

An Introduction to Nutrition

A Thematic Unit
Teaching and Leadership 819
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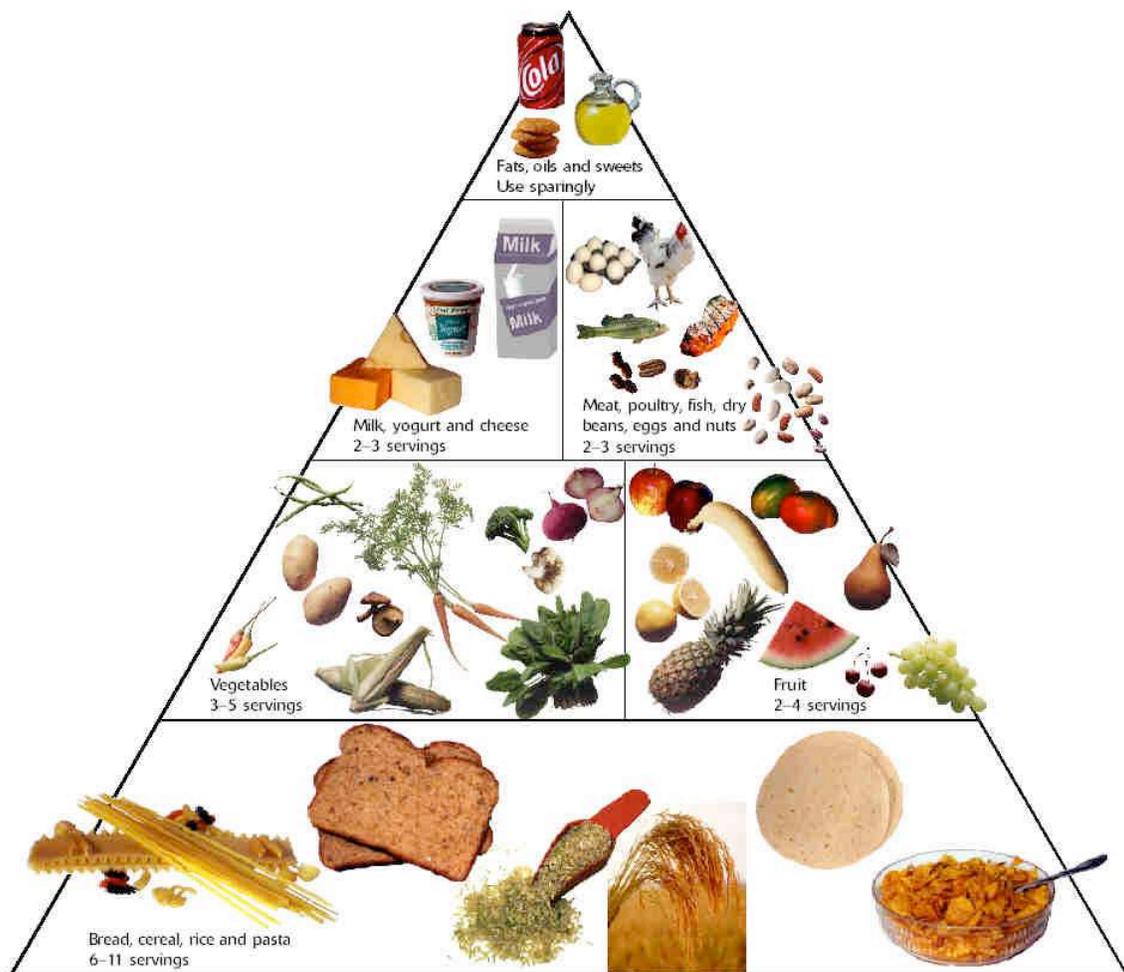


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Overview of “An Introduction to Nutrition” Thematic Unit

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“An Introduction to Nutrition” is designed to teach students how to apply concepts of nutrition to their lives. They will become familiar with the elements of the Food Pyramid and how to interpret it. Through a journaling activity, the students will track their own eating habits and learn how to evaluate it’s nutritional contents. They will learn how the components of the food they eat function in their bodies. They will learn how to evaluate food labeling in order to make informed decisions when purchasing food. Through a shopping exercise, the students will practice applying their nutritional knowledge to an authentic activity.

The lessons in this unit are designed to create relevancy to the multicultural makeup of the student population. Students will be able to utilize knowledge from their own cultural background while participating in the activities. The activities create opportunities for individual work as well as small group and large group interaction. Students have an opportunity to work with their families at home on several projects where they can apply what they have learned in their daily lives.

Goals:

Content – Students will gain knowledge pertaining to nutrition and skills to apply the knowledge to their everyday lives.

Language – Students will communicate in social and academic situations as they are introduced to the concept of nutrition.

Learning Strategies – Students will use songs, games, and an Internet activity to enhance learning within the content area. They will also be involved in creating visual aids to make the material more relevant and enrich their learning experience. By planning a meal using the Food Pyramid and a budget, students will integrate nutritional knowledge and math skills to produce a realistic meal plan.

Context:

Grade Level: 9-10th grade

Type of class: Regular classroom instruction in a high school health class

Native Language: Varied

English Proficiency Levels: Varied

How does Nutrition Apply to Me?

Lesson 1

Lesson Objectives:

Students will gain knowledge, which will assist them in being able to define nutrition and identify how it applies to their lives.

*Standards

Goal 1 – 1, 2, 3

Goal 2 – 1, 2, 3

Goal 3 – 1, 3

Materials Needed:

One copy of “My guide to nutrition” and the ”Student Self-Evaluation”** needs to be provided for each student.

Bellringer:

1. Write the following words on the board or overhead projector: diet, nutrient, (RDA) Recommended Dietary Allowance, The Food Pyramid, calorie, fat, protein, carbohydrate, vitamins, and minerals.
2. Ask students to brainstorm about what the words mean and how they might apply to the word nutrition.

Procedures:

1. Students will take the Student Self-Evaluation to assess their own personal knowledge of nutrition and health.
2. Introduce concepts, which encompass the role of nutrition in their everyday lives.
 - Definition of nutrition
 - Why does one eat?
 - Nutrition throughout one’s life.
3. The information can be presented in lecture format in which the students take notes using “My guide to nutrition.” The lecture and discussion should include references to prior knowledge from the bellringer as well and the self-evaluation to establish relevance to the information being presented.
4. An alternative to step 3: Create a handout with the information, which could be read as a class and discussed.

Evaluation:

Students will be asked to establish goals for themselves based on their self-evaluation results and the knowledge they have gained from the lesson.

***refer to ESL standards document**

**** Student Self-Evaluation is located in the appendix**

“My Guide to Nutrition”

1. What is nutrition?
2. What is a nutrient?
3. What role does physical health play into nutrition?
4. What role does Culture play into nutrition?
5. What role does one’s environment play into nutrition?
6. What role does one’s emotion play into nutrition?
7. During your life when is nutrition important?
8. Is nutrition important to teenagers? Why or Why not?
9. How has your culture and family influenced your food habits?

10. Compare your food habits with those of a friend. Give a few reasons why there might be differences in habits.

“My Guide to Nutrition”

Teacher edition

- 1. What is nutrition?** The science of looking at how the body uses nutrients and at how and why people eat.
- 2. What is a nutrient?** Substances in food that the body needs to function properly.
- 3. What role does physical health play into nutrition?** Eating the right amounts and kinds of foods gives energy and stamina for active life-styles. A nutritious diet provides for growth and maintenance of a healthy body and helps keep you mentally alert.
- 4. What role does Culture play into nutrition?** Your food choices reflect the culture you live in, as well as your ethnic background and perhaps your religious beliefs. Teenagers have a culture of their own, too.
- 5. What role does one’s environment play into nutrition?** Your food choices are linked to many factors. Your cultural heritage, your family and social relationships, media messages, and life-style all influence the foods you like and choose.
- 6. What role does one’s emotion play into nutrition?** Eating is closely tied to emotions. Eating to relieve tension or boredom can result in overeating. However, if you lose your appetite when you are upset or bored, you may miss out on getting essential nutrients. By understanding how eating relates to emotions, you can make more healthful food choices.
- 7. During your life when is nutrition important?** At every stage in life, good nutrition is essential for health.
- 8. Is nutrition important to teenagers? Why or Why not?** Nutrition is important to teenagers because adolescence is the period of the fastest and most growth you will experience. Adolescence is also a time when your life-style is probably a very active one. Good nutrition is important to both your growth and the energy you need to maintain an active life-style.
- 9. How has your culture and family influenced your food habits?**
- 10. Compare your food habits with those of a friend. Give a few reasons why there might be differences in habits.**

The Food Pyramid

Lesson 2

Lesson Objectives:

Students will learn be able to identify The Food Pyramid and apply knowledge gained to their life and diet. Students will identify names, correct portions, food types and basic nutrients for each food group in the food pyramid.

***Standards**

Goal 1 – 1, 2, 3

Goal 2 – 1, 2, 3

Goal 3 – 1, 2, 3

Materials Needed:

Each student will need one copy of the Pyramid Bingo grid, and The Food Pyramid. Teachers will need to make an over-head of the information given on the pyramid and daily requirements. One copy of The Pyramid Quiz is needed for each student. All materials for “Name that Food” are needed as well.

Procedures:

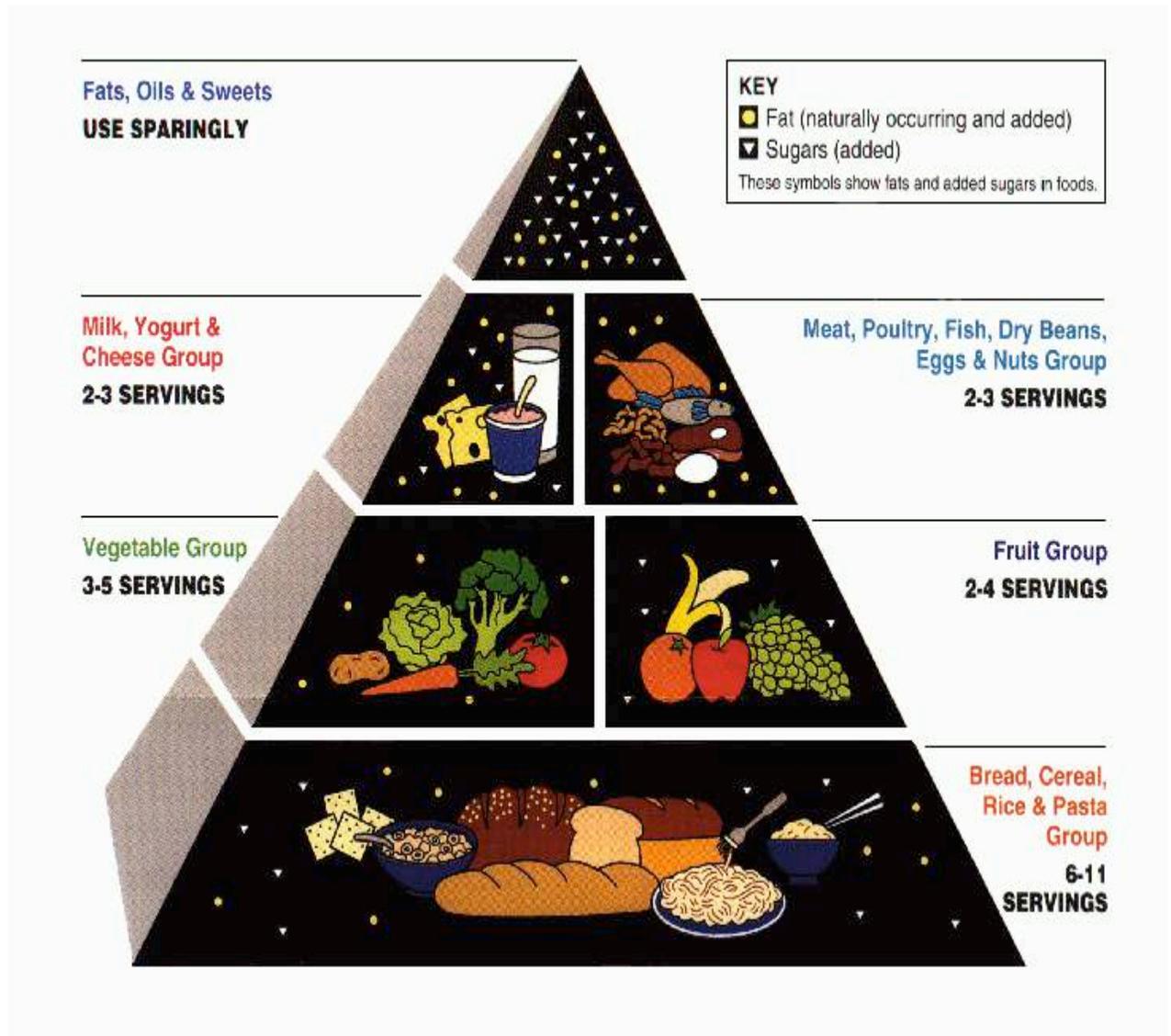
1. As an introduction activity give students a copy of The Food Pyramid, and the Pyramid Bingo grid. Have students play the bingo game to introduce themselves to all the different levels and parts of the pyramid.
2. Go over with an over-head projector the information given on The Food Pyramid. When students seem comfortable with the information and have had a chance to review a couple of days, administer The Food Pyramid Quiz.
3. As a multi-culture activity give students an opportunity to discuss how The Food Pyramid recommendations are different than those of their native country.
4. For the follow-up activity before the next lesson, have students play the game, “Name that Food.”
5. An alternative activity with the Internet, have students research food pyramids of their native countries and compare with the American Food Pyramid.

Evaluation:

Students will pass The Food Pyramid Quiz with an 80% or better. From the game, “Name that Food” students will demonstrate knowledge of different types of food and where they would fit on The Pyramid.

***refer to ESL standards document**

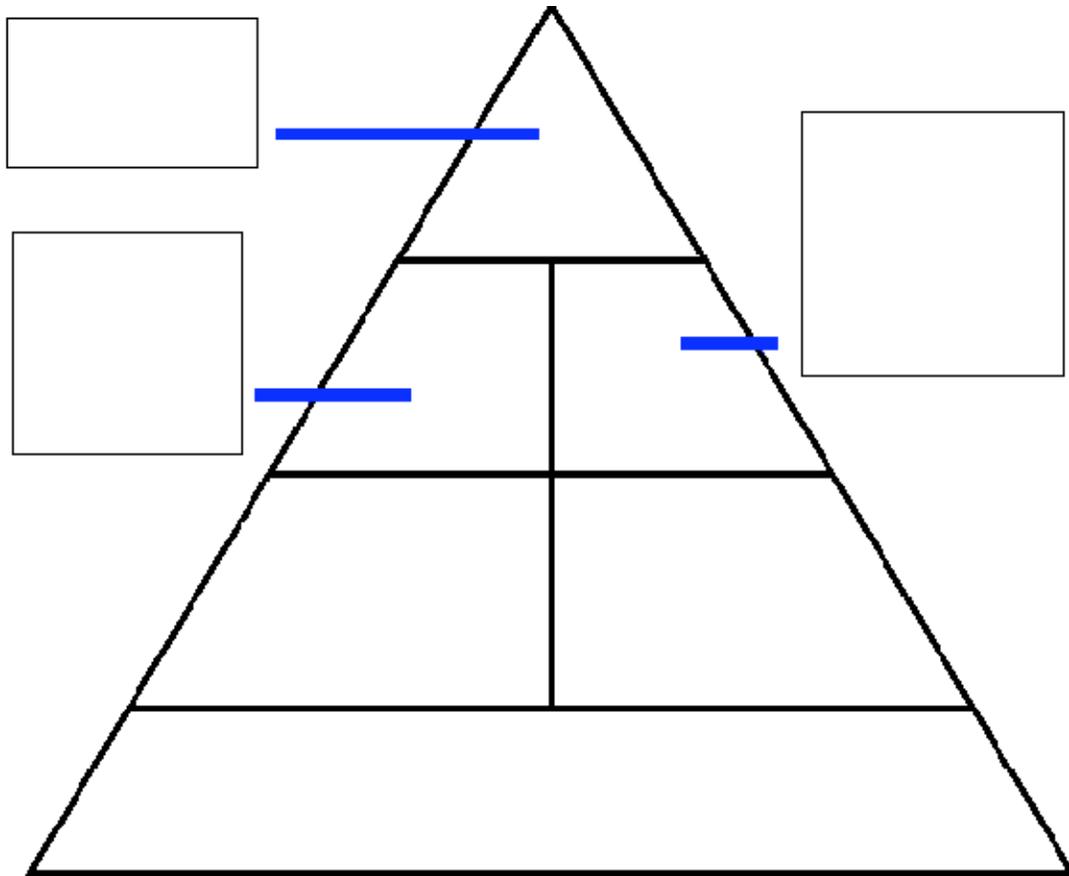
Food Pyramid



The Food Pyramid
from U.S. Department of Agriculture and the U.S. Department of Health

The Food Pyramid Quiz

Fill in the Pyramid correctly with the five food groups and the correct amount of servings you need from each group for one day. With the 5 blanks at the bottom of the page fill out one food from your own country that would fit in each of the five food groups.



- 1.
- 2.
- 3.
- 4.
- 5.

TEACHER QUESTIONS FOR PYRAMID BINGO

1. Which food group contains cheeses? *MILK*
2. Which food group contains peas, carrots, and corn? *VEGETABLES*
3. Which food group contains rice? *GRAIN*
4. Which food group contains peanut butter? *MEAT*
5. Which food group contains oranges, apples and bananas? *FRUIT*
6. How many servings of the milk group should you eat daily? *2-3 SERVINGS*
7. How many servings of the meat group should you eat daily? *2-3 SERVINGS*
8. How many servings of the vegetable group should you eat daily? *3-5 SERVINGS*
9. How many servings of the fruit groups should you eat daily? *2-4 SERVINGS*
10. How many servings of breads and cereals should you eat daily? *6-11 SERVINGS*
11. What is one serving of the milk group? *1 cup milk or yogurt, 1 1/2 to 2 ounces of cheese*
12. What is one serving of the meat group? *1 1/2 to 3 oz. of cooked lean meat, poultry, or fish, 1/2 cup cooked beans, 2 Tbsp. peanut butter*
13. What is one serving of the vegetable group? *1/2 cup chopped raw or cooked vegetables, 1 cup leafy raw vegetables*
14. What is one serving of the fruit group? *1 piece of fruit or melon, 3/4 cup juice, 1/2 cup canned fruit, 1/4 cup dried fruit*
15. What is one serving of the bread group? *1 slice bread, 1/2 cup cooked rice or pasta, 1/2 cup cooked cereal, 1 oz. ready-to-eat cereal*

Give each student a copy of the Pyramid Bingo grid. Students will fill in the boxes with words and phrases from The Food Pyramid.

PYRAMID BINGO

Write any of the following words in the Bingo squares, until all squares are full

MILK & MILK PRODUCTS
VEGETABLES
BREADS & CEREALS
2-3 SERVINGS
2-4 SERVINGS
3 OZ. COOKED MEAT
1 CUP MILK
1/2 CUP COOKED VEGETABLES
1 MEDIUM ROLL
1 SLICE BREAD
1/2 CUP PASTA OR RICE
SOMETIMES FOODS

MEAT & MEAT ALTERNATIVES
FRUITS
2-3 SERVINGS
3-5 SERVINGS
6-11 SERVINGS
2 EGGS
1 1/2 CUPS ICE CREAM
1/2 CUP RAW CHOPPED VEGETABLES
1/4 CUP DRIED FRUIT
4 SMALL CRACKERS
1/2 HAMBURGER BUN
THE FOOD PYRAMID

Food Guide Pyramid

What is the Food Guide Pyramid?

The Food Guide Pyramid is a graphic guide of what to eat each day. It will help people follow the Dietary Guidelines for Americans. The Food Guide Pyramid was developed by the U.S. Department of Agriculture (USDA) and supported by the U.S. Department of Health and Human Services. The Dietary Guidelines provide advice for better health. Following the Dietary Guidelines can help reduce your chances of developing certain diseases. The guidelines are designed for healthy Americans aged 2 and up.

How is this guide different from the guides I have used in the past?

The Food Guide Pyramid is a new graphic to help people think about healthy eating. The recommended number of servings for some of the food groups is different on the Pyramid than the recommendations found on other food guides, such as the "Basic Four." The Pyramid is designed to help people get the nutrients they need and avoid too much fat or sugar.

Why should I use the Food Guide Pyramid?

It is based on current research about diet and health and was developed by the U.S. Department of Agriculture. The Food Guide Pyramid should be used with students in place of the "Basic Four" or other food guides you may be using.

What do the different pieces of the pyramid mean?

The Food Guide Pyramid emphasizes eating foods from the five major food groups shown in the pyramid's three lower levels. None of these major food groups is more important than another - for good health, you need them all. Each of these food groups provides some, but not all, of the nutrients you need. Foods in one group can't replace those in another. Fats, oils and sweets are at the Pyramid tip. People should use these sparingly.

Why is there a range of servings for each food group?

The number of servings people need depends on their age, sex, size, and activity level. For example, an active male teenager needs more servings than a less active, older woman. Almost everyone should have at least the lowest number of servings in each range. Preschool children need the same variety of foods but may need smaller servings. Be sure, however, that preschoolers eat or drink two full servings from the milk group daily.

Why are the recommended number of servings for the bread, fruit, and vegetable groups higher on this guide than on others I have used in the past?

Most people need to eat more of these foods for the complex carbohydrates (starches), vitamins, minerals, and fiber they supply. Fruits, vegetables, and foods from the bread

group are low in fat, unless they are prepared with added fat as are French fries, doughnuts, or croissants.

Cookies, cakes, and doughnuts are made with flour. Does that mean they are part of the breads, cereals, rice and pasta group?

Yes. Foods such as cookies, cakes and doughnuts are part of this group. However, they are high in fat and sugars and people should eat them only occasionally.

Why are the symbols for fat (a round dot) and added sugar (a triangle) at the Pyramid tip but also throughout the Pyramid?

Fat and added sugar is found in many types of food and in most of the food groups. Fat and added sugars are shown mainly in foods from the pyramid tip (fats, oils, and sweets). But symbols are shown in all food groups as a reminder that some choices in these groups can be high in fat or added sugar. You need to select wisely from within each food group.

Food Guide Pyramid - A Guide to Daily Food Choices

Bread, Cereal, Rice and Pasta Group (6-11 servings)

This group includes foods from grains. You need the most servings of these foods each day since they provide the base of the pyramid. These foods provide complex carbohydrates (starches), which are an important source of energy, vitamins, minerals, and fiber. What counts as a serving? 1 slice of bread, 1 1/2 ounce of ready to eat cereal, and 1/2 cup of cooked cereal, rice, or pasta.

Vegetable Group (3-5 servings)

Vegetables provide vitamins, such as vitamins A and C, and folate, and minerals, such as iron and magnesium. They are naturally low in fat and also provide fiber. What counts as 1 serving? 1 cup of raw leafy vegetables, 1/2 cup of other vegetables - cooked or chopped raw; 3/4 cup of vegetable juice.

Fruit Group

Fruits and fruit juices provide important amounts of vitamin A and C and potassium. They are low in fat and sodium. What counts as a serving? A medium apple, banana, or orange; 1/2 cup of chopped, cooked or canned fruit; 3/4 cup of fruit juice.

Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts (2-3 servings)

Meat, poultry, and fish supply protein, B vitamins, iron, and zinc. Dry beans, eggs, and nuts are similar to meats in providing protein and most vitamins and minerals. What counts as a serving? 2-3 ounces of cooked lean meat, poultry, or fish; 1/2 cup of cooked dry beans, 1 egg, or 2 tablespoons of peanut butter (count as 1 ounce of meat). The total amount of these servings should be the equivalent of 5 to 7 ounces of cooked lean meat, poultry, or fish per day.

Milk, Yogurt, and Cheese (2-3 servings)

Milk products provide protein, vitamins, and minerals. Milk, yogurt, and cheese are the best sources of calcium. What counts as a serving? 1 cup of milk or yogurt; 1 1/2 ounces of natural cheese; 2 ounces of process cheese, Two servings for most people and servings for women who are pregnant or breast-feeding, teenagers, and young adults to age 24.

Fats, Oils, Sweets (use sparingly)

It is recommended that Americans limit fat in their diets to 30 percent of calories. This amounts to 53 grams of fat in a 1600 calorie diet, 73 grams of fat in a 2200 calorie diet, and 93 grams of fat in a 2800 calorie diet. All food groups contain low fat choices. Choosing a diet low in sugar is important for people who have low calorie needs. Sugars include white sugar, brown sugar, raw sugar, corn syrup, honey, and molasses; these supply calories and few other nutrients. Sugar might be added to foods in the groups, but other foods, which are high in sugar, are candy, soft drinks, jams, and jellies.

How Many Servings is Right for Me?

The pyramid shows a range of servings for each food group. The number of servings that are right for you depends on how many calories you need, which in turn depends on your age, sex, size, and how active you are. Almost everyone should have at least the lowest number of servings in the ranges.

For Young Children

Preschool children need the same variety of foods as older family members do, but may need fewer calories. They can eat smaller servings which will be less calories, but they should have at least 2 cups of milk per day.

Combination foods

For mixed foods, do the best you can to estimate the food group servings. For example, a slice of pizza has servings from the bread group (crust), milk group (cheese) and vegetable group (tomato).

Dietary Guidelines

The United States Department of Health, Education and Welfare and the United States Department of Agriculture (USDA) established the dietary guidelines. They are intended for people who are healthy and may not apply to special needs diets or conditions. Good health depends upon many things, including heredity, lifestyle, personality traits, mental health, attitudes, and environment. Food alone cannot make you healthy, or guarantee well being. Good eating habits that are based upon the seven guidelines and exercise can help keep you healthy and improve your health.

The dietary guidelines are:

1. **Eat a Variety of Foods:**
 1. Our bodies need approximately 40 different nutrients. Nutrients are found in the foods a person eats.
 2. No single food item supplies all the nutrients needed by the human body.
 3. The greater the variety of food we eat, the less chance we have of developing a deficiency or excess of any single nutrient.
 4. Foods should be selected according to the food pyramid guidelines to assure a variety of food and a well-balanced diet.
2. **Maintain a Healthy Weight:**
 1. Many diseases and disorders are associated with obesity.
 1. high blood pressure

2. increased levels of blood fats and cholesterol
3. diabetes in older people
4. heart attacks
5. strokes
2. The desirable weight for each person is different, depending upon frame size and build. Do not compare yourself to others.
3. Improved eating habits help one maintain a healthy weight.
 1. Eat slowly.
 2. Prepare smaller portions of food.
 3. Eat when hungry, allowing 10-20 minutes after eating before taking more food. This allows your body to decide if you are really hungry.
4. Increase everyday physical activities.
5. Do not attempt to decrease weight below your acceptable range. Do not attempt to lose weight until you are an adult or your growth is complete. Children who are obese can grow into their weight by regularly exercising and avoiding or limiting choices from the fats, oils, and sweets group. Children should not try to lose weight unless they are under close medical direction.
3. **Choose a diet low in fat, saturated fat, and cholesterol.**
 1. Avoid too much fat, saturated fat, and cholesterol. (The backs of the Dairy Council Comparison Cards illustrate the amount of fat contained in each food. It is a graphic and easy way for students to understand this concept.)
 1. Choose lean meat, fish, poultry, dry beans and peas as protein sources. Lean meats do not leave much fat in a pan when they are cooked.
 2. Moderate your use of eggs and organ meats, such as liver.
 3. Limit your intake of butter, cream, hydrogenated margarine, shortenings, palm and coconut oil, and foods made from such products.
 4. Trim excess fat off meats; take skin off of poultry before cooking, and rinse hamburger in hot water after cooking to reduce fat content.
 5. Broil, bake, or boil rather than fry when cooking foods. Use fat-free sprays in pans when baking rather than oil or shortening.
 6. Read labels carefully to determine both amount and types of fat contained in foods. (Animal fats are usually higher in saturated fats than vegetable oils. The exceptions are coconut oil which is 86 percent saturated, palm kernel oil is 81 percent, beef fat is 50 percent, cottonseed is 26 percent, other vegetable oils are less than 20 percent saturated.)
 2. Avoiding high fat intake will decrease the chance of heart attack and limit nutrient-poor calorie intake. Diets low in fat and cholesterol are factors that we can control when trying to avoid the risks of heart disease.
 3. These guidelines are not to prohibit the use of any specific food item. Moderation is the key.

Assignment: Students are given an allowance of 10 grams of fat for an after school snack. How much snack can you get for your fat? (Using the backs of the Dairy Council Comparison Cards will make this activity more fun for the students.)

4. **Choose a diet with plenty of vegetables, fruits, and grain products** - Refer to pyramid and compare numbers and sizes of servings for these food groups. Point out that the ingredient list on breads must say 'whole wheat flour' if you want to increase your fiber intake. "Wheat bread" often has coloring, not whole wheat, added to the white bread recipe.
 1. These foods are a major source of energy in the average diet.
 2. Carbohydrates contain less than half the number of calories per gram than fat does.
 3. Complex carbohydrate foods, such as breads, cereals, pasta, rice, dry beans, dry peas, and other vegetables such as potatoes and corn, contain many essential nutrients.
 4. These foods increase dietary fiber.
5. **Use sugars only in moderation.**
 1. It is estimated that every American uses more than 130 pounds of sugar and sweeteners each year (about 3/4 cup of sugar each day). Too much sugar is undesirable because it provides calories without nutrients so you either do not get all the nutrients you need or you have to eat more calories than you need to get adequate nutrition. Students are amazed to see the actual amount of sugar contained in foods. You may wish to take a bowl of sugar, a glass test tube and measuring spoons and demonstrate how much sugar is contained in some foods they eat. For example: Tell the class that a can of 7-Up contains 9 teaspoons of sugar. Then measure out nine teaspoons of sugar into the test tube for them to see how much sugar they are drinking when they drink 7-Up. If you eat meals or snacks with a lot of sugar in them, you soon feel hungry again. You get a quick burst of energy, which fizzles out quickly. Foods without a lot of sugar in them keep you feeling full longer.
 2. Health hazards from eating too much sugar include tooth decay and weight gain.
 3. People should read labels to discover the types and amounts of sugar in a product. Ask students these multiple-choice questions.
 1. How much sugar is in 12 ounces of 7-Up?
 1. **9 tsp.**
 2. 3 tsp.
 3. 1 tsp.
 4. 30 tsp.
 2. How much sugar is in 1/2 cup of Jello?
 1. 6 tsp.
 2. 2 tsp.
 3. 3 tsp.
 4. **4 1/2 tsp.**
 3. How much sugar is in a glazed donut?
 1. 3 tsp.
 2. 4 Tbs.
 3. **6 tsp.**
 4. 1 tsp.
 4. How much sugar is in one large marshmallow?
 1. **1 1/2 tsp.**
 2. 3 tsp.
 3. 1/2 tsp.
 4. 4 tsp.

5. Which of the following contains 3 teaspoons of sugar? (Answer is: all)
 1. **1 Tbs brown sugar**
 2. **1 Tbs corn syrup**
 3. **1 Tbs granulated sugar**
 4. **1 Tbs honey**
4. Some tips for avoiding excessive sugar:
 1. Use less sugar in all its forms. What are some of the names for sugar? Sucrose is a simple sugar (draw one link of a chain on the board). Fructose is the sugar in fruit, (draw 2 links of a chain joined together). Lactose is the sugar in milk (Three circles hooded together). Maltose is the sugar from grains such as corn syrup, brown sugar; molasses, etc. (make a more complicated chain model). Simple sugars are broken down and digested very quickly. Complex carbohydrates take longer to break down and digest. Therefore, if you eat a high sugar content cereal for breakfast, you will be hungry more quickly than if you eat a cereal with complex carbohydrates. If you add one teaspoon (5 grams) of sugar to cereal, you have increased the simple carbohydrates, but you have not subtracted any of the complex carbohydrates. If you add a banana, rather than sugar, you are adding more complex carbohydrates.
 2. Eat fewer foods containing sugars, such as candy, soft drinks, ice cream, cakes, and cookies.
 3. Eat more fresh fruits.
 5. How often you eat sugar is as important as how much sugar you eat in relation to tooth decay.
6. **Use salt and sodium only in moderation.** Salt is made from sodium and chloride. They are essential elements in limited amounts.
 1. Sodium is present in many beverages and foods we eat. One teaspoon of salt contains 2000 milligrams of sodium. A safe and adequate amount is 1000-3000 milligrams each day. We can get that much sodium without adding salt to anything.
 2. Americans consume much more sodium than their bodies require. (Some people consume 10 times as much sodium as they need daily.)
 3. High blood pressure is a major health risk of excessive sodium use.
 4. Ways to reduce sodium intake include:
 1. Use less table salt.
 2. Eat foods high in sodium only in moderation (potato chips, pretzels, salted nuts, cheese, pickled foods, and cured meats).
 3. Learn to enjoy unsalted, natural flavors of food.
 4. Read food labels carefully to determine amounts of sodium present. Monosodiumglutamate (MSG), baking soda, garlic salt, and onion salt, soy sauce, bullion, medications, etc., also contains large amounts of sodium.
7. **If you drink alcoholic beverages, do so in moderation.** This guideline is written for people over 21 years of age. Depending upon how much this topic is covered in other classes taught at your school, this may be a good time to discuss the serious problems related to drinking alcoholic beverages. High school students should not be drinking alcoholic beverages - it is against the law.

Using the Food Guide Pyramid

The suggested numbers of servings to eat daily from each food group and what counts as a serving are listed below. Use this guide to help you make decisions on healthy food choices.

Food Groups	Suggested Daily Servings	What Counts as One Serving?
Fats, Oils, and Sweets	Use sparingly. Go easy on fats (butter, salad dressings, margarine, oils, and gravy) and sugars (candy, soft drinks, syrups, and jellies). Use less fat and sugar in cooking and at the table.	
Milk, Yogurt , and Cheese	2 to 3 servings (at least 3 servings for teens and adults through age 24, and for pregnant and breast feeding women); two servings for everyone else.	<ul style="list-style-type: none"> <input type="checkbox"/> 1 cup of milk or yogurt <input type="checkbox"/> 1 1/2 to 2 ounces of natural cheese (such as cheddar) <input type="checkbox"/> 2 ounces of process cheese (such as American)
Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts	2 to 3 servings	<ul style="list-style-type: none"> <input type="checkbox"/> 2 to 3 ounces of cooked lean meat, poultry or fish <input type="checkbox"/> Count 1/2 cup of cooked dry beans, 1 egg, or 2 tablespoons of peanut butter as 1 ounce of meat (about 1/3 serving).
Vegetables	3 to 5 servings	<ul style="list-style-type: none"> <input type="checkbox"/> 1 cup of raw, leafy vegetables <input type="checkbox"/> 1/2 cup of other vegetables, cooked or raw <input type="checkbox"/> 3/4 cup of vegetable juice
Fruits	2 to 4 servings	<ul style="list-style-type: none"> <input type="checkbox"/> 1 medium apple, banana, orange, or other whole fruit <input type="checkbox"/> 1/2 cup of chopped, cooked, or canned fruit <input type="checkbox"/> 3/4 cup of fruit juice (only 100 percent fruit juice can be counted)

		<p>as fruit).</p> <ul style="list-style-type: none"> <input type="checkbox"/> 1/4 cup of dried fruit
<p>Bread, Cereal, Rich, and Pasta</p>	<p>6 to 11 servings (include foods made from whole grains).</p>	<ul style="list-style-type: none"> <input type="checkbox"/> 1 slice of bread or 1 tortilla <input type="checkbox"/> 1 ounce of read-to-eat cereal <input type="checkbox"/> 1/2 cup of cooked cereal, rice, or pasta <input type="checkbox"/> 1/2 of a medium doughnut or croissant <input type="checkbox"/> 1/2 of a hamburger bun, bagel, or English muffin

Name that Food!

Food Pyramid game and activity

Purpose: Students will be able to classify different food items into the correct categories of the Food Pyramid, identify foods that keep our bodies healthy, and create a Food Pyramid booklet.

Materials Needed:

1. Construction Paper
2. Notebook Paper
3. Magazines or Newspapers
4. Ribbon
5. Scissors
6. Glue
7. Overhead Picture of the Food Pyramid

Procedure:

1. Display a variety of foods on a table. Display an overhead picture of the Food Pyramid.
2. Review with students the different levels of the Food Pyramid and the daily servings we need from each group to keep our bodies healthy.
3. Show the students an example of the booklet they will be making. Explain the following procedures:
 1. Choose two pieces of construction paper, and six sheets of notebook paper.
 2. Place the notebook paper between the sheets of construction paper. Punch 3 holes along the left edge. Tie pieces of ribbon through the holes.
 3. On each page, write the name of a Food Pyramid section, and the number of servings suggested. Glue the appropriate pictures of food items, cut from magazines or newspapers, to the pages of your booklet.
 4. Decorate the cover of your Food Pyramid booklet!

Evaluation:

Hold up each of the food items displayed on the front table. Ask the students to identify its place on the Food Pyramid.

Each of the students will work independently to cut out food pictures from magazines and newspapers, and construct a Food Pyramid booklet.

Summarize the information covered in the lesson, and play a game of Name That Food.

Name That Food:

Divide the class into several small teams. Each team will need a pencil and a piece of paper. The teacher selects a section from the Food Pyramid, and a letter of the alphabet. For example, foods from the bread and cereals group that start with the letter "B." The students have one minute to record a list of foods. When the minute is up, each group reads their list. The teacher records the number of items on each group's list, and another category and letter are selected. The game continues until all sections of the pyramid have been covered. The group with the highest score wins the game!

The Food You Eat

Lesson 3 and 6

Lesson Objective:

To keep a food journal for a 3-day period to see if nutritional requirements are met on a regular basis.

Materials:

- Student Sheets
- Journal
- Computers with Internet access
- Article “Stock Up Before You Leave”

*Standards

Goal 1 – 1, 2, 3

Goal 2 – 1, 2, 3

Goal 3 – 1, 2, 3

Pre-Lesson Instructions:

- This lesson involves students keeping a food journal over a 3-day period. This lesson may work best if assigned on a Thursday or Friday so that students can keep their journals over the weekend.
- After the students have recorded their food intake for 3 days, they will need to use a computer with Internet access to find more information about the foods they have eaten. Reserve time in the computer lab for this part of the activity. Remind students of your school’s Internet usage policy.

Background Information:

To help monitor general food intake while in orbit, astronauts fill out a food frequency questionnaire. This is like a journal or food diary where crew members record how many items they have eaten each week. Foods are grouped by categories such as beverages, poultry, and snacks. This information is shared with the mission’s flight surgeon and other nutritionists. This questionnaire gives a basic indication of caloric and nutritional intake by each crew member. In special cases where exact food consumption data is required for a scientific experiment, the astronauts would use a bar code reader and scan the bar code on each package of food consumed. This data is then transferred to the researchers on the ground. This procedure is more time consuming and is, therefore, only done when scientifically required.

In this lesson, students will keep their own food journals to see if they are meeting the requirements for calories, iron, calcium, and vitamin C consumption.

Procedure:

Day 1 – Introducing the Lesson

1. Read the NASA explorer’s article, “Stock up before You Leave!” Discuss the article as a class, and answer any questions the students may have.
2. Discuss the importance of eating healthy. Ask the students if they think they eat what their bodies need on a regular basis.
3. Explain that the class will be completing food journals to see if they are indeed eating what they should to meet some of the requirements their bodies need. This journal will be similar to the one kept by astronauts when they are staying on the International Space Station.
4. Hand out the Student Sheets. Go over the instructions as a class. Answer any questions the students may have.
5. Explain that the class will be keeping a journal of all of the food they eat for the next 3 days. This information will be kept in a table the students will create in their journals. There is an example of a possible table design on the Student Sheets.
6. Remind students that they need only keep track of the foods and the amounts they eat. The rest of the table will be filled in during class time in the computer lab.
7. Allow 3 days for the students to collect their data in their journals.

Several Days Later – After completing the Food Pyramid and Nutrients Lessons

8. When all students have completed their journals, spend a class period in the computer lab so that students may find out the information needed to complete the rest of the food journal table. The Web site needed for this research is listed on the Student Sheet and in the Related Links section of the Teacher Sheets.
9. Once the students have completed their tables and added up the food intake amounts for each day, return to the classroom.

Discussion/Wrap-up:

- Discuss the students’ findings as a class. Answer the following questions in discussion, or have students answer them in their science journals.
 - How did your calorie consumption each day compare to the required values for your age group? Did this surprise you?
 - Do you get enough of the vitamins and minerals studied in this lesson? Does that surprise you?
 - If someone doesn’t get enough calcium, what could they add to their diet to help them reach the required amount? What about iron? Vitamin C?
 - What can you do to improve your diet?

Extensions:

Look at typical meal deals at fast food restaurants to see if they could be considered “healthy meals.”

Have students devise healthy menus for kids their age.

***refer to ESL standards document**

The Food You Eat – Student Sheet

Your assignment is to keep track of everything that you eat for the next 3 days. After you have completed your food journal, you will analyze the data to see if you have eaten foods that help you meet the required amounts of calories, calcium, iron, and vitamin C.

Follow the steps below.

In your journal, make a chart like the one below. You will need one of these charts for each day you are keeping track of your food intake. The apple and milk are examples of the data you will be recording.

Food (amount)	Calories	Amount of Calcium (%)	Amount of Iron (%)	Amount of Vitamin C (%)
Apple slices (1 cup)	65	1	1	10
2% Milk (1.5 cups)	207	53	2	8

2. During the 3 days of data collection, write down just the foods and amounts in the first column for each day.

3. After the 3 days, bring the food journal to class with you. Go to the computer lab, and find the information needed to fill in the rest of the chart. The following Web site will be helpful. Note that fast food restaurants are listed down the right side of the page for quick reference.

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

4. Now that you have all of the needed information, total up the data in each column. You should have the total number of calories consumed each day, and the percentages of the recommended intakes for calcium, iron, and vitamin C.

5. The recommended calories per day for males age 11-14 are 2,500 and for females age 11-24 is 2,200. How did your daily calorie consumption compare?

6. Did you get the recommended amount of calcium, iron, and vitamin C each day? What can you do to better reach these nutritional goals?

Stock Up Before You Leave!

Astronauts cannot make a quick trip to the grocery store while they are orbiting several hundred miles above Earth, nor can they cruise by a drive-through restaurant. They need to stock up in advance with the food they will need for their trip. Fortunately for crew members, the pantry is well-stocked during missions. Since the American and Russian astronauts share living space aboard the International Space Station (ISS), each sponsoring country provides half of the food supply.

Food provided by the Russian Space Agency is generally preserved in cans; American rations are typically freeze-dried or thermostabilized, and packaged in flexible foil or plastic pouches. Both methods of preservation are shelf stable, which is important, since there are not food refrigerators or freezers on the Space Station. There are small chillers for food use, but they are only about the size of a school locker.

American entrees such as steak, chicken teriyaki, and scrambled eggs are joined by Russian rations including chicken and rice, fish, and ham. Because of the diversity of the crew, ISS menu planners work hard to offer foods which give crew members a taste of home. A future goal is to include foods from the other international partners in the ISS menu. However different, both American and Russian menus feature an assortment of fruits, vegetables, and snacks to fill a revolving schedule of different meals-currently a 10-day menu cycle. When a menu rotation is complete, the cycle starts again. With a steady stockpile of canned and dried foods, there is always plenty to eat, but boredom may affect the way crew members enjoy their meals.

Since the ISS was first inhabited, over 10,000 meals have been eaten, and over 6,804 kilograms (15,000 pounds) of food have been sent to keep the residents healthy. In a 180-day mission (6 months), given a 10-day rotating menu, the same meals will be served 18 times-and that is why nutritionists and astronauts take great care when planning the foods that are sent into space; nobody wants to be bored with their dinner. To add a change of pace to daily meals, astronauts receive small quantities of extra food items when a Space Shuttle visits the ISS or when the Russian Progress re-supply space ships docking with the ISS. These deliveries might include fresh fruit, candy, and cookies. The fresh items will last for only a short time without refrigeration, but serve as a wonderful change of pace to the processed shelf stable food.

American food stored on the ISS is prepared at the Space Food Systems Laboratory at the Johnson Space Center in Houston, Texas. The food is designed to stay fresh for 9 to 12 months. The food currently used in space has greatly improved since the first missions. The foods eaten now in space resemble many-though not all-foods that average Americans would find in the shelf-stable foods area of a grocery store. In the early 1960s, astronauts ate bite-sized cubes of gelatin-coated foods, freeze-dried powders, and semi-liquids squeezed from aluminum tubes. What an improvement!

Even with the changes made over the years to space food, there will always be challenges to eating (and tasting) in orbit. Reduced gravity causes fluid shifts in the body. Fluids

normally in the lower body shift to the upper extremities, leaving crew members feeling congested. This affects how food tastes, just like Earth-bound humans notice differences when they have a cold.

To compensate for reduced taste sensations, astronauts often season their food with hot sauce and ketchup to intensify the flavors.

To help monitor general food intake, astronauts fill out a food frequency questionnaire. This is like a journal or food diary where crew members record how many items they have eaten each week. Foods are grouped by categories such as beverages, poultry, and snacks, and this information is shared with the mission's flight surgeon and other nutritionists. This questionnaire gives a basic indication of caloric and nutritional intake by each crewmember. In special cases where exact food consumption data is required for a scientific experiment, the astronauts would use a bar code reader and scan the bar code on each package of food consumed. This data would then be transferred to the researchers on the ground. This procedure is more time consuming and is, therefore, only done when scientifically required.

Regardless of the cuisine, astronauts and menu planners work together to be sure the meals provide the proper balance of nutrition and calories. Astronauts exercise for more than 2 hours each day in space, and burn extra calories during fitness workouts. This is sometimes balanced, however, by lack of muscle exertion for daily activities. The crew members do not climb stairs, or even use arm muscles to pull open cabinets or slide out chairs. Therefore, astronauts must stay active to minimize bone loss.

To monitor nutrition and metabolism, blood and urine samples are taken before launch and after return to measure for proteins and hormones that reveal how well the body is processing various nutrients. Vitamin and mineral levels are determined, and bone, muscle, and organ response is recorded as well. These tests help scientists know if astronauts are obtaining too much, too little, or just the right amount of nutrients. Learning more about how bodies adapt to spaceflight is important as researchers work to prepare for flights to the Moon and Mars.

As the missions to the Moon and Mars proceed, space nutrition will change even more. Astronauts going to Mars may grow some of their own food onboard their space vehicles! Experiments have already shown that plants can be grown onboard the ISS, and they could furnish salad greens, fresh vegetables, and grains to be processed into flour-based products. From tubes of food, to shelf-stable packaging, to growing their own food, astronauts have adapted-and will continue to adapt-to the advances in technology and science that help them live healthy lives even while away from the Earth.

Courtesy of NASA's Biological and Physical Research Enterprise
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Why Do We Really Need Food?

Lesson 4

Time Needed:

Two to three 50-minute class periods.

Lesson Objectives:

The student will develop an understanding of how the body utilizes the food that they eat. The student will learn the six nutrients their bodies need every day: proteins, fats, carbohydrates, water, vitamins, and minerals.

***Standards**

Goal 1 – 1, 2, 3

Goal 2 – 1, 2, 3

Goal 3 – 1, 2, 3

Procedures:

A. Bellringer

1. Prior to class write the following terms on the board:

Kwashiorkor, Pellagra, Beriberi, Marasmus, Xerophthalmia

2. Ask students to write down the 5 words from the board into their notebooks. Tell them the words all have something in common and to write down what they think that might be.

3. After they have time to think and write, ask for volunteers to share their ideas. If they guess that they are all diseases caused by nutrient deficiencies, then try to elicit how they learned that, and if they know what deficiencies cause each disorder. If no one guesses, add scurvy, rickets, and anemia to the list. If they still can't guess, then tell the students that they are all diseases caused by a lack of a critical nutrient that is normally supplied in a healthy diet.

B. Presentation of Information on Nutrients

1. Introduce the six groups of nutrients required by the human body; proteins, fats, carbohydrates, water, vitamins, and minerals, through a brainstorming session. Ask students if they know what things the body requires. As students give their ideas, place them on a concept map.

2. Information can then be presented in lecture format in which the students take notes in their notebooks or using the note-taking guide handout. The lecture should include references to the prior knowledge that was organized into the concept map and questioning to elicit further prior knowledge or experiences that will aid in creating relevance to the information.

Alternative for Step 2. Handouts could be created with the information, which could be read as a class and discussed.

C. Evaluation

Students will be asked to create an informational brochure or poster that describes a disease caused by a nutrient deficiency from one of the charts, including signs and

symptoms, prevention, and treatment. A public health informational brochure or poster should be shown as a model.

***refer to ESL standards document**

Essential Nutrients – Note Taking Guide

1. Proteins

What are they?

Where do they come from?

How does the body use them?

What happens if we don't get enough?

2. Fats

What are they?

Where do they come from?

How does the body use them?

What happens if we don't get enough?

3. Carbohydrates

What are they?

Where do they come from?

How does the body use them?

What happens if we don't get enough?

4. Water

What is it?

Where does it come from?

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Essential Nutrients – Teacher Background Information

1. Proteins

What are they?

Chains of amino acids, which are the building blocks for all body tissues. The body needs 20 amino acids. The body can manufacture eleven of them, but the other nine, called essential amino acids, must come from food.

Where do they come from?

Animal sources of proteins such as meat, fish, poultry, eggs and milk contain all of the essential amino acids and are called complete proteins. Plant proteins are found in legumes (beans), nuts, and seeds. They are called incomplete proteins because they do not contain all of the essential amino acids. Some may be combined to form complete proteins, for example, rice and beans.

How does the body use them?

The body uses proteins mainly for building and maintaining all its tissues. Throughout life new proteins form constantly to replace damaged or worn-out body cells.

What happens if we don't get enough?

Kwashiorkor is a condition resulting from inadequate protein intake. Early symptoms include fatigue, irritability, and lethargy. As protein deprivation continues, one sees growth failure, loss of muscle mass, generalized swelling (edema), and decreased immunity. A large, protuberant belly is common. The incidence of kwashiorkor in children in the U.S. is extremely small and it is typically found in countries where there is drought and famine.

2. Fats

What are they?

Fats are compounds made up of carbon, hydrogen and oxygen. They come in several forms depending on how they are put together; saturated, monounsaturated, polyunsaturated, and Trans fats.

Where do they come from?

Almost all of the food we eat contains some fat. It can be found in meats, milk and milk products like cheese, butter, and ice cream, vegetable oils, nuts and seeds, and foods that are fried or prepared with sauces.

How does the body use them?

Fat provides our most concentrated form of energy and is used to build our own body's fats. In the body, fats carry vitamins in the bloodstream and builds cells. Body fat serves as a source of stored energy, cushions organs, and acts as insulation. Most of the fats our body needs can be made from carbohydrates, but there are three essential fatty acids that the body can't make on its own. These need to come from foods that we eat.

What happens if we don't get enough?

A deficiency of certain fats has been linked to neurological disorders such as ADD, bipolar disorder, schizophrenia and depression.

3. Carbohydrates

What are they?

Carbohydrates are molecules made up of carbon and water. They come in three forms: sugars, starches, and fiber.

Where do they come from?

Plants produce most carbohydrates

How does the body use them?

Carbohydrates are the body's preferred source of energy.

What happens if we don't get enough?

Without enough carbohydrates to maintain blood sugar levels, the body will attack its own protein. Eventually, the body enters a state of semi-starvation. This condition is known as marasmus .

4. Water**What is it?**

A compound of hydrogen and oxygen that is liquid at temperatures between 0 and 100 degrees Celsius. An extraordinary property of water is its ability to dissolve other substances. Were it not for the solvent property of water, life could not exist because water transfers nutrients vital to life in animals and plants.

Where does it come from?

The most important source is drinking water. It is also in other fluids we drink. Fruits and vegetables have high water content. Most other foods contain some water.

How does the body use it?

Water is vital to every function in the body; about two-thirds of the body is water. It is the main component of blood and carries nutrients to your cells and carries away waste products. It also lubricates joints and mucous membranes, allows you to swallow and digest food, and regulates body temperature through perspiration.

What happens if we don't get enough?

Dehydration is a condition that occurs when the body does not get enough water. Persistent fatigue, lethargy, muscle weakness or cramps, headaches, dizziness, nausea, forgetfulness, confusion, deep rapid breathing, or an increased heart rate characterizes dehydration. Dehydration is a very serious; it can quickly cause severe problems and even death.

Vitamins

Vitamins are known as micronutrients because they are only required in small amounts. They work with enzymes in the body by triggering chemical reactions that allow the digestion, absorption, metabolism and use of other nutrients. Vitamins are classified into two groups; water-soluble and fat-soluble.

Water-Soluble Vitamins:

Water soluble vitamins are vitamins that dissolve in water. They are not stored in your body, so they must be eaten every day. Excess amounts are not usually a problem because they are excreted.

Vitamin	Role in Body	Food Source	What happens if you don't get enough? (deficiency)
C (ascorbic acid)	Protects against infection; helps with formation of connective tissue; helps wounds heal; maintains elasticity and strength of blood vessels; acts as glue to hold cells together	Citrus fruits, tomatoes, cabbage, broccoli, potatoes, peppers	Scurvy – spontaneous hemorrhages, slow wound healing, swollen, bleeding gums
B1 (thiamine)	Changes glucose into energy or fat; helps prevent nervous irritability; necessary for good appetite	Whole-grain or enriched cereals, liver, yeast, nuts, legumes, wheat germ	Beriberi- nerve impairment, can lead to heart failure
B2 (riboflavin)	Transports hydrogen; essential in the metabolism of carbohydrates, fats, and proteins; helps keep skin in healthy condition	Liver, green leafy vegetables, milk, cheese, eggs, fish, whole grain or enriched cereals	Photophobia, fissuring of skin
Niacin	Maintenance of body tissues; energy production; needed to utilize carbohydrates, to synthesize human fat, and for tissue respiration	Yeast, liver, wheat germ, kidney, eggs, fish	Pellagra – produces skin lesions. A risk where corn is the staple carbohydrate
B6	Essential to amino acid and carbohydrate metabolism	Yeast, wheat bran and germ, liver, kidneys, meat, whole grains, fish, vegetables	Dermatitis, nervous disorders
Pantothenic acid	Functions in the breakdown and synthesis of carbohydrates, fats, and proteins; necessary for synthesis of some hormones	Liver, kidney, milk, yeast, wheat germ, whole grain cereals and breads, green vegetables	Neuromotor and cardiovascular disorders
Folic acid (folacin)	Necessary for the production of RNA and DNA and normal red blood cells	Liver, nuts, orange juice, green leafy vegetable (but destroyed by cooking)	Birth defects, anemia
B12	Needed for production of red blood cells and for normal growth	Meat, liver, eggs, milk	Pernicious anemia

Fat-soluble vitamins:

Fat-soluble vitamins are vitamins that are transported and absorbed by fat. The body is able to store fat-soluble vitamins in fatty tissue. Ingesting fat-soluble vitamins in larger than necessary amounts can cause a build-up to toxic levels.

Vitamin	Role in Body	Food Source	Deficiency	Excess
A	Formation of visual pigments for eyesight Helps keep skin soft	Green or yellow vegetables, milk products, liver	Xerophthalmia – drying of the cornea Night-blindness, dry, flaky skin	Toxic in large doses, increase in bone fractures, birth defects (polar bear liver contains toxic amounts for humans)
D	Essential for normal bone and tooth development, increases calcium absorption	Synthesized when skin is exposed to sunlight, fish oils, milk products	Rickets -Defective bone formation	Excessive calcium deposits and mental retardation in children
E	Maintenance of red blood cells,	Green leafy vegetables	anemia	High doses may be toxic to infants
K	Synthesis of blood clotting factors	Green leafy vegetables, synthesized by intestinal bacteria	Hemorrhagic disease in newborns, slow clotting of blood	High doses may be toxic in infants

Minerals

Minerals are inorganic substances that are needed to carry out many processes in the body. They can not be manufactured by the body. Most are required in very small amounts and, like vitamins, are classified as micronutrients.

Mineral	Role in Body	Food Sources	Deficiency	Excess
Calcium	Building bones and teeth, heart muscle contraction, blood clotting	Dairy products, leafy vegetables	Weakening of bones	Deposited in the kidneys forming kidney stones
Phosphorus	Aids in bone formation, helps to maintain chemical balance of blood	Peas, beans, milk products, broccoli, whole grains		Can interfere with calcium absorption – associated with excess consumption of carbonated beverages
Iron	Essential for oxygen transportation in red blood cells, used in cellular respiration,	Liver, meat shellfish, peanuts, eggs, blackstrap	Anemia	Most frequent cause of poisoning deaths among children in the U.S.

	important for resistance to infection	molasses		
Iodine	Component of thyroid hormone which controls rate of cell oxidation; helps maintain proper water balance	Iodized salt, seafood	Goiter – swelling of the thyroid gland	
Manganese	Enzyme activator for carbohydrate, protein, and fat metabolism: important for growth of cartilage and bone tissue	Wheat germ, nuts, bran, green leafy vegetables	Poor bone growth	Manganese madness – generally caused by inhalation in mining operations
Copper	Ingredient in several respiratory enzymes, needed for development of red blood cells	Kidney, liver, beans, Brazil nuts, lentils, parsley	anemia	Discoloration of the skin and hair; liver damage
Zinc	Component of many enzymes	Shellfish, meat, milk, eggs		Brief illness usually caused by eating food that was stored in galvanized (zinc-coated) containers
Cobalt	An essential part of Vitamin B12	Sources of vitamin B12 such as meats and milk products		
Fluorine	Essential to normal tooth and bone development	Drinking water in some areas	Dental caries	Fluorosis –pain in the joints, abnormal growth of bone in the joints, spotting of teeth
Molybdenum	Essential for enzymes that make uric acid	Legumes, meat products, some cereal grains	Metabolic disorders leading to death	Symptoms of gout, diarrhea, anemia, slow growth
Sodium	Regulates the fluid and acid-base balance of the body	Table salt, milk, meat, fish, poultry	nausea, dizziness, poor concentration and muscle weakness	High blood pressure
Chloride	Associated with sodium and its functions; a part of the gastric juice, hydrochloric acid	Same as sodium		Fluid retention
Potassium	Part of the system that controls acid-base and liquid balances; muscle contraction; transmission of nerve impulses	Bananas, citrus fruits, readily available in most foods	Muscle cramping	Excess can be toxic, affecting the heart – generally associated with kidney failure
Magnesium	Enzyme activator related to carbohydrate metabolism	Readily available in most foods	Cardiovascular problems	Coma and death – also associated with kidney failure
Sulfur	Component of the hormone, insulin and of several amino acids; builds hair, nails, skin	Nuts, dried fruits, barley, oatmeal, eggs, beans		

Functions of Nutrients

Sponge or Game

Have students play the game "Functions of Nutrients" as a follow up to the lesson "Why Do We Really Need to Eat." The clues can also be used as sponge activities after completing the nutrients lesson.

On the following pages you will find a copy of the clues listed below. Copy the clues and cut them out. Give each student one of the clues. Let students take turns reading the clue. They then give the correct answer or a bluff answer. For example: The student's clue is "I help keep your skin soft". The student may answer "protein" (the correct answer is Vitamin A). If the rest of the students agree, they raise their hands, if they disagree, they leave their hands down. Being able to give bluff answers eliminates embarrassment for the students that do not know the correct answers. It also challenges the thinking of the other students.

1. Tell me a food from the bread and cereal group. Any appropriate food
2. Tell me food that has calcium in it. Any appropriate food
3. I help keep your skin soft. Vitamin A
4. I act as glue to hold cells together. Vitamin C
5. Tell me a food that has vitamin C in it. Any appropriate food
6. I provide insulation and cushion your internal organs. Fat
7. Tell me a source of vitamin K. Green, leafy vegetables or synthesized by intestinal bacteria
8. I help your teeth and bones grow strong. Calcium or Vitamin D
9. Tell me a food from the fats and sweets group. Any appropriate answer
10. I help your body heal if you get a cut or a scratch. Vitamin C
11. I carry oxygen to the cells. Iron
12. Tell me a food that has vitamin A in it. Any appropriate food
13. I help you have healthy eye tissues. Vitamin A
14. Tell me a food from the milk group. Any appropriate food
15. I am your body's most important source of energy. Carbohydrates
16. I protect you from infection. Vitamin C
17. Tell me a food that has vitamin D in it. Any appropriate food
18. I help protect your teeth from getting cavities. Fluorine
19. Tell me a food from the meat group. Any appropriate food
20. I am a vitamin that helps your body use energy. B Vitamins
21. I am a carbohydrate that cannot be digested, yet is very important to your health. Fiber
22. I am a nutrient that is constantly being formed in your body to replace damaged or worn out body cells.
Protein

23. Tell me a food that has iron in it. Any appropriate food
24. I am a vitamin that helps your blood clot. Vitamin K
25. Tell me a food that has B vitamins in it. Any appropriate food

1. Tell me a food from the bread and cereal group.
2. Tell me food that has calcium in it
3. I am a vitamin that helps keep your skin soft.
4. I act as glue to hold cells together.
5. Tell me a food that has vitamin C in it.
6. I provide insulation and cushion your internal organs
7. Tell me a source of vitamin K.
8. I help your teeth and bones grow strong
9. Tell me a food from the fats and sweets group
10. I help your body heal if you get a cut or a scratch.
11. I carry oxygen to the cells
12. Tell me a food that has vitamin A in it.
13. I help you have healthy eye tissues.
14. Tell me a food from the milk group
15. I am your body's most important source of energy.
16. I protect you from infection.
17. Tell me a food that has vitamin D in it.
18. I help protect your teeth from getting cavities.
19. Tell me a food from the meat group.
20. I am a vitamin that helps your body use energy
21. I am a carbohydrate that cannot be digested, yet is very important to your health.

22. I am a nutrient that is constantly being formed in your body to replace damaged or worn out body cells.

23. Tell me a food that has iron in it

24. I am a vitamin that helps your blood clot.

25. Tell me a food that has B vitamins in it.

Evaluating Food Labeling

Lesson 5

Lesson Objectives:

Students will learn what information is available on food labels and how to interpret that information.

***Standards**

Goal 1 – 1, 2, 3

Goal 2 – 1, 2, 3

Goal 3 – 1, 3

Materials Needed:

Empty food packages or food labels, which include ingredients and nutrition information. A copy of the “Labeling Report Card” is needed for each student.

Bellringer:

1. Write the names of several food additives on the board such as sodium benzoate, BHT, xanthan gum, and carageenan.
2. Ask students to brainstorm about what the words mean and what these items would be used for.
3. During the brainstorm session, introduce the fact that they are all food additives and that you will commonly see them listed in the ingredients of packaged foods.
 - Sodium benzoate is a preservative in soft drinks.
 - BHT is used as a preservative in cereals; it is an antioxidant that retards rancidity in oils.
 - Xanthan gum is the product of bacterial fermentation. It is commonly used as a stabilizer and thickener in dairy products.
 - Carageenan is also a thickening and stabilizing agent. It is obtained from seaweed.
4. Introduce the lesson to the students. They will be looking at food packaging and/or labels to evaluate the nutrition information and interpret the ingredients.

Procedures:

1. Students will bring a food label or package to class. These should be supplemented with labels and packages that the teacher has collected so that foods from all of the food groups are represented and that there will be several for each student to evaluate.
2. Have all students look at their food package or label, and read it over.
3. Ask which of the six essential nutrients are listed. Write all student answers on the board.

4. Ask students how they think the ingredients are listed.
5. Present the information, “What’s on a Food Label?” This can be copied onto an overhead or made into a student handout.
6. Discuss the information on food labels. Ask if the guidelines are useful or beneficial, why or why not?
7. Give each student a copy of the “Labeling Report Card” and additional labels or packages so that they have three to use to fill out the report card.

Assessment:

1. The student brought a nutritional label.
2. The student must complete the “Labeling Report Card” activity.

***refer to ESL standards document**

What's on a Food Label?

- All food labels contain the name of the product, net contents, and the name and address of the manufacturer, packer, or distributor.
- Ingredients are listed in descending order by weight. Food coloring must be listed separately.
- The Universal Product Code (UPC) is specific for each product. It allows information on the product to be scanned by a computer to provide information for suppliers and retailers.
- Religious symbols are used to show that the product complies with religious dietary guidelines
 1. A “K” within a circle means it complies with Jewish dietary laws and was processed under the supervision of a rabbi.
 2. A “U” within a circle means it complies with Jewish dietary laws and is authorized by the Union of Orthodox Jewish Congregations of America.
 3. The word “Parev” next to these symbols means the food does not contain any meat or dairy ingredients.
- “R” and “C” in a circle are legal symbols.
 1. The “R” means the trademark of the product is registered with the U.S. Patent Office
 2. The “C” means the text and art content of the label is protected under U.S. copyright laws.

Nutrition Labels

Nutrition Labels have voluntary and mandatory (**in bold**) components, which must appear in the following order:

- Total calories**
- Calories from fat**
- Calories from saturated fat
- Total fat**
- Saturated fat**
- Polyunsaturated fat
- Monounsaturated fat
- Cholesterol**
- Sodium**
- Potassium
- Total carbohydrate**
- Dietary fiber**
- Soluble fiber
- Insoluble fiber
- Sugars**
- Sugar alcohol

- Other carbohydrate
- Protein**
- Vitamin A**
- Percent of vitamin A present as beta-carotene
- Vitamin C**
- Calcium**
- Iron**
- Other essential vitamins and minerals

Name _____ Date _____ Hour _____

Labeling Report Card

Use three food labels from the same food group to complete the following chart.

Name of Item	1.	2.	3.
1. What is the serving size of this item?			
2. Do you think the serving size is adequate?			
3. How many calories are in one serving?			
4. How many calories are from fat?			
5. How many milligrams from sodium are in one serving?			
6. How much iron is provided by this product?			
7. What percentage of vitamin A is in this product?			
8. What percentage of vitamin C is in this product?			
9. Are there any ingredients listed that you don't recognize? If so, what are they?			
10. Is information clearly listed for people with food allergies?			
11. Give a grade to each label			

1. Which product do you think is the most nutritious?

2. Which product do you think is the least nutritious?

3. Do you think that you will use label information when choosing which foods to buy? Why or why not?

Total Calories and % Daily Values for all meals									

Evaluation

1. How many calories would you have eaten this day? _____
 An average teenager needs 1,400 calories each day.

2. In which categories were the % daily values over 100%?

3. In which categories were the % daily values less than 100%?

4. Did you choose enough servings from all of the groups in the Food Pyramid? If not, which ones are missing?

5. Do you think that you would be able to maintain a healthy diet by eating fast food? Why or why not?

Nutrition on a Budget

Lesson 7

Time Needed:

One 50-minute class period

Lesson Objectives:

The students will apply nutritional concepts to developing a menu for a family.

The students will practice planning a menu within a budget.

***Standards**

Goal 1 – 1, 2, 3

Goal 2 – 1, 2, 3

Goal 3 – 1, 2, 3

Materials Needed:

1. A large supply of grocery store advertisements, a copy of the Food Pyramid, poster board, glue, markers or colored pencils for each group.
2. Teacher needs to create various types of “families” to assign to groups. Examples – Two parents, one teenager, one infant; one parent, three teenagers. For more advanced groups the “families” can include a vegetarian, cultural or religious dietary restrictions, a member with a food allergy (peanuts, milk, eggs), or some details about members that are picky eaters. The teacher should also assign a dollar amount for a weekly food budget for each family so that several socioeconomic levels will be represented.

Procedure:

1. Students will form cooperative groups of three or four students.
2. Each group will be assigned a family that they will be shopping for and given a food budget for the family.
3. The groups will plan a weeks worth of meals for the family and use the grocery store ads to shop for the week. Menus should include breakfast, lunch, dinner and snacks for seven full days and meet the needs of the individual family members. They should also meet the daily nutritional requirements as identified on the Food Pyramid.
4. The groups will cut and paste the food items on the poster board. They will also write the number of each item they purchased and the cost. The completed poster should include a description of the family, the allowed budget, and the total amount spent.
5. Groups will present their completed poster to the class.

Evaluation:

1. Completion of poster and group presentation.

2. All menus are balanced according to the Food Pyramid.

***refer to ESL standards document**

“Shortenin’ Bread”

Song Activity

In this song, a doctor tells the mother of three sick children that she needs to give them shortenin’ bread. Listen to the song and then read the recipe.

“Shortnin’ Bread”

Paul Chaplain

[Afro-American traditional]

Chorus:

Mamma's little baby loves shortnin', shortnin'
Mamma's little baby loves shortnin' bread
Mamma's little baby loves shortnin', shortnin'
Mamma's little baby loves shortnin' bread

Three little children layin' in the bed
Two were sick and the other 'most dead
Sent for the doctor, the doctor said
"Feed those children on shortnin' bread"

Chorus

When those children layin' in the bed
Heard that talk about shortnin' bread
They popped up well and started to sing
Skipping 'round the room doing the pigeon wing

Chorus

Put on the skillet
Put on the lid
Mamma's going to make some shortnin' bread
That's not all she's going to do
Mamma's going to cook us some cocoa too

Chorus

I snuck to the kitchen, picked up the lid
I filled my pockets full of shortnin' bread
I winked at the pretty little girl and said
"Baby, how'd you like some shortnin' bread"

Chorus

Got caught with the skillet
Got caught with the lid
Got caught with my mouth full of shortnin' bread
Six months for the skillet, six months for the lid
Six months in the jail eatin' shortnin' bread

Chorus

Shortnin' Bread

2 cups all-purpose flour
1 1/2 teaspoon baking soda
1/2 teaspoon ground cinnamon
1/4 teaspoon ground nutmeg
1/2 cup buttermilk
1/4 cup plus 2 tablespoons butter or margarine
1 cup molasses
1 egg, slightly beaten

Combine first four ingredients in a large mixing bowl. Blend well and set aside. Dissolve soda in buttermilk and set aside. Combine butter and molasses in a heavy saucepan and bring to a boil, stirring constantly. Add the flour mixture. Stir in buttermilk and egg. Pour batter into a greased and floured 10 inch iron skillet. Bake at 350 degrees for 25 to 30 minutes or until toothpick inserted in center comes out clean. Cool in skillet for 10 minutes and invert onto plate. Slice in pie shaped wedges.

Evaluation

1. What nutrients would you find in shortenin' bread? Look at all of the ingredients and determine what each one would provide.

2. Do you think that shortenin' bread would help sick children? Why or why not?

TESOL ESL Standards, Grades 4 – 12

Goal 1, Standard 1

To use English to communicate in social settings:
Students will use English to participate in social interactions

Descriptors

- sharing and requesting information
- expressing needs, feelings, and ideas
- using nonverbal communication in social interactions
- getting personal needs met
- engaging in conversations
- conducting transactions

Goal 1, Standard 2

To use English to communicate in social settings:
Students will interact in, through, and with spoken and written English for personal expression and enjoyment

Descriptors

- describing, reading about, or participating in a favorite activity
- sharing social and cultural traditions and values
- expressing personal needs, feelings, and ideas
- participating in popular culture

Goal 1, Standard 3

To use English to communicate in social settings:
Students will use learning strategies to extend their communicative competence

Descriptors

- testing hypotheses about language
- listening to and imitating how others use English
- exploring alternative ways of saying things
- focusing attention selectively
- seeking support and feedback from others
- comparing nonverbal and verbal cues
- self-monitoring and self-evaluating language development
- using the primary language to ask for clarification

- learning and using language “chunks”
- selecting different media to help understand language
- practicing new language
- using context to construct meaning

Goal 2, Standard 1

To use English to achieve academically in all content areas:
Students will use English to interact in the classroom

Descriptors

- following oral and written directions, implicit and explicit
- requesting and providing clarification
- participating in full-class, group, and pair discussions
- asking and answering questions
- requesting information and assistance
- negotiating and managing interaction to accomplish tasks
- explaining actions
- elaborating and extending other people’s ideas and words
- expressing likes, dislikes, and needs

Goal 2, Standard 2

To use English to achieve academically in all content areas:
Students will use English to obtain, process, construct, and provide subject matter information in spoken and written form

Descriptors

- comparing and contrasting information
- persuading, arguing, negotiating, evaluating, and justifying
- listening to, speaking, reading and writing about subject matter information
- gathering information orally and in writing
- retelling information
- selecting, connecting, and explaining information
- analyzing, synthesizing, and inferring from information
- responding to the work of peers and others
- representing information visually and interpreting information presented visually
- hypothesizing and predicting
- formulating and asking questions
- understanding and producing technical vocabulary and text features according to content area
- demonstrating knowledge through application in a variety of contexts

Goal 2, Standard 3

To use English to achieve academically in all content areas:
Students will use appropriate learning strategies to construct and apply academic knowledge

Descriptors

- focusing attention selectively
- applying basic reading comprehension skills such as skimming, scanning, previewing, and reviewing text

- using context to construct meaning
- taking notes to record important information and aid one's own learning
- applying self-monitoring and self-corrective strategies to build and expand a knowledge base
- determining and establishing the conditions that help one become an effective learner (e.g., when, where, and how to study)
- planning how and when to use cognitive strategies and applying them appropriately to a learning task
- actively connecting new information to information previously learned
- evaluating one's own success in a completed learning task
- recognizing the need for and seeking assistance appropriately from others (e.g., teachers, peers, specialists, community members)
- imitating the behaviors of native English speakers to complete tasks successfully
- knowing when to use native language resources (human and material) to promote understanding

Goal 3, Standard 1

To use English in socially and culturally appropriate ways:

Students will use the appropriate language variety, register, and genre according to the audience, purpose and setting

Descriptors

- using the appropriate degree of formality with different audiences and settings
- recognizing and using standard English and vernacular dialects appropriately
- using a variety of writing styles appropriate for different audiences, purposes, and settings
- responding to and using slang appropriately
- responding to and using idioms appropriately
- responding to and using humor appropriately
- determining when it is appropriate to use a language other than English
- determining appropriate topics for interaction

Goal 3, Standard 2

To use English in socially and culturally appropriate ways:

Students will use nonverbal communication appropriate to audience, purpose and setting

Descriptors

- interpreting and responding appropriately to nonverbal cues and body language
- demonstrating knowledge of acceptable nonverbal classroom behaviors
- using acceptable tone, volume, stress, and intonation, in various social settings
- recognizing and adjusting behavior in response to nonverbal cues

Goal 3, Standard 3

To use English in socially and culturally appropriate ways:

Students will use appropriate learning strategies to extend their sociolinguistic and sociocultural competence

Descriptors

- observing and modeling how others speak and behave in a particular situation or setting

- experimenting with variations of language in social and academic settings
- seeking information about appropriate language use and behavior
- self-monitoring and self-evaluating language use according to setting and audience
- analyzing the social context to determine appropriate language use
- rehearsing variations of language use in different social and academic settings
- deciding when use of slang is appropriate

Resources

Nutrition Thematic Unit

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Self Evaluation - Healthier Choices for Teens

How Do You Eat?

Number a sheet of paper from 1 to 25. Read the items below and answer with: almost always, sometimes, seldom, or never.

1. I eat foods from several food groups at each meal.
2. Each day I eat at least 6 servings of bread, cereal, grains, and pasta group.
3. Each day I eat at least 3 servings of vegetable group.
4. Each day I eat at least 3 servings from the fruit group.
5. Each day I eat at least 2 servings from the meat, poultry, fish and alternate groups.
6. Each day I eat at least 2 servings from the milk, yogurt and the cheese group.
7. I eat fried foods such as french fries and fried onion rings sparingly.
8. I avoid high-fat desserts and baked food.
9. I eat gravies and ranch sauces sparingly.
10. I cut all visible fat of the meats and remove the skin from the chicken.
11. I reach for fresh fruits instead of a sweet dessert or snack.
12. I buy fruit packed in water or juice instead of heavy syrup.

13. I eat whole-grain breads and cereals instead of highly refined grains.
14. I eat whole fruits with the skin or peel.
15. I taste food before salting it.
16. I avoid eating too many salty snack foods.
17. I avoid alcoholic beverages.
18. I eat a nutritious breakfast.
19. I drink milk or juice at mealtime rather than a soft drink.
20. I snack mostly on foods from the 5 food groups rather than on empty-calorie foods.
21. If I snack, I do so well before mealtime.
22. At potatoes and pasta bars, I avoid overloading on sauces, sour cream, and butter.
23. At salad bars I go heavy on fresh fruits/vegetables and light on creamed salads/desserts.
24. I use information on a nutrient label and the ingredient list of a food label when I shop for food.
25. I compare prices using the unit price label when I shop for groceries.

What Is Your Score?

- 2 Pts- Almost Always
 1 Pt- Sometimes
 0 Pt- Seldom/Never

Add them up. Check your score with the following chart.

38-50

Excellent. Your food choices show that you are taking care of yourself and your health.

13-37

Good. You might understand that good nutrition is important to your health, but you need to make wiser food decisions.

0-12

Needs Improvement. Your food choices might be putting your body at risk.

Do You Know Your Goals?

Do Part **A** if you score 38-50

Do Part **A and B** if your score was under 38.

Part A

1. I plan to learn more about making wise food decisions in this way:

_____.

2. My timetable for completing this is:

_____.

3. I plan to share food/nutrition information with others by: _____.

Part B

4. The food behaviors that I like to change or improve is: _____.

5. The steps involved in making these changes are:

_____.

6. My timetable for making these changes is:

_____.

7. My rewards for making these changes are:

_____.