

How Much Is Enough?

Integration: Health; Mathematics; Language Arts

Grade Levels: 4-6

Time: 1-2 class periods

Materials:

- *Menu Choices* handout
- *Explorer's Menu* handout
- *My Menu* handout
- *Food Guide Pyramid* handout
- Measuring tools including measuring cups, measuring spoons, and a deck of cards (3 oz of meat is the size of a deck).

Objectives:

Students will:

1. Plan a menu based on recommended nutritional guidelines.
2. Compare the daily caloric intake of Antarctic explorers to their menu.
3. Discuss the differences in caloric intake and the reason why explorers must take in the amount of calories they do.

Lesson:

Full group

1. Introduce the importance of food.
 - a. Write the following questions on the chalkboard:
 - Why do we need food? (Our bodies need food for growth, repair, and energy.)
 - What is a nutrient? (A nutrient is a substance found in foods that promotes growth and maintenance of the body.)
 - What are the nutrients found in food? (They are carbohydrates, proteins, fats, vitamins, and minerals.)
 - b. Ask for volunteers to answer the questions and discuss the answers as a full group.
2. Introduce the concept of food groups and the Food Guide Pyramid.
 - a. Explain to students that it is easier to categorize foods according to a food group rather than by nutrients. A person can get all of the nutrients the body needs by choosing some foods from each group.

- b. Show the students the Food Guide Pyramid and explain that it is not a rigid schedule of what to eat, but a recommendation for a healthy diet. (Explain that “diet” means the food and drink that a person normally eats. It does not always imply an effort to lose weight.
 - c. Discuss the food groups and examples of foods that belong in each group.
3. Introduce the concept of calories.
 - a. Remind the students that one of the functions of food is to provide energy. Energy is needed for the body to perform all its tasks from walking to pumping blood and digesting food. The energy in food is converted to energy for the body.
 - The energy is released in each of the cells of the body.
 - b. Tell students that the amount of energy is measured in terms of **calories**. Calories come from carbohydrates, proteins, and fats. The more calories a food has, the more energy it contains.
 - c. Inform students that our bodies require a certain amount of calories to function. The amount of calories a person needs depends on many factors.
 - Most adults require between 1500 and 2500 calories per day.
 - d. Explain to students that a person’s daily intake of calories can affect their weight.
 - If the body takes in more calories than it uses, it will gain weight.
 - If the body takes in the same amount of calories that it uses, its weight will remain the same.
 - If the body takes in fewer calories than it uses, it will lose weight.
 - e. Explain to students that a person who is physically active requires more energy and therefore more calories. If a person has a high level of physical activity, but would like to remain at the same weight, they must consume more calories per day.
4. Introduce the nutritional needs of Antarctic explorers and Ann Bancroft and Liv Arnesen in particular.
 - a. Write the following questions on the chalkboard:
 - What types of food do they eat while they are on an expedition?
 - How many calories do they eat each day?
 - How does their diet compare to mine?
 - b. Allow time for the students to write what they believe are the answers to the questions in their learning logs (journals) or on a piece of paper.
5. Students work in small groups to plan a menu for one day and calculate the total number of calories in their menu.
 - a. Preview the activity with the class
 - On the *Menu Choices* handout, choose foods for breakfast, lunch, dinner, and snacks.
 - Write the name of the food, the amount you would eat, and the number of calories the food contains. Refer to the measuring tools to decide if you would eat more than the listed amount. If you would, calculate the correct amount of calories.
 - Total the number of calories for each meal and for the entire day.

- Try to get as close to an average adult diet as possible.
 - b. Divide the class into small groups and give each group a *Menu Choices* handout, a *My Menu* handout and a *Food Guide Pyramid* handout.
6. After choosing the foods, students compare the menus they have created with the explorers' diet.
- a. Give each group an *Explorer's Menu* handout and allow time for students to compare the differences and discuss them in their groups.
 - b. Discuss the following questions:
 - What types of food do the explorers choose? (easy to eat; do not require extensive cooking)
 - Is their diet high or low in calories? (high)
 - Why is it a high-calorie diet? (The explorers work very hard physically and require a large amount of calories for energy.)
 - c. Explain to the students that the explorers require between 4500 and 6000 calories a day in order to have enough energy to keep going. If they consume less, they will have less energy and will begin to lose weight.
7. Allow time for students to answer the same questions in their learning logs with the information they just learned.

Assessment:

Teachers will assess:

1. Student's comprehension of the importance of food and a balanced diet.
2. Student's understanding of the concept of calories.
3. Student's comparison of the diet of Antarctic explorers to their own.
4. Student's ability to work cooperatively.