



■ NUTRITION

Nutrition has several meanings. One common meaning is that nutrition is the process by which nutrients are taken in and used by the body for growth, repair, and overall health. Another meaning, and the one that is the topic of this section, is that nutrition is the study of how food affects the health of the human body.

Perhaps students have only thought about food as something that they need when they feel hungry, and that the purpose of food is to make hunger go away. However, food has more than just the power to satisfy hunger. Food is important because of its content. For example, a piece of pizza might be made up of bread, tomato sauce,

cheese, mushrooms, and peppers. To understand the importance of the pizza as food, students can look at the process used to make the food — the making of the bread with flour, water, and yeast, the making of the tomato sauce with tomatoes and seasonings — and at the production of the ingredients — the growing of the tomatoes and peppers, and so on.

However, thinking about nutrition also means looking beyond process and production and asking questions like this: “What does a tomato contribute to the body? What does cheese contribute?” This is the level at which an understanding of nutrition begins.

Background Information

This section introducing students to nutrition looks at five topics: nutrients, food guides, calories, nutrition labels, and food and cooking vocabulary.

Nutrients

Food is made up of nutrients that are important for the body. Nutrients are found in food in varying degrees, depending on the type of food. Six basic nutrients are carbohydrates, proteins, fats, water, vitamins, and minerals:

- **Carbohydrates** are food substances that provide the body with energy. Sugar, starch, and fiber are all carbohydrates. Some examples of foods that contain carbohydrates are potatoes, grains, and beans.
- **Proteins** are food substances that are responsible for growth and repair in the body. Some examples of foods that contain protein are meat, fish, tofu, and dairy products.
- **Fats** are food substances that supply the body with energy, provide a cushioning layer around organs, and insulate the body from very hot and cold temperatures. **Nutritionists**, people who study nutrition, currently believe that some fats can be eaten without harm to the body and some cannot. According to many nutritionists, less harmful fats are found in foods like olive oil, walnuts, and fish. Other fats, when consumed in large quantity, can clog arteries and cause problems in the cardiovascular system. These fats are found in foods like butter, cheese, and meat. Since foods like

butter, cheese, and meat contain other important nutrients, many nutritionists recommend that people balance their intake of foods, eating less harmful fats as often or more often than possibly harmful fats.

- **Water** is a clear, colorless liquid that is the main component of all the fluids in the body, including blood, digestive juices, sweat, urine, and tears. The human body is more than one-half water. Water is crucial for good health and for survival — water helps to keep things moving through the digestive system, controls the body's temperature, and lubricates the body's joints.
- **Vitamins and minerals** are substances required in very small but vital amounts to promote and maintain good health. Many vitamins and minerals are found in food, but some vitamins and minerals can be produced in the body and some can be made in factories and taken in capsule form. An example of a common vitamin is vitamin C, which is found in oranges and strawberries. An example of a common mineral is calcium, which is found in milk and other dairy products.

Vitamins and minerals are often referred to as **micronutrients** because they are required in small (micro) amounts to promote and maintain good health. Carbohydrates, protein, fat, and water are often referred to as **macronutrients** because they are required in large (macro) quantities to promote and maintain good health.

Food guides

While it is important for people to have an understanding of nutrients, it could be very time-consuming to analyze every food to decide whether it nourishes the body, and if so, in what quantity it is needed by the body for good health. Instead, many people refer to a **national food guide** — a country-specific guide to the kinds and quantities of foods required for good nutrition. Most guides recommend that every day, people choose from each of these food groups to obtain the nutrients they need for good nutrition: fruits, vegetables, meat and meat alternatives, milk and milk alternatives, and grains and grain products.

In North America, the national food guides are visual representations. In the US, a pyramid called MyPyramid represents US food guidelines. In Canada, a rainbow called Canada's Food Guide to Healthy Eating represents Canadian food guidelines. By following a national food guide, people can be assured that their bodies are receiving everything they need from their **diet**, the common daily intake of food. A **balanced diet** consists of a variety of nutritious food eaten every day, in the amount that each person's body needs to maintain good health. An **unbalanced diet** consists of an imbalance in the type or amount of food eaten every day and over time can lead to poor health.

The US and Canada provide interesting and informative websites about their national food guides:

- US National Food Guide.
<<http://www.mypyramid.gov/pyramid/index.html>>

- Canadian National Food Guide.
<http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/fg_rainbow-arc_en_ciel_ga_e.html>

Calories

Food provides people with energy, the capacity and strength to take some kind of action, whether mental or physical. The units of measurement for the energy provided by food are **calories**. Calories provide people with the vital energy they need to complete their daily activities, which include everything from the body's processes (pumping blood, breathing, digestion, etc.) to physical activities such as running, jumping, cleaning, dancing, and playing sports.

While all foods contain calories, some foods contain more calories than others. Foods that contain a high number of calories are not usually essential for good nutrition. Foods not essential for good nutrition fall into the category that is listed in the US national food guide as **discretionary calories** and in the Canadian national food guide as **other foods**. Foods not essential for good nutrition usually contain high amounts of calories in the form of sugar or fat and include such items as desserts, candy, soda, and alcohol. People who eat too many items from this category can easily get all of the calories they need in a day — and more — but not receive the nutrients they need for growth, repair, and overall health.

The daily number of calories each person needs depends on age, sex, height, weight, and level of physical activity. For example, MyPyramid recommends 1400 calories per

ACTIVITY 1

Discovering the Nutrients in Food

Purpose

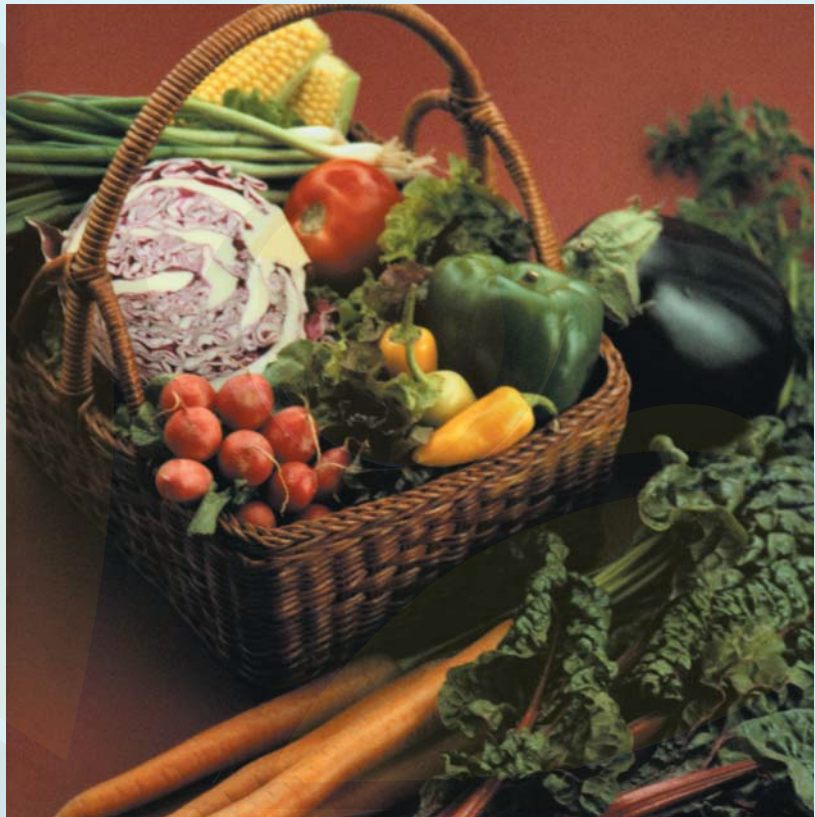
To begin looking at food as a source of nutrients.

Material

Samples of foods that contain the four main macronutrients: carbohydrates (e.g., bread, rice, pasta), fat (e.g., olive oil, cheese, butter), protein (e.g., tin of tuna, boiled egg, yogurt), and water.

Samples of micronutrients (vitamin and mineral supplements).

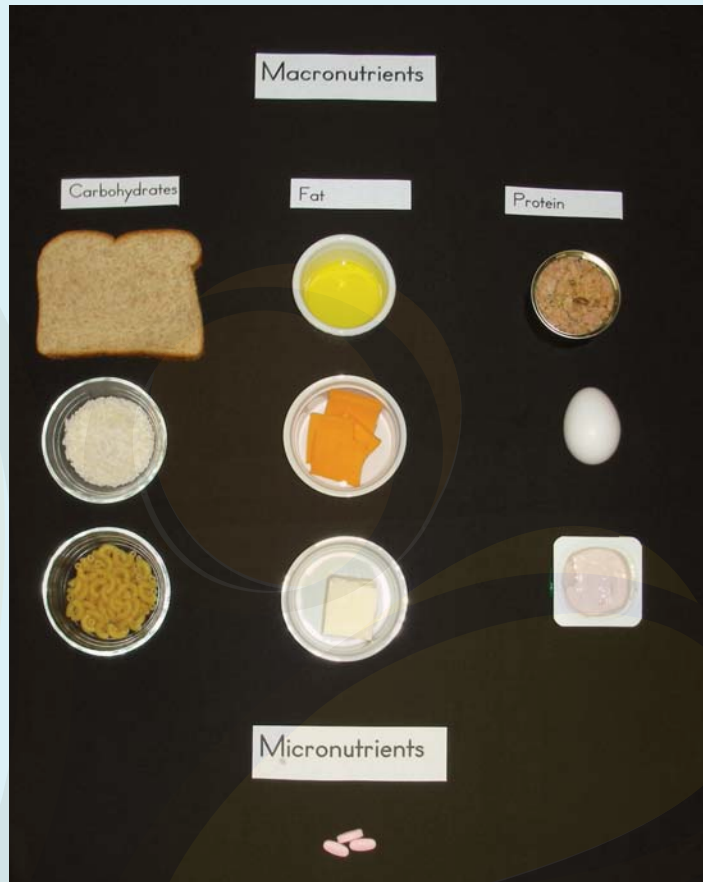
Health Sciences journals and pencils.



Presentation

- Most Montessori teachers introduce this concept in Year 1 and present it in more detail in Years 2 and 3.
- Announce that students will have an opportunity to learn more about why food is so important to humans.
- Define and discuss the two meanings of nutrition (both a process and a study). Point out that it is important to learn about nutrition to understand about how to keep healthy.
- Define and discuss nutrients, the food and other substances required for nourishment and health. Explain that the body needs nutrients to function properly and that there are two kinds of nutrients: macronutrients and micronutrients.
- Discuss how the four kinds of macronutrients (carbohydrates, fats, proteins, water) function in the body.
- Demonstrate the macronutrient food samples, naming each and the category in which it is placed. Invite the students to suggest other food samples that could be placed in each category.
- Discuss how micronutrients (vitamins and minerals) function in the body.

- Demonstrate the micronutrient samples, naming each and the category in which it is placed. Invite the students to suggest other samples that could be placed in each category.
- Emphasize that only a small amount of each vitamin or mineral is needed daily by the body. Discuss how, compared to vitamins and minerals, the human body needs fairly large quantities of carbohydrates, fats, proteins, and water in order to stay healthy.
- Ask the students to use their journals to make a list of macronutrients (carbohydrates, fats, proteins, water) and micronutrients (vitamins and minerals), then draw a picture of one food that supplies each nutrient.



Extensions

- Make a labeled, colored poster of macronutrients and micronutrients and show pictures of foods that supply each nutrient.