

Fruits of Our Labor

Grade 2

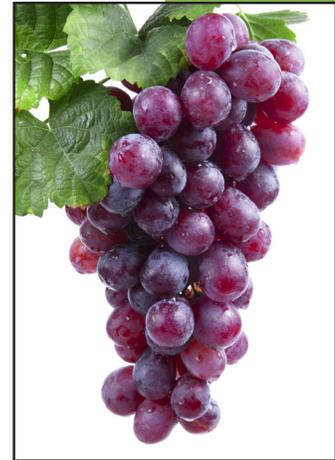
► **Next Generation Science Standard: K-2-ETS1-1**

Define a simple problem that can be solved through the development of a new or improved object or tool.

Application: With food processing, foods that can be harvested only during certain times of the year are available all year round. With this activity students will have a chance to experience drying food to preserve it.

Materials for the class:

grapes cookie sheet
kitchen towel water



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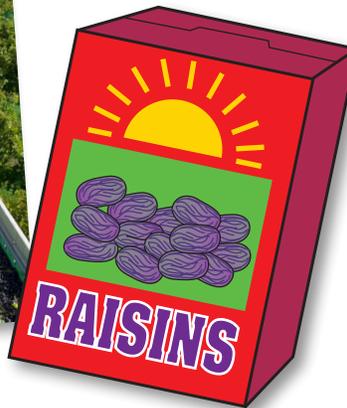
Introducing the lesson:

Farmers around the world grow the food we enjoy every day. There are three basic steps to get food from the farm to the dinner table:

- *Production* involves growing the food on a farm.
- *Processing* is what happens to the food once it is ready to be picked. This could involve packaging, canning, freezing, or drying it. In this lesson, the grapes are being washed and dried to make raisins.
- *Transportation* involves taking the food to the store.



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Think about it.

How do manufacturers dry all of those raisins that are sold in stores? Oftentimes the raisins are dried right in the fields where they were grown. The grapes are picked in late August or early September and placed on paper trays beside the vines. The ground in the vineyard works almost like an oven! After two to three weeks baking in the hot sun, the sugars caramelize to produce the distinctive flavor. It takes about 4½ pounds of grapes to produce one pound of raisins.

Food scientists and farmers continue to experiment with other ways to increase yields and improve quality and flavor. For example, scientists are developing a method of drying grapes right on the vine, which means less handling for the grapes and no paper trays to dispose of.

Lesson:

1. Ask students if they've ever eaten strawberries in January or peppers in November. Explain that because of food processing, foods that used to be out of season during much of the year are now available and affordable all year long.

Did you know?

Many foods can be dried, including meat. The process of drying meat dates back many thousands of years. Even the Neanderthals dried meat so they could eat it later. Zooming ahead in time, Native Americans ate *pemmican*, which is dried meat that was pounded into fine pieces and mixed with melted fat. Today dried and cured meats are vacuum-packed so they stay fresh.



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2. Explain that in much of the United States, tomatoes are harvested only in the summer. However tomatoes are sold year-round. **Ask students:**
 - If tomatoes grow in the summer months, how are we able to buy them year-round at the grocery store? *For the rest of the year, they are grown in greenhouses so that the climate (weather) is controlled or they are grown in warmer climates and shipped to the United States.*
3. Point out that another way to enjoy tomatoes year-round is by eating products made from processed tomatoes. **Ask students:**
 - What are some products that are made using processed tomatoes? *Likely answers include pizza sauce, pasta sauce, sun-dried tomatoes, salsa, ketchup, diced tomatoes, tomato paste, tomato soup, tomato juice, etc.*
4. Grapes are another example of a food that has several products made from it. **Ask students:**
 - What are some foods that are made from grapes? *Raisins, grape juice, vinegar, jam, jellies, and marmalades are some examples.*
5. Tell the class that they are going to do an experiment focusing on how raisins are made using a type of food processing called *dehydration* or drying. **Ask students:**
 - How do you think raisins are made from grapes? *By drying the grapes.*
 - What are the pros and cons of buying raisins versus fresh grapes? *Raisins have a longer shelf life and are readily available year round. Grapes may be more expensive during the off season and go bad after a few days. The taste and texture of each is different.*
6. Follow the steps on the recipe card to make your own raisins.

Did you know?

Processed tomatoes are picked when ripe. Less than 6 hours pass from when they are picked and when they are canned. Fresh tomatoes typically are picked while they are still green because more time passes before they reach the grocery store.



How to Make Raisins

Ingredients:

grapes	cookie sheet
kitchen towel	water

1. Wash the grapes and spread them onto the cookie sheet. Make sure the grapes are not touching one another.
2. Find a sunny spot outdoors where you can place your grapes to dehydrate. (For example, place them on a table in a courtyard and label them so no one will disturb them.) Make sure they are safe from animals. Put the towel over the grapes to protect them from pests.
3. Turn the grapes from side to side twice a day to keep them from sticking.
4. In 3–7 days, the grapes will change into raisins.

Note: Environmental factors such as direct sunlight, the type of surface under the grapes, and humidity can affect how long the process will take. For areas that experience high humidity levels, you may wish to dry your grapes in a dehydrator or oven. Set your oven for 160° F and leave the grapes to dry for up to 7 hours. Check the progress each hour and turn the grapes frequently to avoid sticking.



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