

### Key Message:

**Fresh, frozen, canned, and dried fruits and veggies can all be healthy choices. Try fruit at breakfast and as a snack.**

### Subject Connections:

Math, Science, Health, English  
Language Arts

### Learning Objectives:

**Students will be able to...**

- Describe the health benefits of dietary fiber.
- Identify fruits and vegetables that are high in dietary fiber.
- Discuss ways to enjoy fruit at breakfast and as snacks.

### Supplies:

- Hand juicer, 8-oz clear plastic cups, plastic bowls, plastic gloves, aprons, spoons (per student)
- Access to sink with warm, running water and soap
- **Garden Journals**
- Student handouts (pp. 85-86):
  1. **Finding Fiber**
  2. **Fabulous Fruit**
- **Dig In!** poster: **Roller Coaster**

### Featured Fruits and Vegetables:

#### Strawberry

Provide enough cut-up samples to use in the activity on pp. 54-55.

### Additional Foods:

One orange cut in half. (Optional: If making a juice for students to try, use more oranges.) The recipe on p. 86 serves two; adapt as needed: Variety of pre-cut fruits (choose high-fiber fruits such as: oranges, strawberries, pears, apples, kiwi, dried fruit); low-fat yogurt; low-fat granola. Provide water (and cups) for students to drink as they taste the foods.

# Lesson 8: Fruits and Veggies Many Ways

**TOTAL TIME REQUIRED:** 120 minutes / 3 sessions

**Session 1: Getting Started** 10 min;

**Activity I “Fantastic Fiber”**

20 min (Health/Science)

**Session 2: Activity II “Fiber Investigation”**

40 min (Health/Science/English  
Language Arts/Math)

**Session 3: Activity III “Fabulous Fruit”**

40 min (Health);

**Reflect** 10 min

### LESSON OVERVIEW:

Students will discuss different ways to preserve the harvest – freezing, canning, and drying. This ensures that fruits and vegetables are always available, whether between shopping trips or when fresh produce is out of season. Students will explore differences in the fiber content of fruits and vegetables and discover tasty ways to enjoy fruit at breakfast and as snacks.

**ESSENTIAL QUESTIONS:** *What is fiber, what does it do for me, and where can I find it? How can I tell if a food is more nutritious?*

### TEACHING PROCEDURE:

#### GETTING STARTED (10 minutes)

1. Eating fruits and vegetables picked fresh from the garden is just one way that produce can be eaten. Ask students to suggest other forms of fruits and vegetables. Explain that while fresh produce is tasty, so are other forms of fruits and vegetables. Frozen, canned, and dried fruits all count toward the **Fruit Group**, and 100% fruit juice does as well. The same goes for vegetables: they can be frozen, canned, or dried. 100% vegetable juice counts toward the **Vegetable Group** too.
2. Ask students to name some advantages to frozen, canned, or dried fruits and vegetables. (*You can have fruits and vegetables on hand between trips to the store, you can enjoy certain fruits and veggies when they are no longer in season; they don't spoil like fresh.*)
3. Remind students about the **food system** and the steps that a food takes from farm to plate (see sidebar, p. 53). One of the steps of the food system is **processing**. Ask students if anyone remembers what happens in this step, and when.
4. Processing happens after production (*i.e., when a fruit or vegetable is grown and harvested*). Explain that food processing changes food from its original form. The food might be changed to make it easier to eat, such as peeling and slicing an apple, or bagging prewashed salad. Processing can also be done to **preserve** food so we can still eat it after the growing season has ended. Common preservation methods are: **canning, drying, or freezing**.

5. Have students reflect on the different ways fruits and vegetables can be eaten. How might they change from the garden to the plate? Ask students to think about how fruit might become fruit juice. Demonstrate juicing an orange, or have students help you using a hand juicer. Ask students to identify what is left behind in the orange that is not part of the fruit juice. (*Parts of the fruit that separate the orange into sections; membranes that contain fiber.*) We eat more of the orange when eating slices rather than when drinking the juice. Ask students if they think this might affect the nutrients found in juice as compared to the whole fruit.

## LEARNING ACTIVITIES


### Activity I. Fantastic Fiber (20 minutes, Health/Science)

1. Write the word **fiber** on the board, and ask students if they know what it is or what it does for the body. Do they know any foods that have fiber? Do meats or dairy foods have fiber? Explain that fiber is found only in plant foods (*i.e., fruits, vegetables, whole grains*). It is not found in animal foods like meat and dairy. Some fiber comes from the parts of the plant that help it keep its shape and give it structure, like the individual sections you see in an orange or the skin on a potato. It's also in the small seeds you might eat as part of the fruit, such as in a strawberry or kiwi fruit. Fiber naturally occurs in many fruits and vegetables. Beans and peas are an excellent source.
2. So how does fiber work? What does it do? One of the ways fiber helps the body is to act like a scrub brush or broom, moving food along through the digestive tract. Fiber also helps the body feel full longer after eating. **Note:** *Visually demonstrate the process showing a bottle brush in a paper-towel roll.*

### Activity II. Fiber Investigation (40 minutes, Health/Science/English Language Arts/Math\*)

\*See p. 54 for Math connection.

1. In this activity, students will practice reading the **Nutrition Facts label** to determine the amount of fiber in ½-cup portions of various fruits and vegetables. The Nutrition Facts label is usually found only on packaged foods (*i.e., canned, frozen, and dried fruits and vegetables*) and not fresh produce. Labels for some fresh fruits and vegetables have been provided on the student handout to give students experience in comparing fruits and vegetables. You may also use the USDA's online **SuperTracker, Food-a-Pedia** (<https://www.supertracker.usda.gov/foodapedia.aspx>) to find out how much fiber is in various foods.

 **Teacher Tip!** A brief video tour on how to use **Food-a-Pedia** is available at <https://www.supertracker.usda.gov/sitetour.aspx> (see Section 4 of the User Guide). Alternatively, *Team Nutrition* also has **Nutrition Facts labels** for fruits and vegetables that you can print and use in class. Find them at: <http://teammnutrition.usda.gov/NutritionLabels.pdf>.

## VEGGIES MANY WAYS

Fresh, frozen, and canned vegetables are all nutritious choices. A vegetable that is ripe when harvested and frozen soon after can actually have more vitamins and minerals than a fresh form of the vegetable that's been picked before it's ripe and/or stored for a long time. For some vegetables, heating can actually make certain nutrients easier for the body to absorb and use.

## REVIEW THE FOOD SYSTEM

Provide an overview of these five steps in the food system:

### Production:

Farmers produce fruits and vegetables by growing them on their farms.

### Processing:

The fruits and vegetables are processed before they are sold. The food can be washed, cut, mixed, and packaged to preserve it or make it more appealing (*i.e., tastier or easier to use*) for the customer.

### Distribution:

When the food has been processed, it is ready to be distributed to stores and is transported by airplane, truck, or train.

### Consumption:

After customers buy the food, they consume it by eating it cooked or raw.

### Composting/Recycling:

Uneaten food scraps are disposed of (either composted to return nutrients to the soil or sent to a landfill).

## DIG DEEPER!



Have students take their fruit investigations further. They can:

- Count how many times they see ads for fruits and vegetables during their favorite television show or in their favorite magazine. Have students compare the number of these ads to ads for other food products. Is there a difference? Ask students to speculate how the frequency of ads for different foods might influence behavior and health.

## FIND THE FIBER

Remind students that people need to eat different types of fruits and vegetables to get all of the nutrients their bodies need for good health. Different fruits and vegetables contain different nutrients. Some fruits and vegetables are higher in fiber than others. In the case of 100% juice, the fiber has been removed during processing. Remember what was left behind in the orange after juicing? (*The membranes that provide the fiber.*) That's why nutritionists recommend that most of the fruits and vegetable you eat come from whole or cut-up fruits instead of juice.

## FIBER GRAPHS (MATH)

After students have completed their investigations, have them graph the amount of fiber in various fruits and vegetables using information from Nutrition Facts labels (from the handout or elsewhere) or USDA's online **SuperTracker Food-a-Pedia** (<http://www.choosemyplate.gov/foodapedia>) Ask: Do all fruits and vegetables have the same amounts of fiber? (*No, the amount of fiber varies, which is why you need to eat a variety.*)

## Ways To Process a Food:

**Fresh-cut:** to cut, peel, or shred fresh fruits and vegetables prior to packaging. Fresh-cut products do not require additional preparation, processing, or cooking before they are eaten. Baby carrots and apple slices are examples.

**Juice:** to extract (take out) the juice from a food. Orange juice and tomato juice are examples.

**Cook:** to heat a food to prepare it for eating. Tomato sauce and applesauce are examples.

**Preserve:** to keep food safe to eat for a longer period of time. Canned, frozen, and dried fruits and vegetables are examples.

## Ways To Preserve a Food\*

**Freeze:** to have the liquid in a food change to a solid because of extreme cold

**Can:** to store food in a can or jar that has been heated and sealed to prevent spoilage

**Pickle:** to preserve food in vinegar, brine, or another liquid

**Dry, or Dehydrate:** to preserve food by removing the water from it

**\*Note:** This is not a complete list of preservation techniques.

- Distribute the **Finding Fiber** handout (p. 85) and divide the class into pairs. Direct students to look at the top-left label (A). Invite students to share what information they notice and explain what they think it means. Can students identify any of the following on the label?

**Serving Size:** Ask for students to look for the words "Serving Size" on the first label (100% Apple Juice). In this example, the serving size is 4 fluid ounces, equivalent to  $\frac{1}{2}$  cup. Explain that the information on the label is based upon one serving.

**Fiber:** Students can tell the amount of fiber in the food by looking at the grams of fiber on the label. The label also provides the **percent daily value** (%DV). The %DV is a number that tells you if there is more or less of a daily recommendation of something in a serving of the food. A %DV of 5% or less is low; 20% or more is high. Choose foods that are higher in fiber.

**Note:** All serving sizes on the Nutrition Facts labels on the handout are equivalent to  $\frac{1}{2}$  cup of fruit.

- Which foods contain the most fiber? (*The whole orange and apple slices contain the most fiber.*) Which has more fiber: a whole orange or orange juice? (*The whole orange.*) An apple or apple juice? (*Apple.*) What does this tell you about the amount of fiber in juices verses whole or cut-up fruit? (*Whole fruit contains more fiber than juice. Juice contains little fiber.*) Were all of the whole or cut-up fruits high in fiber? (*No, different fruits have different nutrients, which is why you need to eat a variety.*)

## Activity III. Fabulous FRUIT (40 minutes, Health)



**\*Allergy Alert!** See p. 2 for more information on food safety and allergies before starting this food preparation activity.

**Prepare:** Set up several stations, each with a serving spoon, with samples of cut-up fruit in different containers (choose high-fiber fruit – for example, oranges, strawberries, pears, apples, kiwi, any dried fruit), low-fat yogurt, and low-fat granola (or oatmeal). Provide each station with plastic gloves, plastic cups, spoons, and napkins.

1. Tell students that fruit can be a delicious way to add fiber to their breakfast or snack. Explain that the fiber will help them feel full until their next meal so they can focus on school or sports. Students will prepare a recipe featuring fruit in this activity. First, they should wash their hands following the correct procedures (see pp. 4-5 for important food safety and hand-washing reproducible).
2. Distribute the handout **Fabulous Fruit** (p. 86). Divide students into groups of five and direct them to a fruit station. Give each student a plastic glove, apron, and a plate and/or cup. Have them follow the instructions to create the **Breakfast Sundae** recipe. Each student will create one fruit compote sundae that he or she can eat as a snack or at breakfast. Encourage them to be creative by layering the ingredients.
3. As soon as students are finished, they may sit down and eat their sundaes. Invite students to share what they liked about the process and how they liked their snacks. Ask: *Which fruit was your favorite? Did you try a new fruit? How did the combination of the ingredients enhance the flavor of each? Would you ever try this recipe again? Why or why not?*

### REFLECT (10 minutes)

Have students reflect in their **Garden Journals** about the foods they eat. Ask: *How much is processed? How many whole fruits and vegetables do you eat each day? How can you get more fiber? Are there any snacks you eat during the day that can be more nutritious? How can you eat more fruits each day?* Have students write down three tips and then share them with the class.

### EXTENSIONS

**Fruity Offerings.** If your school offers breakfast, have students look at the menu and identify what types of fruits are offered. Students may survey their classmates to find out what fruits they'd like to be served more often. Are there any suggestions or requests they can make to the food service staff/director?

**Local Harvest.** Ask local fruit and vegetable farmers to talk with the class about how their produce might be processed after harvest. For instance, carrots from local growers might be washed, sliced, and frozen for use in school meal programs.

**Healthy Snack Track!** Have students track their snacks for a week. Did any of their snacks include fruits and vegetables? What are some ways they could eat more fruits and vegetables as snacks?

**Poll the Favorites.** Have students interview teachers, coaches, and school administrators to find out their favorite fruit or vegetable snack. Create a bulletin board showing the results.

**Shop Fruits and Veggies.** Have students review their family's shopping list for the week. Does it include a variety of fruits and vegetables? Are there fresh, frozen, canned, and dried fruits and vegetables on the list?



## PICKING AND STORING YOUR GARDEN HARVEST

Have your **Garden Teams** check the garden to see if any fruits and vegetables are ripe enough for harvest. Encourage students to use care not to break, scrape, or bruise fruits and vegetables when harvesting. The less that fruits and vegetables are handled, the longer they will last in storage. (🍃 pp. 104-105) Harvest only produce of high quality. Rotting produce and produce infested with insects should not be used. Use cleaned and sanitized food-grade containers, such as plastic bins or buckets, to hold harvested produce. Most garden produce should be refrigerated immediately after harvest, unless it is normally held at room temperature (such as tomatoes).