We Are What We Eat!

Judy Jones
East Chapel Hill High School
Chapel Hill, NC

Kathie Fuller
Beekmantown High School
West Chazy, NY

In collaboration with Adolfo Correa,[1] Terry O'Toole,[2] and Katie Kilker[1]

[1] National Center on Birth Defects and Developmental Disabilities,
Centers for Disease Control and Prevention
[2] National Center for Chronic Disease Prevention and Health Promotion,
Centers for Disease Control and Prevention

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.

We Are What We Eat!

Judy Jones
East Chapel Hill High School
Chapel Hill, NC

Kathie Fuller
Beekmantown High School
West Chazy, NY

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.

Web Resources
Title: Major Nutrients
URL: www.fns.usda.gov/tn/Resources/appendd.pdf
Description: This Food and Nutrition Service website from the U.S. Department of Agriculture (USDA) describes of the function of each of the major nutrients and the foods that contain them. This information should be used to complete the "Nutrient Worksheet."

Title: Dietary Supplement Fact Sheets
URL: http://dietary-supplements.info.nih.gov/Health_Information/Information_About_Individual_Dietary_Supplements.aspx
Description: This National Institutes of Health website has detailed information about specific micronutrients. This information should be used to complete the "Nutrient Worksheet."

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.

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.

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
Title: Major Nutrients
URL: www.fns.usda.gov/tn/Resources/appendd.pdf
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."

Title: Dietary Supplement Fact Sheets
URL: http://dietary-supplements.info.nih.gov/Health_Information/Information_About_Individual_Dietary_Supplements.aspx
Description: This National Institutes of Health website has detailed information about the specific micronutrients. This information should be used to complete the "Nutrient Worksheet."

Supplemental Document
Title: Nutrient Worksheet
Description: This worksheet is provided for the students to record information about the nutrients they research.

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.

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

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

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

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

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

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

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

United States Department of Agriculture, Food and Nutrition Service. *Building Blocks for Fun and Healthy Meals, Appendix D: Major Nutrients [online].* 2000. [cited 2006 Sept 27]. Available from URL: http://www.fns.usda.gov/tn/Resources/appendd.pdf.

Nutrition Worksheet

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

Name:_____ Class:_____

Use the following websites to fill in information about each nutrient:
www.fns.usda.gov/tn/Resources/appendd.pdf
http://dietary-supplements.info.nih.gov/Health_Information/Information_About_Individual_Dietary_Supplements.aspx

Nutrient	Importance to Health	Foods Found In
Protein		
Carbohydrate		
Total Fats		
Vitamin A		
Folic Acid (Folate)		
Iron		
Calcium		

Nutrition Worksheet- Answer Key

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

Use the following websites to fill in information about each nutrient.
www.fns.usda.gov/tn/Resources/appendd.pdf
http://dietary-supplements.info.nih.gov/Health_Information/Information_About_Individual_Dietary_Supplements.aspx

Nutrient	Importance to Health	Foods Found In
Protein	Build and repair body tissue Help antibodies fight infection Can help provide energy if more is consumed than needed for repairing body tissue	Meat, poultry, fish, eggs, milk and milk products, nuts, beans
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

United States Department of Agriculture, Food and Nutrition Service. *Building Blocks for Fun and Healthy Meals, Appendix D: Major Nutrients [online].* 2000. [cited 2006 Sept 27]. Available from URL: http://www.fns.usda.gov/tn/Resources/appendd.pdf.

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 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.

Nutrient	Recommended Value	Actual Value	% Difference
Total Calories			
Protein			
Carbohydrate			
Total Fats			
Vitamin A			
Folic Acid (Folate)			
Calcium			
Iron			

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 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.

Nutrient	Recommended Value	Actual Value	% Difference
Total Calories			
Protein			
Carbohydrate			
Total Fats			
Vitamin A			
Folic Acid (Folate)			
Calcium			
Iron			

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 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.

Nutrient	Recommended Value	Actual Value	% Difference
Total Calories			
Protein			
Carbohydrate			
Total Fats			
Vitamin A			
Folic Acid (Folate)			
Calcium			
Iron			

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 (1½ c), orange juice (2 c)

Dinner: ½ large chicken breast, 1 small baked potato with skin and butter, grapes (½ c), bananas (½ 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.

Nutrient	Recommended Value	Actual Value	% Difference
Total Calories			
Protein			
Carbohydrate			
Total Fats			
Vitamin A			
Folic Acid (Folate)			
Calcium			
Iron			

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.

Nutrient	Recommended Value	Actual Value	% Difference
Total Calories			
Protein			
Carbohydrate			
Total Fats			
Vitamin A			
Folic Acid (Folate)			
Calcium			
Iron			

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 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.

Nutrient	Recommended Value	Actual Value	% Difference
Total Calories			
Protein			
Carbohydrate			
Total Fats			
Vitamin A			
Folic Acid (Folate)			
Calcium			
Iron			

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.

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

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?
   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.

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

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.

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

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?
   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.

Case Number _____4_____ Case Name _____Jennifer_____

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

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

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, 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.

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

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.

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

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 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

United States Department of Agriculture, Center for Nutrition Policy and Promotion. *Assess your food intake, My Pyramid Tracker tool [online]*. 2005. [cited 2006 Sept 27]. Available from URL: http://www.mypyramidtracker.gov .

National Institutes of Health, Office of Dietary Supplements. Dietary Supplements Fact Sheets [online]. 2006. [cited 2006 Sept.27]. Available from URL: http://dietary-supplements.info.nih.gov/Health_Information/Information_About_Individual_Dietary_Supplements.aspx .

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.).
http://apps.nccd.cdc.gov/yrbss/CategoryQuestions.asp?Cat=5&desc=Dietary%20Behaviors

	Trends in United States, 1999–2005 (give the % range and compare males to females and 9th graders to 12th graders)	Trends in your state, 1999–2005 (give the % range and compare males to females and 9th graders to 12th graders)	Comparison (is your state higher or lower than the United States?)
Male	*note comparison to females	*note comparison to females	
Female	*note comparison to males	*note comparison to males	
All 9th graders	*note comparison to 12th graders	*note comparison to 12th graders	
All 12th graders	*note comparison to 9th graders	*note comparison to 9th graders	

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).
http://apps.nccd.cdc.gov/yrbss/CategoryQuestions.asp?Cat=5&desc=Dietary%20Behaviors

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

	Online Comprehensive Results for all available years)		

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).
http://apps.nccd.cdc.gov/yrbss/CategoryQuestions.asp?Cat=5&desc=Dietary%20Behaviors

	Trends in United States, 1999–2005 (give the % range and compare males to females and 9th graders to 12th graders)	Trends in your state, 1999–2005 (give the % range and compare males to females and 9th graders to 12th graders)	Comparison (is your state higher or lower than the United States?)
Male	Fewer males than females perform this behavior. 2.1%–3.7% (According to YRBSS Youth Online Comprehensive Results for all available years)	Answers will vary	Answers will vary
Female	More females perform this behavior than males. 6.2%–8.4% (According to YRBSS Youth Online Comprehensive Results for all available years)	Answers will vary	Answers will vary
All 9th graders	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)	Answers will vary	Answers will vary
All 12th graders	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)	Answers will vary	Answers will vary

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).
http://apps.nccd.cdc.gov/yrbss/CategoryQuestions.asp?Cat=5&desc=Dietary%20Behaviors

	Trends in United States, 1999–2005 (give the % range and compare males to females and 9th graders to 12th graders)	Trends in your state, 1999–2005) (give the % range and compare males to females and 9th graders to 12th graders)	Comparison (is your state higher or lower than the United States?)
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_____
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).
http://apps.nccd.cdc.gov/yrbss/CategoryQuestions.asp?Cat=5&desc=Dietary%20Behaviors

	Trends in United States, 1999–2005 (give the % range and compare males to females and 9th graders to 12th graders)	Trends in your state, 1999–2005) (give the % range and compare males to females and 9th graders to 12th graders)	Comparison (is your state higher or lower than the United States?)
Male	Rates are slightly lower than females. 83.4%–84.7% (According to YRBSS Youth Online Comprehensive Results for all available years)	Answers will vary	Answers will vary
Female	Rates are slightly higher than males. 85.3%–86.5% (According to YRBSS Youth Online Comprehensive Results for all available years)	Answers will vary	Answers will vary
All 9th graders	Rates between 9th and 12th graders are very similar. 83.8%–85.7% (According to YRBSS Youth Online Comprehensive Results for all available years)	Answers will vary	Answers will vary
All 12th graders	Rates between 9th and 12th graders are very similar. 84.3%–86.8% (According to YRBSS Youth Online Comprehensive Results for all available years)	Answers will vary	Answers will vary

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).
http://apps.nccd.cdc.gov/yrbss/CategoryQuestions.asp?Cat=5&desc=Dietary%20Behaviors

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

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).
http://apps.nccd.cdc.gov/yrbss/CategoryQuestions.asp?Cat=5&desc=Dietary%20Behaviors

	Trends in United States, 1999–2005 (give the % range and compare males to females and 9th graders to 12th graders)	Trends in your state, 1999–2005 (give the % range and compare males to females and 9th graders to 12th graders)	Comparison (is your state higher or lower than the United States?)
Male	Not much difference between males and females. 84.8%–81.2% (According to YRBSS Youth Online Comprehensive Results for all available years)	Answers will vary	Answers will vary
Female	not much difference between males and females. 87.5%–83.1 % (According to YRBSS Youth Online Comprehensive Results for all available years)	Answers will vary	Answers will vary
All 9th graders	9th graders ate slightly fewer vegetables than 12th graders. 78.5%–84.7% (According to YRBSS Youth Online Comprehensive Results for all available years)	Answers will vary	Answers will vary
All 12th graders	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)	Answers will vary	Answers will vary

Reference

National Center for Chronic Disease Prevention and Health Promotion. *YRBSS: Youth Online: Comprehensive Results.* [online]. 2006. [cited 2006 Sept 27]. Available from URL: http://apps.nccd.cdc.gov/yrbss/CategoryQuestions.asp?Cat=5&desc=Dietary%20Behaviors.

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.

Case – Name	Nutrient Details	Implication	Recommendations
1-			
2-			
3-			
4-			
5-			
6-			

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.

Variable	Trends in United States, 1999–2005	Trends in your state, 1999–2005	Comparison (is your state higher or lower than the United States?)
Went without eating for 24 hours			
Vomiting and laxatives after eating			
Overweight			
Ate fruit			
Drank milk			
Ate vegetables			

Nutrition Activity Rubric

We Are What We Eat!

Judith Jones and Kathy Fuller, 2006 Science Ambassador Program

Criterion	Inadequate	Adequate	Competent	Outstanding
Introduction 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.	▪ no introduction ▪ introduction weak	▪ introduction present ▪ introduction not particularly inspiring	▪ introduction leads directly to body of the skit	▪ introduction piques interest ▪ leads directly to body of skit
Body of Skit 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.	▪ understanding of concepts is weak ▪ skit does not explain concepts well	▪ understanding of concepts is good ▪ skit is clear	▪ understanding of concepts is good and concepts are strongly connected ▪ skit strongly presents content	▪ understanding of concepts is excellent and connected ▪ skit excellently presents concepts
Summary At the end of the skit, the presenters help the class summarize the content. The summary should suggest further investigation or areas for exploration.	▪ no summary ▪ summary very weak ▪ truncated summary	▪ summary present ▪ summary connected to body of presentation	▪ summary present and connected to body of skit ▪ summary connects to larger concepts	▪ summary connects well to body of skit and to concepts ▪ summary proposes new research areas
Class Involvement Good presenters always involve the class in the learning experience. This may be through humor, clear explanations, and careful organization.	▪ class is not involved ▪ involvement is weak and does not enhance learning	▪ class involvement is sometimes supportive of conceptual understanding	▪ class involvement supports conceptual understanding	▪ class involvement is inherent to the lesson ▪ learning is greatly enhanced
Use of Visuals 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.	▪ no visuals or props used ▪ visuals don't increase understanding of concepts	▪ visuals are useful to improve learning most of the time	▪ visuals are useful and consistently appropriate ▪ visuals are strategically placed to improve learning	▪ well-explained visuals and good concept connection ▪ creative use and preparation of visuals
Shared Participation Good presenters make sure that each person is involved in the presentation and the total presentation is connected.	▪ very unequal participation ▪ one or more does not participate	▪ participation is not equal but each person participates >20% of the time	▪ participation is equal but each part is not well connected	▪ participation is interactive and equal and each enhances the other