

Calories and food

Worksheet 1 - teacher's notes

1. What is your favourite food? What is your guilty pleasure? What cuisine do you like?

students' own answers

2. What nutrients do we get from our food? Look at the chart and try to complete the information:

Group	What are they...	Found in..	Important because..
Fats	<i>Fats are either saturated or unsaturated. Saturated fats have been linked to heart disease and raise the level of cholesterol in blood. This is the kind of fat you don't want to eat.</i>	<i>Some vegetable foods contain saturated fat like nuts, margarine, coconut oil, or palm oil and chocolate. Saturated fats and cholesterol are found in animal foods like butter, cheese, red meat and animal fat. Unsaturated fats are found mostly in oils like canola, corn, cottonseed, olive, peanut, safflower, sesame, soybean and sunflower.</i>	<i>Fat (lipids) provides insulation for the body and padding around internal organs. Some dietary fat is needed as a source of essential fatty acids for fat soluble vitamins. Several nutrients are found in fat, including vitamins A, D, E, K and essential fatty acids. Fats are important in our diet, particularly triglycerides and cholesterol.</i>
Carbohydrates	<i>Carbohydrates are organic compounds that are either simple or complex. Simple carbohydrates are sugars found in fruit (fructose), milk (lactose), and table sugar (sucrose). Complex carbohydrates are commonly known as plant starches.</i>	<i>bread, beans, rice, potatoes, vegetables, fruits, and pastas, grains, legumes</i>	<i>Carbohydrates are the body's most important source of energy. Most of the calories you eat everyday should come from complex carbohydrates</i>
Protein	<i>Our hair, our nails, our skin, our blood, our enzymes and hormones are protein; indeed, our bodies contain some ten thousand to fifty thousand kinds of protein. But these proteins are constantly being broken down into amino acids, recycled and built anew, even oxidized to some extent to provide energy.</i>	<i>Protein and amino acids are found in both plant and animal foods.</i>	<i>Proteins help muscle tissue develop and function. Protein is needed to make hair, skin, nails, muscles, organs, blood cells, nerve, bone and brain tissues, enzymes, hormones, and antibodies.</i>
Fiber	<i>Can't be digested, fills you up and keep your digestive system in check</i>	<i>Fruit, vegetable, wholegrain cereals</i>	<i>fills you up and keep your digestive system in check</i>
Minerals	<i>Minerals do not contain calories, but are important to many bodily functions. There are two groups of minerals: major minerals and trace minerals. Major minerals include calcium, phosphorous, magnesium, potassium, sulfur, and sodium. Trace minerals are needed in small amounts: they include iron, zinc, manganese, copper, iodine, and cobalt</i>	<i>Major minerals are found in a variety of foods including milk, meat, poultry, fish, and green, leafy vegetables. Trace minerals are found in shellfish, seafood, whole grains and legumes.</i>	<i>Minerals often work together. Too much of one mineral may upset the balance of other minerals.</i>

Calories and food

Vitamins	Vitamins are complex organic compounds found in small amounts in most foods. Vitamins do not contain calories and therefore do not provide energy.	Fresh fruit and vegetables	However, vitamins are important for metabolism and for our organs to work properly. Vitamins C, folic acid, and all of the B vitamins are water soluble. Water soluble vitamins are passed out of the body in urine. They do not build up and harm the body. Vitamins A, D, E, K, are fat soluble. They are stored in fat cells. Too much of these vitamins in our system can lead to toxic build-up.
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<http://www.becomehealthynow.com/category/foodbasics/>

<http://healthyeating.sfgate.com/reasons-carbohydrates-proteins-fats-vitamins-minerals-necessary-good-nutrition-3170.html>

<http://www.healthpages.org/basics-healthy-eating/need-food/>

http://www.bbc.co.uk/schools/gcsebite/pe/performance/0_performance_nutrition_rev1.shtml

3. We all should lead a healthy lifestyle and part of it is a healthy, balanced diet. In pairs draw a food pyramid.

Use the Food Pyramid to plan your healthy food choices every day and watch your portion size



Calories and food

4. Apart from nutrients we also get energy from the food we eat. What is a calorie?

A calorie 1cal is the amount of energy required to raise one gram of water by one degree Celsius. What are the calorific values of the three main components of the food we eat ?

1 gram of carbohydrates contains 4 calories

1 gram of protein contains 4 calories

1 gram of fat contains 9 calories

5. Calculate the calories in one cup of large eggs, where 243 grams come from fat -24 grams, protein -31 grams, and carbohydrate- 2 grams.

Lets look at where the calories in one cup of large eggs (243 grams) come from:

- Fat 24 grams. $24 \times 9 = 216$ calories.

- Protein 31 grams. $31 \times 4 = 124$ calories.

- Carbohydrate 2 grams. $2 \times 4 = 8$ calories

- 243 grams of raw egg contain 348 calories, of which 216 come from fat, 124 from protein and 8 from carbohydrate.

6. What are "empty calories" ?

Currently, many of the foods and beverages Americans eat and drink contain empty calories – calories from solid fats and/or added sugars. Solid fats and added sugars add calories to the food but few or no nutrients. For this reason, the calories from solid fats and added sugars in a food are often called empty calories. Learning more about solid fats and added sugars can help you make better food and drink choices.

Solid fats are fats that are solid at room temperature, like butter, beef fat, and shortening. Some solid fats are found naturally in foods. They can also be added when foods are processed by food companies or when they are prepared.

Added sugars are sugars and syrups that are added when foods or beverages are processed or prepared.

Solid fats and added sugars can make a food or beverage more appealing, but they also can add a lot of calories. The foods and beverages that provide the most empty calories are:

- Cakes, cookies, pastries, and donuts (contain both solid fat and added sugars)

- Sodas, energy drinks, sports drinks, and fruit drinks (contain added sugars)

- Cheese (contains solid fat)

- Pizza (contains solid fat)

- Ice cream (contains both solid fat and added sugars)

- Sausages, hot dogs, bacon, and ribs (contain solid fat)

- alcohol

7. Do you know how many calories do you need? What does the number depend on?

depend on your sex, age and physical activity

Calories and food

To calculate your basal metabolic rate use the Harris-Benedict formula, which is the number of calories you need to be awake, but not much more than that. Then, you adjust that number by your activity level. First, determine your basal metabolic rate:

Women: $65.5 + (4.35 \times \text{weight in pounds}) + (4.7 \times \text{height in inches}) - (4.7 \times \text{age in years})$

Men: $66 + (6.23 \times \text{weight in pounds}) + (12.7 \times \text{height in inches}) - (6.8 \times \text{age in years})$

1 kilogram= 2,20 pounds 1 inch= 2,54 cm

Next, take that number and multiply it by the number that corresponds to your daily activity level:

- Sedentary (little or no exercise) - 1.2
- Lightly active (light exercise/work 1-3 days per week) - 1.375
- Moderately active (moderate exercise/work 3-5 days per week) - 1.55
- Very active (hard exercise/work 6-7 days a week) - 1.725
- Extra active (very hard exercise/work 6-7 days a week) - 1.9

The final number you have is the number of calories you need per day to maintain your current weight.

My answer: *students' own answers*

<http://nutrition.about.com/od/changeyourdiet/a/calguide.html>