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Those Combustible Calories

Have you ever heard someone exclaim, "I can't eat that; it has too many calories!" You may think of calories as something in fattening foods, but all foods contain calories. Just as cars run on the energy created by the gasoline engine, humans (and other living creatures) run on energy created when the body uses its fuel, food. The amount of energy in this fuel is measured in calories.

A calorie is a unit of heat energy, specifically the amount of heat required to raise the temperature of one gram of water by one degree Celsius. What most people call calories are really Kilocalories, or 1,000 of the calories in this formula.

Every person needs about 2,000 calories a day to sustain life. The exact number differs from person to person, depending on the rate at which the individual burns calories, and from day to day, depending on the individual's activity. If your intake of calories isn't sufficient, your body will burn stored fat and you might lose weight. If you eat more than you need, your body will store the extra calories as fat and you might gain weight.

All three categories of food contain calories, but in different amounts. Proteins, found in foods like meat, fish, and beans, have 4 calories per gram. Carbohydrates have 4 calories per gram; bread, cereals, fruits, and vegetables are good sources of carbohydrates. Fats have 9 calories per gram; foods like oil and butter are concentrated forms of energy. Many foods contain proteins, carbohydrates, and fats, so the total calorie count is the sum of the calories from each nutrient.

This table shows the number of grams of protein, carbohydrates, and fat and the total number of calories in some familiar foods.

	Grams of—			
Food	Fat	Carbo-hydrates	Protein	Calories
carrot, 1 raw	0.1	7.0	0.8	32
nonfat yogurt, 8 oz	0	46	8	216
plain chocolate bar	13	25	3	229
cheese pizza, 1 slice	10	28	12	250
pepperoni pizza, 1 slice	13	28	13	281

To find how many calories come from fat, multiply the number of grams of fat by 9. To find how many calories come from carbohydrates or protein, multiply the number of grams by 4. For example, according to the table, the cheese pizza has 10 grams of fat, so multiply 10 by 9 for the number of fat calories:

$$9 \times 10 = 90 \text{ calories from fat}$$

It has 28 grams of carbohydrates at 4 calories per gram, so:

$$4 \times 28 = 112 \text{ calories from carbohydrates}$$

The cheese pizza has 12 grams of protein at 4 calories per gram:

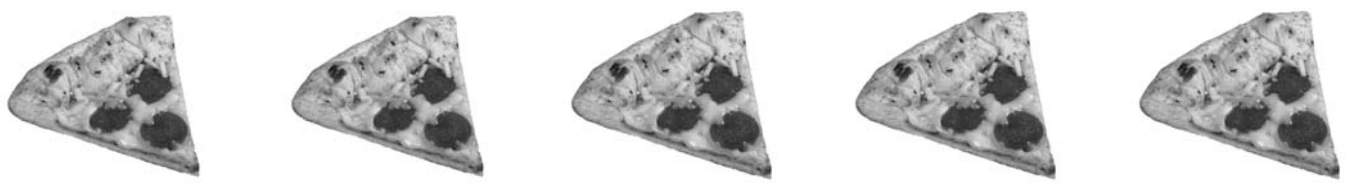
$$4 \times 12 = 48 \text{ calories from protein}$$

Now add the products for the total number of calories:

$$90 + 112 + 48 = 250 \text{ calories}$$

The cheese pizza had a total of 250 calories per slice.

You can calculate the total number of calories in any food if you know how many grams of fat, carbohydrates, and protein it contains. And given the supersizes of many foods today, you might be surprised just how many calories your favorite fast foods contain!



Put an X in the square beside the best answer.

1. One gram of fat has _____ calories.
   - ☐ 4
   - ☐ 5
   - ☐ 8
   - ☐ 9

2. The main idea of the first paragraph is that _____.
   - ☐ many food have too many calories
   - ☐ calories are found in all foods
   - ☐ fattening foods have many calories
   - ☐ calories measure the energy value of food

3. A person who is very active and plays a lot of sports probably _____.
   - ☐ needs about 2,000 calories a day
   - ☐ burns more than 2,000 calories a day
   - ☐ should eat as much food as he or she can
   - ☐ should eat only foods with high protein levels

4. Which step is *last* in finding the calories in a food that contains proteins, carbohydrates, and fats?
   - ☐ Add the products of each calculation.
   - ☐ Multiply the number of grams of fat by the calories per gram.
   - ☐ Find the number of grams of fats, proteins, and carbohydrates.
   - ☐ Multiply the grams of protein and carbohydrates by the calories per gram.

5. If you eat fewer calories than your body needs, your body will _____.
   - ☐ burn stored fat
   - ☐ store extra fat
   - ☐ not remain healthy
   - ☐ become powerful

6. In paragraph 3, the word sustain means to _____.
   - ☐ keep up
   - ☐ suffer
   - ☐ admit
   - ☐ confirm

Write your answer to the following question on the lines below.

What item on the chart has a greater *percent* of its calories from fat, the chocolate bar or the pepperoni pizza? Explain how you know.