps to a Healthier You. Using an illustration, transparency, or PowerPoint presentation of the MyPyramid, relate the nutrients to the sections of the pyramid. Have the students use the [SIX ESSENTIAL NUTRIENTS](#) worksheet for note taking or have them take notes on a separate sheet of paper for each of the six nutrients and keep them in notebooks. After completing the information on all six nutrients, have students turn in their notebooks for credit. Have the students divide their notebooks into five labeled sections. This will help them organize their notes. They can then more readily refer back to materials or assignments in specific sections of their notebooks.

AT THE SAME TIME:

As MyPyramid is discussed build a pyramid bulletin board. The names of the nutrients that each food group contributes may be added along with pictures of foods in that section of the pyramid. Make each section of the pyramid with its corresponding color as explained above. Make assignments for units or groups of students to be responsible for constructing the various parts of the pyramid.

Explain that the foods in the widest, orange band (grains group) are the ones American's need to eat most, with a recommendation that half of them be whole grains. Fat, on the other hand is the narrowest band and should be eaten sparingly. American people eat too much fat and it should be limited in most diets. Help students to realize that each band of MyPyramid is a supplier of one or more nutrients.

NOTE TO TEACHER: Use the SIX ESSENTIAL NUTRIENTS worksheet handout throughout this food course. Students will fill out each section as each section is discussed. For example, the review section needs to be filled out as the pyramid and the six essential nutrients are discussed, Part I will be filled out as carbohydrates are discussed, etc. This information can also be used to analyze diets and food habits.

OPTION #3

Divide students into groups (partners or units). Provide each student (or group of students) with a copy of MyPyramid handout (either provided in curriculum or printed out from site. Consider ordering colored brochures from U.S. Department of Agriculture.

Use food models from the Dairy Council, Nasco (www.enasco.com) or other source or food pictures cut from newspapers and magazines. Have students sort the models or pictures into stacks according to the groups depicted by the MyPyramid. Or as a variation have the students go to

www.mypyramid.gov, input their personal data, print out their own "My Pyramid Plan," and write a paragraph summary of how they can implement these suggestions to make healthy choices.

Discuss what you do with combination foods, i.e. tacos, spaghetti, beef stew, etc. How do they fit into MyPyramid? You work with combination foods the same as you did with the old Food Pyramid.

Discuss the characteristics of MyPyramid and how it differs from the old Food Pyramid and even the basic four food groups. Discuss how not only nutritional information, but information about overall wellness has influenced the changes in recommendations.

Discuss the major nutrients found in the Pyramid Food Groups, what they do and list examples of some sources of those nutrients. Use resource [BASIC NUTRIENTS WORKSHEET](#) for students to take notes or have students use text books to find answers.

OPTION #4

Pass out to each student a copy of the [HEALTH HABIT DIARY worksheet](#). Instruct them to keep track of their food habits for one week. Have them list all the foods eaten, the amount of exercise done, and the number of hours of sleep. Evaluate strong and weak points at the end of the week. Have students save this diary to use later.

On www.mypyramid.gov, students can go to My Pyramid Tracker, input information on food and daily activity, and get a detailed assessment of diet quality and activity. This tracking can be done for a number of days (up to a year) and the student can create charts, graphs, etc. that depict their progress. You can also click on the link "For Professionals" to download and print "MyPyramid Worksheet" to have students track their food choices.

Have students select one day from their HEALTH HABIT DIARY chart. Using [MY PERSONAL FOOD PYRAMID](#) have students count the number of food servings they ate in each of the food groups and answer questions on the worksheet. Students could color code their pyramids to help them visualize their eating habits more clearly.

OPTION #5

Supply the students with old magazines that can be cut up, or with pictures supplied by the teacher, that show someone with the signs of good health. Have them tape the pictures on their worksheets [SIGNS OF GOOD HEALTH](#) and identify the signs as indicated on the worksheet.

Group the students and have them combine their answers. Combine group answers using any method you wish for group reporting and come up with a master list of similar to [GOOD HEALTH vs. POOR HEALTH](#).

OPTION #6

NOTE TO TEACHER: This option can be:

- an additional learning activity

- combined with the lecture on MyPyramid to provide more depth in that lesson

- used as a review

- used to evaluate (test) student knowledge.

Show transparency [WHAT PYRAMID FOOD GROUP IS MISSING?](#) of several menus in which one of the pyramid food groups is missing.

For additional menu ideas use the school lunch menu vs. one of the fast food menus (McDonald's or Wendy's)

QUESTIONS TO ASK:

What is missing in these menus according to the MyPyramid 2,000 calorie food plan?
How would you change each menu to make it balanced according to the MyPyramid 2,000 calorie food plan?

Brainstorm several possibilities with each menu. Choose additional menus if desired but be sure they are not balanced nutritionally.

VARIATION: Have the students write a day's menu and evaluate it for the number of servings according to MyPyramid for the 2,000 calorie plan: grains, vegetables, fruits, milk, meats & beans, and fat.

OPTION #7

Have students participate in a lab experience preparing a one-dish meal. Have each unit prepare a different recipe. Analyze and classify the meal into the MyPyramid groups. Share the results.

NOTE TO TEACHERS: Additional recipes may be chosen by the teacher or students that represent all the food groups.

NOTE TO TEACHER: The teacher may demonstrate several skills before the lab experience, including:

- re-constituting dry milk
- chopping or dicing vegetables
- sauteing vegetables
- others, as indicated by recipes and/or skill levels of students.

OPTION #8

Have students make a comic strip or poster to hang in school cafeteria that illustrates two or more wellness concepts taught in MyPyramid. This could even be a contest judged by a professional in art, advertising, or graphic design.

OPTION #9

Put students in groups. Assign each group of students one of the recommendations found in MyPyramid (whole grains, lean meats, dark vegetables, physical activity, low-fat or fat-free milk products, etc.). Groups will brainstorm ways to easily implement that recommendation into their lives and share ideas with rest of class. If you wish, assign students to pick a recommendation to implement for a week.

OPTION #10

Allow students to play Blast Off Game on for kids link of www.mypyramid.gov.

OPTION #11

To illustrate the reasons for changing to MyPyramid, show the students three different types of shoes: a woman's dress shoe, a child's shoe, and an athletic shoe. Ask students how they would like to pick one of these shoes and wear it all day, all the time, for the rest of their life. Explain that the Food Guide Pyramid as developed in 1993 was more of a "one size fits all" approach to nutrition. Now with MyPyramid, we can individualize for age, gender, and activity level. We get specific recommendations as our activity level and age change throughout our life cycle.

OPTION #12

At the beginning of the semester, fill your flour bins with half white all-purpose flour and half whole wheat flour. Students will use this mix with every recipe. At the end of the semester, discuss the simple step you took to incorporate whole grains into the diet, as recommended by MyPyramid.

OPTION #13

Using [BMI tables for adults](#) or [children/adolescents](#), have students determine and evaluate their BMI. Students can then determine what, if any changes, need to be made and make a plan to improve health.

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