

LESSONS ABOUT NUTRITION

Lessons compiled by

The New Jersey Agricultural Society's



Program

March 2022



CLEAN SWEEP

A lesson from the New Jersey Agricultural Society Learning Through Gardening program

OVERVIEW & PURPOSE

Students will learn what fiber is and how it benefits their bodies by comparing two different crackers: one that contains fiber and one that doesn't. The crackers will be placed in small hand strainers, covered with water, and pushed through. Students will then examine what remains in the strainer to observe fiber that is left behind. This indigestible fiber is what our bodies use to help clean out the intestines efficiently.

GRADES: 2-5

OBJECTIVES

The student will be able to explain what fiber is and what it does for our bodies.

MATERIALS NEEDED

MATERIALS per group:

- 1 hand-held strainer
- 2 saltine crackers
- 2 Triscuit crackers
- paper towel
- measuring cup
- water
- Cups
- Clean Sweep Procedures sheet
- Clean Sweep Lab Sheet
- Clean Sweep Worksheet

INTRODUCTION

Engage students by asking them why you use a broom. How does it work? Elicit the response, "It sweeps away dirt and other things you don't want on the floor." Ask students how they clean their bodies. Can they use a broom? What about their insides? Ask students if they think they need to "clean" the inside of their bodies.

Talk to students about what they put into their bodies (food, beverages). Ask them what their bodies do with the things they put in. List responses on the board (chew, swallow, absorb

nutrients). You will inevitably get to the topic of what happens to waste, with a few giggles, but explain this is a natural process.

Explain to students that our bodies don't use all the parts of the food we eat. Whatever we don't need, our bodies pass during a bowel movement. We want to get rid of what our bodies don't need, so it doesn't make us sick. Explain to students that since we can't use a broom to sweep out the waste, we need to eat foods that can "clean out" the intestines. This is called fiber. Fiber doesn't get absorbed into our systems, so it pushes the toxic waste through the intestines more quickly and keeps the pH levels healthy so cancer-causing bacteria can't grow.

ACTIVITY

Tell students the fiber contained in food can be demonstrated by comparing different types of crackers. Divide students into small groups. Have each group gather their materials. Give each group a Clean Sweep Procedures Sheet and a Clean Sweep Lab Sheet and read them together.

Students will crumble one saltine cracker between their fingers. Then list words to describe the texture of the cracker in the space on their Clean Sweep Worksheet. Students will then put the remaining saltine cracker into the hand strainer and hold it over a cup. Have them slowly pour 1/8 cup of water over the cracker. Let the cracker stand wet in the hand strainer for about 1 minute. Describe what they see on their worksheets.

Using the back of a plastic spoon, students will press the wet cracker through the hand strainer and then examine what is left behind. Have them describe the texture of what is left in the strainer on their worksheets.

Students repeat this process with the Triscuit cracker and complete their lab sheet and worksheet. Students check the nutrition labels on the cracker boxes to see if their conclusions are correct.

EVALUATION:

Completed Clean Sweep Worksheet.

NEW JERSEY LEARNING STANDARDS

Health: 2: 2.1.2.B.1 3-4: 2.1.2.B.1,2 5: 2.1.6.B.1,2,4

Clean Sweep Procedures

1. Crumble one saltine cracker between your fingers.
2. List words to describe the texture of the cracker in the space on your Clean Sweep Worksheet.
3. Put the remaining saltine cracker into the hand strainer and hold it over a cup.
4. Slowly pour 1/8 cup of water over the cracker. Let the cracker stand wet in the hand strainer for about 1 minute. Describe what you see on your worksheet.
5. Using the back of a plastic spoon, press the wet cracker through the hand strainer and then examine what is left behind. Describe the texture of what is left in the strainer on your worksheet.
6. Repeat steps 1-5 with the Triscuit cracker.
7. Answer the questions on your worksheet.

Clean Sweep Lab Sheet

Fiber helps clean us on the inside by “sweeping” away waste our bodies don't need. Which cracker contains the most fiber? To find out, answer the following questions as you follow the steps on your procedure sheet. Then read the nutrition labels on both boxes and compare them with your data.

Problem: Write the question you are trying to answer.

Hypothesis: Write what you think the answer will be and why.

Materials: List the materials you will use during your experiment.

Procedures: Write the steps you took to complete the experiment.

Observations: Complete the chart on the Clean Sweep Worksheet.

Conclusions: Answer the questions on the Clean Sweep Worksheet

Clean Sweep Worksheet

Complete the questions for each cracker; and then compare them.

Saltine

1. Describe the cracker after you crumbled it with your fingers.
2. Describe the cracker after it sat in the water for one minute.
3. Describe what was left in the strainer after pushing with the spoon.

Triscuit

1. Describe the cracker after you crumbled it with your fingers.
2. Describe the cracker after it sat in the water for one minute.
3. Describe what was left in the strainer after pushing with the spoon.

Saltine vs. Triscuit

1. Which cracker do you think contains the most fiber and why?
2. Look at the nutrition labels of each cracker. Which cracker contains the most fiber?



EAT A RAINBOW (3-5)

A lesson from the New Jersey Agricultural Society Learning Through Gardening program

OVERVIEW & PURPOSE

In this lesson, students explore the many different colors of fruits and vegetables and learn why eating a variety of colors is good for them. They work together to brainstorm a list of different-colored fruits and vegetables and keep track of the different colors they eat in a week.

GRADES: 3-5

OBJECTIVES

The student will be able to:

- Identify the names and colors of different fruits and vegetables.
- Identify what the recommended serving of fruits and vegetables is on MyPlate.
- Describe some of the health benefits of eating fruits and vegetables of assorted colors.

MATERIALS NEEDED

- MyPlate sheet Eat a Rainbow for a Healthy Body sheet
- Eat A Rainbow Fruits and Veggies
- List blank sheet

For teacher:

- Eat A Rainbow Fruits and Veggies List completed sheet
- Optional: Eat a Rainbow Week log sheet

INTRODUCTION

Give each student a copy of My Plate. Ask what the recommended servings of fruits and vegetables at every meal are. Ask students whether they eat the MyPlate recommended servings, and if not, how they could increase the fruits and vegetables that they eat. Tell students that today they are going to learn the benefits of eating a rainbow of fruits and vegetables – that it's also important to eat fruits and vegetables of all assorted colors.

ACTIVITY

Give each student a copy of the Eat a Rainbow for a Healthy Body sheet. Review the sheet with the entire class. Ask students what their favorite fruits and vegetables are and what are their health benefits.

Divide students into small groups. Give each student a copy of the blank Eat a Rainbow Fruits and Veggies List. Give the students five or ten minutes to brainstorm and list fruits and vegetables that fit into the assorted color categories. Tell the groups to work quietly so that other groups do not overhear their suggestions.

Bring the whole class together and discuss each group's findings. The teacher can use the completed Eat a Rainbow Fruits and Veggies List to give hints and have the students guess fruits and vegetables they did not put on their group lists.

EVALUATION:

Ask students to write a paragraph or several paragraphs explaining how many fruits and vegetables they should eat daily and why eating different-colored fruits and vegetables is important for them. Ask them to include in their paragraph examples of different-colored fruits and vegetables that they like to eat.

EXTENSION:

For homework, ask students to log for a week the fruits and vegetables they have eaten to check to see if they are eating a rainbow.

NEW JERSEY LEARNING STANDARDS

Health: 3-4: 2.1.2.B.1,2 5: 2.1.4.B.1,2 Science: 5:LS1.C

Eat A Rainbow for a Healthy Body

You should eat a rainbow of fruits and vegetables every week to make sure that your body stays healthy and strong. Fruits and vegetables of assorted colors contain different vitamins and nutrients for different parts of your body.

Red foods keep our hearts healthy. They also improve our memory so we can remember things better and do better in school.

Orange foods are full of vitamin C. Vitamin C helps us fight a cold and helps to prevent cancer. Orange foods are also full of vitamins A and beta-carotene, which help us see in the dark and keep our skin healthy.

Yellow foods are full of antioxidants that fight off dangerous substances that can damage our cells. They also keep our hearts healthy and keep us from getting sick.

Green foods help our entire body: they keep our nails strong, help us see better, keep us from getting sick, give us strong bones and teeth, and keep away cancer.

Blue and **Purple** foods can help our memory. They also contain flavonoids, which are a type of phytochemical that keep cancer and heart disease away.

White foods help keep our heart, lungs, and blood vessels healthy. They can also lower cholesterol and make our bones strong.

Eat A Rainbow Week

Dear Parents:

Today in class we learned that it was important to eat a rainbow of fruits and vegetables every week. Eating different-colored fruits and vegetables keeps our bodies healthy and helps to fight away sickness. The students promised to try to eat fruits and vegetables from all colors of the rainbow this week.

	Fruits & Veggies I Ate	Color(s)
Monday		
Tuesday		
Wednesday		
Thursday		
Friday		
Saturday		
Sunday		

Eat A Rainbow - Fruits and Veggies List

Green: Artichokes Arugula Asparagus Avocados Broccoli Broccoli rabe Brussel sprouts Celery Chinese cabbage Cucumbers Endive Green apples Green beans Green cabbage Green grapes Green onion Green pears Green peppers Honeydew Kiwi Leafy greens Leeks Lettuce Limes Okra Peas Snow Peas Spinach Sugar snap peas Watercress Zucchini

WHITE: Bananas Brown pears Cauliflower Dates Garlic Ginger Jerusalem artichoke Jicama Kohlrabi Mushrooms Onions Parsnips Potatoes Shallots Turnips White Corn White Nectarines White peaches

RED: Beets Blood oranges Cherries Cranberries Guava Papaya Pink grapefruit red grapefruit Pomegranates Radiccio Radishes Raspberries Red apples red bell peppers red chili peppers red grapes red onion red pears red peppers red potatoes Rhubarb Strawberries Tomatoes Watermelon

ORANGE AND YELLOW: Apricots Butternut squash Cantaloupe Carrots Golden Kiwi Grapefruit Lemon Mangoes Nectarines Oranges Papayas Peaches Persimmons Pineapples Pumpkin Rutabagas Sweet corn sweet potatoes Tangerines Yellow apples yellow beets yellow pears yellow peppers yellow potatoes yellow summer squash yellow tomatoes Yellow watermelon Yellow winter squash

BLUE and PURPLE: Black currants Blackberries
Blueberries Dried Plums Eggplant Elderberries Grapes
Plums Pomegranates Prunes Purple endive purple
potatoes purple asparagus purple cabbage purple
carrots purple figs purple grapes Purples peppers
Raisins

Eat A Rainbow - Fruits and Veggies List

Green:

White:

Red:

Yellow/Orange:

Blue/ Purple:



EAT A RAINBOW (PRE-K-2)

A lesson from the New Jersey Agricultural Society Learning Through Gardening program

OVERVIEW & PURPOSE

In this lesson, students explore the many assorted colors of fruits and vegetables and learn why eating a variety of colors is good for them. They make a fun Rainbow Eater booklet and keep track of the assorted colors they eat in a week.

GRADES: PreK-2

OBJECTIVES

The student will be able to:

- Identify the names and colors of different fruits and vegetables.
- Explain some of the health benefits of eating a variety of different-colored fruits and vegetables.

MATERIALS NEEDED

- Eat a Rainbow for a Healthy Body sheet, one for teacher to read to students or one copy for each student, depending on grade level
- Eat a Rainbow Week homework log sheet for each student
- Optional: The Rainbow Eater book template for each student (see below).

INTRODUCTION

Ask students if they've ever eaten a rainbow. Explain that eating assorted colors of fruits and vegetables during every week can help keep their bodies healthy and fight away sickness. Place or draw a picture of a rainbow on the board. Ask students to name some of their favorite fruits and vegetables and to pick a color on the rainbow they match.

ACTIVITY

Read a book that highlights assorted colors of fruits and vegetable such as:

- Rah, Rah, Radishes or Go, Go, Grapes, by April Pulley Sayre,
- Lunch, by Denise Fleming
- Growing Colors, by Bruce McMillan
- Eating the Alphabet, by Lois Ehlert

As you read, ask the students to notice the colors of the fruits and vegetables in the books and where they fit on the rainbow. Use the Eat a Rainbow for a Healthy Body sheet to discuss with students how different colored fruits and vegetables keep all parts of their bodies healthy, prevent diseases, and improve their memory.

Ask the students if they will try to eat a rainbow in the next week. Encourage students to try new foods. Send the Eat A Rainbow Week log sheet home with the students to complete and bring back to school at the end of the week.

EVALUATION:

Completed “Eat a Rainbow Week” log sheet

EXTENSION:

- Bring in a basket of different-colored fruits and vegetables to school. Allow the children to view, touch, and smell them and discuss where they would go on the rainbow.
- Have a colorful fruits and veggies tasting.
- Encourage students to play “I Spy” with their parents at the grocery store. They can help their parents find fruits and vegetables of all assorted colors and fill their cart with a rainbow.

NEW JERSEY LEARNING STANDARDS

Health: PreK: 2.1.P.B.1,2 K-2: 2.1.2.B

Eat A Rainbow for a Healthy Body

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Red foods keep our hearts healthy. They also improve our memory so we can remember things better and do better in school.

Orange foods are full of vitamin C. Vitamin C helps us fight a cold and helps to prevent cancer. Orange foods are also full of vitamins A and beta-carotene, which help us see in the dark and keep our skin healthy.

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Blue and **Purple** foods can help our memory. They also contain flavonoids, which are a type of phytochemical that keep cancer and heart disease away.

White foods help keep our heart, lungs, and blood vessels healthy. They can also lower cholesterol and make our bones strong.

Eat A Rainbow Week

Dear Parents: Today in class we learned that it was important to eat a rainbow of fruits and vegetables every week. Eating different-colored fruits and vegetables keeps our bodies healthy and helps to fight away sickness. The students promised to try to eat fruits and vegetables from all colors of the rainbow this week. Please help them fill in the fruits and veggies that they ate, either with pictures or with words.

<u>Fruits and Vegetables I Ate</u>	<u>Color</u>
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Monday:

Tuesday:

Wednesday:

Thursday:

Friday:

Saturday:

Sunday:



FUN BOOKS TO START A CONVERSATION ABOUT NUTRITION

A lesson from the New Jersey Agricultural Society Learning Through Gardening program

OVERVIEW & PURPOSE

A discussion about good nutrition doesn't have to be boring. These four books will get your students talking about ways they can add new fruits and vegetables and other healthy foods to their diets.

GRADES: PreK-3

I Will Not Ever, Never Eat a Tomato by Lauren Child

Fussy eater Lola refuses to eat her dinner until her clever brother Charlie transforms her carrots into orange twiglets from Jupiter, her mashed potatoes into cloud fluffs from Mount Fuji, and her fish sticks into a mermaid's ocean nibbles. After reading the book, students write fanciful descriptions for their own least favorite foods. Students can discuss why it sometimes is hard to try a new food. In small groups, they can brainstorm ways to make eating unfamiliar foods easier and act them out for the class.

Gregory the Terrible Eater by Mitchell Sharmat

Gregory the terrible eater does not want to eat a good goat diet of striped ties and violins. He wants to eat fruits, vegetables, and fish instead. The family doctor helps Gregory's parents slowly change his bad eating habits. Students can discuss what foods they eat that are not-so good for them and brainstorm ways they can begin adding healthy foods to their diets.

Little Pea by Amy Krouse Rosenthal

If Little Pea doesn't eat all of his sweets, there will be no vegetables for dessert! This book is a modern twist on the classic Gregory the Terrible Eater. Little Pea struggles to eat the required bites of candy for dinner so that he can have his favorite food – spinach – for dessert. Students can compare Little Pea's dilemma to some of their own and discuss strategies to begin eating required healthy food.

The Boy Who Loved Broccoli by Sarah A. Creighton

Baxter loves broccoli, but it also gives him superpowers! He jumps over mountains, splashes through lakes, and saves people with his super-power good deeds. He convinces the people he rescues to eat broccoli and – surprise! – broccoli gives them superpowers too. After reading this book, students can write stories about the superpowers their own favorite vegetable gives them, and the adventures they have after eating it.

NEW JERSEY LEARNING STANDARDS

English Language Arts: PreK: RL.PK.1-6 K:RL.K.1-10 1:RL.1.1-4,6 2:RL.2.1-7 3:RL.3.1-7
Health: PreK: 2.1.P.B.1,2 K-2: 2.1.2.B 3: 2.1.2.B.1,2



SUGAR SHERIFFS

A lesson from the New Jersey Agricultural Society Learning Through Gardening program

OVERVIEW & PURPOSE

Students will experiment to see which beverages they drink contain the most sugar. At the same time, they will learn the differences between volume and density.

GRADES: 3-5

OBJECTIVES

The student will be able to:

- Define density.
- Define density and give an example of two things with different densities.
- Compare the sugar content in popular drinks based on their density.
- Read nutrition labels to determine the sugar content of drinks.
- Calculate the number of grams in sugar cubes

MATERIALS NEEDED

Per group:

- Sugar Sheriffs Procedures sheet
- Sugar cubes
- Measuring cup
- Funnels
- 4 transparent plastic cups
- Copies of beverage nutrition labels
- Sample beverages, such as cola, grape drink, juice box, orange drink, and milk

Per student:

- Sugar Sheriffs Lab Sheet and Sugar Sheriffs Data Sheet

Per class:

- 1 translucent plastic drink pitcher filled $\frac{3}{4}$ with water,

INTRODUCTION

Ask students, what do you drink when you are thirsty?" Ask them, how do these drinks keep your body healthy? and why are some drinks healthier than others?" Lead students to discuss the calcium, sugar, and vitamin content of different beverages.

Ask students if they have ever heard of the word 'density.' Explain that density is how much matter is contained in each space. If there is a lot of matter in the space the density is high. If there is less matter in that space the density is low. Use the classroom as an example. Have the students stand all around the room without touching each other, then have them stand as close together as possible. The density of the group increased when they put themselves in to the smaller space. A golf ball has a greater density than a ping pong ball because there is more matter in the same amount of space.

Liquids can have different densities as well. Ask the students if they can think of any liquids that might have a higher density than another (maple syrup/honey/corn syrup). What do these have in common? Lead students to answer "sugar."

Show the class the container of regular cola and diet cola. Have them check the labels for volume. Both are the same. Ask the students if they think the cans will sink or float. Using the plastic pitcher, drop the cola into the water. Repeat with the diet cola. Ask students what happened to the two cans. (The cola sinks, and the diet cola floats.) Ask students why the regular cola sank. They should respond that the sugar increased its density.

Explain to the students that they are going to conduct an experiment to compare the sugar content in popular drinks to that of milk and then read nutrition labels to support their findings.

ACTIVITY

Divide the students into small groups. Students fill their 4 test glasses with $\frac{1}{4}$ cup of milk. Students measure $\frac{1}{8}$ cup of another beverage sample. Place the funnel into the first test glass of milk. Slowly pour the beverage onto the side of the funnel. Watch carefully as the beverage flows from the bottom of the funnel. (The sugary beverage should sink to the bottom of the milk.) Have students record what they see on their lab sheets.

Repeat with other beverages as a team, students are to decide if the drink contains more sugar than the milk and estimate how many teaspoons of sugar are contained in one serving of that drink. They will place 2 sugar cubes (for every teaspoon of sugar) in front of each cup to show how much sugar they think is in that beverage.

After students have made all their predictions, show students the nutrition labels from the beverages to evaluate the sugar, calcium, and vitamin C content in each beverage. Students record their findings on their lab sheets. Have students write their conclusions regarding this experiment and conclude which drink is healthiest and why.

Teacher Note: Labels may show that some sugary drinks contain vitamin A, vitamin C, calcium, and iron. Manufacturers may include additional nutrients on a voluntary basis.

EVALUATION:

Students define density and give examples of differing densities. Students answer the question, “How can you use nutrition labels to select healthy beverages?” Students write a paragraph or paragraphs explaining their conclusions of the experiment.

NEW JERSEY LEARNING STANDARDS

Health: 3-4: 2.1.4.B.1.2 5: 2.1.6.B.1,2,4 English Language Arts: 3:W.3.2.A-D, W.3.4,8
4:W.4.2.A-E, W.4.4,8 5: W.5.2.A-E; W.5.4,8

Sugar Sheriffs Procedure Sheet

1. Mark your cups 1 through 4.
2. Measure $\frac{3}{4}$ cup of milk into each of your transparent plastic cups.
3. Insert a funnel into cup #1.
4. Measure $\frac{1}{8}$ cup of cola.
5. Very slowly pour the cola onto the side of the funnel.
6. Observe what happens as the cola flows through the funnel.
7. Repeat steps 3-6 for each of your other beverages. Watch carefully as the beverage flows through the funnel.
8. Look (from the side) at each of the cups. What do you notice? Record what you see under Observations on your lab sheet.
9. Discuss and estimate with your team the amount of sugar in teaspoons that are in a single serving of each beverage. Record this estimate on your data sheet. Divide your

predicted number of teaspoons by 2 to get the predicted number of cubes. Two sugar cubes = one teaspoon of sugar.

Place the appropriate number of sugar cubes in front of the cup. Multiply your prediction in cubes by 2, to figure your prediction in grams. Write your prediction on your data sheet.

10. Read the nutrition labels from the beverages. Record the actual number of grams of sugar on your data sheet and compare that amount to your prediction.

11. Continue reading the nutrition label and record the calories, the amount of calcium, and the amount of vitamin C in each beverage.

12. What can you determine from this investigation. Write your conclusion on your lab sheet.

Sugar Sheriffs Lab Sheet

Which drinks contain more sugar than milk? Your task is to determine which of your favorite beverages contain more sugar than milk. You will then read nutrition labels to decide if your predictions were correct.

This experiment will provide you with information that should help you make healthy beverage choices.

Problem: Write the question you are trying to answer.

Hypothesis: Write what you think the answer will be and why.

Materials: List the materials you will use during your experiment.

Procedure: Write the steps you took to complete the experiment.

Observations: What did you see happen when the liquids were poured together?

Conclusions: What did you learn from the experiment? How will this information help you make healthy beverage choices?

Sugar Sheriffs Data Sheet

Hypothesis: How much sugar do you think one serving of each beverage contains?

Beverage	Predicted # of tsp of sugar per serving
Cola	
Grape drink	
Fruit punch	
Juice box	
Milk	

*Multiply the number of sugar cubes by 2 to figure the predicted number of teaspoons per serving. Multiply the number of teaspoons by 2 to find the predicted number of grams of sugar per serving.

Record the facts from the nutrition labels.

Actual number of grams of sugar per serving

Beverage	Sugar(gr)	Calories	Calcium	Vitamin C
Cola				
Grape Drink				
Fruit Punch				
Juice box				
Milk				