We Are What We Eat!

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Disclaimer: The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.
Summary
This lesson is for high school students and can be used as part of a unit about nutrition. It will help students understand the critical role that certain nutrients play in human health. Students will work in groups to analyze sample diets, each of which has too much or not enough of a particular nutrient. Additionally, students will analyze the prevalence of specific nutrition-related behaviors among youth in the United States. They will summarize their research and present their findings to the class through a skit.

Learning Outcomes
- Students will be able to identify foods that provide specific nutrients.
- Students will be able to explain the function of vitamin A, iron, calcium, and folic acid, as well as their associated health benefits.
- Students will be able to explain the importance of proper caloric intake of the appropriate nutrients (carbohydrates, fats, and proteins).
- Students will be able to identify national and state-specific trends in adolescent nutrition.

Materials
1. Photocopies for each student of the Pretest, Nutrition Worksheet, Epidemiology Worksheet, Case Study Summary Worksheet, Epidemiology Summary Worksheet, and the Post-test.
2. Photocopies of the Cases for Nutrition Activity (1 case per group).
3. Photocopies of the Nutrition Activity Rubric (1 per group) for the student presentations.
4. Available space on the board or a large tear off pad in view of the class.
5. Computers and Internet access (one computer per group).

Total Duration
4 hours

Procedures

Teacher Preparation
Become familiar with and verify the availability of the websites “Major Nutrients,” “Dietary Supplements Fact Sheets,” and “MyPyramid.” Also become familiar with the nutrients to be researched and the methodology to be used to collect the information required by the worksheets.

Prepare:
- An introduction to the lesson plan activity including a review of how to perform the necessary diet analysis calculations.
- A copy of the initial case that is read to the students (Billy’s Dilemma).
- Copies of all of the worksheets listed in the materials section.
Step 1: Introduction
Duration: 30 minutes

Begin the lesson by reading the example case, “Billy’s Dilemma,” aloud to the class. Lead the students in brainstorming about what additional information would be helpful in trying to figure out why Billy is not feeling like himself. As students call out comments and ideas, write them on the board or on a large pad of paper for the class to see. Record ideas related to diet, nutrition, and weight on the top of the board or paper pad; record comments or ideas that do not pertain to diet, nutrition, or weight near the bottom of the board or pad. At the end of this activity, point out that there are several possible factors that might affect Billy’s health, but today, the class will focus on those listed at the top of the board/pad—those related to nutrition.

After the brainstorming activity, have students take the “Nutrition Pretest.”

Then, lead the class in further discussion by asking the class the following questions and writing responses on the board/pad:

- What can you learn by looking at a person’s diet?
- Why is this information important?
- What might be some of the short- and long-term consequences for Billy if he does not change his diet?

Supplemental Documents
Title: Billy’s Dilemma
Description: This case example, to be read to the class, serves to spark discussion among students.

Title: Nutrition Pretest/Post-test
**Description:** A 14-question pretest to be given to the students after the discussion about “Billy’s Dilemma.”

**Title:** Nutrition Pretest/Post-test Answer Key  
**Description:** Answers to the 14-question pretest.

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**Step 2**  
Duration: 30 minutes

Now that the students are warmed up and talking about diet, nutrients, and human health, direct them to research various nutrients and learn the function that each serves in the body and how each contributes to human health. Additionally, students will learn about health problems that might result when a diet has too much or too little of these nutrients. Divide the class into groups of 3–5 students and hand out the “Nutrient Worksheet” to each student. Tell students to go to the U.S. Department of Agriculture web document “Major Nutrients” and to the National Institutes of Health’s “Dietary Supplement Fact Sheets” website for help with completing the worksheet.

**Web Resources**

<table>
<thead>
<tr>
<th>Title: Major Nutrients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: This Food and Nutrition Service website from the U.S. Department of Agriculture (USDA) describes the function of each of the major nutrients and the foods that contain them. This information should be used to complete the “Nutrient Worksheet.”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Title: Dietary Supplement Fact Sheets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: This National Institutes of Health website has detailed information about the specific micronutrients. This information should be used to complete the “Nutrient Worksheet.”</td>
</tr>
</tbody>
</table>

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**Supplemental Document**

<table>
<thead>
<tr>
<th>Title: Nutrient Worksheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: This worksheet is provided for the students to record information about the nutrients they research.</td>
</tr>
</tbody>
</table>

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**Step 3**  
Duration: 1 hour

After the students have researched their assigned nutrients, show the class how to use the “MyPyramid” website. Continue to use “Billy’s Dilemma” as an example. Then give one case study to each group of students from within the supplemental document “Cases for Nutrition Activity.” Students will fill in the case study worksheet by using the “MyPyramid” website to analyze the nutritional content of the sample daily menu provided in the case details. Have students analyze the sample daily menu by calculating the percent difference between the amount of each nutrient that is recommended for good health and the amount of each nutrient that the person in the case is getting based on the sample daily menu. Answers for each case are provided in the “Cases for Nutrition Activity Answer Key.” Note: Some variation among nutrient levels will be present, but the answer key provides a good estimate for assessing student performance.
Once the calculations have been done for each nutrient, have the students in each group discuss the implications of their findings and answer the analysis questions at the bottom of the worksheet.

**Web Resources**

**Title:** MyPyramid.gov – Steps to a Healthier You  
**URL:** www.mypyramid.gov  
**Description:** Students should use USDA’s “My Pyramid Tracker” to assess the nutrient quality of the sample daily diets given with each case. Students should click on “my pyramid tracker” and “assess your food intake”; one student in the group should register as a new user. Then the students can enter the information for their particular fictional case study.

**Supplemental Documents**

**Title:** Cases for Nutrition Activity  
**Description:** This document has all of the cases and the tables to fill out for nutrition data. Each group should receive one case.

**Title:** Cases for Nutrition Activity Answer Key  
**Description:** These documents are keys to use in evaluating the students’ worksheets. There may be some variation in actual numbers depending on exactly which foods students choose on the My Pyramid website.

**Step 4  
Duration: 30 minutes**

After students have analyzed their cases, they will complete the “Epidemiology Worksheet.” Assign each group of students a particular nutrition-related variable and have students determine the prevalence of that variable among young people in the United States and in their state. Students will use the “Healthy Youth! Youth Behavioral Risk Factor Surveillance Survey (YRBSS)” website for this activity. When examining the data, students should look at all the years, genders, and grade levels that are available. (On the YRBSS website, confidence intervals are included with the data. Explain confidence levels to students so they have a better understanding of the data.)

**Web Resources**

**Title:** Healthy Youth! YRBSS  
**URL:** http://apps.nccd.cdc.gov/yrbss/CategoryQuestions.asp?Cat=5&desc=Dietary%20Behaviors  
**Description:** Students will use this site from the Centers for Disease Control and Prevention to research the dietary trends of adolescents in the United States and in their own state.

**Supplemental Document**

**Title:** Epidemiology Worksheet  
**Description:** Students will use this worksheet to record their findings about nutrition- and health-related behaviors among adolescents and to note any trends that they see in the data.

**Conclusion  
Duration: 1 hour, 30 minutes**

To complete this lesson, students will prepare a skit to present their findings to the rest of the class. Encourage students to be creative. Examples of skit formats might include a television interview, a soap opera, or a public service announcement. Students should design a skit that explains their case study and findings, including which nutrients were found in short supply and which were found in excess. The skit should also present the implications of their analysis as well as the national data trends observed through the YRBSS. While each group is presenting
its skit, the other students should be encouraged to pay close attention so that they can complete the “Case Study Summary Worksheet” and “Epidemiology Summary Worksheet” for the other groups’ cases. Evaluate the students’ presentations using the “Nutrition Activity Rubric.”

After the skits, lead students in discussing the identified trends in adolescent nutrition, and brainstorm ideas about how to address trends that could have a negative impact on health.

Finally, give students the “Nutrition Pretest/Post-test.”

Supplemental Documents
Title: Case Study Summary Worksheet
Description: Students should use this worksheet to record the findings of each group. Each student should then have a complete description of each of the cases.

Title: Epidemiology Summary Worksheet
Description: Students should use this worksheet to record each group’s findings from the epidemiology study.

Title: Nutrition Activity Rubric
Description: This rubric (one per group) should be used to evaluate the groups as they present their skit.

Title: Nutrition Pretest/Post-test
Description: Students should complete this test again after the completion of the lesson.

Assessment
Evaluate students using the “Nutrition Pretest/Post-test.” Additionally, evaluate the “Nutrition Worksheet” (Step 2), the “Cases for Nutrition Activity” (step 3), and the “Epidemiology Worksheet” (Step 4). Use the “Nutrition Activity Rubric” (Conclusion) to evaluate the student presentations.

Modifications
Extension
Have students research the nutritional information derived from detailed blood analyses. Prepare some “fictional” blood reports to accompany the case studies. Information about what these types of blood studies collect can be found at the websites that follow. Fictional blood reports should contain only a few of the relevant measurements.

Web Resources
Title: Lab Tests Online
URL: www.labtestsonline.org/understanding/analytes/cmp/cmp.html
Description: This website, developed by Lab Tests Online, a public resource on clinical lab tests, has information on what types of blood tests exist and what they test for. The Comprehensive Blood Panel and other listed tests might be useful.

Title: Medline Plus
URL: www.nlm.nih.gov/medlineplus/ency/article/003468.htm
Description: This National Library of Medicine website has information on finding out what types of blood tests exist and what they test for. The Chem-20 blood panel is
similar to the Comprehensive Blood Panel. This site also provides information about the normal values for each chemical.

**Other Modifications**
For more introductory students, the activity outlined in the lesson plan could be modified by having the whole class work together on just one of the cases. Alternatively, students could be told what nutrient is lacking in each diet and be asked to recommend dietary changes to increase that nutrient.

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**Education Standards**

**National Science Education Standards**

**SCIENCE AS INQUIRY, CONTENT STANDARD A:**
As a result of activities in grades 9–12, all students should develop
- Abilities necessary to do scientific inquiry
- Understandings about scientific inquiry

**LIFE SCIENCE, CONTENT STANDARD C:**
As a result of their activities in grades 9–12, all students should develop understanding of
- The cell
- Molecular basis of heredity
- Biological evolution
- Interdependence of organisms
- **Matter, energy, and organization in living systems**
- Behavior of organisms

**SCIENCE IN PERSONAL AND SOCIAL PERSPECTIVES, CONTENT STANDARD F:**
As a result of activities in grades 9–12, all students should develop understanding of
- **Personal and community health**
- Population growth
- Natural resources
- Environmental quality
- Natural and human-induced hazards
- Science and technology in local, national, and global challenges

**North Carolina Standards**

**Objectives**

2.01 Compare and contrast the structure and functions of the following organic molecules:

- **Carbohydrates.**
- **Proteins.**
- **Lipids.**
- **Nucleic acids.**

4.02 Analyze the processes by which organisms representative of the following groups accomplish essential life functions including:
• Unicellular protists, annelid worms, insects, amphibians, **mammals**, non vascular plants, gymnosperms, and angiosperms.
• Transport, excretion, respiration, regulation, **nutrition**, synthesis, reproduction, and **growth and development**.

**North Carolina Unifying Strands**
Focus on the unifying concepts of science will also help students to understand the constant nature of science across disciplines and time even as scientific knowledge, understanding, and procedures change.

**Personal and Social Perspectives**
This strand is designed to help students formulate basic understanding and implied actions for many issues facing our society. The fundamental concepts that form the basis for this strand include:

**Personal and Community Health**
Biology is an excellent context for investigating the factors that affect the health of organisms in general and humans in specific. Persuading adolescents to adopt personal habits that contribute to long-term health is not always easy. Looking at issues such as nutrition, exercise, rest, and substance abuse from the perspective of an organism's needs and responses provides a less emotional atmosphere for considering health issues relevant to teenagers.
**Billy’s Dilemma**

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**Opening Case (Billy’s Dilemma)**

Read aloud to the class:

Billy is a 15-year-old boy. He has been playing football with his friends for several years and would like to play football for his high school team. However, he has observed that most of the players in the team are heavier than he is, and he is concerned that he might not be able to make the team because of his lighter weight. Billy has decided to make some changes to his diet in hopes that he will be more likely to make the football team. But lately, Billy’s energy has been low—he often feels tired during class and sometimes gets dizzy when he stands. He’s just not himself.

(Note: Billy’s mother was recently diagnosed with diabetes and his father is on heart medication because he suffered a heart attack 3 years ago.)

To be used in showing how to analyze the daily diet:

Height: 5’ 6”
Weight: 150 lbs.
Birthday: 4/1/1991 (Assume today’s date is 12/31/2006)

Sample diet for one day:
Breakfast: 3 plain pancakes (5” diameter each) with butter (2 T) and syrup (3 T), 5 medium slices of bacon, orange juice (2 c), whole milk (3 c)

Lunch: 1 medium beef burrito with beans, French fries (frozen, deep fried) – 1 large, fast food order, whole milk (1 c), 1 medium apple

Dinner: mixed green salad (2 c) with ranch dressing (2 T), 2 hamburgers on bun with mayonnaise and tomato, 2 bags potato chips (Big Grab), 2 slices of chocolate cake, whole milk (2 c)

Bedtime snack: peanut butter and jelly sandwich, chocolate shake (2 c)
Nutrition Pretest/Post-test

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Name: ____________________________________________ Class:__________________

Please answer each question to the best of your knowledge.

1. What is the importance of carbohydrates to the health of a human being?

2. What are food sources of carbohydrates?

3. What is the importance of proteins to the health of a human being?

4. What are food sources of proteins?

5. What is the importance of fats to the health of a human being?

6. What are food sources of fats?

7. What is the importance of vitamin A to the health of a human being?

8. What are food sources of vitamin A?

9. What is the importance of folic acid (folate) to the health of a human being?

10. What are food sources of folic acid (folate)?

11. What is the importance of iron to the health of a human being?

12. What are food sources of iron?

13. What is the importance of calcium to the health of a human being?

14. What are food sources of calcium?
Nutrition Pretest/Post-test Answer Key

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1. What is the importance of carbohydrates to the health of a human being?
Carbohydrates provide energy and fiber.

2. What are food sources of carbohydrates?
Bread, cereal, pasta, rice, potatoes, and corn and other starchy vegetables are the food sources of carbohydrates. Simple carbohydrates include sugar, honey, syrup, candy, soft drinks, and fruit.

3. What is the importance of proteins to the health of a human being?
Proteins build and repair body tissues and help antibodies fight infection. They can help provide energy if more is consumed than needed for repairing body tissue.

4. What are food sources of proteins?
Meat, poultry, fish, eggs, milk and milk products, nuts, and beans are the food sources of proteins.

5. What is the importance of fats to the health of a human being?
Fats provide the most energy per gram of all the nutrients. They carry the fat-soluble vitamins (A, K, E, and D) and provide a feeling of fullness.

6. What are food sources of fats?
Oils, shortening, butter, mayonnaise, cream, sour cream, and salad dressing are food sources of fats.

7. What is the importance of vitamin A to the health of a human being?
Vitamin A is associated with healthy eyes (adjustment to dim light) and healthy skin. It also promotes the health of the lining of digestive tract and its ability to fight infection. Vitamin A promotes growth.

8. What are food sources of vitamin A?
Dark green and yellow vegetables (such as broccoli, collards, carrots, and sweet potatoes), liver, butter, whole milk, and fortified reduced-fat or nonfat milk are food sources of vitamin A.

9. What is the importance of folic acid (folate) to the health of a human being?
Folic acid helps the body produce normal red blood cells and helps cells produce energy. It helps reduce risk of neural tube defects (spina bifida and anencephaly) in newborns.

10. What are food sources of folic acid (folate)?
Enriched food products like bread, flour, rice, and other grains; mustard; turnip greens; liver; citrus fruit juice; and legumes are food sources of folic acid.

11. What is the importance of iron to the health of a human being?
Iron combines with protein to form hemoglobin in blood. Hemoglobin carries oxygen to the cells for aerobic cellular respiration (energy production).

12. What are food sources of iron?
Liver, egg yolk, leafy green vegetables, beef, enriched breads and cereals, shellfish, and legumes are food sources of iron.

13. What is the importance of calcium to the health of a human being? Calcium is associated with bone rigidity, blood clotting, muscle contraction, and normal nerve function.

14. What are food sources of calcium? Milk and milk products and green leafy vegetables (collards, turnip greens, kale) are food sources of calcium.

Reference

Nutrition Worksheet

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Name:____________________________________________________  Class:_____________

Use the following websites to fill in information about each nutrient:

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Importance to Health</th>
<th>Foods Found In</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbohydrate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Fats</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Folic Acid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Folate)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcium</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Nutrition Worksheet- Answer Key**

**We Are What We Eat!**
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Use the following websites to fill in information about each nutrient.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Importance to Health</th>
<th>Foods Found In</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Protein</strong></td>
<td>Build and repair body tissue</td>
<td>Meat, poultry, fish, eggs, milk and milk products, nuts, beans</td>
</tr>
<tr>
<td></td>
<td>Help antibodies fight infection</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Can help provide energy if more is consumed than needed for repairing body tissue</td>
<td></td>
</tr>
</tbody>
</table>
| **Carbohydrate** | Primary source of energy  
Fiber (if whole grain) | Bread, cereal, pasta, rice, potatoes, corn and other starchy vegetables  
Simple carbohydrates are provided by sugar, honey, syrup, candy, soft drinks, and fruit |
| **Total Fats** | Provide the most energy per gram  
Carry the fat-soluble vitamins (A, K, E, and D)  
Provide a feeling of fullness | Oils, shortening, butter, mayonnaise, cream, sour cream, salad dressing        |
| **Vitamin A** | Healthy eyes (adjustment to dim light)  
Healthy skin  
Promotes health of lining of digestive tract and its ability to fight infection  
Promotes growth | Dark green and yellow vegetables (such as broccoli, collards, carrots, and sweet potatoes), liver, butter, milk (whole), and fortified reduced-fat or nonfat milk, |
| **Folic Acid** (Folate) | Helps body produce normal red blood cells  
Helps cells produce energy  
Reduces risk of neural tube defects in newborns | Enriched bread, flour, rice and other grains, mustard, turnip greens, liver, citrus fruit juice, legumes |
| **Iron** | Combines with protein to form hemoglobin in blood | Liver, egg yolk, leafy green vegetables, beef, enriched breads and cereals, shellfish, legumes |
| **Calcium** | Bone rigidity  
Blood clotting  
Muscle contraction  
Normal nerve function | Milk and milk products, green leafy vegetables (collards, turnip greens, kale) |
Reference

Cases for Nutrition Activity

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Names:___________________________________________________ Class:___________________

Part I: Case Study
Use the following information to enter food data into MyPyramid.gov.

Case 1
Becky is a 16-year-old girl.

Height: 5’ 6”
Weight: 102 lbs.
Birthday: 8/30/1990 (Assume today’s date is 12/31/2006)

Sample diet for one day:
Breakfast: 1 medium carrot, orange juice (1 c), nonfat milk (1/2 c)

Lunch: mixed green salad (1 c, no dressing), 1 thin slice of wheat bread (no butter), diet slice soda (12 oz), fat-free vanilla yogurt (1 c)

Dinner: mixed green salad (2 c, no dressing), 1 thin slice of wheat bread, cubes of chicken breast (1/2 c), diet slice soda (12 oz)

Part II: Nutrient Intake
Now that you have entered this case’s food intake for one day, click on “Analyze Foods” and then “Select Nutrient Intakes” to fill in the following table.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Recommended Value</th>
<th>Actual Value</th>
<th>% Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Calories</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protein</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbohydrate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Fats</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Folic Acid (Folate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To calculate a % difference: \[
\frac{\text{Actual} - \text{Recommended}}{\text{Recommended}} \times 100 = \% \text{ Difference}
\]
Part III: Analysis

1. Which of your values had the greatest % difference?
2. Was the value greater or less than recommended?
3. If this type of diet were eaten over a long period of time, what are some of the problems this individual could face?
4. If this were a typical diet for this person, what dietary changes might they make?
5. What other information would be helpful to you?
Cases for Nutrition Activity

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Names: ___________________________________________ Class: ____________

Part I: Case Study
Use the following information to enter food data into MyPyramid.gov.

Case 2
Anthony is a 17-year-old boy.

Height: 5’ 11”
Weight: 285 lbs.
Birthday: 3/24/1989 (Assume today’s date is 12/31/2006)

Sample diet for one day:
Breakfast: frosted flakes (2 c, Kellogg’s) with whole milk (1 c), 2 large chocolate covered cakes, 1 coke (12 oz)

Lunch: French fries (3 c, frozen, deep fried), 1 slice of German chocolate cake, 1 hamburger (1/4 lb) on bun with mayonnaise and tomato, 1 coke (12 oz)

Dinner: 4 slices pizza (pepperoni), 1 coke (12 oz), mixed green salad (2 c) with Hidden Valley ranch dressing (2 T), whole milk (2 c)

Snack: 1 package TWIX chocolate fudge cookie bars, 2 slices cherry pie (2 crust), 1 Baby Ruth candy bar (2.28 oz)

Part II: Nutrient Intake
Now that you have entered this case’s food intake for one day, click on “Analyze Foods” and then “Select Nutrient Intakes” to fill in the following table.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Recommended Value</th>
<th>Actual Value</th>
<th>% Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Calories</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protein</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Carbohydrate</td>
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<td></td>
</tr>
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<tr>
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<td>Folic Acid (Folate)</td>
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<td></td>
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</tr>
<tr>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
To calculate a % difference: \( \frac{\text{Actual} - \text{Recommended}}{\text{Recommended}} \times 100 = \% \text{ Difference} \)

**Part III: Analysis**

1. Which of your values had the greatest % difference?
2. Was the value greater or less than recommended?
3. If this type of diet were eaten over a long period of time, what are some of the problems this individual could face?
4. If this were a typical diet for this person, what dietary changes might they make?
5. What other information would be helpful to you?
Cases for Nutrition Activity

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Names:___________________________________________________ Class:_____________

Part I: Case Study
Use the following information to enter food data into MyPyramid.gov.

Case 3
Michael is a 14-year-old boy.

Height: 5’ 8” 
Weight: 130 lbs. 
Birthday: 7/15/1992  (Assume today’s date is 12/31/2006)

Sample diet for one day:
Breakfast: whole milk (1 c), 2 medium sliced bananas, low-fat vanilla yogurt (1 c)

Lunch: potato salad (1 c), 1 California avocado, whole milk (1/2 c), 2 medium peaches

Dinner: 2 baby carrots (fresh), 2 medium egg and cheese omelets, iceberg lettuce (2 c), mashed potatoes (1 c), whole milk (1/2 c)

Part II: Nutrient Intake
Now that you have entered this case’s food intake for one day, click on “Analyze Foods” and then “Select Nutrient Intakes” to fill in the following table.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Recommended Value</th>
<th>Actual Value</th>
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<tbody>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Protein</td>
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<tr>
<td>Carbohydrate</td>
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<tr>
<td>Total Fats</td>
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</tr>
<tr>
<td>Vitamin A</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Folic Acid (Folate)</td>
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<tr>
<td>Calcium</td>
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<tr>
<td>Iron</td>
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</tr>
</tbody>
</table>

To calculate a % difference: \( \frac{\text{Actual} - \text{Recommended}}{\text{Recommended}} \times 100 = \% \text{ Difference} \)
Part III: Analysis
  1. Which of your values had the greatest % difference?
  2. Was the value greater or less than recommended?
  3. If this type of diet were eaten over a long period of time, what are some of the problems this individual could face?
  4. If this were a typical diet for this person, what dietary changes might they make?
  5. What other information would be helpful to you?
Cases for Nutrition Activity
We Are What We Eat!
Judith Jones and Kathie Fuller, 2006 Science Ambassador Program

Names: ___________________________________________________ Class: ______________

Part I: Case Study
Directions: Use the following information to enter food data into MyPyramid.gov.

Case 4
Jennifer is a 14-year-old girl.

Height: 5’ 4”
Weight: 100 lbs.
Birthday: 8/25/1992  (Assume today’s date is 12/31/2006)

Sample diet for one day:
Breakfast: blueberries (1/2 cup), water, 1 regular slice of toast with butter (1 T), 1 large scrambled egg

Lunch: 1 medium apple, tuna salad sandwich, kidney bean salad (1 1/2 c), orange juice (2 c)

Dinner: 1/2 large chicken breast, 1 small baked potato with skin and butter, grapes (1/2 c), bananas (1/2 c), 5 baby carrots, 3 spears of medium asparagus, iced sweet tea (1 c)

Part II: Nutrient Intake
Now that you have entered this case’s food intake for one day, click on “Analyze Foods” and then “Select Nutrient Intakes” to fill in the following table.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Recommended Value</th>
<th>Actual Value</th>
<th>% Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Calories</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protein</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbohydrate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Fats</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Folic Acid (Folate)</td>
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<td></td>
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<tr>
<td>Calcium</td>
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<tr>
<td>Iron</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

To calculate a % difference: \( \frac{\text{Actual} - \text{Recommended}}{\text{Recommended}} \times 100 = \% \text{ Difference} \)
Part III: Analysis

1. Which of your values had the greatest % difference?

2. Was the value greater or less than recommended?

3. If this type of diet were eaten over a long period of time, what are some of the problems this individual could face?

4. If this were a typical diet for this person, what dietary changes might they make?

5. What other information would be helpful to you?
Cases for Nutrition Activity
We Are What We Eat!
Judith Jones and Kathie Fuller, 2006 Science Ambassador Program

Names:___________________________________________________ Class:_____________

Part I: Case Study
Use the following information to enter food data into MyPyramid.gov.

Case 5
Tasha is a 16-year-old girl.

Height: 5’ 7”
Weight: 135 lbs.
Birthday: 2/14/1990  (Assume today’s date is 12/31/2006)

Sample diet for one day:
Breakfast: puffed rice cereal (2 c) with 2% milk (1 c), grape juice (1 c, unsweetened)

Lunch: 1 turkey sandwich with spread, frozen yogurt (1 c), 1 medium apple, 1 miniature box
raisins, 2% milk (1 c)

Dinner: steak (10 oz, boneless), ¼ medium sweet potato, canned pears (2 c, light syrup), 2%
milk (1 c)

Part II: Nutrient Intake
Now that you have entered this case’s food intake for one day, click on “Analyze Foods” and
then “Select Nutrient Intakes” to fill in the following table.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Recommended Value</th>
<th>Actual Value</th>
<th>% Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Calories</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protein</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbohydrate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Fats</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Folic Acid (Folate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To calculate a % difference: \[
\text{Actual} - \text{Recommended} \times 100 = \% \text{Difference} \\
\text{Recommended}
\]
Part III: Analysis

1. Which of your values had the greatest % difference?
2. Was the value greater or less than recommended?
3. If this type of diet were eaten over a long period of time, what are some of the problems this individual could face?
4. If this were a typical diet for this person, what dietary changes might they make?
5. What other information would be helpful to you?
Cases for Nutrition Activity
We Are What We Eat!
Judith Jones and Kathie Fuller, 2006 Science Ambassador Program

Names: ___________________________________________________ Class:_____________

Part I: Case Study
Use the following information to enter food data into MyPyramid.gov.

Case 6
Eric is 15-year-old boy.

Height: 5’ 10”
Weight: 150 lbs.
Birthday: 10/29/1991 (Assume today’s date is 12/31/2006)

Sample daily diet:
Breakfast: 1 large scrambled egg, whole milk (½ c), cantaloupe (1 large wedge)
Lunch: 4 slices cheese pizza, 1 medium apple, ice cream (2 large scoops), whole milk (1/2 c)
Dinner: broccoli (1 c, cooked) with mayonnaise (2 T), 1 medium sweet potato (baked with butter and no peel), ½ large chicken breast, whole milk (1 c), 1 medium slice chocolate covered cake
Vitamin A supplement: 15,000 IU in each tablet (takes 1 per day)
   Note: 900 mcg = 3,000 IU
For the purpose of this exercise, please add 4,500 mcg of vitamin A to this case’s actual intake to account for the vitamin A supplement that is taken.

Part II: Nutrient Intake
Now that you have entered this case’s food intake for one day, click on “Analyze Foods” and then “Select Nutrient Intakes” to fill in the following table.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Recommended Value</th>
<th>Actual Value</th>
<th>% Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Calories</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protein</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbohydrate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Fats</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Folic Acid (Folate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
To calculate a % difference: \( \frac{\text{Actual} - \text{Recommended}}{\text{Recommended}} \times 100 = \% \text{ Difference} \)

Part III: Analysis

1. Which of your values had the greatest % difference?

2. Was the value greater or less than recommended?

3. If this type of diet were eaten over a long period of time, what are some of the problems this individual could face?

4. If this were a typical diet for this person, what dietary changes might they make?

5. What other information would be helpful to you?
**Cases for Nutrition Activity Answer Key**

We Are What We Eat!
Judith Jones and Kathie Fuller, 2006 Science Ambassador Program

Case Number ________1__________ Case Name _____ Becky_______________

**Note:** These values might be slightly different depending on how students input the different food items; however, they provide a general ballpark figure.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Recommended Value</th>
<th>Actual Value</th>
<th>% Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Calories</td>
<td>1,693</td>
<td>650</td>
<td>-62%</td>
</tr>
<tr>
<td>Protein</td>
<td>46</td>
<td>44</td>
<td>-4%</td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>130</td>
<td>104</td>
<td>-20%</td>
</tr>
<tr>
<td>Total Fats</td>
<td>18–25.3</td>
<td>7.7</td>
<td>-57%–69.6%</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>700</td>
<td>891.3</td>
<td>+27%</td>
</tr>
<tr>
<td>Folic Acid (Folate)</td>
<td>400</td>
<td>385.8</td>
<td>-4%</td>
</tr>
<tr>
<td>Calcium</td>
<td>1,300</td>
<td>782.2</td>
<td>-40%</td>
</tr>
<tr>
<td>Iron</td>
<td>15</td>
<td>5</td>
<td>-67%</td>
</tr>
</tbody>
</table>

To calculate a % difference: \( \text{Actual} - \text{Recommended} \times 100 = \% \text{ Difference} \)

**Part III: Analysis:**

1. Which of your values had the greatest % difference?
   Total calories, total fat, and iron all were greatly below recommended levels. Calcium and carbohydrates were also low.

2. Was the value greater or less than recommended?
   All diet values, except vitamin A, were less than recommended. (Recommendations generated by the “My Pyramid Tracker” tool on the www.mypyramid.gov website.)

3. If this type of diet were eaten over a long period of time, what are some of the problems this individual could face?
   Answers will vary but may include: Over time this person could be lacking in calories, fat, calcium, and iron.

4. If this were a typical diet for this person, what dietary changes might they make?
   Answers will vary but may include: This person needs to eat a lot more nutritional food and should make sure to get adequate caloric intake.
5. What other information would be helpful to you?
   Answers will vary but may include: Since this is just one example of a day’s worth of food, it would be nice to see several days’ worth of food intake.

Case Number _____2_________ Case Name ______ Anthony_____

Note: These values might be slightly different depending on how students input the different food items; however, they provide a general ballpark figure.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Recommended Value</th>
<th>Actual Value</th>
<th>% Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Calories</td>
<td>4,134</td>
<td>5,017</td>
<td>+21%</td>
</tr>
<tr>
<td>Protein</td>
<td>52</td>
<td>107</td>
<td>+106%</td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>130</td>
<td>652</td>
<td>+402%</td>
</tr>
<tr>
<td>Total Fats</td>
<td>139.4–195.1</td>
<td>233</td>
<td>+19%–69%</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>900</td>
<td>1290</td>
<td>+43%</td>
</tr>
<tr>
<td>Folic Acid (Folate)</td>
<td>400</td>
<td>799.8</td>
<td>+100%</td>
</tr>
<tr>
<td>Calcium</td>
<td>1,300</td>
<td>1,250.1</td>
<td>-4%</td>
</tr>
<tr>
<td>Iron</td>
<td>11</td>
<td>26.7</td>
<td>+75%</td>
</tr>
</tbody>
</table>

To calculate a % difference: \( \frac{{\text{Actual} - \text{Recommended}}}{{\text{Recommended}}} \times 100 = \% \text{ Difference} \)

Part III: Analysis:
1. Which of your values had the greatest % difference?
   Most values had a big difference, particularly carbohydrate, protein, folate, and iron.

2. Was the value greater or less than recommended?
   The values were greater (except for a slightly low value for calcium) than the recommended values. (Recommendations generated by the “My Pyramid Tracker” tool on the www.mypyramid.gov website.)

3. If this type of diet were eaten over a long period of time, what are some of the problems this individual could face?
   Answers will vary but may include: This large intake of calories over an extended period of time (and with no exercise) could lead to excessive weight gain.

4. If this were a typical diet for this person, what dietary changes might they make?
   Answers will vary but may include: A diet that meets total caloric intake – especially limiting some of the carbohydrate intake.
5. What other information would be helpful to you?
   Answers will vary but may include: Since this is just one example of a day's worth of food, it would be nice to see several days’ worth of food intake.

Case Number ______3____________ Case Name ______ Michael_________

Note: These values might be slightly different depending on how students input the different food items; however, they provide a general ballpark figure.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Recommended Value</th>
<th>Actual Value</th>
<th>% Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Calories</td>
<td>2,382</td>
<td>2,113</td>
<td>-11%</td>
</tr>
<tr>
<td>Protein</td>
<td>52</td>
<td>65</td>
<td>+25%</td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>130</td>
<td>261</td>
<td>+100%</td>
</tr>
<tr>
<td>Total Fats</td>
<td>52–73</td>
<td>99.1</td>
<td>+8%–51%</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>900</td>
<td>884.8</td>
<td>-2%</td>
</tr>
<tr>
<td>Folic Acid (Folate)</td>
<td>400</td>
<td>401.1</td>
<td>+0.3%</td>
</tr>
<tr>
<td>Calcium</td>
<td>1,300</td>
<td>1,445.2</td>
<td>+11%</td>
</tr>
<tr>
<td>Iron</td>
<td>11</td>
<td>6.6</td>
<td>-60%</td>
</tr>
</tbody>
</table>

To calculate a % difference: \(\text{Actual} - \text{Recommended} \times 100 = \% \text{ Difference} \)

Part III: Analysis:
1. Which of your values had the greatest % difference?
   Carbohydrates and iron had the greatest differences.

2. Was the value greater or less than recommended?
   Carbohydrate intake was 100% greater than recommended values. The iron was 60% less than the recommended value. (Recommendations generated by the “My Pyramid Tracker” tool on the www.mypyramid.gov website.)

3. If this type of diet were eaten over a long period of time, what are some of the problems this individual could face?
   Answers will vary but may include: According to the NIH’s Office of Dietary Supplements, low iron is associated with anemia, tiredness, and other symptoms that result from not having enough iron to adequately carry oxygen to the cells for energy.

4. If this were a typical diet for this person, what dietary changes might they make?
   Answers will vary but may include: Eat foods high in iron – such as red meat and leafy green vegetables. Also, eat a diet that meets caloric needs as well as overall protein, fats, and carbohydrates.
5. What other information would be helpful to you?

Answers will vary but may include: Since this is just one example of a day's worth of food, it would be nice to see several days' worth of food intake.

Note: These values might be slightly different depending on how students input the different food items; however, they provide a general ballpark figure.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Recommended Value</th>
<th>Actual Value</th>
<th>% Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Calories</td>
<td>1,697</td>
<td>1,915</td>
<td>+13%</td>
</tr>
<tr>
<td>Protein</td>
<td>46</td>
<td>90</td>
<td>+96%</td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>130</td>
<td>260</td>
<td>+100%</td>
</tr>
<tr>
<td>Total Fats</td>
<td>53.2-74.3</td>
<td>63</td>
<td>-15%–18%</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>700</td>
<td>655.4</td>
<td>-6%</td>
</tr>
<tr>
<td>Folic Acid (Folate)</td>
<td>400</td>
<td>751</td>
<td>+88%</td>
</tr>
<tr>
<td>Calcium</td>
<td>1,300</td>
<td>395.6</td>
<td>-70%</td>
</tr>
<tr>
<td>Iron</td>
<td>15</td>
<td>15.7</td>
<td>+5%</td>
</tr>
</tbody>
</table>

To calculate a % difference: \( \text{Actual} - \text{Recommended} \times \frac{100}{\text{Recommended}} = \% \text{ Difference} \)

Part III: Analysis

1. Which of your values had the greatest % difference?
   Proteins, carbohydrates, folate, and calcium all had significant differences.

2. Was the value greater or less than recommended?
   Calcium was much less than recommended. Carbohydrates, protein, and folate were higher than recommended. (Recommendations generated by the “My Pyramid Tracker” tool on the www.mypyramid.gov website.)

3. If this type of diet were eaten over a long period of time, what are some of the problems this individual could face?
   According to the NIH’s Office of Dietary Supplements, a diet low in calcium could lead to bone health issues in the future, including osteoporosis.

4. If this were a typical diet for this person, what dietary changes might they make?
   Answers will vary but may include: Inclusion of more low-fat and nonfat milk and milk products. Additionally, eat a diet that meets the recommendations for total carbohydrate, protein, and folate intake.
5. What other information would be helpful to you? 
   Answers will vary but may include: Since this is just one example of a day's worth of 
   food, it would be nice to see several days' worth of food intake.

Case Number ______5__________ Case Name ______ Tasha_________

Note: These values might be slightly different depending on how students input the different 
food items; however, they provide a general ballpark figure.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Recommended Value</th>
<th>Actual Value</th>
<th>% Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Calories</td>
<td>1,867</td>
<td>2,319</td>
<td>+24%</td>
</tr>
<tr>
<td>Protein</td>
<td>46</td>
<td>147</td>
<td>+220%</td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>130</td>
<td>274</td>
<td>+111%</td>
</tr>
<tr>
<td>Total Fats</td>
<td>64.4-90.2</td>
<td>72.8</td>
<td>-13%–19%</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>700</td>
<td>720.6</td>
<td>+3%</td>
</tr>
<tr>
<td>Folic Acid (Folate)</td>
<td>400</td>
<td>205.9</td>
<td>-49%</td>
</tr>
<tr>
<td>Calcium</td>
<td>1,300</td>
<td>1,376.5</td>
<td>+6%</td>
</tr>
<tr>
<td>Iron</td>
<td>15</td>
<td>15</td>
<td>0%</td>
</tr>
</tbody>
</table>

To calculate a % difference: \( \frac{\text{Actual} - \text{Recommended}}{\text{Recommended}} \times 100 = \% \text{ Difference} \)

Part III: Analysis

1. Which of your values had the greatest % difference?
   Proteins, carbohydrates, and folate all had significant differences.

2. Was the value greater or less than expected (recommended)?
   Protein and carbohydrate were much higher than recommended; folate was lower than 
   recommended. (Recommendations generated by the “My Pyramid Tracker” tool on the 
   www.mypyramid.gov website.)

3. If this type of diet were eaten over a long period of time, what are some of the problems 
   this individual could face?
   Answers will vary but may include: According to the NIH’s Office of Dietary 
   Supplements, if this individual were planning a pregnancy, too little folic acid could lead 
   to an increased risk of having a baby born with a neural tube defect.

4. If this were a typical diet for this person, what dietary changes might they make?
   Answers will vary but may include: Eat foods high in folate such as cereal, rice, and 
   beans. Also, consume a diet that meets recommendations for total intake of protein and 
   carbohydrates.
5. What other information would be helpful to you?
   Answers will vary but may include: Since this is just one example of a day’s worth of food, it would be nice to see several days’ worth of food intake.

Case Number ______6____________   Case Name _____Eric_________

Note: These values might be slightly different depending on how students input the different food items; however, they provide a general ballpark figure.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Recommended Value</th>
<th>Actual Value</th>
<th>% Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Calories</td>
<td>2,606</td>
<td>2,521</td>
<td>-3%</td>
</tr>
<tr>
<td>Protein</td>
<td>52</td>
<td>102</td>
<td>+96%</td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>130</td>
<td>268</td>
<td>+106%</td>
</tr>
<tr>
<td>Total Fats</td>
<td>68–95</td>
<td>119.8</td>
<td>+26%–76%</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>900</td>
<td>6,681</td>
<td>+642%</td>
</tr>
<tr>
<td>Folic Acid (Folate)</td>
<td>400</td>
<td>511.5</td>
<td>+28%</td>
</tr>
<tr>
<td>Calcium</td>
<td>1,300</td>
<td>1,460</td>
<td>+12%</td>
</tr>
<tr>
<td>Iron</td>
<td>11</td>
<td>13.9</td>
<td>+26%</td>
</tr>
</tbody>
</table>

To calculate a % difference: \( \frac{\text{Actual} - \text{Recommended}}{\text{Recommended}} \times 100 = \% \text{ Difference} \)

**Part III: Analysis**

1. Which of your values had the greatest % difference?
   Protein, carbohydrate, and vitamin A had the greatest differences.

2. Was the value greater or less than recommended?
   All nutrients were higher than recommended. Protein, carbohydrate, and vitamin A values were especially high. Recommendations generated by the “My Pyramid Tracker” tool on the [www.mypyramid.gov](http://www.mypyramid.gov) website.

3. If this type of diet were eaten over a long period of time, what are some of the problems this individual could face?
   Long-term exposures to high doses of vitamin A would not be recommended.

4. If this were a typical diet for this person, what dietary changes might they make?
   Answers will vary but may include: Eat foods lower in vitamin A and potentially stop taking the vitamin A supplement. Also, consume a diet that meets recommendations on protein and carbohydrates.

5. What other information would be helpful to you?
   Answers will vary but may include: Since this is just one example of a day’s worth of food, it would be nice to see several days’ worth of food intake.
References


**Epidemiology Worksheet**

We Are What We Eat!
Judith Jones and Kathie Fuller, 2006 Science Ambassador Program

Epidemiology Variable ____________________________________________________
Investigators ____________________________________________________________

Use the following website to fill out this worksheet about the variable you have been assigned. Please list the percent for each category (e.g., male, female, etc.).

<table>
<thead>
<tr>
<th></th>
<th>Trends in United States, 1999–2005 (give the % range and compare males to females and 9th graders to 12th graders)</th>
<th>Trends in your state, 1999–2005 (give the % range and compare males to females and 9th graders to 12th graders)</th>
<th>Comparison (is your state higher or lower than the United States?)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>*note comparison to females</td>
<td>*note comparison to females</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>*note comparison to males</td>
<td>*note comparison to males</td>
<td></td>
</tr>
<tr>
<td>All 9th graders</td>
<td>*note comparison to 12th graders</td>
<td>*note comparison to 12th graders</td>
<td></td>
</tr>
<tr>
<td>All 12th graders</td>
<td>*note comparison to 9th graders</td>
<td>*note comparison to 9th graders</td>
<td></td>
</tr>
</tbody>
</table>
**Epidemiology Worksheet-Answer Key**

*We Are What We Eat!*
Judith Jones and Kathie Fuller, 2006 Science Ambassador Program

Epidemiology Variable ___Went without eating for 24 hours__________________________________________
Investigators __________________________________________

Use the following website to fill out this worksheet on the variable you have been assigned. Please list the percent for each category (e.g., male, female).


<table>
<thead>
<tr>
<th></th>
<th>Trends in United States, 1999–2005 (give the % range and compare males to females and 9th graders to 12th graders)</th>
<th>Trends in your state, 1999–2005 (give the % range and compare males to females and 9th graders to 12th graders)</th>
<th>Comparison (is your state higher or lower than the United States?)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Male</strong></td>
<td>Males were much less likely than females to go without eating for 24 hours. 6.4%–7.6%</td>
<td>Answers will vary</td>
<td>Answers will vary</td>
</tr>
<tr>
<td></td>
<td>(According to YRBSS Youth Online Comprehensive Results for all available years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Female</strong></td>
<td>Much higher rate than males. 17%–19.1%</td>
<td>Answers will vary</td>
<td>Answers will vary</td>
</tr>
<tr>
<td></td>
<td>(According to YRBSS Youth Online Comprehensive Results for all available years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>All 9th graders</strong></td>
<td>Rates slightly higher than for 12th graders. 13.3%–15.4%</td>
<td>Answers will vary</td>
<td>Answers will vary</td>
</tr>
<tr>
<td></td>
<td>(According to YRBSS Youth Online Comprehensive Results for all available years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>All 12th graders</strong></td>
<td>Rates slightly lower than for 9th graders. 11.2%–12.2%</td>
<td>Answers will vary</td>
<td>Answers will vary</td>
</tr>
</tbody>
</table>
Epidemiology Variable: Vomiting and laxatives after eating
Investigators: 

Use the following website to fill out this worksheet on the variable you have been assigned. Please list the percent for each category (e.g., male, female).


<table>
<thead>
<tr>
<th></th>
<th>Trends in United States, 1999–2005 (give the % range and compare males to females and 9th graders to 12th graders)</th>
<th>Trends in your state, 1999–2005 (give the % range and compare males to females and 9th graders to 12th graders)</th>
<th>Comparison (is your state higher or lower than the United States?)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Male</strong></td>
<td>Fewer males than females perform this behavior. 2.1%–3.7% (According to YRBSS Youth Online Comprehensive Results for all available years)</td>
<td>Answers will vary</td>
<td>Answers will vary</td>
</tr>
<tr>
<td><strong>Female</strong></td>
<td>More females perform this behavior than males. 6.2%–8.4% (According to YRBSS Youth Online Comprehensive Results for all available years)</td>
<td>Answers will vary</td>
<td>Answers will vary</td>
</tr>
<tr>
<td><strong>All 9th graders</strong></td>
<td>Rates among 9th graders are slightly higher than rates among 12th graders. 4.1%–6.2% (According to YRBSS Youth Online Comprehensive Results for all available years)</td>
<td>Answers will vary</td>
<td>Answers will vary</td>
</tr>
<tr>
<td><strong>All 12th graders</strong></td>
<td>Rates among 12th graders are slightly lower than rates among 9th graders. 3.1%–5.5% (According to YRBSS Youth Online Comprehensive Results for all available years)</td>
<td>Answers will vary</td>
<td>Answers will vary</td>
</tr>
</tbody>
</table>
Epidemiology Variable ___Overweight__________
Investigators _________________________________________

Use the following website to fill out this worksheet on the variable you have been assigned. Please list the percent for each category (e.g., male, female).

<table>
<thead>
<tr>
<th>Trends in United States, 1999–2005 (give the % range and compare males to females and 9th graders to 12th graders)</th>
<th>Trends in your state, 1999–2005) (give the % range and compare males to females and 9th graders to 12th graders)</th>
<th>Comparison (is your state higher or lower than the United States?)</th>
</tr>
</thead>
</table>
| Male | Males have higher rates than females.  
13.7%–16.0% (According to YRBSS Youth Online Comprehensive Results for all available years) | Answers will vary | Answers will vary |
| Female | Females have lower rates than males.  
7.6%–10% (According to YRBSS Youth Online Comprehensive Results for all available years) | Answers will vary | Answers will vary |
| All 9th graders | Rates for 9th graders are slightly higher than those for 12th graders.  
10.5%–14.3% (According to YRBSS Youth Online Comprehensive Results for all available years) | Answers will vary | Answers will vary |
| All 12th graders | Rates for 12th graders are slightly lower than rates for 9th graders.  
7.9%–12.6% (According to YRBSS Youth Online Comprehensive Results for all available years) | Answers will vary | Answers will vary |
Epidemiology Variable: Ate fruit

Use the following website to fill out this worksheet on the variable you have been assigned. Please list the percent for each category (e.g., male, female).


<table>
<thead>
<tr>
<th></th>
<th>Trends in United States, 1999–2005 (give the % range and compare males to females and 9th graders to 12th graders)</th>
<th>Trends in your state, 1999–2005 (give the % range and compare males to females and 9th graders to 12th graders)</th>
<th>Comparison (is your state higher or lower than the United States?)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Male</strong></td>
<td>Rates are slightly lower than females. 83.4%–84.7% (According to YRBSS Youth Online Comprehensive Results for all available years)</td>
<td>Answers will vary</td>
<td>Answers will vary</td>
</tr>
<tr>
<td><strong>Female</strong></td>
<td>Rates are slightly higher than males. 85.3%–86.5% (According to YRBSS Youth Online Comprehensive Results for all available years)</td>
<td>Answers will vary</td>
<td>Answers will vary</td>
</tr>
<tr>
<td><strong>All 9th graders</strong></td>
<td>Rates between 9th and 12th graders are very similar. 83.8%–85.7% (According to YRBSS Youth Online Comprehensive Results for all available years)</td>
<td>Answers will vary</td>
<td>Answers will vary</td>
</tr>
<tr>
<td><strong>All 12th graders</strong></td>
<td>Rates between 9th and 12th graders are very similar. 84.3%–86.8% (According to YRBSS Youth Online Comprehensive Results for all available years)</td>
<td>Answers will vary</td>
<td>Answers will vary</td>
</tr>
</tbody>
</table>
Epidemiology Variable: Drink Milk
Investigators: ________________________________

Use the following website to fill out this worksheet on the variable you have been assigned. Please list the percent for each category (e.g., male, female). 

<table>
<thead>
<tr>
<th></th>
<th>Trends in United States, 1999–2005 (give the % range and compare males to females and 9th graders to 12th graders)</th>
<th>Trends in your state, 1999–2005 (give the % range and compare males to females and 9th graders to 12th graders)</th>
<th>Comparison (is your state higher or lower than the United States?)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Males drink much more milk than females. 20.8%–23% (According to YRBSS Youth Online Comprehensive Results for all available years)</td>
<td>Answers will vary</td>
<td>Answers will vary</td>
</tr>
<tr>
<td>Female</td>
<td>Females drink much less milk than males. 10.9%–12.9% (According to YRBSS Youth Online Comprehensive Results for all available years)</td>
<td>Answers will vary</td>
<td>Answers will vary</td>
</tr>
<tr>
<td>All 9th graders</td>
<td>9th graders drank more milk than 12th graders. 18.5%–22.2% (According to YRBSS Youth Online Comprehensive Results for all available years)</td>
<td>Answers will vary</td>
<td>Answers will vary</td>
</tr>
<tr>
<td>All 12th graders</td>
<td>12th graders drank less milk than 9th graders. 13.5%–14.4% (According to YRBSS Youth Online Comprehensive Results for all available years)</td>
<td>Answers will vary</td>
<td>Answers will vary</td>
</tr>
</tbody>
</table>
Epidemiology Variable: Ate other vegetables
Investigators:

Use the following website to fill out this worksheet on the variable you have been assigned. Please list the percent for each category (e.g., male, female).

<table>
<thead>
<tr>
<th>Trends in United States, 1999–2005 (give the % range and compare males to females and 9th graders to 12th graders)</th>
<th>Trends in your state, 1999–2005 (give the % range and compare males to females and 9th graders to 12th graders)</th>
<th>Comparison (is your state higher or lower than the United States?)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Male</strong></td>
<td>Not much difference between males and females. 84.8%–81.2% (According to YRBSS Youth Online Comprehensive Results for all available years)</td>
<td>Answers will vary</td>
</tr>
<tr>
<td><strong>Female</strong></td>
<td>not much difference between males and females. 87.5%–83.1 % (According to YRBSS Youth Online Comprehensive Results for all available years)</td>
<td>Answers will vary</td>
</tr>
<tr>
<td><strong>All 9th graders</strong></td>
<td>9th graders ate slightly fewer vegetables than 12th graders. 78.5%–84.7% (According to YRBSS Youth Online Comprehensive Results for all available years)</td>
<td>Answers will vary</td>
</tr>
<tr>
<td><strong>All 12th graders</strong></td>
<td>There is a slight increase in vegetable consumption from 9th to 12th grade. 84.4%–89% (According to YRBSS Youth Online Comprehensive Results for all available years)</td>
<td>Answers will vary</td>
</tr>
</tbody>
</table>
Reference

# Case Study Summary Worksheet

We Are What We Eat!
Judith Jones and Kathie Fuller, 2006 Science Ambassador Program

Use this table to fill out information about all cases. You will get this information from different presentations by your peers.

<table>
<thead>
<tr>
<th>Case – Name</th>
<th>Nutrient Details</th>
<th>Implication</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Epidemiology Summary Worksheet**

We Are What We Eat!
Judith Jones and Kathie Fuller, 2006 Science Ambassador Program

Use this table to fill out information about all variables. Try to make a comparison between males and females and between 9th and 12th graders. Listen for this information in the different presentations by your peers.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Trends in United States, 1999–2005</th>
<th>Trends in your state, 1999–2005</th>
<th>Comparison (is your state higher or lower than the United States?)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Went without eating for 24 hours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vomiting and laxatives after eating</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overweight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ate fruit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drank milk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ate vegetables</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Nutrition Activity Rubric

**We Are What We Eat!**

Judith Jones and Kathy Fuller, 2006 Science Ambassador Program

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Inadequate</th>
<th>Adequate</th>
<th>Competent</th>
<th>Outstanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>no introduction</td>
<td>introduction present</td>
<td>introduction leads directly to body of the skit</td>
<td>introduction piques interest leads directly to body of skit</td>
</tr>
<tr>
<td>The presenters “set the stage” for their skit. Presenters “engage” the audience by connecting the coming skit to the experiences and interests of the class.</td>
<td>introduction weak</td>
<td>introduction not particularly inspiring</td>
<td>body of the skit</td>
<td></td>
</tr>
<tr>
<td>Body of Skit</td>
<td>understanding of concepts is weak</td>
<td>understanding of concepts is good</td>
<td>understanding of concepts is good and concepts are strongly connected</td>
<td>understanding of concepts is excellent and connected skit excellently presents concepts</td>
</tr>
<tr>
<td>This is the most important part of the skit. Presenters help the class understand the content that must be learned. The presenters explain the implications of their findings.</td>
<td>skit does not explain concepts well</td>
<td>skit is clear</td>
<td>skit strongly presents content</td>
<td></td>
</tr>
<tr>
<td>Summary</td>
<td>no summary</td>
<td>summary present</td>
<td>summary present and connected to body of skit</td>
<td>summary connects well to body of skit and to concepts</td>
</tr>
<tr>
<td>At the end of the skit, the presenters help the class summarize the content. The summary should suggest further investigation or areas for exploration.</td>
<td>summary very weak</td>
<td>summary connected to body of presentation</td>
<td>summary connects to larger concepts</td>
<td>summary proposes new research areas</td>
</tr>
<tr>
<td>Class Involvement</td>
<td>class is not involved</td>
<td>class involvement is sometimes supportive of conceptual understanding</td>
<td>class involvement supports conceptual understanding</td>
<td>class involvement is inherent to the lesson</td>
</tr>
<tr>
<td>Good presenters always involve the class in the learning experience. This may be through humor, clear explanations, and careful organization.</td>
<td>involvement is weak and does not enhance learning</td>
<td>class involvement is sometimes supportive of conceptual understanding</td>
<td>learning is greatly enhanced</td>
<td></td>
</tr>
<tr>
<td>Use of Visuals</td>
<td>no visuals or props used</td>
<td>visuals are useful to improve learning most of the time</td>
<td>visuals are useful and consistently appropriate visuals are strategically placed to improve learning</td>
<td>well-explained visuals and good concept connection creative use and preparation of visuals</td>
</tr>
<tr>
<td>Good presenters use appropriate visual and props to help the class understand the concepts being presented. The visuals are designed to make concepts much more clear.</td>
<td>visuals don’t increase understanding of concepts</td>
<td>visuals are useful to improve learning most of the time</td>
<td>visuals are useful and consistently appropriate visuals are strategically placed to improve learning</td>
<td></td>
</tr>
<tr>
<td>Shared Participation</td>
<td>very unequal participation</td>
<td>participation is not equal but each person participates &gt;20% of the time</td>
<td>participation is equal but each part is not well connected</td>
<td>participation is interactive and equal and each enhances the other</td>
</tr>
<tr>
<td>Good presenters make sure that each person is involved in the presentation and the total presentation is connected.</td>
<td>one or more does not participate</td>
<td>participation is not equal but each person participates &gt;20% of the time</td>
<td>participation is equal but each part is not well connected</td>
<td>participation is interactive and equal and each enhances the other</td>
</tr>
</tbody>
</table>