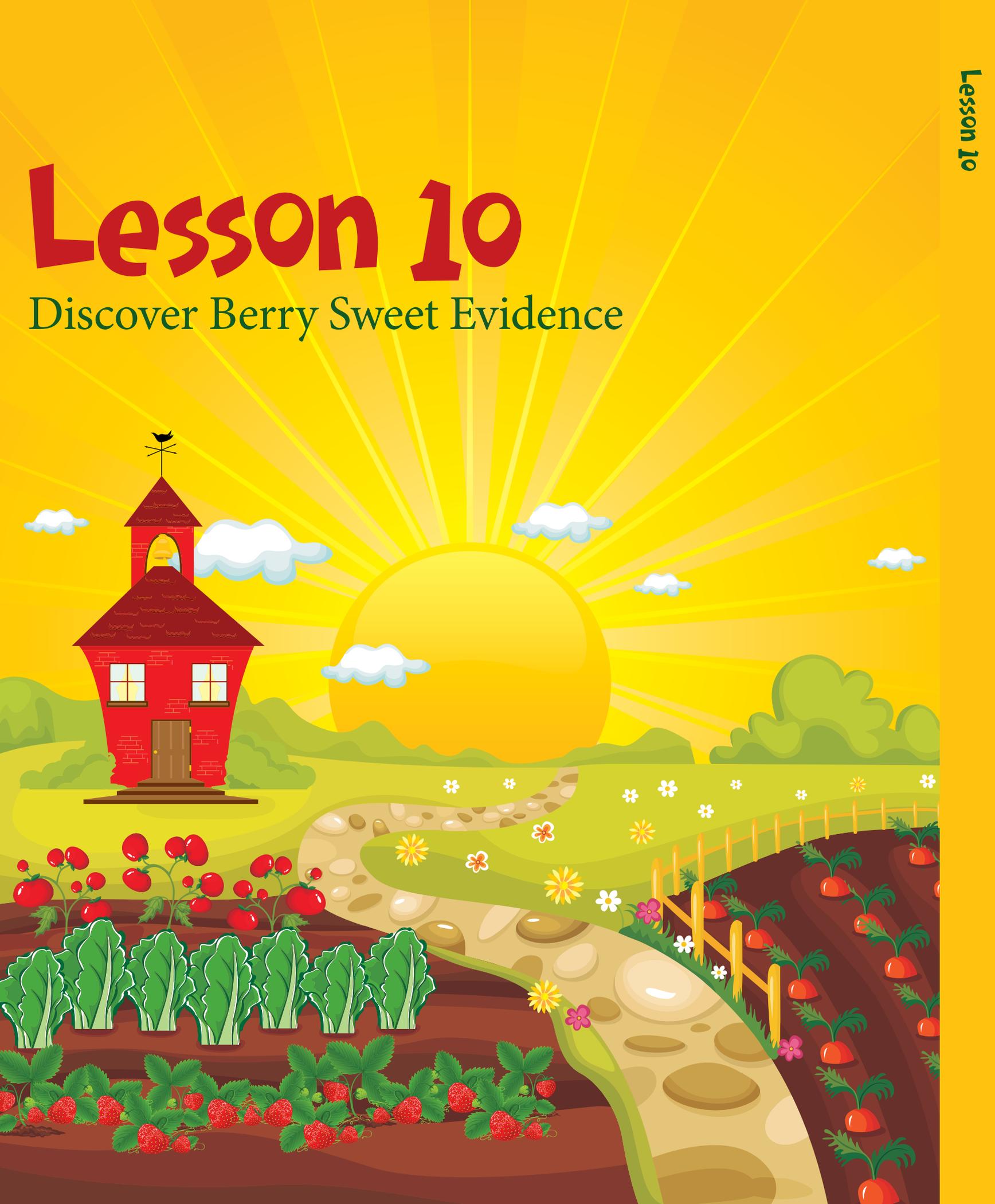


Lesson 10

Discover Berry Sweet Evidence



Lesson Summary



Overview

The garden detectives build evidence files about strawberries and raspberries/blackberries in this lesson based on what they learn about these fruits. The garden detectives share their PSAs for strawberries and raspberries/blackberries (from Lesson 3), review important gardening and nutrition facts about strawberries and raspberries/blackberries, and prepare recipes and taste dishes featuring strawberries and raspberries/blackberries.



Key Messages

Be a great garden detective! Discover how berries taste great in meals and snacks.

Eat smart to play hard. Power up with berries and yogurt.



Garden Connection

The garden detectives take a photograph (or create a drawing to scale) of their assigned fruit or vegetable in the garden each week and post it on the bulletin board. As they do so, they report to the rest of the class on how their plants are growing.

Have the student groups assigned to strawberries and raspberries/blackberries show the class their plants in the garden and share information about their plants' growth and care-taking needs.



School Food Service Connection

Collaborate with school food service to obtain and prepare the ingredients for the strawberry and raspberry/blackberry dishes for this lesson. Serve the prepared dishes in the classroom or in the cafeteria at the end of the lesson.



Cookbook Connection

You can include the recipes for the strawberry and raspberry/blackberry dishes in this lesson in the Class Cookbook.



School Connection

Invite the school principal and others from the school community to taste prepared dishes.

Have students share their PSAs with the entire school during morning announcements or post a video of them performing their PSAs on the school's Web site.



Home Connection

Ask for parent volunteers to help with the food preparation activities in this lesson. Send the *Garden Detective News* home to parents/caregivers. Encourage students to solve the Strawberry Scramble with their families.



Community Connection

Ask a farmer or local grocery store manager to donate the ingredients for the food preparation.

Ask a farmer to donate a small berry plant so the students can see what these plants look like after they've been growing for a bit and visit the classroom to share tips for nurturing berry plants.

Invite a local chef in to help prepare the strawberry and raspberry/blackberry dishes or a recipe of his or her own for these berries.



Media Connection

Take pictures or videos of the students preparing the dishes (check district photography policy) and submit with a press release and recipes to your local newspaper or TV station.

Main Lesson: Discover Berry Sweet Evidence

Standards Addressed

English/Language Arts

Standard 3, Reading Informational Text: *Describe the relationship between a series of steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.*

Standard 2, Speaking and Listening: *Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.*

Standard 3, Speaking and Listening: *Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.*

Standard 4, Speaking and Listening: *Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.*

Science

Standard F, Science in Personal and Social Perspectives (Personal Health/Nutrition): *Develop an understanding of how various foods contribute to health.*

Mathematics:

Standard 2, Measurement and Data: *Measure and estimate liquid volumes and masses of objects using standard units.*

Health

Standard 1, Concepts: *Comprehend concepts related to health promotion and disease prevention to enhance health.*

Standard 7, Practice Health-Enhancing Behaviors: *Practice health-enhancing behaviors and avoid or reduce health risks.*

Learning Objectives

Students will be able to:

1. Read and follow procedures in a recipe featuring strawberries or raspberries/blackberries.
2. Use standard units of measurement to prepare recipe.
3. Describe how to prepare simple recipes featuring strawberries or raspberries/blackberries.

Evidence File #1: The Case of the Frozen Fruit

Time Required

60 minutes

Materials

- *Student Handout 1.1, Stay Healthy: Wash Your Hands!* (Lesson 1)
- *Student Handout 1.2, The Garden Detectives' Tasting Code* (Lesson 1)
- *Student Handout 10.1, Evidence File: The Case of the Frozen Fruit*
- *Student Handout 10.2, Discover Berry Sweet Evidence—Strawberry Smoothie*
- Apron, smock, or large T-shirt for each student (not the same one used for gardening)
- Disposable plastic food preparation gloves, one pair per child
- Ingredients for Strawberry Smoothie
 - 4 (8-oz) containers of low-fat vanilla yogurt
 - 4 (12-oz) packages of frozen unsweetened strawberries, partially thawed
 - 2 ½ cups orange juice (100 percent juice)
- 1 blender
- 5 large bowls, one per student group
- 5 large spoons for stirring and serving, one per student group
- 5 sets of liquid measuring cups, one per student group

Preparation

- Request assistance from parents for the food preparation portion of this lesson.
- Request assistance (e.g., demonstration of how to prepare recipes) from the school food service for the food preparation portion of this lesson.

- Obtain ingredients for Strawberry Smoothies.
- Arrange for refrigerated storage of ingredients prior to preparation time.
- Duplicate one copy of *Student Handouts 10.1* and *10.2* on 3-hole-punch paper for each student.
- Duplicate one copy of *Student Handouts 1.1* and *1.2* on 3-hole-punch paper for each student, if you have not previously done so.
- Arrange the classroom for five food preparation stations.
- Wash the surface of the desk or tables with hot, soapy water. Sanitize with a solution of 1 tablespoon of unscented liquid chlorine bleach per gallon of water.
- Brief volunteers on their roles during the food preparation activity.

Instructional Process



STEP 1 **Distribute** *Handout 10.1, Evidence File: The Case of the Frozen Fruit*. Tell students that their job as detectives is to compile the facts they learn about strawberries—fresh and frozen—and draw conclusions based on what they learned and observed. They should record what they learned on the first part of the handout after the following presentations and class discussion.

Have the strawberry garden detectives report on their plants' progress in the garden by reviewing the growth pattern on the *Be a Garden Detective!* bulletin board. Then have them share the posters and PSAs they created in Lesson 3: *Investigate Like a Super Sleuth* with their classmates.



Ask students the following questions to review important facts about strawberries:

- What is the edible part of the plant? (Fruit)
- Are strawberries annuals or perennials? (A perennial, but often treated as an annual)
- What does it mean to be a perennial? (The plant lives for more than one growing season.)
- What vitamin can be found in strawberries? What does this vitamin do for you? (Strawberries are loaded with vitamin C, which helps heal cuts and wounds. One cup of strawberries has more vitamin C than one cup of orange juice.)

Have students complete the first part of *Handout 10.1*.

STEP 2

Introduce the food preparation activity.

Tell students that today they are going to prepare and taste a simple smoothie recipe. Explain to the garden detectives that they can power up with berries and yogurt to eat smart to play hard.

Divide students into five small groups of 5-6 students. Have each group go to a food preparation station.



Ask students:

- Who has made a smoothie before? (If any students have made a smoothie, ask them what kind of smoothie they made and how it tasted.)

Distribute Student *Handout 10.2, Discover Berry Sweet Evidence—Strawberry Smoothie*.

Have students read the recipe silently to themselves.

STEP 3

Ask students what kind of strawberries are used in this recipe (frozen unsweetened berries). Explain to students that freezing fruits and vegetables is one way to preserve the bounty of the garden. Preserving foods means to prepare them so that you can safely keep them to eat in the future.



Ask students:

- What happens when fresh fruits and vegetables are not eaten promptly? (They lose their texture and flavor; eventually they rot.)

Besides freezing fruits and vegetables, what other ways are there to preserve foods? (Canning, drying)

**Tell students:**

Today, we can buy fruits and vegetables in the supermarket in the wintertime that are grown in other parts of the world where it is summertime. We can also buy frozen and canned fruits and vegetables year-round. But in the past, people in the United States didn't have supermarkets; they had to grow fruits and vegetables in their gardens in the summer and preserve them so that they would have these foods to eat in the winter.

STEP 4

Have students complete food preparation activity. Before students begin the food preparation, ask them to retrieve *Student Handout 1.1, Stay Healthy: Wash Your Hands!* (Lesson 1) from their *Garden Detective Journals* and review its key points. Next, have all students wash and dry their hands according to the guidelines on the handout.

Have children put on plastic gloves to ensure food safety and large T-shirts, smocks, or aprons to protect their clothes. Distribute the following items to each group:

- 1 large bowl
- 1 large spoon for mixing
- 1 set of liquid measuring cups
- Ingredients for recipe

Instruct all groups to follow the recipe on *Student Handout 10.1, Discover Berry Sweet Evidence—Strawberry Smoothie* and prepare six servings of the Strawberry Smoothie in their bowls.

Demonstrate how to use the blender for the students. Then have each group place their ingredients into the blender and blend. Once the smoothie is blended, pour $\frac{1}{4}$ cup of smoothie into each paper cup so that each student in the class can have a taste of the smoothie.

STEP 5

Have students taste the Strawberry Smoothie. First, have students wash their hands according to the guidelines on *Student Handout 1.1*. Then review *Student Handout 1.2, The Garden Detectives' Tasting Code* from students' *Garden Detective Journals* (or project *Overhead/Slide 1.2* from Lesson 1) by reading the tasting guidelines aloud.

Distribute a cup containing the Strawberry Smoothie to each student. Have the students taste the strawberry smoothie.

**Ask the students:**

- How would you describe the taste of the strawberry smoothie?
- Were you surprised by the way it tasted?
- What are some other dishes you can make using strawberries?

Have students complete the second part of *Handout 10.1* describing their experience tasting the Strawberry Smoothie and drawing a conclusion about the use of frozen strawberries.

Evidence File #2: The Case of the Missing Color

Time Required

60 minutes

Materials

- *Student Handout 1.1, Stay Healthy: Wash Your Hands!* (Lesson 1)
- *Student Handout 1.2, The Garden Detectives' Tasting Code* (Lesson 1)
- *Student Handout 10.3, Evidence File: The Case of the Missing Color*
- *Student Handout 10.4, Discover Berry Sweet Evidence—Fruit Salad*
- Apron, smock, or large T-shirt for each student (not the same one used for gardening)
- Disposable plastic food preparation gloves, one pair per child
- Ingredients for Fruit Salad With a Splash of Lime
 - 5 apples (equal to 5 cups), cubed
 - 5 pints raspberries
 - 5 pints blackberries
 - 5 cups seedless grapes
 - 3 limes, cut in quarters
- 2 tablespoons of lemon juice, if you chop apples in advance and store
- 5 large bowls, one per student group
- 5 large spoons for mixing and serving, one per group
- Paper cups, one per student
- Paper bowls or plates, one per student
- Plastic forks or spoons, one per student

Preparation

- Request assistance (i.e., demonstration of how to prepare recipes) from the school food service and/or parents for the food preparation portion of this lesson.
- Obtain ingredients for fruit salad.
- Rinse fruit under running water.
- Chop apples and limes in advance. Sprinkle lemon juice over the apples to preserve their color.
- Arrange for refrigerated storage of ingredients prior to preparation time.
- Duplicate one copy of *Student Handouts 10.3* and *10.4* on 3-hole-punch paper for each student.
- Duplicate one copy of *Student Handouts 1.1* and *1.2* on 3-hole-punch paper for each student, if you have not previously done so.
- Arrange the classroom for five food preparation stations.
- Wash the surface of the desk or tables with hot, soapy water. Sanitize with a solution of 1 tablespoon of unscented liquid chlorine bleach per gallon of water.
- Brief volunteers on their roles during the food preparation activity.

Instructional Process

STEP 1

Distribute *Handout 10.3, Evidence File: The Case of the Missing Color*. Tell students that their job as detectives is to compile the facts they learn about raspberries/blackberries and draw conclusions based on what they learned and observed. They should record what they learned on the first part of the handout after the following presentations and class discussion.

Have the raspberry/blackberry garden detectives report on their plants' progress in the garden by reviewing the growth pattern on the *Be a Garden Detective!* bulletin board, then ask them to share the posters and PSAs they created in Lesson 3: *Investigate Like a Super Sleuth* with their classmates.



Ask students the following questions to review important facts about raspberries/blackberries:

- What is the edible part of the plant? (fruit)
- What is the type of bush that raspberries/blackberries grow on? (bramble)

What vitamins and minerals can be found in raspberries/blackberries? What do these vitamins and minerals do for you?

- Raspberries and blackberries are an excellent source of vitamin C and a good source of fiber.
- Raspberries and blackberries are bramble plants, i.e., they grow on prickly bushes.

Students should now record what they've learned about raspberries/blackberries on the first part of *Handout 10.3*.

STEP 2

Introduce the food preparation activity.

Tell students that today they are going to prepare and taste an easy-to-make fruit salad.



Ask students:

- **Who has ever made a fruit salad before?** (If students have made a fruit salad before, ask them what kind of fruit they used and how the salad tasted.)

Distribute *Student Handout 10.4, Discover Berry Sweet Evidence—Fruit Salad* to all students.

Have students read the recipe silently to themselves.

STEP 3

Have students complete the food preparation activity. Before students begin the food preparation, ask them to retrieve *Student Handout 1.1, Stay Healthy: Wash Your Hands!* (Lesson 1) from their *Garden Detective Journals* and review its key points. Then have all students wash and dry their hands according to the guidelines on the handout.

Divide students into five small groups of 5-6 students. Have each group go to a food preparation station.

Have children put on plastic gloves to ensure food safety and large T-shirts, aprons, or smocks to protect their clothes. Distribute the following items to each group:

- 1 large bowl
- 1 large spoon for mixing
- Ingredients for recipe

Instruct all groups to follow the recipe on *Student Handout 10.4, Discover Berry Sweet Evidence—Fruit Salad* and prepare six servings of fruit salad in their bowls.

STEP 4

Have students taste the fruit salad. Review *Student Handout 1.2, The Garden Detectives' Tasting Code* from students' *Garden Detective Journals* (or project *Overhead/Slide 1.2* from Lesson 1) by reading the tasting guidelines aloud.

Tell students that this class of garden detectives are about to discover that berries taste great in meals and snacks.

Distribute a paper plate/bowl, napkin, and fork/spoon to each student. Have each group distribute an equal portion of the fruit salad from the bowl to each of its members and have them taste it.



Ask the students:

- What did you think of the Fruit Salad?
- Were you surprised by the way it tasted?
- Did you like the way it looked? What colors from the rainbow were missing from the salad? (orange from oranges, possibly green from grapes depending on the grapes you chose, blue from blueberries) Do you think a fruit salad that included these fruits would taste good?
- What are some other dishes you can make using raspberries/blackberries?

Have students complete the second half of *Handout 10.3*.

Teacher Background Information

Get the Facts on Berries

Vocabulary

Annual: A plant that grows, flowers, and dies in 1 year or growing season.

Bramble: A prickly shrub or bush.

Blender: An electric appliance with whirling blades for chopping, mixing, or liquefying foods.

Dietary Fiber: Plant material that cannot be digested.

Folate: A nutrient that promotes healthy blood cells that is also important for cell division, such as in pregnancy and growth.

Freezing: A process of preserving foods by placing them below freezing temperature (i.e., below 32° F).

Iron: A mineral that carries oxygen in red blood cells and muscle cells.

Magnesium: A mineral that is important for muscle and nerve functioning.

Perennial: A plant that lives for more than 1 year.

Potassium: A mineral that maintains the heartbeat, regulates body fluids, and is needed for muscle and nerve functioning.

Preservation: The act of safely preparing and storing foods for future use, e.g., freezing, canning, and drying.

Salad: A mixture of foods, usually involving a combination of fresh vegetables and/or fruits that is served with a dressing.

Smoothie: A blended, chilled beverage made from fresh fruit and milk, yogurt, or ice cream.

Vitamin C: A vitamin that helps wounds heal. It is also important in helping to keep blood vessels and gums healthy.

Nutrition Information on Raspberries

Raspberries	
Nutrition Facts	
Serving size ½ cup (62g)	
Amounts Per Serving	% Daily Value
Calories 32	
Calories from Fat 5	
Total Fat 0g	1%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 7g	2%
Dietary Fiber 4g	16%
Sugars 3g	
Protein 1g	
Vitamin A	0%
Vitamin C	27%
Calcium	2%
Iron	2%
Potassium	3%
Folate	3%

* Percent Daily Values are based on a 2,000-calorie diet.

Nutrition Information on Blackberries

Blackberries	
Nutrition Facts	
Serving size ½ cup (72g)	
Amounts Per Serving	% Daily Value
Calories 31	
Calories from Fat 3	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 7g	2%
Dietary Fiber 4g	15%
Sugars 4g	
Protein 1g	
Vitamin A	3%
Vitamin C	25%
Calcium	2%
Iron	3%
Potassium	3%
Folate	5%

* Percent Daily Values are based on a 2,000-calorie diet.

Nutrition Information on Strawberries

Strawberries	
Nutrition Facts	
Serving Size ½ cup, sliced (83g)	
Amount Per Serving	% Daily Value
Calories 25	
Calories from Fat 0	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0 mg	0%
Total Carbohydrate 6g	2%
Dietary Fiber 2g	7%
Sugars 4g	
Protein 1g	
Vitamin A	0%
Vitamin C	80%
Calcium	2%
Iron	2%
Potassium	4%
Folate	5%

* Percent Daily Values are based on a 2,000-calorie diet.

Source: United States Department of Agriculture, Agricultural Research Service. 2011. USDA National Nutrient Database for Standard Reference, Release 24. Nutrient Data Laboratory Home Page, <http://www.ars.usda.gov/ba/bhnrc/ndl>

Evidence File: The Case of the Frozen Fruit



Name: _____ Date _____

Part 1.

You were planning to make a strawberry smoothie, but the strawberries have been mysteriously frozen! Will this ruin your refreshing drink?

Write down three facts that you've learned about strawberries:

1. _____

2. _____

3. _____

Part 2.

Looks like you're stuck making your smoothie with frozen strawberries. After you've tasted your smoothie, write three adjectives that describe how it looks, feels, and/or tastes.

Now write a sentence that tells someone else about strawberry smoothies. Use the three adjectives that you wrote down.

Conclusion

Can you make a tasty fruit smoothie with frozen strawberries? YES NO

Eat smart to play hard. Power up with berries and yogurt.



Student Handout 10.2

Discover Berry Sweet Evidence—Strawberry Smoothie



Name: _____ Date: _____

Ingredients

6 oz low-fat vanilla yogurt

9 oz frozen strawberries

½ cup orange juice

Preparation

1. Wash hands and clean your work area.
2. Combine the ingredients in a blender.*
3. Blend for 15 to 30 seconds or until smooth.

Yield

Six ½-cup servings

The starred* preparation steps can be completed by children.
All other preparation steps should be completed by adults.

Refrigerate cut fruits, vegetables, and cooked foods promptly.
Do not leave at room temperature for longer than 2 hours
(or 1 hour in temperatures above 90° F).

Be a great garden detective!
Discover how berries taste great in meals and snacks.



Evidence File: The Case of the Missing Color



Name: _____ Date _____

Part 1.

Yum ... fruit salad! You're going to start by using raspberries or blackberries.

Write down three facts that you've learned about raspberries and blackberries:

- 1. _____

- 2. _____

- 3. _____

Part 2.

Would you like to make your salad more colorful? Write down five fruits of different colors that you could use in a fruit salad, along with raspberries and blackberries:

Fruit

Color

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____



Conclusion

What colors were missing from the fruit salad that you made today?



Student Handout 10.4

Discover Berry Sweet Evidence—Fruit Salad



Name: _____

Date: _____

Ingredients

- 2 apples, diced
- 1 pint raspberries
- 1 pint blackberries
- 2 cups seedless grapes
- ½ lime



Preparation

1. Wash hands and clean your work area.
2. Rinse fruit under running water.
3. Combine the apples, raspberries, blackberries, and seedless grapes into a bowl.*
4. Squeeze lime over the fruit in the bowl.*
5. Stir and serve.*

Yield

Six ¾-cup servings

The starred* preparation steps can be completed by children. All other preparation steps should be completed by adults.

Refrigerate cut fruits, vegetables, and cooked foods promptly. Do not leave at room temperature for longer than 2 hours (or 1 hour in temperatures above 90° F).

Be a great garden detective! Discover how berries taste great in meals and snacks.

Garden Detective News



Help Healthy Habits Take Root

Ask your child to help you find ways to serve berries at meals and as snacks.



10



United States
Department of
Agriculture



Garden Detective News

This week, the garden detectives learned about strawberries, raspberries, and blackberries. They prepared and tasted some delicious healthy recipes using these nutritious berries.

Did you know that berries contain important vitamins, minerals, and fiber that your family needs to grow and be healthy?

In the green box at the right are a few tips to add these berries to your family's diet. The delicious recipes the garden detectives prepared and tasted this week are on the next page. Ask your child about these recipes.

Mystery Solved!

How To Add More Strawberries, Raspberries, and Blackberries to Your Plate:

- Add berries to your cereal, low-fat yogurt, or waffles and pancakes for breakfast.
- Make a parfait for breakfast or dessert with berries, granola, and low-fat yogurt.
- Blend berries, yogurt, bananas, and ice to make a tasty smoothie.
- Toss some berries into your salad for lunch.
- Try the Fruit Salad With a Splash of Lime recipe in this newsletter.



Garden Detective Recipes

Strawberry Smoothie

Preparation Time

5 minutes

Ingredients

2 (8-oz) containers of fat-free or low-fat vanilla yogurt

20 oz frozen unsweetened strawberries, partially thawed

1 ¼ cups 100 percent orange juice

Preparation

1. Wash hands and clean your work area.
2. Combine the ingredients in a blender.*
3. Blend for 15 to 30 seconds or until smooth.

Yield

Five 1-cup servings

The starred* preparation step can be completed by children. All other preparation steps should be completed by adults.

Refrigerate cut fruits, vegetables, and cooked foods promptly. Do not leave at room temperature for longer than 2 hours (or 1 hour in temperatures above 90° F).

Fruit Salad With a Splash of Lime

Preparation Time

15 minutes

Ingredients

2 apples (1 apple is equal to 1 cup), diced

1 pint raspberries

1 pint blackberries

2 cups seedless grapes, halved

½ lime

Preparation

1. Wash hands and clean your work area.
2. Rinse fruit under running water.
3. Combine the apples, raspberries, blackberries, and grapes into a bowl.*
4. Squeeze lime over the fruit.*
5. Stir and serve.*

Yield

Six 1-cup servings

The starred* preparation steps can be completed by children. All other preparation steps should be completed by adults.

Family Activity 10

Strawberry Scramble

Complete the Strawberry Scramble with your child. Have your child explain what each word in the scramble means.

Directions

Rearrange the letters in each word to form a word that has something to do with strawberries. Write each word on the line next to the scrambled word. You can use the word list at the bottom for help.

- 1. C nimativ _____
- 2. esmthooi _____
- 3. nnialserep _____
- 4. fzone _____
- 5. tsmo pularpo _____
- 6. deess _____
- 7. tiurf _____
- 8. srevpere _____

- Seeds
- Vitamin C
- Preserve
- Most Popular
- Perennial
- Fruit
- Frozen
- Smoothie