CLIMBING THE PYRAMID

SUBJECTS: Science

STUDENT SKILL: The student will ask questions about the world and formulate an orderly plan to investigate a question.

OBJECTIVE: The student will test foods for fat content by rubbing food samples on paper.

BACKGROUND

The Food Guide Pyramid is a model created by the US Food and Drug Administration (USFDA) to help us understand what kinds of foods we need to stay healthy. Each part of the Food Guide Pyramid provides some, but not all, of the nutrients you need. Foods in one group can’t replace those in another. No one food group is more important than another. For good health, you need them all.

The base of the food pyramid is made up of breads, cereals, rice and pasta. The USFDA recommends most children and young teens eat nine to 11 servings from this part of the pyramid every day. One slice of bread, one ounce of cold cereal or 1/2 cup of cooked cereal, rice or pasta makes one serving.

Fruits and vegetables make up the next level of the pyramid. Your body needs between four and five servings of vegetables and between three and four servings of fruit every day. One cup of raw leafy vegetables or 1/2 cup of other vegetables, cooked or chopped raw, makes one serving of vegetables. One medium apple, banana, or orange, 1/2 cup of chopped, cooked or canned fruit or 3/4 cup of fruit juice make one serving of fruit.

On the next level are foods that come mostly from animals. Milk and milk products like yogurt and cheese make up the milk group. The other group includes meat, poultry, fish, dry beans, eggs and nuts. Most people need two to three servings from each of these groups every day. One cup of milk or yogurt or 1 1/2 ounce of cheese makes one serving from the milk group. Two to three ounces of cooked lean meat, poultry or fish, one cup of cooked dry beans, two eggs or four tablespoons of peanut butter

MATERIALS

paper towels
cotton swabs
cooked, cooled pasta
carrots cut into small pieces
fresh or frozen peaches or strawberries
one pint of whole milk
eggs
peanut butter
one stick of margarine
dark colored construction paper
make one serving from the meat, poultry, fish, dry beans, eggs and nuts group.

The small tip of the pyramid is made up of fats, oils and sweets. These are foods such as salad dressings and oils, cream, butter, margarine, sugars, soft drinks, candies and sweet desserts. These foods have very little nutritional value and should make up only a small part of your diet.

Foods that come from animals are naturally higher in fat than foods that come from plants. But there are many low fat dairy and lean meat choices available. Fruits, vegetables and grain products are naturally low in fat. But many popular items, like French-fried potatoes and donuts, are prepared with fat. The best way to avoid eating too much fat is to choose low fat foods like skim milk instead of whole milk and baked potato instead of French fries. Reading labels on prepared foods is another good way to avoid eating too much fat. By law food labels must tell you how many calories are in one serving and how many of those calories are from fat. They also tell you what percentage of your total daily fat allowance is contained in one serving. Most nine- to 11-year-olds should get about 2,200 calories every day. No more than 660 of those calories should come from fat.

**ACTIVITY**

2. Discuss each of the food items you have brought to class. Ask students to decide where on the pyramid each of the items belongs and write the name of the food in the appropriate space.
3. Divide the class into groups of three or four. Instruct students they will be testing food samples for fat content. Provide each group with a small sample of each of the food items, a handful of cotton swabs and enough paper towels for each group member.
4. Instruct each student to place his or her student worksheet on top of a paper towel.
5. Students should use the cotton swabs to place four or five drops of milk on their worksheets and to smear small amounts of the sticky items in the appropriate spaces. Other food samples may be gently rubbed in the pyramid spaces. If you use raw eggs, have students test the yolks and egg whites.

**VOCABULARY**

Food Guide Pyramid

nutrients

fruit

vegetable

calorie
separately.
6. Allow the pyramid spaces to dry. After 30 minutes have students check their worksheets to discover which foods contain fat.

ADDITIONAL ACTIVITIES
1. Encourage all students to bring their lunch one day, and repeat the experiment, using students' lunches.
2. Have students bring in their favorite snack foods and read the labels to determine the amount of fat present in the product. Students may be surprised to see that many snack foods contain over half the recommended daily fat grams in just one serving. They may also be surprised at the size of one serving. Divide the class into groups, and have students in each group find the average fat grams in the food items they brought. Next, average the fat grams for the entire class.
3. Furnish recently published cookbooks or cooking magazines that contain nutritional information. Have each student plan a dinner party for four and calculate the number of calories, fat grams, cholesterol, sodium, fiber and protein each person would consume.
4. Have students monitor TV commercials and make lists of snack foods advertised between 5 and 7pm on weeknights or on Saturday morning. Make a list of their findings on the chalkboard and discuss the nutritional values of the foods most commonly advertised during those times. Have students develop advertisements for their own favorite snack foods and include nutritional information.

EXTRA READING

EVALUATION
Milk, egg, peanut butter and butter and margarine should leave greasy spots on paper. Pasta cooked with oil added to the water will form a greasy spot. Pasta cooked in plain water does contain a small amount of oil but not enough to show up on this test. Egg yolks contain fat, but egg whites do not.
Everyone needs to eat at least some fat. But too much fat can cause health problems. It's easy to leave foods like butter and mayonnaise out of your diet. But some of the foods you eat may contain fat that you don't know about. Read food packaging labels to learn what is in the foods you are eating.
Climbing the Pyramid

Complete this worksheet using food from your school cafeteria. Choose one food from each section of the pyramid. Test each food to see if it contains fat. Write the name of the food on the appropriate section of the pyramid. Rub a small portion of the food in the space. After the food has dried completely, look to see if it left a greasy spot. If it did, the food contains some kind of fat.

Mark the sections of the pyramid where the foods you tested contained fat. On the back of this paper, list three foods found in your house that have no fat.
Climbing the Pyramid

VOCABULARY

Food Guide Pyramid—A model developed by the US Food and Drug Administration to help consumers understand daily nutritional requirements.

nutrients—Substances necessary for life and growth.

fruit—An edible usually sweet and fleshy form of a plant.

vegetable—A plant cultivated for its edible parts.

calorie—The heat necessary to raise the temperature of 1 gram of water from 14.5 degrees to 15.5 degrees Celsius.