



# Safe Food Preparation

Activity from *The Science of Food Teacher's Guide: From Ecosystems to Nutrition*  
and for *The Mysterious Marching Vegetables*

*Written by*

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**BioEd<sup>SM</sup>**

Teacher Resources from the  
Center for Educational Outreach at  
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Fourth edition. First edition published 1997.  
Printed in the United States of America

ISBN: 978-1-888997-76-7

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The activities described in this book are intended for school-age children under direct supervision of adults. The authors and Baylor College of Medicine cannot be responsible for any accidents or injuries that may result from conduct of the activities, from not specifically following directions, or from ignoring cautions contained in the text.

This publication and educational unit were made possible by grant number R25 RR13454 from the National Center for Research Resources (NCRR) and by grant number R25 ES10698 from the National Institute of Environmental Health Sciences, (NIEHS). NCRR and NIEHS are components of the National Institutes of Health (NIH). The opinions, findings and conclusions expressed in this publication are solely those of the authors and do not necessarily reflect the official views of Baylor College of Medicine, NCRR, NIEHS or NIH.

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## Acknowledgments

The Science of Food educational materials, first developed as part of the My Health My World® project at Baylor College of Medicine, have benefited from the vision and expertise of scientists and educators from a wide range of specialties. Our heartfelt appreciation goes to Michael Lieberman, M.D., Ph.D., William A. Thomson, Ph.D., and Carlos Vallbona, M.D., who have lent their support and expertise to the project.

Special acknowledgment is due to our partners in this project, American Physiological Society (APS) and the Texas Medical Association. We especially thank Marsha Lakes Matyas, Ph.D., and Katie Frampton of APS for their invaluable direction of field testing and dissemination activities in the Washington, D.C. area.

We are indebted to the Science Education Partnership Award Program of the NCRR and to L. Tony Beck, Ph.D., for supporting the development and field testing of this unit. We also thank the National Institute of Environmental Health Sciences, Allen Dearry, Ph.D., Frederick Tyson, Ph.D., and Liam O’Fallon for their support of the My Health My World project and the related Environment as a Context for Opportunities in Schools (ECOS) project.

Many dedicated professionals helped assure the educational and scientific integrity of this publication. In particular, we are grateful to the following individuals who provided guidance: Joan Carter, R.D., Kimberly Chang, Ph.D., Marta Fiorotto, Ph.D., Katie Frampton, Michael Grusack, Ph.D., Kyle Roberts, Ph.D., Saundra Saunders, M.A., and Faye Sinnott.

We are especially grateful to the many classroom teachers in Washington, D.C., and Houston, Texas, who field tested these materials and provided invaluable feedback.

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# Food Safety and Nutrition

Environment and Health Basics



**F**ood affects health and well-being in two important ways. First, we require appropriate amounts of different kinds of foods to supply the energy and nutrients we need for daily activities and for growth and maintenance of our bodies. Second, food can contain contaminants that can make us sick.

Carbohydrates, fats and proteins are our main sources of energy. Our bodies also need protein to maintain muscles and carry out many functions inside cells. Small amounts of



vitamins and minerals also are necessary.

Food becomes available for use by the body through the process of digestion. Digestion breaks down large food molecules into smaller ones that can be transported and used by the body.



Many Americans eat too much refined sugar and unhealthy fats. Examples of foods with little nutritional value, or with too many added calories, are soft drinks, chips, greasy fried foods, candy and snack cakes. A diet that has a lot of “junk” foods is harmful

in two ways. First, it does not provide all of the vitamins, minerals and other substances needed for growth and health. Second, a diet with many sweets and fatty foods often delivers too many calories. When a person eats more calories than he or she uses up through movement and exercise, the body stores the excess energy as fat. Excess body weight can contribute to a number of serious health problems, such as type 2 diabetes, heart disease and stroke.

How foods are grown and prepared also is important. Plants and animals can take in small amounts of pollutants (harmful chemicals) from water, food or soil. These pollutants can accumulate in the bodies of other living organisms that eat the smaller plants or animals—a process known as bioaccumulation. Food also can be spoiled by bacteria. Most bacteria that cause food-related illnesses are spread because hands and food preparation areas are not kept clean or because food is not kept at the proper temperature.



Simple actions, such as washing hands before eating or preparing food, help to reduce the possibility of spreading bacteria or other harmful substances to food.

## CHILDREN'S ENVIRONMENTAL HEALTH

Children are particularly susceptible to contaminants in food and in the environment. Because their bodies are still growing and because they eat more fruits and vegetables (which may contain chemical residues) relative to their body weights, children are more vulnerable to the harmful effects of substances such as lead and pesticides. However, many researchers believe that a healthy diet, which provides recommended amounts of vitamins and minerals, may help protect children from potentially harmful chemicals.

## AVOIDING SUGARY DRINKS

Many soft drinks have around 10 teaspoons of sugar in a 12-ounce can. These drinks, which have little nutritional value, contribute to the nationwide epidemic of overweight and obesity.

# Safe Food Preparation

Environment and Health



**S**imple precautions during food preparation can help to keep foods free of bacteria, and also help to reduce the consumption of chemicals applied to fruits and vegetables. Some important food preparation tips include the following.

- Always rinse fruits and vegetables, and after handling raw meat, fish or poultry.
- Always wash hands before preparing any food.
- Always wash cooking utensils, such as knives and cutting boards, in hot, soapy water.
- Clean cutting boards and work surfaces with a 1:10 bleach and cold water solution to kill bacteria.



## Unit Links

### *The Mysterious Marching Vegetables*

Sciences boxes, p. 32–33

### *Explorations*

How Much Fat . . . , p. 6

- Always wash cutting boards between preparing different food items.
- Cook all meats, fish, eggs and poultry thoroughly.
- Use ground meats within 24 hours of purchase (or freeze them) and cook thoroughly.
- In home gardens, use pesticides as sparingly as possible.
- Avoid eating fish and seafood from polluted water.

This activity will allow students

to observe safe food preparation practices while making a fun treat—ice cream!

## SETUP

Have students work in pairs and share materials to freeze the ice cream. Each student, however, should prepare his or her own batch of ice cream. Arrange measuring tools and ingredients along a counter, “cafeteria style.” Students should practice safe food preparation procedures by using clean utensils, washing work surfaces and washing hands before beginning. New resealable plastic bags do not need to be washed before use.

## PROCEDURE

1. Before beginning, have students talk about ways they can keep food clean during preparation. List their ideas on the board. If necessary, mention additional points listed above to complete the discussion.
2. Tell students that they will be making one of their favorite foods—ice cream. Go over the steps they will follow to make the ice cream, as listed on the “Good and Healthy!” sheet. Have students identify which steps will require care to keep their food clean.

## CONCEPTS

- Simple things that can be done during food preparation reduce the risk of food contamination.
- Snacks can be nutritious and fun!

## OVERVIEW

Students will learn about safe food preparation by making fruit ice cream in class.

## SCIENCE, HEALTH & MATH SKILLS

- Measuring
- Planning a step-by-step procedure
- Making observations

## TIME

Preparation: 30 minutes

Class: 30 minutes

## MATERIALS

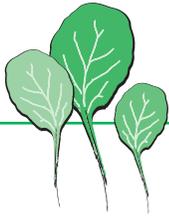
- Clean-up supplies

Each team of 2 students will need:

- 6 tbs of rock salt
- 1/2 gal of ice
- Clear, resealable plastic bag, freezer weight, 12 in. x 15 in. (gal size)
- Measuring cups
- Measuring spoons

Each student will need:

- 1/2 cup of whole milk
- 1/2 tsp of unflavored gelatin
- 1/4 cup of orange juice
- Clear, resealable plastic bag, freezer weight, 4 in. x 6 in.
- Plastic spoon
- Tablespoon of sugar
- Copy of “Good and Healthy!” sheet



### MORE ON FOOD SAFETY

Did you know that one in six Americans will get sick from food poisoning this year alone? Food poisoning not only sends more than 100,000 Americans to the hospital each year—it also can have long-term health consequences.

To find out more about food safety, recalls and alerts, visit <http://www.foodsafety.gov/>.

3. Before beginning, have students wash their hands and work areas.
4. Have each student measure the following ingredients into a small freezer-weight resealable plastic bag: 1/4 cup of orange juice, 1/2 teaspoon of gelatin and 1 tablespoons of sugar. Have students seal, then shake the bags to mix these ingredients together. Have each student add 1/2 cup whole, unflavored milk to his or her bag.
5. Have each team of two students fill a gallon-size resealable plastic bag about halfway with ice, and then add about 6 tablespoons of rock salt.
6. Direct both members of each team to place their bags inside the gallon bag with ice and seal the large bag carefully. Have students take turns shaking the gallon bags until the mixture freezes.
7. Let students remove the smaller bags, wipe or rinse off the salt water and enjoy their sweet treat.
8. Later, have students write a paragraph describing the steps they followed to make the ice cream. Have them include descriptions of the ways they kept their food and work areas clean.

### VARIATION

Let students bring raisins, chocolate chips, sprinkles, etc., from home to add to their ice cream. Or have them bring different kinds of fruit. A fourth-cup of mashed bananas or strawberries, or another kind of juice can be substituted for the orange juice.

### QUESTIONS FOR STUDENTS TO THINK ABOUT

*When making the ice cream, did a physical or a chemical change take place? How do we know?*



### Tasty Good Ice Cream

Put the following items into a small resealable plastic bag.

1 tablespoon of sugar

$\frac{1}{2}$  teaspoon of gelatin

$\frac{1}{4}$  cup of orange juice

Seal the bag and shake it to mix the ingredients together.

Then open it and add  $\frac{1}{2}$  cup of whole milk. Seal the bag again.

Fill a large plastic bag about halfway with ice, and then add about 6 tablespoons of rock salt.

Put one or two small bags into the large bag with ice. Close the large bag and shake it for about five minutes. Take out the small bags, wipe or rinse off the outsides, get a spoon and ENJOY!

### Helado Delicioso

Vierte los siguientes ingredientes en una bolsa pequeña reusable:

1 cucharada de azúcar

$\frac{1}{2}$  cucharadita de gelatina

$\frac{1}{4}$  taza de jugo de naranja fresco

Cierra la bolsa y mezcla los ingredientes.

Entonces abre la bolsa y añade  $\frac{1}{2}$  taza de leche. Cierra la bolsa otra vez.

Llena una bolsa grande reusable de hielo hasta la mitad y añade 6 cucharadas de sal de roca.

Pon una o dos bolsas pequeñas dentro de la bolsa grande con hielo, cierra la bolsa grande y agita por 5 minutos. Saca las bolsas pequeñas, seca la parte de afuera de cada bolsita, busca una cucharita y ¡DISFRUTA!