

# LESSON 11



## Chain Five

## Background

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Colorful fruits and vegetables not only are delicious but also provide many essential nutrients and other food components important for health. These foods are excellent sources of vitamin C, vitamin B<sub>6</sub>, carotenoids (including those that form vitamin A), folate (folic acid), and fiber. The antioxidants found in plant foods (e.g., vitamin C, carotenoids, vitamin E, and certain minerals) are of great interest to scientists because of their role in reducing the risk of heart disease and stroke, and possibly some cancers and other chronic diseases.

The availability of certain fresh fruits and vegetables varies by season and by region of the country. However, frozen and canned fruits and vegetables can be affordable, healthy options that are available throughout the year (scan the ingredients to avoid added sugars, salt, and other extra ingredients in packaged and canned products). The goal is to fill half your plate with fruits and vegetables at every meal, and choose them as snacks instead of junk food. Fruits and vegetables come in a rainbow of colors, so go for variety and get plenty of dark-green and orange vegetables. Eating at least five servings of fruits and vegetables a day is a great start, and more is always better!

The Get 3 At School and 5+ A Day promotion, which encourages students to eat more fruits and vegetables, can be used as an extension to this lesson. See lesson 30 in part III, Promotions for the Classroom, for details.

## Estimated Teaching Time and Related Subject Areas

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**Estimated teaching time:** 1 hour, 5 minutes

**Related subject areas:** science, language arts, art

## Objectives

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- Identify the benefits of consuming a variety of fruits and vegetables as well as other foods high in vitamins and minerals.
- Explain how vitamins and minerals obtained from fruits and vegetables contribute to a healthy body.

## Materials

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- Blackboard
- Storage box such as a pencil case or school supply box containing transparent tape, chalk, erasers, a ruler, pencils, pens, and sticky notes
- Pictures of fruits and vegetables and a picture of unflavored milk
- Overhead 11.1, Fruit and Vegetable Labels
- Overhead 11.2, Mineral Food Labels
- Worksheet 11.1, Chain Five: Vitamins and Minerals
- Worksheet 11.2, Vitamins and Minerals Chart
- Strips of colored paper (use two colors) and paste, tape, or staplers



2. Explain to the students: "Fruits and vegetables are like the supplies in my container because they are sources of things our bodies need. These things are called nutrients (vitamins, minerals, and other nutrients), which are substances our bodies need to be healthy. Just as I need to replace my supplies when they run low, we need to replace the nutrients in our bodies because our bodies use them every day."
3. Ask the students what they think is the most popular breakfast juice. Acknowledge all answers, and ask the following question when orange juice is given as an answer: "What is the primary vitamin found in oranges?" Students should answer, "Vitamin C." Explain that an orange is a citrus fruit, and ask if the students can name other fruits that belong in this group (grapefruit, limes, lemons, tangerines, tangelos).
4. Tell the students that other sources of vitamin C are broccoli, cantaloupes, strawberries, peppers, tomatoes, and sweet potatoes.
5. Write the word *vitamins* on the board. Have students discuss what they know about vitamins.  
Students might say the following:
  - Vitamins are things your body needs to stay healthy.
  - Vitamins are listed on cans, bags, and boxes of food.
  - Vitamin pills are purchased and taken by mouth.

### KEY IDEAS

- Vitamins are important for the growth and maintenance of the body.
- Vitamins do not work alone. They work with other nutrients to get jobs done.
- When we eat foods containing vitamins, some are broken down, used, and excreted by the body, whereas others are stored by the body.
- Vitamins reduce the risk of certain chronic diseases such as heart disease and possibly certain cancers.
- Vitamin C helps the body maintain healthy tissue, skin, and blood vessels.

6. Display pictures of dark-green, leafy vegetables and yellow-orange vegetables. Explain to the students: "These foods contain lots of vitamin A. This vitamin enables us to see at night and gives us healthy skin."
7. Show Overhead 11.1, Fruit and Vegetable Labels, which shows one label for a fruit selection and one for a vegetable selection. Ask the students to identify vitamins listed on each label.
8. Have students suggest reasons they must eat daily a variety of fruits and vegetables in a rainbow of colors.

Sample reasons:

- Foods and nutrients work together to keep the body healthy.
  - There is more than one source of the same nutrient.
  - Many substances are needed to bring about chemical reactions in the body.
  - Not all nutrients are contained in one food selection.
9. Display a photograph or a container of unflavored milk and explain: “It is important to eat a variety of fruits and vegetables so that you get all the vitamins you need. It is also important to eat a variety of foods so that you get all the minerals you need. Like vitamins, minerals are substances that keep your body strong and working well. For example, milk has a lot of calcium, which is a mineral. Calcium builds healthy bones and teeth.” Explain that calcium is also found in fortified soy and rice milks as well as in foods such as collard greens, tofu, black-eyed peas, and baked beans.
  10. Write the word *minerals* on the board, and list some important ones. Also explain how each is helpful to the body (see table 11.1).
  11. Explain to the class that we get some minerals from fruits and vegetables, but we also get minerals from other sources such as unflavored milk (and other dairy products, such as cheese and plain yogurt) as well as beans, nuts, seeds, poultry, and seafood. We must eat a balanced diet to make sure we get all the vitamins and minerals we need.
  12. Show Overhead 11.2, Mineral Food Labels, to the class. Ask the students to identify minerals listed on the label of each food selection. Remember that if the % Daily Value is 5 or less, the food is low in that nutrient.
  13. Have the students form pairs or small groups. Distribute Worksheet 11.1, Chain Five: Vitamins and Minerals, and Worksheet 11.2, Vitamins and Minerals Chart. Have pairs or small groups use the chart on Worksheet 11.2 to identify a fruit or vegetable for each vitamin in the first chain on Worksheet 11.1 and a food source for each mineral in the second chain. Suggest that they select fruits, vegetables, and other foods that they enjoy.
  14. As the groups are working, distribute the colored strips of paper (at least five of color 1 and five of color 2 per group) and paste, tape, or staplers. Once the groups have completed the worksheet, have them write one of the vitamins from the worksheet (including the extra vitamin they chose for the fifth box) on each of the strips of color 1 and then have them write the fruit or vegetable source on the back. On the strips of color 2, have them write each of the minerals, with the food source they chose on the backs.
  15. Have each group link its strips together into paper chains, either alternating or grouping colors. You may want to link all of the groups’ chains into one to hang up in the classroom or leave them in shorter lengths to decorate areas of the room.
  16. Explain to the students that the chains are a visual reminder to eat a variety of colorful fruits and vegetables (five or more servings each day) and other foods to get all the vitamins and minerals they need for healthy bodies.

**TABLE 11.1 Minerals**

Calcium helps keep our bones and teeth strong.	Zinc helps our bodies get energy from the food we eat.
Iron helps blood carry oxygen to all parts of our bodies.	Potassium helps our nerves function and our muscles, especially the heart, work properly.
Iodine helps our bodies get energy from the food we eat.	

