

Objectives

- ▶ To understand the basic meaning of calories
- ▶ To compute weight in metric kilograms
- ▶ To calculate the numbers of calories used during sports activities

Calories in Sports

- ◆ Review the “Calories Count Background” and “Basic Meaning of Food Calories” sheets before beginning the lesson. Ask the students to share their ideas about what calories really are
- ◆ After class discussion, share the “Calories Count Background” and “Basic Meaning of Food Calories” sheets with the students as needed. Ask the students to guess which sports activities require the most energy. Pass out the “Calories Used Up by a 150-Pound Person” (68k) sheet. Explain that kg is the shortened version of kilogram, a unit of measurement used in calorie and other measured kinds of counting (1 kg = 2.2 pounds).
- ◆ Go over the sheet with the students, looking at the activity and the calories columns. Have the students write their answers to the questions and then have them present them orally when finished.

REMINDERS

Caloric intake = amount of energy the body gets from food.

Caloric output = the amount of energy the body uses up during a specific activity.

The size or weight of a person, and the amount of time needed for an activity influences the caloric output. Example: 150-lb person uses 270 calories (4.5 calories per minute) playing golf for one hour (see table).

Optional

- ◆ Using “The Calorie Counter” activity sheet, students may record the average number of calories contained in particular foods per serving amount. The answers can be derived from the packaging wrappers on food containers, encyclopedias, cookbooks at home. The Calorie Counter may also be used to record students’ daily, weekly, or monthly caloric intake.
- ◆ The average caloric intake and output could be measured for the entire class for one day. Example: Calculate the number of calories if everyone in the class ate the same items for lunch on a specific day. Then calculate how much energy and calories were expended when everyone in class played the same sports activity for one hour.

Materials

“Calorie Count Background/Meaning of Food Calories” worksheet.

Calories activity table and worksheet: “Calories Used By a 150-Pound Person.” (68k)

The Calorie Counter worksheet.

Calories in Sports

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Calorie Count Background/Meaning of Food Calories

CALORIES COUNT BACKGROUND

When an athlete trains or competes, calories count a great deal. The athlete does not want to think about caloric intake or output during a sprint or a long distance race, but the energy contained in foods and the energy required by different forms of physical activity are very important and can be measured. Usually the more strenuous and demanding an event is, the more energy is required. However, other factors influence an athlete's caloric output, such as the length of time spent on the activity and the size of the individual.

Students should be provided an opportunity to investigate the relationship of calories to physical exercise in this lesson so that they can better appreciate the complexity of their own physical activities and those of Olympic competitors.

Source: The Olympics: An Educational Opportunity, Enrichment Units K-6

BASIC MEANING OF FOOD CALORIES

The food calorie, or nutritional calorie, is a heat unit which measures energy value, one food calorie being the amount of heat required to raise the temperature of 1,000 grams or one kilogram (the mass of one liter) of water one Celsius degree. (Note: This amount of that is 1,000 times greater than the "small" calorie used by the physical scientist.)

The calorie is used to measure the amount of energy that the body can get from food (caloric intake). It is also used to measure how much energy the body uses up during a particular activity: running, swimming, walking, sleeping, even thinking (caloric output).

The caloric value of a measured amount of food is determined with a calorimeter. Special metabolic equipment is used to rate the caloric consumption that occurs during a specific type of physical activity or athletic event (example: running vs. walking).

Source: The Olympics: An Educational Opportunity, Enrichment Units, K-6

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Calories Used by a 150-lb Person (68kg)

Activity	Per Hour	Per Minute
Bicycling (10 mph)	420	7.0
Bowling	270	4.5
Ice Skating (leisurely)	300	5.0
Jumping Rope	750	12.5
Mountain Climbing	600	10.0
Playing Golf	270	4.5
Playing Pool	120	2.0
Racquetball	540	6.0
Running (7.5 mph)	750	12.5
Sitting	100	1.7
Sleeping	80	1.3
Snowshoeing (3 mph)	360	6.0
Standing	140	2.3
Swimming (recreational)	600	10.0
Walking On Level	360	6.0
Walking Up Stairs	1050	17.5
Water Skiing	390	6.5

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The Calorie Counter

	AMOUNT	AVERAGE CALORIES		AMOUNT	AVERAGE CALORIES
American cheese	1.5 oz.	110	Brownie	_____	_____
Angel cake	2 oz.	150	Butter	_____	_____
Apple	1 med.	80	Buttermilk	_____	_____
Apple juice	8 oz.	60	Cake, plain	_____	_____
Apple sauce	8 oz.	115	Cake, frosted	_____	_____
Apricots	_____	_____	Canadian bacon	_____	_____
Asparagus	_____	_____	Candy, hard	_____	_____
Bacon, crisp	_____	_____	Cantaloupe	_____	_____
Baked beans	_____	_____		_____	_____
Banana	_____	_____		_____	_____
Bean sprouts	_____	_____		_____	_____
Beans, green	_____	_____		_____	_____
Beef, lean	_____	_____		_____	_____
Beef potpie	_____	_____		_____	_____
Beef steak	_____	_____		_____	_____
Beets	_____	_____		_____	_____
Biscuits	_____	_____		_____	_____
Blackberries	_____	_____		_____	_____
Blueberries	_____	_____		_____	_____
Bologna	_____	_____		_____	_____
Boston cream pie	_____	_____		_____	_____
Bran flakes, 40%	_____	_____		_____	_____
Bread	_____	_____		_____	_____
Broccoli, fresh	_____	_____		_____	_____
Broth, beef	_____	_____		_____	_____