

# Data Analysis

## Food and Energy

Have you ever heard the saying, “You are what you eat?” In many ways, this is true! Living things are made up of different types of organic, or carbon-based, molecules. When we eat food, our digestive system breaks down the food into smaller molecules that can be used by the body. When digestion is complete, nutrients are absorbed by the body and transported by the circulatory system and lymphatic system to all the cells.

Once food enters the body, it can be broken down further to harness energy and form new types of molecules. For example, sugar molecules contain the elements necessary to produce many other types of organic molecules. These elements can be rearranged and combined with other elements through chemical reactions to form new products such as proteins, fats, and DNA.

The information on a food label, such as the one in Figure 30, can help you make good choices and compare the values of different foods. The label shown here is for cereal.

**Serving size and number** This measurement varies from one product to another. In this case, one serving equals  $\frac{3}{4}$  of a cup of cereal.

**Calories** The numbers listed on the label are for one serving only. If you eat your cereal with milk, you will have a different number of Calories.

**Nutrients to limit** Americans usually consume too much saturated fat, trans fat, cholesterol, and sodium. Trans fat is a type of fat that can cause cell damage. A diet high in these nutrients is linked to obesity, which affects more and more Americans of all ages. Too much sodium can raise blood pressure by causing the body to retain water.

**Nutrients to target** Americans need to consume enough fiber, vitamins, and other nutrients each day. Notice that this product is low in Vitamin A and Vitamin C, but high in iron.

**FIGURE 30:** Nutrition labels contain information about the biomolecules in your food.



### ANALYZE

Use the nutrition label shown in Figure 30 to complete the calculations necessary for Questions 1-6.

1. The label shows the calories in one serving of this food. If you were to eat two servings of this food, how many total calories would you consume?
2. If you were to eat two servings of this food, how many grams of carbohydrates would you consume?
3. Total carbohydrates is the sum of the simple sugars, starches, and dietary fiber in a product. Based on the label, what percentage of the total carbohydrates are in the form of fiber?
4. Carbohydrates contain 4 Calories per gram, fats contain 9 Calories per gram, and proteins contain 4 Calories per gram. Calculate the amount of caloric energy provided by each group of biomolecules in one serving of this food.
5. The label indicates that there are 0.3 grams of saturated fat in this product. What percentage of total fats is made up of unsaturated fats?
6. If a serving of this food is 29 grams, what percentage of the food is made up of carbohydrates?

The guidelines for what makes up a healthy diet have changed over time. You may have seen the food pyramid, which has carbohydrates at the base of the pyramid, and fats, oils, and sweetened foods at the top of the pyramid. More recently, a plate with four main sections for vegetables, proteins, grains, and fruits has been used as a model of a balanced diet. This is an example of how different fields of science work together to gather new information and update guidelines accordingly.



**Language Arts Connection** Research current nutritional guidelines using scientific and government sources. Consider the following when conducting your research:

- What is a balanced diet?
- How is a balanced diet modeled?
- How have nutritional guidelines changed over time?

Develop an informational pamphlet to share with your peers. Your pamphlet should contain the information you researched.

Informative/explanatory writing is a well-organized analysis of a topic. This type of writing tells how or why. Be sure to:

- Provide an introduction that clearly states the topic and engages readers.
- Organize your ideas to make important connections and distinctions.
- Include details that support your ideas.
- Provide a conclusion that supports your explanation.

## PRACTICE

### Track Your Nutrients

Record the foods you eat over the course of a week. Record the amount of carbohydrates, lipids, and proteins contained in the foods you eat for each meal. Are there any patterns in your eating habits?

**FIGURE 31:** Food has energy and nutrients your body can use.



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**BUILDING BLOCKS OF PLANTS**



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