



# CALORIE COUNTDOWN

**GRADE LEVEL:** 4-5

**SUBJECT:** Health/Mathematics

**NATIONAL STANDARD(S):**  
(3-5) HE: 6.1-4

**THEME:** Nutrition

**FOOD AND FIBER TOPIC:** V-A,B,C,D

## LEARNER OBJECTIVES:

Students will categorize foods according to their components and energy content.

## VOCABULARY

**calorie**—The unit of energy required to raise the temperature of one gram of water one degree Celsius; also measures the amount of energy foods provide.

**carbohydrate**—Sugars, starches and cellulose which serve as the body's main source of energy.

**complex carbohydrates**—Carbohydrates which are more difficult to digest, such as starches and dietary fiber.

**fats**—Concentrated energy source found in every body cell; carries fat-soluble vitamins through the body.

**minerals**—Small, inorganic substances which have specific roles in the body.

**nutrients**—Substances found in foods that nourish the body to keep it healthy, growing and active.

**proteins**—A series of amino acids serving as basic structural units; used to build and repair body tissues.

**simple carbohydrates**—Carbohydrates which are easily digested, including sugars, such as glucose, lactose and fructose.

**vitamins**—Complex organic substances needed in small amounts.

## BACKGROUND

Obesity, rather than malnutrition, is a modern-day American problem. New reports regularly tell us our children are eating too much and exercising too little. The result is overweight children whose present and future health may be in jeopardy. Obesity is associated with heart disease, high blood pressure, hardening of the arteries, arthritis, diabetes, and other diseases.

The U.S. Department of Agriculture recommends the calories in American diets (young and old alike) consist of approximately 50 percent carbohydrates, less than 30 percent fats, and approximately 20 percent proteins. Since each gram of fat contains nine calories and each gram of carbohydrate or protein contains only four calories, it's easy to add up fat calories quickly. Also, fat calories are more easily stored in the body as fat tissue, while carbohydrates are more readily burned as energy and protein is used for growth and repair of tissue.

A calorie is a unit of measure for the amount of energy provided by foods (or more scientifically it's the amount of heat required to raise the temperature of one gram of water one degree C). Mostly, we think of a calorie as the amount of energy we get from foods.

If the number of calories consumed during the day is more than the number of calories burned by the body during the time, we gain weight. Unfortunately, those extra calories are stored as fat.

Following the recommendations of the USDA Food Guide Pyramid can help students keep their consumption near 50 percent carbohydrate, 30 percent fat, and 20 percent protein.

This daily plan suggests:

6-11 servings from the breads, cereal, rice and pasta group

2-4 servings from the fruit group

3-5 servings from the vegetable group

2-3 servings from the milk, yogurt and cheese group

2-3 servings from the meat, poultry, fish, dry beans, eggs and nuts group

Here are some examples of foods according to groups.

### **Fats and Sugars**

butter	cake	candy
cookies	potato chips	margarine
mayonnaise	jam & jelly	olives
syrop	corn-chips	honey

### **Milk Yogurt and Cheese**

whole milk	skim milk	cheese
milkshake	pudding	ice milk
buttermilk	ice cream	mozzarella cheese
yogurt	frozen yogurt	dry milk

### **Meat, Poultry, Fish, Dry Beans, Eggs and Nuts**

beef	pork	lamb
veal	fish	chicken
turkey	hot dogs	ham
eggs	tuna	peanut butter
ground beef	shrimp	sausage
peanuts	pecans	dry beans or peas

### **Fruit**

apples	bananas	blueberries
cantaloupe	dates	grapefruit juice
grapes	kiwi	nectarines
orange juice	oranges	peaches
pears	pineapple	plums
pumpkin	raisins	rhubarb
strawberries	tangerines	watermelon

### **Vegetables**

broccoli	cabbage	carrots
celery	corn	green beans
lettuce	mushrooms	onions

potatoes	sauerkraut	spinach
sweet potatoes	tomato juice	zucchini

### **Bread & Cereal**

bagels	biscuits	cinnamon roll
cornbread	corn grits	cereal
crackers	hamburger bun	macaroni
muffins	noodles	oatmeal
pancakes	popcorn	raisin bread
rice	rolls	rye bread
spaghetti	waffles	wheat bread

Research shows some kinds of carbohydrates and fats are better than others. Complex carbohydrates provide long-lasting energy and help in digestion. Whole grain breads and cereals, fruits, vegetables and beans provide complex carbohydrates. Simple carbohydrates, such as sugars, burn quickly. Thus, they don't provide any nutritional advantages. These include candy bars, carbonated beverages and many desserts.

In addition to eating properly, physical activity adds to overall health. Children need to realize simply moving around adds to their fitness. Adults sometimes stereotype exercise as a scheduled activity they have to do rather than something they enjoy. Physical activity for children is any kind of movement at any time that contributes to their health. Proper nutrition and physical activity habits need to be developed in children as a way of life.

### **STEP-BY-STEP INSTRUCTIONS**

1. Design a large bulletin board with sections for carbohydrates, fats and proteins.
2. Ask students to bring labels and packages of different food products. Most foods contain all three components, but many are primarily carbohydrate, fat or protein.
3. Review the amount of each food component found on the label. Allow students to tack their labels and packages in the section of the primary food component.
4. Calorie Math worksheet - After discussion about calories. ask students to complete this worksheet. They will need calculators or scratch paper.

#### **Answer Key:**

1.  $525 \div 155 = 3.39$  hours
2.  $225 \div 75 = 3$  times more calories burned
3.  $3 \times 150 = 450$  calories
4.  $300 \div 160 = 1.88$  hours
5.  $325 - 90 = 235$  calories
6.  $300 + 150 = 450$  calories
7.  $525 + 225 + 325 = 1,075$
8. popcorn
9. cheeseburger (if it has tomato, lettuce, pickle, etc.) and pizza
10. answers vary

### **RELATED ACTIVITIES**

1. Discuss examples of foods that are primarily carbohydrates, fats or proteins. Many foods are actually a combination of the three, yet most are predominantly one.

2. Have the students keep a food diary for one or more days. Afterwards the students should sort those foods into the Carbohydrate, Fat or Protein categories. Some foods will be in more than one category. For example, a hamburger is under protein for meat and carbohydrate for the bun. A hamburger with excessive grease or an oil-based topping such as mayonnaise would also be in the fat category.

## RESOURCES

### *Student Books*

- Inglis, J. (1993). Proteins. Carolrhoda.  
Silverstein, Dr. A. (1992) Vitamins and Minerals. Millbrook.  
Kolodny, N. J. (1992). When Food's a Foe.  
Patent, D. H. (1992). Nutrition. Holiday House.  
Salter, C. A. (1993). The Nutrition-Fitness Link. Millbrook.  
Nottridge, R. (1993). Vitamins. Carolrhonda.  
Wright, R. (1992). Why do I Eat? Aladdin Books.

### *Teacher Resources*

- Best Foods Literature; Box 307; Coventry, CT 06238  
"The Fitness Connection"- Recipes for preparing healthy foods. (available in classroom quantities).  
Dannon Co. Inc.; 1111 Westchester Ave; White Plains, NY 10604  
"Snack Sense" - Tips to follow when the urge to snack strikes you (available in classroom quantities).  
Heinz USA; Communications Department; P.O. Box 57; Pittsburg, PA 15230-0057  
"Guide to Good Nutrition" Food Group Chart. \*Also in Spanish. (25 copies available).  
International Food Information Council, The National Center for Nutrition and Dietetics; P.O. Box 1144; Rockville, MD 20850  
"Ten Tips to Healthy Eating for Kids," (may also be obtained by sending a SASE Att: Kid Tips). U.S. Department of Agriculture; Extension Service; CIT, Rm. 3323-South Building; Washington DC 20250-0900  
"Food and Fitness- An Everyday Event"-poster containing many food and fitness facts for everyday of the year (single copy available).

### *Related Internet Websites*

- KidsHealth is the mighty Web site devoted to the health of children and teens. Created by the medical experts at The Nemours Foundation, KidsHealth has trainloads of accurate, up-to-date information about growth, food & other fitness and health material.  
[http://www.kidshealth.org/parent/nutrition/healthy\\_food\\_choices/index.html](http://www.kidshealth.org/parent/nutrition/healthy_food_choices/index.html)  
U. S. Food and Drug Administration Center for Food Safety and Applied Nutrition. Information about Nutrition Information from the Center for Food Safety and Applied Nutrition and FDA. <http://vm.cfsan.fda.gov/~dms/wh-nutr.html>

## EVALUATION

An answer key is provided for the mathematics worksheet.

## **ACKNOWLEDGMENT**

This was lesson adapted from Food For America, 5632 Mt. Vernon Memorial Highway,  
P.O. Box 15160, Alexandria, VA 22306-0160.

# Calorie Math

Use these two charts to complete the math problems at the bottom of the page.

### Calorie Counts of Foods

1/4 lb. cheeseburger.....	525
French fries.....	225
Milkshake.....	325
1/2 small, thin supreme pizza.....	525
12 oz. soda pop (not diet).....	150
3 cups popcorn (not buttered).....	100
6 oz. fat free yogurt.....	90
glazed doughnut.....	150
chocolate & peanut candy bar.....	300

### Calories Burned Per Hour

(for a 100 lb. person)

bicycling .....	160
football .....	225
roller blading .....	260
rope jumping .....	525
soccer .....	405
swimming .....	240
walking .....	155
watching TV .....	75

- How long would you have to walk to burn the calories in a serving of pizza?  $525 \div 155 =$  \_\_\_\_\_
- How many times more calories does football burn per hour than watching TV? \_\_\_\_\_  $\div 75 =$  \_\_\_\_\_
- How many calories are consumed by drinking 3 cans of pop during the day?  $3 \times$  \_\_\_\_\_  $=$  \_\_\_\_\_
- How long would you have to bicycle to burn the calories in a candy bar?  $300 \div$  \_\_\_\_\_  $=$  \_\_\_\_\_
- How many more calories are consumed by eating a milkshake rather than yogurt? \_\_\_\_\_  $-$  \_\_\_\_\_  $=$  \_\_\_\_\_
- How many calories would be in a snack consisting of a candy bar and a soda pop? \_\_\_\_\_  $+$  \_\_\_\_\_  $=$  \_\_\_\_\_
- How many calories are in fast food meal consisting of a cheeseburger, French fries and a milkshake? \_\_\_\_\_  $+$  \_\_\_\_\_  $+$  \_\_\_\_\_  $=$  \_\_\_\_\_
- Which of these foods should you choose for a low-fat, high-fiber snack? \_\_\_\_\_
- Which of these foods include ingredients from all four food groups? \_\_\_\_\_
- Which physical activity do you enjoy and practice most? \_\_\_\_\_



Adapted from National FFA Food for America



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Food & Fiber Systems Literacy  
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