


# IN DEFENSE OF FOOD

## CURRICULUM

A companion to the PBS documentary  
based on Michael Pollan's best-selling book





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Michael Pollan's best-selling book



**Laurie M. Tisch Center for  
Food, Education & Policy**  
Program in Nutrition

Teachers College, Columbia University

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For after-school programs, ages 10 to 14  
Adaptable for other settings and ages





# IN DEFENSE OF FOOD CURRICULUM

*In Defense of Food* is a project of Kikim Media, LLC. The centerpiece of the project is a two-hour PBS documentary. It also includes a web site ([pbs.org/indefenseoffood](http://pbs.org/indefenseoffood)), materials for organizing community screenings and house parties (including a shorter version of the documentary) and Spanish-language materials. This accompanying curriculum for middle school aged students was developed in partnership with the Laurie M. Tisch Center for Food, Education & Policy, Program in Nutrition at Teachers College, Columbia University.

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[pbs.org/indefenseoffood](http://pbs.org/indefenseoffood)

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To the students and teachers who participated in the pilot test,  
for enthusiastically and graciously sharing their lives with us.





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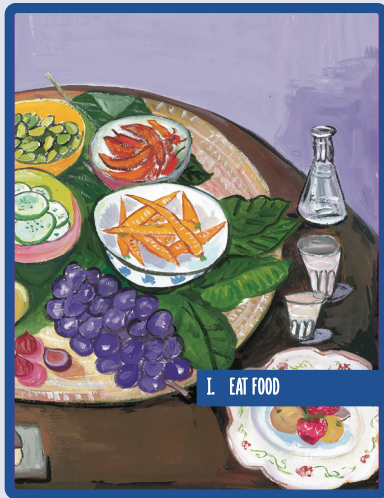
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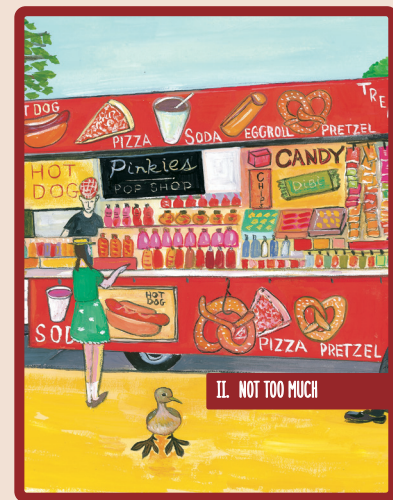


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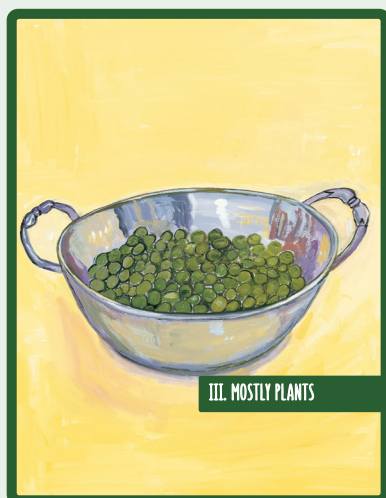
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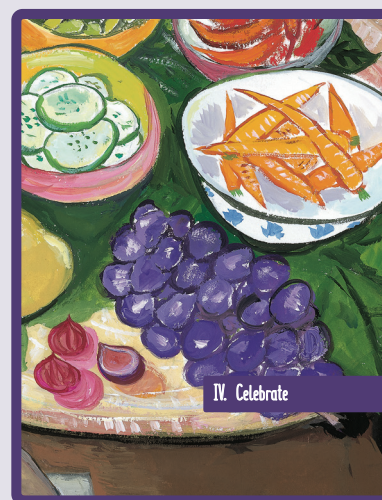
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# FOREWORD

I began the research for the book that would become *In Defense of Food* because so many of the readers of my earlier books on food told me that what they really wanted to know was something very practical: what they should eat to be healthy. They said they felt whipsawed and confused by the constant changes in the nutritional advice they were hearing. Once I began to understand what we really do know about food and health, I discovered, to my surprise, that the answer to their question was a lot simpler than I had thought it would be. Healthy eating does not require us to master a lot of complex biochemistry, or read stacks of scientific articles. All we have to do, I found out, can be summed up in seven words: Eat food. Not too much. Mostly plants.

But while the key to healthy eating is simple, putting it into practice, for many of us, unfortunately is not. When I say, “Eat food,” I’m talking about real food, the kind that people have been eating for tens of thousands of years. Meat. Fish. Vegetables. Fruits. Grains. But today, in the United States as well as in many other developed countries, most of what we’re sold in supermarkets or served in restaurants is not real food at all, but highly processed products made in factories. I call them “edible food-like substances.” They’re things like processed meats, sugary beverages, convenience foods, snack foods, fast foods, and junk foods.

These products have enormous appeal, because they’ve been engineered to be tasty and cheap. But they are not good for our health. As our consumption of them has gone up, especially over the past three decades, so have our rates of diet-related diseases. Children and teenagers are especially vulnerable to unhealthy processed food. They are the targets of billions of dollars of advertising for candy, fast foods, sugary beverages and sugary breakfast cereals. A generation ago, it was exceedingly rare for a child or teenager to have type 2 diabetes. Now, tragically, it has become increasingly common.

But all of us, working together, can take simple, practical steps that can help our children and teenagers to take control of their own diets, and move away from “edible food-like substances” and toward real food. We are offering one of those steps here. We have developed a curriculum, based on the book and film versions of *In Defense of Food*, to help teach kids about healthier eating, and encourage them to make changes in their own lives. We have worked hard with our colleagues at Teachers College, Columbia University to make this curriculum not only informative and effective, but also a great deal of fun, with lots of imaginative, enjoyable exercises and recipes for real food dishes for kids to make themselves.

I am delighted to see my work give rise to this exciting new project. I think it can really make a difference in young people’s lives.



Michael Pollan







# WELCOME

## Dear Educator,

Welcome to the *In Defense of Food (IDOF) Curriculum*. It is designed to help adolescents develop something valuable: practical tools for healthier eating. Even though scientists know a lot about food and health, the messages that reach adolescents about healthy eating have become increasingly complex and contradictory. And at an age where they are gaining independence to make their own food choices, they are barraged with advertising that urges them to consume more and more ultra-processed food products—soda, chips, junk food and fast food—that can put their health at risk. In recent years, there has been an alarming increase in diet-related diseases among adolescents, such as type 2 diabetes.

The *IDOF Curriculum* can do a lot to help. It helps students learn why it is important to eat healthfully, investigate how food companies influence their food choices, and create action plans for changing their eating habits. They become motivated to eat real food, and excited to share what they’ve learned with their family, friends, and community. The *IDOF Curriculum* has three guiding principles:

1. **Challenge students’ perceptions of what “food” is.** The overall framework of the curriculum is Eat food. Not too much. Mostly plants. The seven words that comprise Michael Pollan’s answer to the question, “What should I eat to be healthy?” Students explore what Pollan means by food, which is real food, that comes from nature, as opposed to the highly processed products that surround them.
2. **Connect with the everyday experiences of middle schoolers** by combining activities that have “shock appeal,” such as unveiling cunning marketing strategies, along with preparing and eating tasty plant-based dishes to make these foods fun and cool.
3. **Apply research-based strategies** that motivate young people to make healthy food choices, and teach skills to help them navigate today’s challenging food environment.

The *IDOF Curriculum* is comprised of 10 sequential, two-hour lessons. Lessons 1–3 (Eat Food) explore the differences between real food and the highly processed products we have termed “floods.” These are what Pollan calls edible food-like substances. At the same time, students increase their desire to Eat Food. Lessons 4–6 (Not Too Much) explore the health consequences of eating too much—especially too much flood—and encourage students to create plans to make changes in their own lives and in their community. In Lessons 7–9 (Mostly Plants), students look at what it means to eat mostly plants, and get to cook and eat tasty plant-based meals and snacks. Finally, Lesson 10 brings together everything that students have learned and encourages discussion of how they are going to continue to eat foods instead of floods in the future.

We hope you and your students enjoy the *In Defense of Food Curriculum*. We wish you success on the path to Eat food. Not too much. Mostly plants.

Warmly,

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# OVERVIEW

The *In Defense of Food Curriculum* investigates the reasons why it's hard to eat well, celebrates the many benefits and pleasures of healthier eating, and teaches practical steps for how to Eat food. Not too much. Mostly plants.

Lessons	Aims	Food Rules	Film Clip
<i>Eat Food</i>			
1: Where are the Soda Trees?	Introduce <i>In Defense of Food Curriculum</i> and the concept of foods vs. froods.*	Eat what you can picture growing in nature.	Meet Anthony Scavotto
2: Chemical Cuisine	Increase awareness of the benefits of eating more foods and fewer froods.*	Eat foods with ingredients a third grader could pronounce.	Salt, Sugar, Fat
3: The Claim Game	Explore how companies use marketing strategies on food packaging to get us to buy products.	Avoid products that make health claims.	Frood Fads
<i>Not Too Much</i>			
4: Don't Be Fooled	Examine how food advertising and marketing influence us, often on a subconscious level.	Avoid foods you see advertised on television.	Marketing Low-Fat
5: Supersized	Increase awareness that our environment influences when, what, and how much we eat.	Choose smaller plates and cups.	Serve More, Eat More
6: Dia-beat It!	Understand that eating froods instead of foods increases our risk of getting sick.	Make water your beverage of choice.  Sweeten and salt your food yourself.	Sugar Flood  Diabetes: An Epidemic
<i>Mostly Plants</i>			
7: Rooting for Plants	Increase familiarity with and excitement about eating plant-based foods.	If it came from a plant, eat it; if it was made in a plant, don't.	Going Farming!
8: Color Your World	Build confidence and desire to eat Mostly Plants.	Eat your colors.	Vegetable Surprise
9: Lettuce Turnip the Beet	Create practical strategies to keep following the Food Rules...most of the time.	Eat more like the French do.	Secrets of the French
<i>Celebrate</i>			
10: Eat food. Not too much. Mostly plants.	Celebrate and share what students have learned throughout <i>In Defense of Food</i> .	Break the rules once in a while.	Join the Movement

\* This is our term for what Michael Pollan calls "edible food-like substances."



# KEY FEATURES

Our current food environment makes it hard for our children to follow Pollan's Food Rules. To help them, the *In Defense of Food Curriculum* includes several key features.

## Watch Film Clips from *In Defense of Food*

*In Defense of Food* sheds new light on the challenges we face every time we sit down to eat. Incorporating two- to five-minute film clips within each lesson generates curiosity, stimulates thinking, and synthesizes what students learn through the lesson activities. Students see how uncertain and incomplete science has shaped what food is available and how Americans eat. They view the real life struggles to eat healthfully that some of their peers face and learn how they are overcoming those obstacles. They witness the momentum and excitement of the growing food movement in the United States. Each film clip is accompanied by thought-provoking questions to encourage conversation. Every lesson includes links to the film clips on the PBS website.

## Learn Food Rules

Every lesson incorporates one or two of Michael Pollan's practical, memorable Food Rules to help students put what they have learned into action. Students discuss ways the Food Rules can help them navigate our complex food environment. They receive an activity sheet with the Food Rule to share with their families and are encouraged to watch the *IDOF* film clip(s) together.

## Prepare and Eat Food

Most lessons provide an opportunity to eat real food. Preparing and eating food with their peers is a powerful way to motivate students and build their confidence about eating real foods. As students eat together they are encouraged to try everything, especially new foods. They learn that we often have to taste new foods several times before deciding if we like them. And they learn to respect each other's varied tastes and cultural preferences.

## Conduct Card Activities

The lesson activities are interactive and support peer-to-peer discussions. Many lessons use cards as visual prompts that support critical thinking.

## Create *Capture It* Pieces

A few times during the curriculum, students are asked to take a photograph or draw a picture of a food and a food that play a role in their lives. They also write a few sentences about their images. These *Capture It* pieces allow students to bring what they are learning out of the classroom and reflect on how the world around them impacts their food choices and health. They share their *Capture It* pieces as they go through the curriculum and at Lesson 10's culminating celebration.

## Make Action Plans

Even after we are motivated to eat more healthfully, it can still be hard to make lasting changes. To help students do so, they create action plans throughout the course of curriculum that specify the changes they would like to make. Students then report on their progress. They are encouraged to support each other and brainstorm creative solutions to overcome challenges they face. In Lesson 9, students review all of their action plans and consider how to transform their changes into habits.

## Complete and Share Culminating Projects

Throughout the curriculum, students work independently or in groups on projects that will be displayed and shared during Lesson 10. These include their *Capture It* pieces, spoken word poems, skits, and an ad for a plant-based food. Culminating projects give students an opportunity to reflect on their progress.





# GATHERING MATERIALS

## Basic Materials

Almost everything you need to teach this curriculum is included in this guide. Some of the materials need to be printed and copied and some of the lessons will also require various kinds of food that needs to be purchased. We anticipate that preparation for each lesson will take about two hours. The materials and food for a class of 10–15 students will cost about \$250 for all 10 lessons. Specific materials for each lesson are provided with each lesson plan.

General materials you will need for many lessons are:

- Audiovisual (AV) equipment to stream the *IDOF* film clips, which are available at [www.pbslearningmedia.org](http://www.pbslearningmedia.org).  
If you do not have Internet access, email [eatfood@kikim.com](mailto:eatfood@kikim.com) to get a DVD of the film clips.
- Board or chart paper
- Pencils
- Paper
- Markers
- Tape
- Scissors
- Tasting cups
- Napkins

## Food for Tastings and Food Preparation

Many of the lessons provide students opportunities to taste and prepare food. Some of them will give you choices about what kinds of food to purchase. The **Preparation Sheets** review the options. If you can, try to get some foods that are familiar to your students and some that are new. Most importantly, purchase the foods from a source in the community where you teach, so that students can get the foods again with their families.

If there is a farmers market in the community where you teach, purchase foods from there whenever you can. Talk to the farmers since most will be delighted that you are using the food for a youth education program. Tell students about the farmers who grew the food they are eating. You could also consider taking a field trip to the farmers market. Some offer visits designed specifically for youth.

## Gymnema Tea for Lesson 2

In Lesson 2, students conduct an activity with Gymnema tea. This is a special tea that blunts our ability to taste sweetness for about 30 minutes. Select a loose leaf variety. You'll need about 14g (½ an ounce, or ½ cup of loose tea leaves) for a class of 10–15 students. You may find Gymnema tea in a health food store. You can also order it online. Try the following website searches:

- All Life Service Gymnema tea
- Diabe Tea Gymnema tea
- Starwest Botanicals Gymnema tea

# HOW TO USE THIS CURRICULUM

All lessons are structured in a similar way to be clear and easy to use. Lessons may include: 1) First Bite, 2) Lesson Opener, 3) Before You Begin, 4) Preparation Sheet, 5) Procedure, 6) Activity Sheet, 7) Cards, 8) Guide Sheet, 9) Lesson Resource, 10) Family Sheets, and 11) Recipes.

## 1. First Bite



The **First Bite** provides the big picture of why this lesson is important. These also have evidence from research that supports the content of the lesson. First Bites may be appropriate to share with school administrators and parents.

## 2. Lesson Opener



The **Lesson Opener** provides an overview of the lesson and a list of materials needed. This page includes:

**Aim:** The broad goal of the lesson.

**Food Rule:** A catchy rule that helps students apply what they learn to their lives. Food rules are from the *IDOF* film and from Michael Pollan's book *Food Rules*.

**Film Clip:** A two- to five-minute clip from *IDOF* that helps to set up activities or synthesize the content of the lesson.

**Objectives:** What the students will think, feel, and be able to do differently as a result of this lesson.

**Overview:** Description of what happens during the lesson.

**Materials — In this guide:** Lists resources that are supplied in this curriculum. These resources are always ***bold-italic***, with the page number specified.

**Materials — Other materials:** This is what you will need to gather for this lesson. Sometimes this list will refer you to another sheet in the curriculum for an activity that has specific materials.





# HOW TO USE THIS CURRICULUM (CONT.)




## 6. Activity Sheets

**Activity Sheet**

Name \_\_\_\_\_ Date \_\_\_\_\_

**Getting to Know You Bingo**

Begin by writing your name in the center Bingo box. Then, find a person in your class who has done the following things and write his or her name in the box. You can use each person a maximum of only two times to fill in a box. The first person to complete a row of boxes wins.

Find someone who...				
Can name this plant part 	Has watched a food documentary	Has thought about how food helps them	Can name a fruit that grows on a tree	Has talked to a family member about a family recipe
Has written a poem	Can name a vegetable that grows from the ground	Has eaten a flower	Can tell you 3 ingredients in a chocolate chip cookie	Knows what this is 
Has made up a commercial	Can tell you what diabetes is	I _____ am a Food Defender FREE SPACE	Has made homemade soda	Has given advice to someone on how to be healthy
Has ordered a small instead of a large at a restaurant	Knows how many spoonfuls of sugar are in a 20 ounce soda	Can name an edible plant part	Knows what plant popcorn comes from	Has eaten a seed before
Can name this fruit 	Has set a goal for something they want to accomplish	Has acted in a play or skit	Drank water today	Has heard of high-fructose corn syrup

LESSON 1: MEET AND THE SOON TRUSTY - 42 - EAT FOOD

**Activity sheets** are for students to complete during activities in the lessons. Make a copy of activity sheets for each student.

## 7. Cards

**Cards**

**Food Sort Large (cont.)**

Corn  


Cheetos  


LESSON 1: MEET AND THE SOON TRUSTY - 43 - EAT FOOD

**Cards** are used during activities in the lessons. The instructions for how many copies and any preparation of the cards are on the top of the sheet and also in **Before You Begin**.

## 8. Guide Sheet

**Guide Sheet**

**Food Sort**

The purpose of this card sorting activity is to help students recognize that eating certain types of food can help them to achieve their hopes and goals, while others might hinder them.

**Materials**

- Board or chart paper
- Tape

**For Each Group**

- Green and red marker

**Set up**

1. On a board or chart paper, draw the chart in Image A on the next page.
2. Have one set of **Food Sort Large** cards (A, B) and tape handy in the front of the room.
3. Prepare one set of the **Food Sort Small** cards (A, B) and a red and green marker for each group of three to four students.

**Procedure**

1. Divide students into small groups of 3-4 and give each group one set of the **Food Sort Small** cards and a pencil.
2. Tell them to think about what they already know about food and sort the cards into two categories: a) **HELP** (those that will help them achieve the hopes they identified earlier) and b) **DON'T HELP** (those that will not help them achieve their hopes).
3. Give the groups a few minutes to sort their cards. If a group finishes before the rest of the groups, ask them to discuss among themselves why they placed the foods in the categories that they did.
4. Once all groups are done sorting, hold up one of the **Food Sort Large** cards and ask the groups which category they put this food in. Discuss the food items until consensus is reached, then tape the food sort card to the appropriate column in the chart. Image B, on the next page, shows the foods how we intended them to be sorted. Review the rest of the **Food Sort Large** cards like this. If there is a food for which consensus cannot be reached, place this food between the categories.
5. As you discuss each food, have groups move their cards so that all groups have the same foods in **HELP** and **DON'T HELP** piles on their charts in the front of the room.
6. Tell the groups to look at all the foods. Put a green dot by the foods that they can picture growing in **NATURE**. Put a red dot by those they can't picture growing in nature (e.g., soda, Pop-Tarts, or Oreos). If a group finishes early, ask them to discuss what they think are some differences between the foods that they can and can't picture growing in nature. Place the dots on your chart, as in Image C on the next page.
7. Point out that foods that **HELP** are those we can picture growing in nature, and foods that **DON'T HELP** we can't picture growing in nature.

LESSON 1: MEET AND THE SOON TRUSTY - 44 - EAT FOOD

The **Guide Sheet** gives detailed instructions for an activity that needs more description than is in the **Procedure**. **Guide Sheets** always have 4 sections: 1) materials, 2) set up, 3) procedure, and 4) discussion questions.

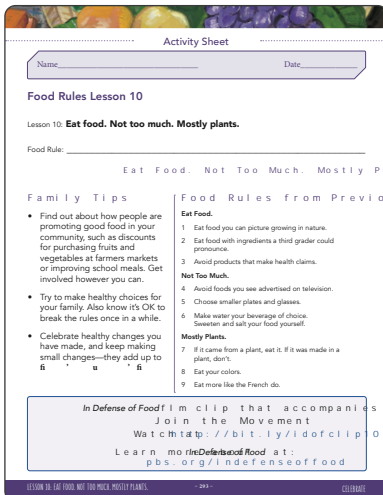
# HOW TO USE THIS CURRICULUM (CONT.)

## 9. Lesson Resource



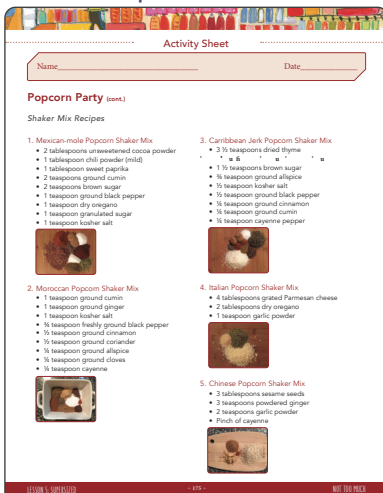
The **Lesson Resource** provides you with extra information you can use during the lesson.

## 10. Family Sheets



Each lesson has a take home sheet. Students write in the Food Rule. The sheets also have family tips that are practical ideas for how to follow the Food Rule.

## 11. Recipes

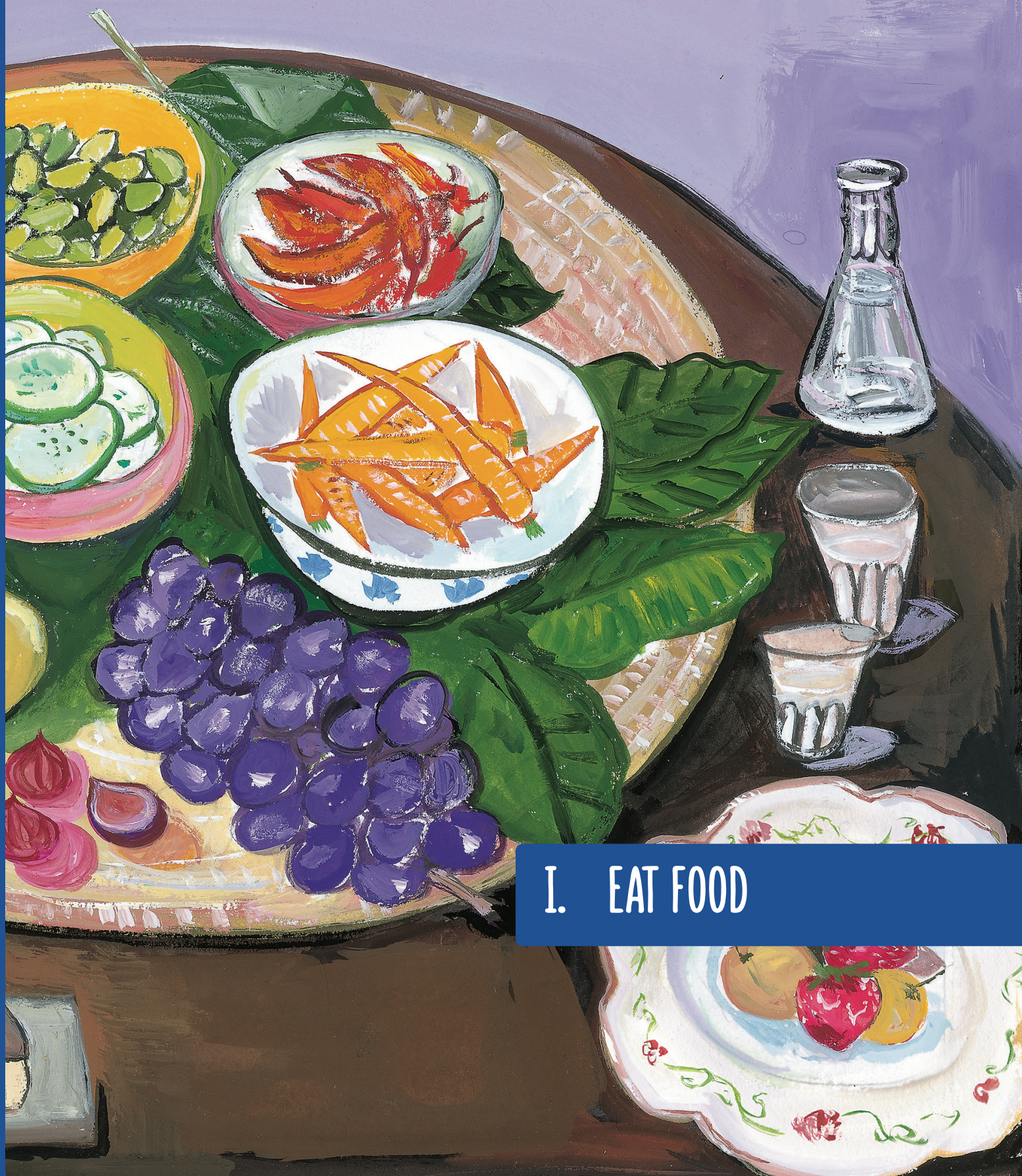


Students are provided with copies of the recipes they prepare during the lessons to share with their families.









I. EAT FOOD





## LESSON 1:

# WHERE ARE THE SODA TREES?

## First Bite

Few activities are more quintessentially human than eating. We all do it, every day, multiple times a day. Think of how food is used in your life: maybe to celebrate, meet new people, or add pleasure to your day. For something so common, food is surprisingly complex—as we’ll see throughout the *IDOF Curriculum*. Not all foods are created equal: some foods support the lives we want by keeping us healthy, active, strong, smart, and energized. Other foods actually work against us by increasing risk of metabolic illnesses and making us feel lethargic. If certain foods detract from our health, should we really call them “foods?” Perhaps they deserve a category of their own.

### Foods

In the *IDOF Curriculum*, the word “food” is reserved for foods that occur naturally or could be made in your own kitchen. For example, whole foods like carrots, wheat, chicken, grapes, milk, beans, and nuts are food. Their minimally processed versions—like canned vegetable soup, bread, frozen chicken breasts, raisins, yogurt, hummus, and peanut butter—are also considered food. The theme for Lessons 1-3 is Eat Food, which means eating mostly whole and minimally processed food.

### Foods

When foods are highly processed and packed with ingredients and additives you wouldn’t find in a kitchen, they become what we call “floods”: fraudulent foods. This is our term for what Michael Pollan calls “edible food-like substances.”<sup>1</sup> Others call them ultra-processed or highly processed foods.<sup>2</sup> Floods are often made from heavily altered forms of corn, oil, and soy, like Twinkies, Cool Whip, Oreos, and soda.

A good rule of thumb to identify a flood is to picture it in nature. Have you ever seen a soda tree? Or a Cheeto walking around a farm? How about a Twizzler patch growing in a field? Floods are designed to be addictive

and override your body’s natural gut-brain signals that cue fullness.<sup>3</sup> You might have been fooled by floods firsthand if you’ve ever eaten an entire can of Pringles or a bag of Cheetos. In the short run, overconsuming floods may lead to a stomachache, but the long-term health effects are more serious. High flood consumption increases the risk of depression, cancer, coronary heart diseases, cardiovascular diseases, cerebrovascular diseases, hypertension, metabolic syndrome, irritable bowel syndrome, and even asthma.<sup>4</sup> Additionally, adolescents who eat many floods are more likely to have early signs of chronic diseases such as elevated blood pressure and blood glucose.<sup>5</sup> This contributes to excessive weight gain, which could bring stigmatization, bullying, impaired school performance, and low self-esteem.<sup>6</sup>

### Eat Food

Eating food fuels your students’ bodies and brains to do what matters most to them—whether that’s dancing, playing sports, making music, or succeeding in school. Connect their goals to their food choices so they understand, care about, and feel confident to Eat Food.

### References

1. Pollan, M. (2009). In *Defense of Food: An Eater’s Manifesto*. New York: Penguin Books.
2. Monteiro, C. A., Cannon, G., Levy, R. B., Moubarac, J.-C., Louzada, M. L., Rauber, F., ... Jaime, P. C. (2019). Ultra-processed foods: what they are and how to identify them. *Public Health Nutrition*, 22(5), 936–941.
3. Ulug, E., Acikgoz Pinar, A., & Yildiz, B. O. (2025). Impact of ultra-processed foods on hedonic and homeostatic appetite regulation: A systematic review. *Appetite*, 213, 108139.
4. Chen, X., Zhang, Z., Yang, H., Qiu, P., Wang, H., Wang, F., ... & Nie, J. (2020). Consumption of ultra-processed foods and health outcomes: a systematic review of epidemiological studies. *Nutrition journal*, 19, 1–10.
5. De Amicis, R., Mambrini, S. P., Pellizzari, M., Foppiani, A., Bertoli, S., Battezzati, A., & Leone, A. (2022). Ultra-processed foods and obesity and adiposity parameters among children and adolescents: a systematic review. *European journal of nutrition*, 61(5), 2297–2311.
6. Haqq, A. M., Kebbe, M., Tan, Q., Manco, M., & Salas, X. R. (2021). Complexity and Stigma of Pediatric Obesity. *Childhood obesity* (Print), 17(4), 229–240.





## LESSON 1:

# WHERE ARE THE SODA TREES?

## Aim

Introduce *In Defense of Food Curriculum* and the concept of foods vs. froods.

## Food Rule

**Eat food you can picture growing in nature.**

## Film Clip

Meet Anthony Scavotto

## Objectives

Students will be able to:

- express increased beliefs that healthy eating will help them reach their goals;
- differentiate between food and frood;
- state and understand the lesson's Food Rule;
- express positive attitudes towards eating plant-based snacks; and
- demonstrate increased confidence in ability to choose a healthful snack (seeds) instead of a highly processed snack.

## Overview

This lesson begins with a Bingo game to help students get to know each other. Then, students write down something that they are good at and something they hope to be better at in the future. Next, they explore how eating healthfully can help them to be better at those things. Sorting food picture cards into categories helps students learn the distinction between foods and froods. Students discover that each lesson will have a Food Rule, and that the rule for this lesson is “Eat food you can picture growing in nature.” They watch an *IDOF* film clip and are introduced to another middle schooler trying to eat well. The lesson ends with students tasting different edible seeds and learning that they can snack on seeds (a food) instead of froods.

## Materials

### In this guide

- **Choosing Seeds for Tasting** preparation sheet p. 23
- **Getting to Know You Bingo** activity sheet p. 32
- **Food Sort** guide sheet p. 33
- **Food Sort Small** cards p. 35
- **Food Sort Large** cards p. 37
- **Food Rules Lesson 1** activity sheet p. 42
- **Soda Trees** cards p. 43
- **Try This Seed** guide sheet p. 47
- **Tasting Seeds** lesson resource p. 49

### Other materials

- *IDOF* film clip 1: Meet Anthony Scavotto and AV equipment
- Board or chart paper
- Black or brown marker
- Green and red markers, about 6 of each
- 3–4 selected seeds for tasting (see **Choosing Seeds for Tasting** preparation sheet p. 23 for ingredients and cooking materials)

### For each student:

- Yellow and green sticky notes
- Index card or ½ sheet of paper
- Tasting spoon
- Napkin
- Pencil

To learn more about *In Defense of Food*, visit [pbs.org/indefenseoffood](http://pbs.org/indefenseoffood). Funding was provided by the National Science Foundation and PBS.



## Before You Begin: Total prep time: approximately two hours

### Within a few days before lesson

1. Select, purchase, and prepare seeds for the tasting activity. See ***Choosing Seeds for Tasting*** preparation sheet p. 23 for options and for how to prepare the seeds.
2. Review the entire lesson.

### Within a day before lesson

3. Print and cut out cards:
  - ***Food Sort Small*** cards p. 35, one set for each group of 3–4 students.
  - ***Food Sort Large*** cards p. 37, one set.
  - ***Soda Trees*** cards p. 43, one set.
4. Print one copy per student of each activity sheet:
  - ***Getting to Know You Bingo*** activity sheet p. 32
  - ***Food Rules Lesson 1*** activity sheet p. 42
5. **Bingo and skit activities:** Identify an area of the room in which students will have space to move around.
6. **Strengths and hopes activity:** Draw a tree showing the roots and leaves on board or chart paper with markers.
7. **Food card activity:** Identify a wall to tape up a sheet of chart paper on which to draw a chart with two columns.
8. **Viewing IDOF film clip:**
  - Set up AV equipment and space for film viewing.
  - Find IDOF film clip 1: Meet Anthony Scavotto at <http://bit.ly/idofclip1>
9. **Seed tasting:** Prepare seeds for the tasting activity. See the ***Tasting Seeds*** lesson resource p. 49 for details.

### Choosing Seeds for Tasting

This page provides directions on how to prepare seeds for the tasting. You might want to try a seed that you think is new to many of your students. Choose 3–4 seeds for tasting:

- Pepitas
- Sunflower seeds
- Chia seeds
- Pomegranate seeds
- Edamame
- Hummus (chickpeas and sesame seeds) – if you choose this, also have carrot sticks for dipping

Note: have a spoon for each student if making chia pudding.



### Pepitas



**Preparing pepitas for tasting:** Purchase deshelled and roasted pepitas (pumpkin seeds) from the grocery store, enough that each student can try a small spoonful of seeds.

OR buy raw pepitas and roast them yourself:

1. Preheat the oven to 400 degrees Fahrenheit.
2. Put 1 cup of raw pepitas into a mixing bowl.
3. Drizzle 1 tablespoon of olive oil over them. Stir to combine.
4. Spread seeds in a single layer on a baking sheet and sprinkle with 1 teaspoon salt, coarse or kosher if available.
5. Roast seeds in the preheated oven for about 10 minutes, or until seeds begin to turn golden brown. After they have been in the oven for 8 minutes, check every 2 minutes to make sure they don't burn).
6. Allow to cool and store in an airtight container in the refrigerator for up to a month.





## Choosing Seeds for Tasting (cont.)

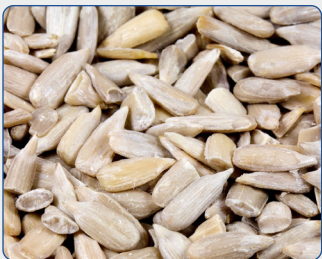
### > u n Œ o ö e r > e e d s



**Preparing sunflower seeds for Tasting:** Purchase deshelled and roasted sunflower seeds from the grocery store, enough that each student can try a small spoonful of seeds.

OR buy raw, deshelled sunflower seeds and roast them yourself:

1. Preheat the oven to 300 degrees Fahrenheit.
2. Put 1 cup of raw deshelled sunflower seeds into a mixing bowl.
3. Drizzle 1 tablespoon of olive oil over them. Stir to combine.
4. Spread seeds in a single layer on a baking sheet and sprinkle with 1 teaspoon of salt, coarse or kosher if available.
5. Roast seeds in the preheated oven for about 20 minutes.
6. Allow to cool and store in an airtight container in the refrigerator for up to a month.



### Chia Seeds



**Preparing Chia Seeds for Tasting:** Purchase raw chia seeds. Reserve enough for students to try a small spoonful of seeds. Then, make chia pudding. This recipe makes enough for 10–15 students to try a small spoonful.

1. Mix ¼ cup of chia seeds with one cup of liquid (soy or almond milk are popular choices). For flavor, add a sweetener such as honey or maple syrup, and spices, such as cinnamon, nutmeg, or flavoring such as cocoa powder or vanilla extract. Or top with fruit.
2. Let seeds sit in the liquid. They will gel in about 15 minutes and the chia pudding is ready to eat.

*If you feel confident, make chia pudding in front of the class.*



## Choosing Seeds for Tasting (cont.)

### Pomegranate Seeds



**Preparing pomegranate seeds for tasting:** Purchase pomegranate seeds from the grocery store, enough that each student can try a small spoonful of seeds.

OR remove the seeds from the pomegranate yourself:

1. Roll the fruit on the counter or a hard surface in order to loosen the seeds.
2. Score it laterally around the middle to cut through the tough skin but not to pierce the fruit inside. Pull it open into two halves.
3. Hold each half over a bowl with the seeds facing down into the bowl and firmly tap the skin with a wooden spoon while gently squeezing the fruit to release the seeds.
4. Use your fingers to pry any remaining seeds away from the white bitter pith that encase the seeds.



*If you feel confident, demonstrate removing pomegranate seeds in front of the class. Allow students to help in the final step by prying out the seeds.*

*BE AWARE: The red color of the pomegranate juice stains.*

### Edamame



**Preparing edamame for tasting:** Purchase frozen, deshelled edamame, enough for each student can try a small spoonful. Or, purchase frozen edamame still in the pods, enough for each student to try one pod.

1. Run edamame under warm water for 3–5 minutes to thaw.
2. Drain and sprinkle with salt.
3. Serve warm or at room temperature. To eat edamame in the pod: slide teeth along the outside of the pod, pulling beans into your mouth.



## Choosing Seeds for Tasting (cont.)

### Hummus (Chickpeas and Sesame Seeds)

chickpeas in shell:



hummus:



**About hummus:** Hummus is a dip that has chickpeas and sesame seed paste, called tahini, as the main ingredients.

**Preparing hummus, chickpeas, and sesame seeds for tasting:** Purchase a can of chickpeas, which are already cooked and ready to serve. Drain and rinse them thoroughly. Purchase sesame seeds, enough that each student can try a small spoonful of seeds. Purchase a plain hummus or make it yourself. This recipe makes enough for 10–15 students to try.

1. In a food processor, combine 15-ounces of cooked chickpeas, 3 tablespoons of olive oil, 3 tablespoons of tahini, 1 tablespoon of lemon juice, 1 small clove of garlic, and 1 teaspoon of salt.
2. Blend until smooth.
3. Purchase carrots for students to dip the hummus in, 2–3 carrot sticks per student.

sesame seeds in pod:



sesame seeds:







## Procedure

Lesson time: 120 min. (two 60-min. parts)

### Part 1 (60 min.)

#### 1. Get to Know Each Other (15 min.)

Explain to students that the lesson will begin with an activity to learn about each other. Provide each student with a ***Getting to Know You Bingo*** activity sheet p. 32 and a pencil. Direct students to write their name in the free space in the center of the page. Point out the questions in the other boxes. Explain that they will ask each other these questions to find classmates who answer ‘yes’ to the questions. For example, if the Bingo box says “ate an orange in the past week,” find a classmate who did that and write that person’s name in the box. Instruct students that they can write any one classmate’s name in only two boxes.

The goal is to fill one row of boxes with names (across, down, or diagonally) as quickly as possible.

Tell students to get up and start asking their classmates questions. Stop playing when someone calls out “Bingo!” and have everyone sit down.

Once everybody is seated, read aloud the statements from the filled row on the winning Bingo sheet one by one. Ask everyone who would answer ‘yes’ to the question to stand up. Have everyone sit down before reading the next question. Explain that all the questions on the Bingo sheet are related to what they will learn in the *IDOF Curriculum*.

#### 2. Explore Your Strengths and Hopes (10 min.)

Tell students in this activity they are going to think about and write down one thing that they are good at now and one thing that they hope to become good at in the next year. Share a personal example with the students.

Explain that a tree has roots that keeps the tree rooted or anchored into the ground, much like the thing that they are good at roots them and helps to define who they are now. From the roots, the tree shoots up towards the sun and grows. This is analogous to them reaching for their own hopes.

Give students a pencil, one yellow sticky note (on which they will write something they are good at), and one green sticky note (on which they will write something they hope to become good at in the next year). Instruct them not to put their names down on their sticky notes. Once they are done, they can post their yellow and green sticky notes on the roots and the leaves respectively of the tree drawn on the board or chart paper.

Getting to Know You Bingo is a great activity to help students become more comfortable with each other. It also allows students to move around and get excited to be in the *IDOF Curriculum* after-school program, right from the start!

Share a personal example to foster a safe and open sharing environment for the students. This will also increase student buy-in, and provide an example of the type of response you are looking for.



## Procedure (cont.)

Roots/Strengths: something that they are good at (e.g., playing baseball, cooking, math).

Shoots/Hopes: something that they hope to become good at in the next year (e.g., playing the guitar, throwing a football, singing).

### 3. Link Hopes with *IDOF* Message to Eat Food (5 min.)

Have students share their hopes. Once a few students have shared, ask what they could all do to achieve their hopes (e.g., practice, get enough sleep, learn from others who do this well). Once students list some of their ideas, explain that throughout the *IDOF Curriculum* they will learn how their food choices can also help them achieve their hopes. Ask the students to name a few of their heroes (e.g., famous athletes, performers, celebrities). Remind students that whatever their heroes are good at was once their hope as well.

Explain that celebrities who are part of ad campaigns for less healthy foods may or may not eat the foods they help to advertise. Some try to eat a healthy diet because they know it can help them be better athletes, singers, etc.

Provide students with an index card and ask students to take 1 minute to jot down an answer to the question “What is food?” onto their index card and then put it aside for later discussion. Probe students to think about what food does for them, and where it comes from.

Tell students that through the *IDOF Curriculum* they will become “food defenders.” They will learn why and how to choose foods that can help them achieve the things they hope to become good at.

### 4. Introduce *IDOF Curriculum* Sections (3 min.)

Explain to students that the *IDOF Curriculum* is based on a book also called *In Defense of Food* by Michael Pollan. In this book, he answers the question, “What should I eat?” in seven words. These are: Eat food. Not too much. Mostly plants. The *IDOF Curriculum* has four sections: Lessons 1–3 are Eat Food, Lessons 4–6 are Not Too Much, Lessons 7–9 are Mostly Plants, and Lesson 10 brings it all together. Explain to students they will learn what Eat Food means in the next activity.

### 5. Sort Food Cards (17 min.)

Divide students into small groups of three to four. Use the **Food Sort** guide sheet p. 33 and the **Food Sort Large** cards p. 37 to lead this activity. Give each group one set of **Food Sort Small** cards p. 35. Be sure to ask the students the discussion questions at the bottom of the guide sheet.

Most middle school-aged kids hope to become good at things that their heroes are good at. They tend to idolize famous athletes, celebrities, and performers. You will get better reception from students if they realize that many of their heroes make healthful food choices to be successful.

**Probing questions:** *What is food? What should it do for you?* (Something you eat, helps you grow, gives you strength, gives you energy, helps you concentrate.)

*Where does it come from?* (From a grocery store, but ground, a tree, the sea, a farm.)



## Procedure (cont.)

### Define Foods (and Froods)

Point to the Food Sorting Chart that was made in the previous activity. Explain that even though we typically call everything we eat “food,” in the *IDOF Curriculum* we are going to reserve the word “food” for items such as the ones in the help column.

For items that are similar to those in the don’t help column that are highly processed or really changed from how they appear in nature, we have created a new name. Write “flood” on the board or chart paper. They may recognize that floods are foods that are fraudulent or fake.

Tell students that throughout the *IDOF Curriculum* we will use the word “flood” for whole foods that come from plants and animals. This includes lettuce and apples that appear the same as they do in nature as well as foods that are slightly changed such as apple sauce, yogurt, and peanut butter.

The floods will be used for products that have been significantly changed from how they appear in nature. This includes items such as chicken nuggets, soda, and gummy candies. Encourage students to discuss the difference between foods and floods with their families and friends.

### 7. Learn the Food Rule (5 min.)

Explain that in the *IDOF Curriculum*, each lesson has a “Food Rule” that is a quick and easy way to use what they learn when choosing what to eat. Distribute the **Food Rules Lesson 1** activity sheet p. 42 and a pencil to students. Write the Food Rule for this lesson on the board or chart paper: “Eat foods you can picture growing in nature.” Have students write this on their sheets. Ask for examples of how they could use this rule (e.g., I can take the salad bar offered at lunch to get more vegetables; I can have an apple after school instead of chips). Encourage students to take home the sheet and share the Food Rule with their families.

## Part 2 (60 min.)

### 8. Practice Differentiating Foods and Floods (15 min.)

Designate one side of the room for foods and the opposite side for floods. Explain that you will hold up a **Soda Trees** cards p. 43 with a photo of a food or flood. If they think it is a food, move to the food side; if they think it is a flood, move to the flood side. If they are unsure they can stay in the middle or a little closer to the side that they think best represents the item on the card. Start with something easy (e.g., the apple). Once the class has moved to the appropriate side of the room, bring them back to gather in the middle before holding up the next **Soda Tree** card. If there are any foods or floods that students seem confused about, discuss these.







## Procedure (cont.)

others may be enjoying it.

Before joining you at the tasting station have students thoroughly clean their hands, either by using hand sanitizer or washing them with soap and warm water for 20 seconds.

### 11. Recognize We Eat Seeds (2 min.)

Explain that now they are going to try some seeds. Remind students that when we plant seeds they grow into new plants. Ask students to name some seeds people eat (e.g., sunflower seeds, pumpkin seeds, seeds in fruits such as kiwis and strawberries). Name some fruits that have seeds that we do not typically eat (e.g., apples, grapes, oranges).

### 12. Taste Seeds (15 min.)



Remind students that foods, like seeds, can help them to achieve their hopes. Use the **Try This Seed** guide sheet p. 47 and **Tasting Seeds** lesson resource 49 to lead students through the tasting. Be sure to ask students the discussion questions on the bottom of the **Try This Seed** guide sheet.

### 13. Create a Frood Farm Skit (15 min.)

Ask students *Where are the Soda Trees? Have you ever seen one? Why do you think that this lesson is called 'Where are the Soda Trees?'* Suggest that if there was a soda tree, it would come from a frood farm. Ask students to imagine working on a frood farm. What ridiculous things could they find? Have students work in small groups to come up with a frood farm crop (like a soda tree, Twizzler patch, or chicken nugget-laying chickens). Ask them to consider how it would grow (from a tree, the ground, an animal, etc.), how they would harvest it, how they would feed and care for it. Tell them to come up with a short 1–3 minute skit they can act out to tell the story of their frood farm crop and its harvest. Give the groups 10 minutes to come up with their skits. Have a few groups perform their skits.

To build comfort levels of the students, have only groups who are eager and willing perform their skit.

## Activity Sheet




Name \_\_\_\_\_

Date \_\_\_\_\_

### Getting to Know You Bingo

Begin by writing your name in the center Bingo box. Then, find a person in your class who has done the following things and write his or her name in the box. You can use each person a maximum of only two times to fill in a box. The first person to complete a row of boxes wins.

#### Find someone who...

<p>Can name this plant part:</p> 	Has watched a food documentary	Has thought about how food helps them	Can name a fruit that grows on a tree	Has talked to a family member about a family recipe
Has written a poem	Can name a vegetable that grows from the ground	Has eaten a flower	Can tell you 5 ingredients in a chocolate chip cookie	Knows what this is: 
Has made up a commercial	Can tell you what diabetes is	<p>I _____ (WRITE YOUR NAME HERE)</p> <p>am a Food Defender</p> <p>FREE SPACE</p>	Has made homemade soda	Has given advice to someone on how to be healthy
Has ordered a small instead of a large at a restaurant	Knows how many spoonfuls of sugar are in a 20 ounce soda	Can name an edible plant part	Knows what plant popcorn comes from	Has eaten a seed before
<p>Can name this fruit</p> 	Has set a goal for something they want to accomplish	Has acted in a play or skit	Drank water today	Has heard of high-fructose corn syrup



### Food Sort

The purpose of this card sorting activity is to help students recognize that eating certain types of food can help them to achieve their hopes and goals, while others might hinder them.

### Materials

- Board or chart paper
- Tape

#### For Each Group:

- Green and red marker

### Set up

1. On a board or chart paper, draw the chart in Image A on the next page.
2. Have one set of **Food Sort Large** cards p. 37 and tape handy in the front of the room.
3. Prepare one set of the **Food Sort Small** cards p. 35 and a red and green marker for each group of three to four students.

### Procedure

1. Divide students into small groups of 3-4 and give each group one set of the **Food Sort Small** cards and a pencil.
2. Tell them to think about what they already know about food and sort the cards into two categories: a) **HELP**: those that will help them achieve the hopes they identified earlier and b) **DON'T HELP**: those that will not help them achieve their hopes.
3. Give the groups a few minutes to sort their cards. If a group finishes before the rest of the groups, ask them to discuss among themselves why they placed the foods in the categories that they did.
4. Once all groups are done sorting, hold up one of the **Food Sort Large** cards and ask the groups which category they put this food in. Discuss the food item until consensus is reached, then tape the food sort card to the appropriate column in the chart. Image B, on the next page, shows the foods how we intended them to be sorted. Review the rest of the **Food Sort Large** cards like this. If there is a food for which consensus cannot be reached, place this food between the categories.
5. As you discuss each food, have groups move their cards so that all groups have the same foods in **HELP** and **DON'T HELP** piles on their tables as on your chart in the front of the room.
6. Tell the groups to look at all the foods. Put a green dot by the foods that they can picture growing in **NATURE**. Put a red dot by those they can't picture growing in nature, (e.g., soda, Pop-tarts, or Doritos). If a group finishes early, ask them to discuss what they think are some differences between the foods that they can and can't picture growing in nature. Place the dots on your chart, as in Image C on the next page.
7. Point out that foods that **HELP** are those we can picture growing in nature, and foods that **DON'T HELP** we can't picture growing in nature.

## Food Sort (cont.)

### Discussion Questions

1. Do you see soda growing on trees? What would happen if you planted a Dorito in the ground?
2. What do you notice about foods that grow in nature? (They help us achieve our hopes.) What do you notice about the foods that don't grow in nature? (They don't help us achieve our hopes.)
3. Where are some places you can find foods in the HELP column? (In grocery stores, farmers markets, school lunch, etc.)

Image A

Help	Don't Help











This is what to write on the board or chart paper before you start the lesson.

Image B

Help	Don't Help
	
	
	
	
	

This is what it will look like after you sort the cards into those that HELP us reach our goals and those that DON'T HELP us reach our goals.

Image C

Help	Don't Help
 G	 R
 G	 R
 G	 R
 G	 R
 G	 R

This is what it will look like with green dots for NATURE and red dots for NOT NATURE.

## Food Sort Small

Print and cut out 1 set for each small group.

Apple



Broccoli



Grilled chicken



Soda



Apple Pop-Tarts



Grapes





## Cards

### Food Sort Small (cont.)

Chicken nuggets



Grape drink



Corn



Cheetos



## Food Sort Large

Print and cut out 1 set for you.

Apple



Broccoli





## Food Sort Large (cont.)

Grilled chicken



Soda





## Food Sort Large (cont.)

Apple Pop-Tarts



Grapes



## Food Sort Large (cont.)

Chicken nuggets



Grape drink





## Food Sort Large (cont.)

Corn



Cheetos



Date\_\_\_\_\_

## Lesson 1: **Where are the Soda Trees?**

## Eat food. Not too much. Mostly plants.

## Foods and “Froods”

- In the *IDOF Curriculum*, the word **food** is reserved for whole foods that come from plants and animals. Lettuce, apples, eggs, beans, and steak are food. When whole foods are slightly altered, or minimally processed, they are still food. Bread, frozen chicken breasts, raisins, applesauce, canned vegetable soup, yogurt, hummus, and peanut butter are examples.

in nature. This is our term for what Michael Pollan calls “edible food-like substances.” Many of the ingredients in froods are processed versions of corn and soy. Twinkies, Cool Whip, Oreos, and soda are froods.

Learn more about *In Defense of Food* at:  
[pbs.org/indefenseoffood](http://pbs.org/indefenseoffood)



## Soda Tree

Print and cut out 1 set for you.

Sunflower seeds



Eggs





## Soda Tree (cont.)

Chocolate sandwich cookies



Orange soda



## Soda Tree (cont.)

Sports drink



Steamed rice





## Soda Tree (cont.)

Carrots



Fruit flavored cereal



### Try This Seed

It is important to recognize that food that comes from a plant starts as a seed. In this activity, students explore a variety of edible and tasty seeds in different forms. Encourage them to use different senses to describe how the seeds look, feel in their mouths, sound when they chew on them, and taste.

### Materials

- Seeds for tasting

#### For each student:

- Napkin
- Spoon (if having chia pudding)

### Set up

1. Designate an area of the room to be the tasting station.
2. Set up small containers for each of the selected seeds and put one spoon in each container.
3. Put out napkins and spoons.
4. If you are tasting hummus, put 2-3 baby carrots on each student's napkin for dipping hummus.

### Procedure

1. Have students wash their hands and join you at the tasting station.
2. Tell them that they will try a variety of seeds. You want them to pay attention to the way that the seeds look, feel in their mouths, sound when they chew on them, and taste.
3. Remind students that saying seeds are gross or good doesn't say much. They should describe in more detail.
4. Introduce the first seed. Use the *Tasting Seeds* lesson resource p. 49 to show students a photo of the seed and to share some background about the seed.
5. Scoop a small spoonful of the first seed into each student's hand. Ask them to wait to taste until everyone in the group has some but to look at the seed to consider how they would describe the way that it looks.
6. Ask the class to come up with some words to describe how it looks (color, shape, texture); then ask them to feel the seed in their mouths and think about how it feels for a second or two. Then ask them to chew and swallow and consider how they would describe the taste and if it makes any sounds when in their mouths.
7. Repeat steps 4–7 for the rest of the seeds.

## Try This Seed (cont.)

### Discussion Questions

1. *Which was your favorite seed to try? Why? Does it remind you of anything else you have tried? What?*
2. *Which seeds have you tried before? Which seeds did you try for the first time?*
3. *How will you describe the seeds that you tried here to others?*
4. *Can you find seeds like these in your neighborhood? In your grocery store, corner store, bodega, or gas station?*
5. *Do any foods that you normally eat contain these seeds?*
6. *Which seeds would make a good snack? What foods could they replace?*



## Tasting Seeds

Use this sheet during the seed tasting to show students photos of the different seeds and to tell the students about the seeds.



A handful or two of seeds can make a great crunchy snack, be added to other foods for texture or flavor, or be ground up into pastes, dips, and spreads to dip veggies into.

## Pepitas (Pumpkin Seeds)



If you carved a pumpkin for Halloween when you were young, you may have also had the experience of roasting pumpkin seeds. “Pepita” is the Spanish word for “little squash seed.”

## Sunflower Seeds



Have you ever noticed that sunflowers will face the sun? That is where their name comes from. They produce little tear-dropped seeds that have a black and white hull and a delicious edible kernel, or seed, inside. One sunflower head can actually produce about 1,000 seeds.

## Chia Seeds



Chia seeds were popularized as the fur that grew on Chia Pets, toy terracotta figurines. Long before that, they were a staple of the Mayan and Aztec diet.

## Tasting Seeds (cont.)

### Pomegranate Seeds



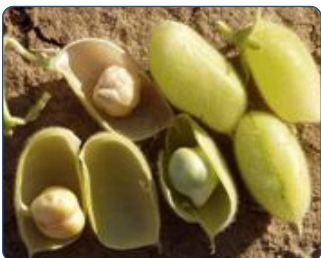
The name pomegranate is derived from Latin, meaning “apple with many seeds.” In Ancient Greek mythology, the pomegranate was also known as the “fruit of the dead,” because it was believed that anyone who ate it in the underworld would be stuck there forever (the unfortunate fate of Persephone, daughter of Zeus).

### Edamame



The word “edamame” means “beans on branches” because the pods grow on bushy branches.

### Hummus Chickpeas



If you were dining with one of the most famous queens in history, Cleopatra, you would have likely eaten this ancient bean, which is actually a seed! In ancient Egypt, chickpeas were very common.

### Sesame Seeds



The magic formula “open sesame” from the tale of Ali Baba and the 40 thieves, refers not to the small seed that you may be familiar with, but actually to the fruit in which the seeds are found. If you crack open a mature sesame fruit, you’ll magically find many aromatic sesame seeds.

### Hummus



This dip made from chickpeas and sesame seeds began in the Middle East. Hummus is now popular all around the world. People typically dip vegetables, bread, and crackers into hummus. You can make it at home or buy it in the grocery store.





## LESSON 2: CHEMICAL CUISINE

### First Bite

Imagine taking a big, juicy bite of... palm kernel oil. Sounds gross, right? Well, it might become more appealing if the oil is hydrogenated (a processing technique) and combined with corn syrup, sugar, and artificial flavorings; then it essentially becomes a Starburst candy! Food processing is not inherently harmful. In fact, food processing has enabled mankind to survive for millennia: cured meats, dried fruits, and canned vegetables are all processed. Adding sugar, salt, and fat helps food last longer and become more palatable. Food processing becomes problematic when foods have a long paragraph of ingredients, many that add sugar, salt, fat, and flavors that are carefully crafted to make humans want to eat more and more.<sup>1-2</sup> Food additives are becoming increasingly difficult to identify because they “hide” under different names. For example, high-fructose corn syrup, ethyl maltol, brown sugar syrup, and golden syrup are all forms of sugar. Fat is commonly seen as hydrolyzed oils, or soy and palm derivatives on ingredients lists. Salt appears as monosodium glutamate (MSG) and disodium phosphate.

### Additives Disguise Food Fraud

Just like the Starburst example, excessive additives can disguise what a food is actually made of. Food deception is everywhere. Drinks such as sodas, iced teas, fruit-based drinks, and sports drinks combine artificial colorings and flavors with lots of added sugar to create their specific flavor and color profiles. “Tropicana Twister Cherry Berry Blast,” despite its name, has no cherry or berry juice in it. Its attractive, dark red color comes from Red 40, a controversial food dye.<sup>3</sup> Processed meat—like chicken nuggets, deli meats, and sausages—often include animal parts we typically do not eat, such as bones, cartilage, and tendons. These are ground up, processed, and listed as “mechanically separated meat.” This is then combined with colorings, flavoring, and thickening agents to create a more appealing flavor and appearance.

Breakfast foods aren’t immune to food fakery either: many breakfast cereals, baked goods, and yogurts contain high amounts of sugar, dyes, and flavorings. Some foods may appear healthy because they are “enriched,” but this is often done to compensate for essential nutrients that were stripped away during processing. Wheat seeds that contain endosperm, bran, and germ are processed to produce white flour that contains the endosperm only, which is far less nutrient-dense than the bran and germ. To make up for this loss, white flour is enriched to add back the missing vitamins and minerals.

### The Cost of Food Additives

Consuming excess food additives, such as salt, sugar, low-calorie sweeteners, and emulsifiers, is linked to a variety of harmful health outcomes: obesity, diabetes, cancer, heart disease, kidney disease, hypertension, stroke, ADHD, depression, metabolic syndrome, inflammation, and disrupted gut microbiota.<sup>4-6</sup> Foods might be cheap at the checkout, but they come with a high health cost.

### References

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## LESSON 2: CHEMICAL CUISINE

### Aim

Increase awareness of the benefits of eating more foods and fewer froods.

### Food Rule

**Eat foods with ingredients a third grader could pronounce.**

### Film Clip

**Salt, Sugar, Fat**

### Objectives

Students will be able to:

- define ingredients and identify the ingredient listings on packaged foods;
- recognize froods as those with long and hard-to-pronounce ingredient lists;
- state and understand the lesson's Food Rule;
- recognize that froods are highly engineered to taste appealing and mask undesirable flavors; and
- express how their attitudes towards froods are changing.

### Overview

This lesson begins by exploring the ingredients in a homemade chocolate chip cookie. Next, students examine the ingredient lists of various foods and froods to see how they are different. Students learn and discuss the Food Rule, "Eat foods with ingredients a third grader could pronounce." A tasting activity gives them first-hand experience of how froods are engineered to taste irresistible. The lesson closes with an *IDOF* film clip that reinforces what they have learned.

### Materials

#### In this guide

- *Bake Race* guide sheet p. 58
- *Cookie* cards p. 61
- *Chocolate Chip Cookie Relay Race* activity sheet p. 63
- *What Are These Ingredients?* activity sheet p. 64
- *Ingredient List* cards p. 65
- *Surprise It's A ...* cards p. 71
- *Introducing Ingredients* lesson resource p. 74
- *Food Rules Lesson 2* activity sheet p. 76
- *Onion Ball* cards p. 77

#### Other materials

- *IDOF* film clip 2: Salt, Sugar, Fat and AV equipment
- Tape
- 16 envelopes

#### Other materials (cont.)

- 1/2 cup loose leaf *Gymnema* (order online at least two weeks ahead, see p. 13 for details)
- 2 loose leaf tea bags

#### For each group of three to four students:

- Large bowl
- Spatula
- Highlighter

#### For each student:

- 20 slips of paper
- Pencil (and 2 for you)
- Tasting cup (for 1 oz of liquid)
- Packet of sugar
- Starburst candy
- Napkin

Chemical Cuisine from: Center for Science in the Public Interest. Chemical Cuisine. Learn about Food Additives. 2014. Retrieved from <http://www.cspinet.org/reportschemcuisine.htm>

To learn more about *In Defense of Food*, visit [pbs.org/indefenseoffood](http://pbs.org/indefenseoffood). Funding was provided by the National Science Foundation and PBS.



## Before You Begin: Total prep time: approximately two hours

### Two weeks or more before lesson:

1. Order Gymnema tea online. See p. 13 for details.

### Within a few days before lesson

2. Review the entire lesson.

### Within a day before lesson

3. Print and cut out cards:
  - **Cookie** cards p. 61, one set for each group of three to four students.
  - **Ingredient List** cards p. 65, one set.
  - **Surprise It's A...** cards p. 71, one set.
  - **Onion Ball** cards p. 77, one set.
4. Print one copy per student of each activity sheet:
  - **Chocolate Chip Cookie Relay Race** activity sheet p. 63
  - **What Are These Ingredients?** activity sheet p. 64
  - **Food Rules Lesson 2** activity sheet p. 76
5. **Cookie relay race activity:** Identify an area to set up as a “baking station,” and place a set of **Cookie** cards p. 61 and a large bowl at each station for each small group.
6. **Ingredient list activity:** Identify places to hang up **Ingredient List** cards p. 65 and tape one envelope under each card so students can easily slip their guesses into it.
7. **Gymnema tea preparation:** Prepare Gymnema tea by placing  $\frac{1}{4}$  cup loose tea in each loose leaf tea bag. Boil 1 quart water and remove from stove. Steep both bags in the water for 20 minutes, then remove tea bags. Let cool to room temperature.
8. **Gymnema tea and Starburst experiment:** Pour about 1 oz. tea into a tasting cup for each student. Cut the Starbursts in half. Save the wrapper so students can view during the tasting.
9. **Viewing IDOF film clip:**
  - Set up AV equipment and space for film viewing.
  - Find IDOF film clip 2: Salt, Sugar, Fat at <http://bit.ly/idofclip2>
10. **Onion ball activity:** Take card 1 and crumple the paper into a ball so that the question is folded into the center of the ball. Wrap card 2 around the card 1 ball and crumple the paper, again with the question on the inside. Repeat for cards 3 to 16 until you have formed a ball of layered questions.



## Procedure

Lesson time: 120 min. (two 60-min. parts)

### Part 1 (60 min.)

#### 1. Conduct Cookie Relay Race (15 min.)

Remind students that in Lesson 1 they learned about foods and froods. In this lesson, they are going to compare and contrast the differences between the ingredients used in foods and froods. *Where have you seen the word 'ingredient' before?* (Recipes, food packages.) Explain that they are going to participate in an activity about the ingredients in homemade chocolate chip cookies. Divide the class into small teams of three to four students. Use the **Bake Race** guide sheet p. 58 and **Cookie** cards p. 61 to facilitate this activity. Distribute **Chocolate Chip Cookie Relay Race** activity sheet p. 63 and a pencil to each student. Congratulate the winning team. Facilitate a brief discussion using the discussion questions on the bottom of the **Bake Race** guide sheet.

#### 2. Explore Food Package Ingredient Lists (5 min.)

Ask students, *do you think store-bought cookies would have the same ingredients? If not, how do you think they would be different?* Tell students that when you buy something in a package or in a box, it has an ingredient list. Distribute the **What are These Ingredients?** activity sheet p. 64 and point out the ingredient list. Tell students to continue to work in the same small groups. Distribute a highlighter to each group. Tell students to look at the ingredient list and highlight those ingredients that they just identified in the cookie relay race. After a few minutes, ask students how the two ingredient lists compare.

Ask a few volunteers to try and read a line of the ingredient list out loud. Write partially hydrogenated [hi•dra•jen•a•ted] and thiamine mononitrate [thi•a•min mono•ni•trayt] on the board or chart paper. Ask for volunteers to try to read these words out loud and guess what they might be. Partially hydrogenated refers to oil that has been treated with hydrogen to make it solid at room temperature. Thiamine mononitrate is a B vitamin.

#### 3. Learn about Ingredient Lists (30 min.)

Tell students in this activity they will look at an ingredient list and try to guess the item. Point out all the **Ingredient List** cards p. 65 posted around the room. Tell students that each ingredient list corresponds to either a food or a frood. Point out the envelopes taped below each **Ingredient List** card. Explain that they are about to play a guessing game by reviewing each ingredient list and then guessing which food or frood it belongs

#### Probing questions:

*Do you think these ingredients make Chips Ahoy! cookies a food or a frood? Why?* (Applying Lesson 1's Food Rule, it is hard to determine the animal or plant many of the ingredients come from. This is a good sign that it is a frood.)









## Procedure (cont.)

*What are some reasons revealed in the film for why we eat this way? (It's cheap, convenient, and processed to taste really good.) What does the film reveal that the food industry does to products to make them taste really good? (Manipulate them to have just the right texture, color, smell, etc.) What are the impacts of these "engineered" foods? (They make you want more and more, they make you miss them when you don't have them, and they make you eat lots of them.) Is the film referring to froods or foods as products that are engineered to taste really good? (Froods.)*

*Can you think of froods that you crave? What are they? Now that you know that froods will not help you reach your goals, what ideas do you have for how to eat less of them?*

### 7. Review the Lesson's Key Points (10 min.)

Have students join you seated in a circle to review the key points of the lesson and have the ball you made with the **Onion Ball** cards p. 77. Ask students *what does an onion look like?* (It is round, it has layers that can be peeled back). Explain that you have an "onion ball" made up of sheets of paper with questions written on them.

Peel the first sheet of paper (the outer layer of the onion ball), and read the question written on the paper out loud. Students can stand up if they know the answer. Throw the ball to one student, who can call out the answer. Have the student peel off the next layer and read out the question. He or she tosses the onion ball to the first person to stand up. Continue until the ball is gone.

There are SOCIAL activities embedded in the onion ball. When a student peels a SOCIAL layer, the entire group participates (e.g., SOCIAL: Everyone run in place for 20 seconds).



## Bake Race

The purpose of the cookie relay race is to introduce students to ingredients. Students work in teams to guess the food ingredients in a chocolate chip cookie using the ***Chocolate Chip Cookie Relay Race*** activity sheet. In teams, they execute each step of the recipe on the activity sheet by performing actions at a designated “baking station” in a relay race using cookware and the ***Cookie*** cards. The first team to complete all the steps on the activity sheet wins.

## Materials

- ***Cookie*** cards, p. 61
- ***Chocolate Chip Cookie Relay Race*** activity sheets, p. 63
- Pencils (2 per team)
- Large bowls
- Spatula

## Set up

1. Prepare one set of ***Cookie*** cards, a ***Chocolate Chip Cookie Relay Race*** activity sheet, and a couple of pencils for each team.
2. Designate an area to set up as a “baking station” for each team. Ensure that the baking stations are set up side by side in a space that enables each team to form a line a few feet away and run up to the station.
3. Put out a bowl and a set of ***Cookie*** cards at each baking station. Spread the ***Cookie*** cards out so they are in no particular order.

## Procedure

1. Divide the class into small teams of three to four students, and provide each team with a ***Chocolate Chip Cookie Relay Race*** activity sheet and pencil.
2. Explain that students have five minutes to review the activity sheet, determine the ingredients in homemade chocolate chips cookies, and record their answers in the appropriate blank spaces on the activity sheet.
3. After five minutes, have each team line up a few strides back from their designated baking station.
4. Designate one person from each team to go first. Hand that person the spatula to act as the baton in the relay race.

### Bake Race (cont.)

#### Procedure (cont.)

5. The first person will approach the team's baking station and select the **Cookie** card that matches the first ingredient answer on their activity sheet. He or she can bring a **Chocolate Chip Cookie Relay Race** activity sheet up to the baking station as a guide. Then the first team member acts out the first step (e.g., if the team wrote down 'sugar' in the first blank "Put the SUGAR in the bowl," then the first team member will put the **Cookie** card with the sugar image into the bowl). If their team wrote down an ingredient that is incorrect, they will have to return to their team, determine the correct answer, write it on their activity sheet, and go back to the baking station to select the correct corresponding **Cookie** card.
6. Once the first person has completed the first step on the recipe, he or she will hand off the spatula and activity sheet to the next team member in line. They will then go up to the baking station to execute the second step.
7. Once everyone on the team has participated, cycle back through the members until all the steps have been completed.
8. The first team to complete all the steps correctly wins. Crown the winning team the Chocolate Chip Cookie Experts!
9. Bring the group back together for a quick discussion using the discussion questions below.

#### Discussion Questions

1. *Did anything surprise you about this activity?*
2. *Were the ingredients what you expected? Do you think these ingredients are food or frood ingredients? Why?*

## Bake Race (cont.)

### Chocolate Chip Cookie Relay race activity sheet answers:

<u>BUTTER</u>	CLUE: I am made from milk. You can spread me on toast.
<u>CHOCOLATE CHIPS</u>	CLUE: I come in small delicious morsels, this recipe couldn't exist without me.
<u>EGG</u>	CLUE: I come from a chicken. Crack me, but don't get my shells in the mixture.
<u>SUGAR</u>	CLUE: I am sweet. I am white.
<u>BAKING SODA</u>	CLUE: When you add me to baked goods, I help them rise.
<u>FLOUR</u>	CLUE: I am a white powder that is made from ground up wheat.
<u>SALT</u>	CLUE: I am white. I look like sugar but taste very different.

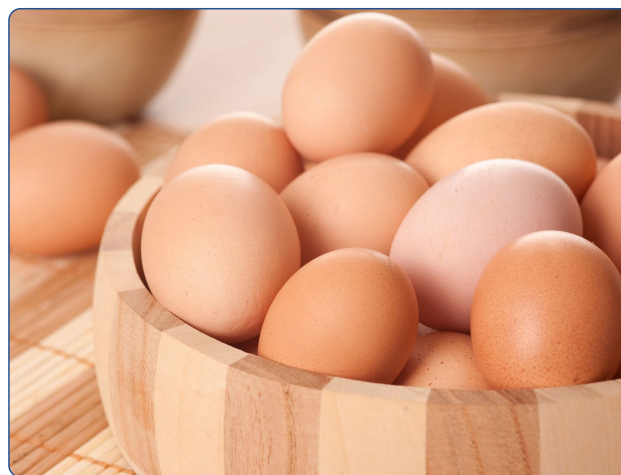
Use the ingredients above to complete the steps for how to make chocolate chip cookies.

1. Place a stick of BUTTER in a bowl. Make sure it is soft.
2. Add the SUGAR to the bowl, which will add sweetness to your cookies.
3. Crack the EGG into the bowl. Make sure not to get any of the shell in the mixture! Use the spatula to mix until you have a creamy yellow mixture.
4. Now add the dry ingredients. Let's start with the FLOUR, since we will use the most of this dry ingredient.
5. Then add another dry ingredient, BAKING SODA. This one will help your cookies rise. You need to add only a small amount. Stir everything together.
6. Add the SALT, make sure you don't confuse this with sugar since they look so similar.
7. Now we have the ingredients for a basic cookie. Make it this special type of cookie by adding the CHOCOLATE CHIPS. Stir to mix everything together.
8. Scoop out small spoonfuls of the mixture onto a baking sheet.
9. Put the baking sheet in the oven.
10. Bake the cookies until they are nice and golden brown in color.

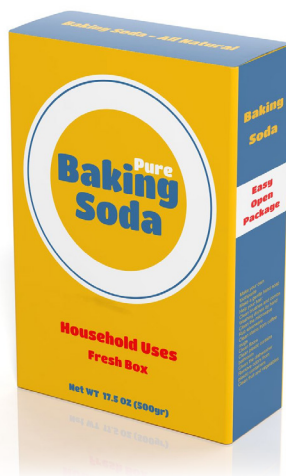


## Cookie Cards

Print and cut out one set for each small group.



## Cookie Cards (cont.)







## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Chocolate Chip Cookie Relay Race

' u ' u ' , , , , , , , a u ' , A  
clues below can help you decide what all the possible ingredients are. Then complete Part 2, "How to Make Chocolate Chip Cookies." There is one correct answer for each blank space. You have about  
, , , , , u , , ,

#### Part 1: Ingredients in a Homemade Chocolate Chip Cookie

Fill in the ingredients typically used in a homemade chocolate chip cookie, using the clues below.

- \_\_\_\_\_ CLUE: I am made from milk. You can spread me on toast.
- \_\_\_\_\_ CLUE: I come in small delicious morsels, this recipe couldn't exist without me.
- \_\_\_\_\_ CLUE: I come from a chicken. Crack me, but don't get my shells in the mixture.
- \_\_\_\_\_ CLUE: I am sweet. I am white.
- \_\_\_\_\_ CLUE: When you add me to baked goods, I help them rise.
- \_\_\_\_\_ CLUE: I am a white powder that is made from ground up wheat.
- \_\_\_\_\_ CLUE: I am white. I look like sugar but taste very different.

#### Part 2: How to Make Chocolate Chip Cookies

Use the ingredients above to complete the steps for how to make chocolate chip cookies.

1. Place a stick of \_\_\_\_\_ in a bowl. Make sure it is soft.
2. Add the \_\_\_\_\_ to the bowl, which will add sweetness to your cookies.
3. Crack the \_\_\_\_\_ into the bowl. Make sure not to get any of the shell in the mixture! Use the spatula to mix until you have a creamy yellow mixture.
4. Now add the dry ingredients. Let's start with the \_\_\_\_\_, since we will use the most of this dry ingredient.
5. Then add another dry ingredient, \_\_\_\_\_. This one will help your cookies rise. You need to add only a small amount. Stir everything together.
6. Add the \_\_\_\_\_, make sure you don't confuse this with sugar since they look so similar.
7. Now we have the ingredients for a basic cookie. Make it this special type of cookie by adding the \_\_\_\_\_. Stir to mix everything together.
8. Scoop out small spoonfuls of the mixture onto a baking sheet.
9. Put the baking sheet in the oven.
10. Bake the cookies until they are nice and golden brown in color.



## Activity sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### What Are These Ingredients?



BLEACHED ENRICHED FLOUR (WHEAT FLOUR, NIACIN, REDUCED IRON, THIAMINE MONONITRATE [VITAMIN B1], RIBOFLAVIN [VITAMIN B2], FOLIC ACID), SEMISWEET CHOCOLATE CHUNKS (SUGAR, CHOCOLATE, DEXTROSE, COCOA BUTTER, MILK, SOY LECITHIN), SUGAR, SOYBEAN OIL, SEMISWEET CHOCOLATE CHIPS (SUGAR, CHOCOLATE, COCOA BUTTER, DEXTROSE, MILK, SOY LECITHIN). PARTIALLY HYDROGENATED COTTONSEED OIL, BAKING SODA, AMMONIUM PHOSPHATE, SALT, MOLASSES, HIGH FRUCTOSE CORN SYRUP, WHEY, SOY LECITHIN, CARAMEL COLOR, ARTIFICIAL FLAVOR.

## Ingredient List Cards

Print and cut out 1 for the whole class.

1. **INGREDIENTS:** DRY ROASTED PEANUTS, PEANUT OIL, SALT
2. **INGREDIENTS:** ENRICHED FLOUR (WHEAT FLOUR, NIACIN, REDUCED IRON, VITAMIN B1 [THIAMIN MONONITRATE], VITAMIN B2 [RIBOFLAVIN], FOLIC ACID), CORN SYRUP, HIGH FRUCTOSE CORN SYRUP, DEXTROSE, SUGAR, SOYBEAN AND PALM OIL (WITH TBHQ FOR FRESHNESS), BLEACHED WHEAT FLOUR. CONTAINS 2% OR LESS OF WHEAT STARCH, SALT, LEAVENING (BAKING SODA, SODIUM ACID PYROPHOSPHATE, MONOCALCIUM PHOSPHATE), CITRIC ACID, GELATIN, NATURAL FLAVOR, DRIED PEARS, DRIED APPLES, SOY LECITHIN, DRIED STRAWBERRIES, CARAMEL COLOR, XANTHAN GUM, MODIFIED WHEAT STARCH, BLUE 2 LAKE, CARMINE COLOR, RED 40, RED 40 LAKE, BLUE 1 LAKE, BLUE 2, YELLOW 5 LAKE, YELLOW 6
3. **INGREDIENTS:** CARBONATED WATER, HIGH FRUCTOSE CORN SYRUP, NATURAL FLAVORS, TARTARIC ACID, POTASSIUM SORBATE, SODIUM BENSOATE, CITRIC ACID, RED 40, BLUE 1
4. **INGREDIENTS:** SUGAR, CORN SYRUP, HYDROGENATED PALM KERNEL OIL, CITRIC ACID, TAPIOCA DEXTRIN, GELATIN, APPLE JUICE FROM CONCENTRATE, MODIFIED CORN STARCH, NATURAL AND ARTIFICIAL FLAVORS, COLORS (RED 40, YELLOW 5, YELLOW 6, BLUE 1)

## Ingredient List Cards (cont.)

- |     |   |
|-----|---|
| 5.  | INGREDIENTS: COOKED CHICKPEAS, WATER, GROUND SESAME SEEDS, SUNFLOWER OIL, OLIVE OIL, GARLIC, LEMON JUICE, CUMIN, SALT.  |
| 6.  | INGREDIENTS: APPLES   |
| 7.  | INGREDIENTS: TOMATOES, ONIONS, GARLIC, OLIVE OIL, OREGANO, SALT, BLACK PEPPER   |
| 8.  | INGREDIENTS: UNBLEACHED ENRICHED FLOUR (WHEAT FLOUR, NIACIN, REDUCED IRON, THIAMINE MONONITRATE {VITAMIN B1}, RIBOFLAVIN {VITAMIN B2}, FOLIC ACID), SUGAR, PALM OIL, SOYBEAN AND/OR CANOLA OIL, COCOA (PROCESSED WITH ALKALI), HIGH FRUCTOSE CORN SYRUP, LEAVENING (BAKING SODA AND/OR CALCIUM PHOSPHATE), SALT, SOY LECITHIN, CHOCOLATE, ARTIFICIAL FLAVOR. CONTAINS: WHEAT, SOY |
| 9.  | INGREDIENTS: 100% WHOLE WHEAT FLOUR, WATER, YEAST, SALT, SUGAR  |
| 10. | INGREDIENTS: ORGANIC WHOLE MILK, ORGANIC MAPLE SYRUP, ORGANIC VANILLA, LIVING YOGURT CULTURES   |



## Ingredient List Cards (cont.)

11. INGREDIENTS: PORK LIVERS, PORK, BACON (CURED WITH WATER, SALT, SUGAR, SODIUM PHOSPHATE, SODIUM ERYTHORBATE, SODIUM NITRITE, SPICE EXTRACTS), SALT, CONTAINS LESS THAN 2% OF NONFAT DRY MILK, CORN SYRUP, WATER, MODIFIED CORN STARCH, NATURAL FLAVORS, SODIUM PHOSPHATE, DEXTROSE, BACON FLAVOR (PORK, NATURAL SMOKE FLAVOR, MONO & DIGLYCERIDES), MALTODEXTRIN, SODIUM ERYTHORBATE, SODIUM NITRITE
12. INGREDIENTS: CORN FLOUR BLEND (WHOLE GRAIN YELLOW CORN FLOUR, DEGERMINATED YELLOW CORN FLOUR), SUGAR, WHEAT FLOUR, WHOLE GRAIN OAT FLOUR, MODIFIED FOOD STARCH, VEGETABLE OIL (HYDROGENATED COCONUT, SOYBEAN AND/OR COTTONSEED), OAT FIBER, MALTODEXTRIN, SALT, SOLUBLE CORN FIBER, NATURAL FLAVOR, RED 40, YELLOW 5, BLUE 1, YELLOW 6, BHT FOR FRESHNESS, VITAMIN C (ASCORBIC ACID), REDUCED IRON, NIACINAMIDE, VITAMIN B6 (PYRIDOXINE HYDROCHLORIDE), VITAMIN B2 (RIBOFLAVIN), VITAMIN B1 (THIAMIN HYDROCHLORIDE), FOLIC ACID, VITAMIN D3, VITAMIN B12

## Ingredient List Cards (cont.)

13. INGREDIENTS: WHITE TURKEY, WATER, POTASSIUM LACTATE, MODIFIED CORNSTARCH, DEXTROSE, SALT, CARRAGEENAN, SODIUM PHOSPHATES, SODIUM DIACETATE, POTASSIUM SALTS, SODIUM ASCORBATE, NATURAL AND ARTIFICIAL FLAVOR, SODIUM NITRITE, SMOKE FLAVOR, MILK, WATER, MILKFAT, MILK PROTEIN CONCENTRATE, WHEY, WHEY PROTEIN CONCENTRATE, SODIUM CITRATE, SALT, LACTIC ACID, SORBIC ACID, CHEESE CULTURE, OLEORESIN PAPRIKA, ENZYMES, ANNATTO, SUNFLOWER LECITHIN, ENRICHED WHEAT FLOUR [FLOUR, NIACIN, REDUCED IRON, THIAMINE MONONITRATE, RIBOFLAVIN, FOLIC ACID], PALM OIL, SUGAR, VEGETABLE OIL [CANOLA, AND/OR SOYBEAN, AND/OR PALM OIL], SALT, LEAVENING [BAKING SODA, AMMONIUM BICARBONATE, MONOCALCIUM PHOSPHATE], SOY LECITHIN, NATURAL FLAVORS
- SUGAR, CORN SYRUP, MALTODEXTRIN, DEXTROSE, MODIFIED FOOD STARCH (CORN), PALM OIL, CITRIC ACID, WATER, ARTIFICIAL FLAVORS, RED 40, BLUE 1, YELLOW 6 AND YELLOW 5
- FILTERED WATER, APPLE, GRAPE AND CHERRY JUICE CONCENTRATES, CITRIC ACID, NATURAL FLAVOR, MUSHROOM EXTRACT

## Ingredient List Cards (cont.)

14. INGREDIENTS PART 1: WATER, DEHYDRATED POTATO FLAKES [POTATOES, MONO AND DIGLYCERIDES, SODIUM ACID PYROPHOSPHATE, CITRIC ACID], SEASONING SAUCE [SOYBEAN OIL, WATER, MONO AND DIGLYCERIDES WITH BHT AND CITRIC ACID TO PROTECT FLAVOR, BETA-CAROTENE {CORN OIL, DL-ALPHA-TOCOPHEROL}], SALT, DRIED DAIRY BLEND [WHEY, CALCIUM CASEINATE]

PART 2: BEEF, PORK, WATER, BREAD CRUMBS {ENRICHED BLEACHED WHEAT FLOUR (WHEAT FLOUR, NIACIN, REDUCED IRON, THIAMINE MONONITRATE, RIBOFLAVIN, FOLIC ACID), SALT, SODIUM ACID PYROPHOSPHATE, SODIUM BICARBONATE, SUGAR, VEGETABLE OIL, DEXTROSE, SPICE EXTRACTIVE}, MALTODEXTRIN, DEHYDRATED ONION, TOMATO POWDER, SALT, HYDROLYZED CORN PROTEIN, HYDROLYZED SOY PROTEIN, DEXTROSE, SPICES, GREEN BELL PEPPER POWDER, YEAST EXTRACT, GARLIC POWDER, DRIED BEEF STOCK, MOLASSES SOLIDS, CORN SYRUP SOLIDS, YELLOW CORN FLOUR, WHITE DISTILLED VINEGAR POWDER, CHILI PEPPER, DEHYDRATED PARSLEY, DISODIUM INOSINATE, DISODIUM GUANYLATE, NATURAL FLAVORS, SOY FLOUR, CARAMEL COLOR, ONIONS, DICED GREEN BELL PEPPERS, SOY PROTEIN CONCENTRATE, BREAD CRUMBS [BLEACHED WHEAT FLOUR, SALT, DEXTROSE, YEAST], SALT, CARAMEL COLOR, SODIUM PHOSPHATE, EGGS, SPICE EXTRACT

#14 CONTINUES  
ON NEXT PAGE



## Ingredient List Cards (cont.)

SECOND HALF OF #14

14. INGREDIENTS PART 3: GUANYLATE & DISODIUM INOSINATE, DRIED JALAPENO PUREE, DRIED MUSHROOM, BELL PEPPER JUICE SOLIDS, CARROT JUICE SOLIDS, VINEGAR SOLIDS, SOY LECITHIN, GRILL FLAVOR (FROM PARTIALLY HYDROGENATED SOYBEAN & COTTONSEED OIL), ASCORBIC ACID, SMOKE

PART 4: CARROTS, CORN, CUT GREEN BEANS

PART 5: SUGAR, WATER, ENRICHED WHEAT FLOUR [WHEAT FLOUR, NIACIN, REDUCED IRON, THIAMINE MONONITRATE, RIBOFLAVIN, FOLIC ACID], SOYBEAN OIL, COCOA, EGGS, SEASONING SAUCE [SOYBEAN OIL, WATER, MONO AND DIGLYCERIDES WITH BHT AND CITRIC ACID TO PROTECT FLAVOR, BETA-CAROTENE FOR COLOR {CORN OIL, DL-ALPHA-TOCOPHEROL}], ACACIA AND XANTHAN GUMS, SODIUM BICARBONATE [HYDROGENATED VEGETABLE OIL], SALT, NATURAL AND ARTIFICIAL FLAVOR [NATURAL AND ARTIFICIAL FLAVOR, CARAMEL COLOR, VANILLA EXTRACTIVES]), SEASONING SAUCE (WATER, SUGAR, SEASONING SAUCE [SOYBEAN OIL, WATER, MONO AND DIGLYCERIDES WITH BHT AND CITRIC ACID TO PROTECT FLAVOR, BETA-CAROTENE FOR COLOR {CORN OIL, DL-ALPHA-TOCOPHEROL}], SALT, SOYBEAN OIL)

## Cards

### Surprise It's A...

Print and cut out one for the class.

1

Peanut Butter



2

Frosted Wild! Berry Pop Tarts



3

Grape Fanta



4

Starburst



5

Hummus



6

Apple Sauce





## Cards

### Surprise it's a... (cont.)

Print and cut out one for the class.

7

Tomato sauce



8

Double Stuf Oreo



9

Bread



10

Maple Vanilla Whole Milk Yogurt



11

Liverwurst



12

Froot Loops





## Cards

### Surprise it's a... (cont.)

Print and cut out one for the class.

13

Lunchables



14

Hungry Man Home-Style Meatloaf



## Introducing Ingredients

Ingredients are substances that make part of a mixture. For example, in cooking, recipes list the ingredients that go into a specific dish. Commercial products have ingredient lists on the package to show what is in the product. Raw foods, such as fresh fruits and vegetables, fish, meats, and eggs, are not required to have an ingredient list because they are just one thing; they come from nature.

## How Do I Interpret An Ingredient List?

The ingredient list shows the ingredients in descending order by weight.

[DRY ROASTED PEANUTS, PEANUT OIL, SALT]

For example, this product includes dry roasted peanuts, peanut oil, and salt. The first ingredient listed is roasted peanuts. This means that peanuts are the most abundant ingredient in this item by weight, and salt is the least abundant ingredient. This ingredient list is for peanut butter!

Below is an ingredient list from another item. You can see that unbleached enriched flour is the most abundant ingredient by weight and caramel color is the least abundant ingredient. Can you guess what this ingredient list might be?

[BLEACHED ENRICHED FLOUR (WHEAT FLOUR, NIACIN, REDUCED IRON, THIAMINE MONONITRATE {VITAMIN B1}, RIBOFLAVIN {VITAMIN B2}, FOLIC ACID), SEMISWEET CHOCOLATE CHUNKS (SUGAR, CHOCOLATE, DEXTROSE, COCOA BUTTER, MILK, SOY LECITHIN), SUGAR, SOYBEAN OIL, SEMISWEET CHOCOLATE CHIPS (SUGAR, CHOCOLATE, COCOA BUTTER, DEXTROSE, MILK, SOY LECITHIN). PARTIALLY HYDROGENATED COTTONSEED OIL, BAKING SODA, AMMONIUM PHOSPHATE, SALT, MOLASSES, HIGH FRUCTOSE CORN SYRUP, WHEY, SOY LECITHIN, CARAMEL COLOR, ARTIFICIAL FLAVOR.]

It is a Chips Ahoy! chocolate chip cookie!

Some of these ingredients don't seem familiar or like anything that would be found in a cookie at all. If you were to make chocolate chip cookies, for instance, you would likely use butter, sugar, eggs, flour, baking powder, and chocolate chips, right? Where is the butter or the eggs in this Chips Ahoy! cookie?

If you wanted to get into the baking business and produce chocolate chips cookies for sale, say at New York City farmers market, you would likely need to provide an ingredient list on your package. Let's see what that might look like:

UNBLEACHED ALL PURPOSE 100% WHEAT FLOUR, SUGAR, BUTTER, CHOCOLATE CHIPS (COCOA LIQUOR, SUGAR, COCOA BUTTER), EGGS, BAKING POWDER, SALT

You can see that common ingredients, like sugar and baking soda, are listed as such and not with their unfamiliar chemical names (like sucrose or sodium bicarbonate). If a common name exists, it will be provided on the ingredient list. These are things that you can likely purchase at a market or grocery store. This means when an unfamiliar ingredient is seen on an ingredient list, it is likely made in a factory. How does this compare to the Chips Ahoy! cookie? DEXTROSE, SOY LECITHIN, or AMMONIUM PHOSPHATE may not be the types of ingredients you can find in the grocery store.

## Introducing Ingredients (cont.)

Ingredients that are further made up of other ingredients or have additional things added to them are listed in parentheses following that particular ingredient.<sup>1</sup> Compare the flour in our cookies to the flour in the Chips Ahoy! cookies. Here you'll see our cookies are made with all purpose wheat flour, which has been made from ground wheat. The Chips Ahoy! flour is made with wheat flour that has been processed with additional ingredients added to it.

UNBLEACHED ALL PURPOSE 100% WHEAT FLOUR

UNBLEACHED ENRICHED FLOUR (WHEAT FLOUR, NIACIN, REDUCED IRON, THIAMINE MONONITRATE, RIBOFLAVIN, FOLIC ACID)

If the food product has many unfamiliar or unpronounceable ingredients, it could be difficult to know what it is—let alone what it is made up of.

Now, take a look at the number of ingredients on the Chips Ahoy! package. There are upwards of 20 ingredients!

If it is difficult to pronounce or doesn't seem familiar to you, there is a good chance it is an ingredient made not by nature but in a factory and/or by the food industry. When you see this type of an ingredient list, it's a good warning sign that this is a frood.

Luckily, this Food Rule can help you be aware of and avoid froods, "Eat foods with ingredients a third grader could pronounce."

1. FDA (2013). Guidance for Industry: A Food Labeling Guide.

<http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/LabelingNutrition/ucm064880.htm#ingredient>



Name \_\_\_\_\_

Date \_\_\_\_\_

## Food Rules Lesson 2

### Lesson 2: **Chemical Cuisine**

Food Rule: \_\_\_\_\_

Eat food. Not too much. Mostly plants.

#### Family Tips

- Stick to the outer aisles of the grocery store. This is where we , u , don't need any ingredient lists at all.
- Some common foods, like bread, peanut butter, and cereal, can either have long lists of hard-to-pronounce ingredients or just a couple of basic ingredients. Go for the option with fewer; it's often the same price and an easy way to eat food instead of frood.

#### Food Rules from Previous Lessons

##### Eat Food.

- 1 Eat food you can picture growing in nature. , u ,

*In Defense of Food* film clip that accompanies  
Salt, Sugar, Fat

Watch at <http://bit.ly/idofclip2>

Learn more about *In Defense of Food* at:  
[pbs.org/indefenseoffood](http://pbs.org/indefenseoffood)



## Cards

### Onion Ball

Print and cut out 1 set for class.

- |   |  |
|---|--|
| 1. Why do you think food companies add so many strange ingredients to their products?             | 2. What are three common ingredients that food companies add to most foods?                          |
| 3. SOCIAL: Everyone run in place for 20 seconds.  | 4. By looking at the ingredients in Chips Ahoy! cookies, do you think that they are foods or froods? |
| 5. If you see an ingredient list with 15 ingredients on it, do you think it is a food or a frood? | 6. Name a food you plan to eat today.  |



## Onion Ball (cont.)

7. SOCIAL: Everyone do 10 jumping jacks!

8. Name the Food Rule from Lesson 1.

9. Where do you see ingredient lists?

10. What can you do to apply the Food Rule from this week when choosing something to eat?

11. SOCIAL: Everyone dance for 30 seconds.

12. Name the Food Rule from today's lesson.





## Cards

### Onion Ball (cont.)

13. How do you think food can help you reach your goals?

14. Name an ingredient in peanut butter.

15. What is food?

16. What is an ingredient?



## LESSON 3: CLAIM GAME

### First Bite

Think back to when you were a child. What were some of your favorite foods? Frosted Flakes, Coca-cola, Go-gurts? Now consider that your food preferences were not entirely up to you. Do you remember seeing your favorite foods in television commercials, billboard ads, or movies? The truth is, food advertising works—especially on children and adolescents. Children who are exposed to food marketing are more likely to prefer, like, and request parental purchases of the marketed foods.<sup>1-3</sup> Food companies know this. That's why they spend nearly \$2 billion dollars every year marketing food to kids in the U.S.<sup>4</sup> If food companies convince kids to buy their products, they are more likely to get lifelong customers.

### Sneaky Strategies

Food companies use a variety of strategies to advertise to youth: typically through health claims, taste appeals, and emotional cues.<sup>5</sup> Words like “no added sugar,” “50% fewer calories,” or “gut healthy” can trick us into thinking a food is healthier than it is. In fact, research shows that health-claim labels (such as “30% less fat”) influence people to believe the food is healthier, purchase it more often, believe the serving size is larger than the regular version, and consume a larger portion—despite believing the taste is worse than the regular version.<sup>6</sup> Hearing the crunch of a chip or the fizz of a soda can tantalize our tastebuds. Perhaps you've experienced this at the movie theatre when the popcorn and soda ad comes on. Seeing a favorite celebrity such as Taylor Swift drink a Coca-cola can make us think we will be cool like Taylor if we drink soda like her. If these strategies are effective on adults, they are even more likely to persuade young people due to their developing minds and deep desires to fit in.<sup>7</sup>

### Frood Framing

One skill we can easily teach young people is to identify

marketing tactics found on food packages. Packaging is more attractive to children when it uses bright colors, has images of characters making eye contact, and is placed at children's eye level. Limited-time, special packaging, or promotional events can also be persuasive, influencing consumers to make purchases *right now* before the promotion is over.<sup>8</sup>

### Taking Back Control

We can fight back against food flashiness by teaching kids to notice and name these advertising tactics. When kids are more cognizant of the messaging that surrounds them, they become empowered to make their own decisions to eat more food and less food.

### References

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3. Lianbiaklall, S., & Rehman, V. (2023). Revisiting 42 Years of literature on food marketing to children: A morphological analysis. *Appetite*, 190, 106989.
4. Federal Trade Commission. (2013). A review of food marketing to children and adolescents: follow-up report. 2012. Retrieved, July 18, 2025, <https://www.ftc.gov/reports/review-food-marketing-children-adolescents-follow-report>
5. Elliott, C., & Truman, E. (2019). Measuring the power of food marketing to children: a review of recent literature. *Current nutrition reports*, 8, 323-332.
6. Oostenbach, L. H., Slits, E., Robinson, E., & Sacks, G. (2019). Systematic review of the impact of nutrition claims related to fat, sugar and energy content on food choices and energy intake. *BMC Public Health*, 19, 1-11.
7. Boyland, E. J., Nolan, S., Kelly, B., Tudur-Smith, C., Jones, A., Halford, J. C., & Robinson, E. (2016). Advertising as a cue to consume: a systematic review and meta-analysis of the effects of acute exposure to unhealthy food and nonalcoholic beverage advertising on intake in children and adults. *The American journal of clinical nutrition*, 103(2), 519-533.
8. L. Harris, J., Webb, V., J. Sacco, S., & L. Pomeranz, J. (2020). Marketing to children in supermarkets: An opportunity for public policy to improve children's diets. *International Journal of Environmental Research and Public Health*, 17(4), 1284.



## LESSON 3: CLAIM GAME

### Aim

Explore how companies use marketing strategies on food packaging to get us to buy products.

### Food Rule

**Avoid products that make health claims.**

### Film Clip

**Frood Fads**

### Objectives

Students will be able to:

- recognize that food marketing influences choices;
- identify food marketing techniques used on packages;
- discuss how marketing of froods influences preferences, selection, and consumption;
- apply the Food Rule as they make food choices;
- use descriptive words to describe and express pleasure for foods;
- recognize that their food environment is saturated with froods.

### Overview

This lesson begins with students examining photos of food packages. They learn five “tricky techniques” companies use to get people to buy food products. Watching an *IDOF* film clip reinforces the misuse of claims on food packages. Students then learn and discuss the Food Rule, “Avoid products that make health claims.” Next, students sample various fruits and learn that real, whole food does not need fancy packaging or claims to promote it. Then they create an action plan to eat foods instead of froods. Lastly, students are assigned homework to document foods and froods that they see in their home and community, which will be discussed in the next lesson.

### Materials

#### In this guide

- ***Fun Fruit*** preparation sheet p. 83
- ***Pepsi Food Package*** card p. 88
- ***Pop-Tarts Food Package*** card p. 89
- ***Tricky Techniques*** lesson resource p. 90
- ***Frood Fake Out*** guide sheet p. 94
- ***Frood Package*** cards p. 101
- ***Food Rules Lesson 3*** activity sheet p. 109
- ***Descriptive Words*** activity sheet p. 110
- ***Eat Food Action Plan*** activity sheet p. 111

#### Other materials

- *IDOF* film clip 3: Frood Fads and AV equipment

#### Other materials

- Knife
- Spoon
- Cutting board
- Bowls and plates for fruit
- 3 selected fruits for tasting, see ***Fun Fruit*** preparation sheet p. 83 for options
- 5 sticky note pads (blue, green, yellow, pink, and orange)

#### For each student:

- 2 blank sheets of paper
- Pencil
- Toothpicks
- Napkin
- Spoon





## Before You Begin: Total prep time: approximately two hours

### Within a few days before lesson

1. Select and purchase fruit produce for tasting activity. See *Fun Fruits* preparation sheet p. 83.
2. Review the entire lesson.

### Within a day before lesson

3. Print and cut out cards:
  - *Pepsi Food Package* card p. 88, one copy
  - *Pop-Tarts Food Package* card p. 89, one copy for each pair of students
  - *Frood Package* cards p. 94, one set
4. Print one copy per student of each activity sheet:
  - *Food Rules Lesson 3* activity sheet p. 109.
  - *Descriptive Words* activity sheet p. 110.
  - *Eat Food Action Plan* activity sheet p. 111.
5. **Frood Fake Out activity:** Prepare sets of sticky notes of all five colors for each small group.
6. **Viewing IDOF film clip:**
  - Set up AV equipment and space for film viewing.
  - Find IDOF film clip 3: Frood Fads at <http://bit.ly/idofclip3>
7. **Fruit tasting:**
  - Clean all food preparation and eating surfaces with countertop cleaner.
  - Prepare fruit for tasting. See *Fun Fruits* preparation sheet p. 83 for details.

## Fun Fruit

There are so many unique and interesting fruits. Some are star shaped, look like a blowfish, or have spikes. Exploring fruits with students is a great way to get them excited about different foods.

Listed below are some interesting and unusual fruits from around the globe. Select two or three fruits for students to taste. Some may be harder to find than others. See what you can find in your local grocery store or farmers market.

Note: Wash all fruit before cutting and serving.

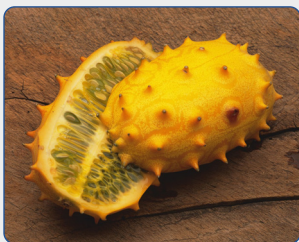
Give each student a toothpick, spoon, and napkin. Have students serve themselves pieces of the fruit with toothpick or spoon as appropriate.



### Dragon fruit

Dragon Fruit is the fruit of a cactus plant. The outside is usually red and green and the inside is either white or red with little black crunchy seeds. It is often compared to kiwi with a very mild flavor.

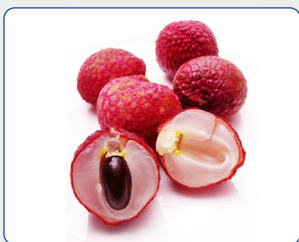
**To prepare for tasting:** Cut the fruit in half. Use a spoon to scoop out the flesh and place on a plate.



### Horned melon

Horned melon is a fruit in the cucumber and melon family. It has horn-like spines on the outside, hence the name. Inside the fruit is lime green and jelly-like with a tart flavor.

**To prepare for tasting:** Cut the fruit in half. Use a spoon to scoop out the soft flesh inside. Place in a bowl.



### Lychee fruit

Lychee fruit comes encased in pink-red, roughly textured skin, which is inedible. Peel the skin and you'll find a sweet, white fruit inside with a floral flavor.

**To prepare for tasting:** Place in bowl. Student can take one lychee fruit and peel it themselves to taste. Warn them not to swallow the pit inside.



### Star fruit

Can you guess where this fruit gets its name? The entire fruit is edible. It is a sweet fruit that has the texture of a grape.

**To prepare for tasting:** Slice the fruit laterally into star-shaped pieces and place them on a plate.

### Fun Fruit (cont.)



#### Papaya

Papaya is a bright orange or pinkish-colored fruit with small black seeds and a green or yellow skin. A ripe papaya will be soft to the touch, and you'll find a juicy, sweet fruit inside. The seeds are edible too! They taste like black pepper.

**To prepare for tasting:** Slice the papaya in half and scoop out the black seeds. If you would like students to try them, put them to the side. Then use a spoon to scoop out the flesh. Slice and place on a plate.



#### Kiwi

Kiwi has a fuzzy brown skin with bright green flesh and black seeds.

**To prepare for tasting:** Slice the kiwi in half. Use a spoon to scoop out the flesh. Slice and place on a plate.



#### Guava

Guava looks a little like a pear from the outside. Inside it has a soft pink or yellow fruit. Although the seeds inside the guava are edible, they are a little hard.

**To prepare for tasting:** Slice and place on a plate.



#### Mango

Mango is a sweet fruit with a soft, pulpy texture. There are different varieties. Some are almond shaped with yellow peel, others are round with red, orange, and yellow peel.

**To prepare for tasting:** The mango has a large, flat-ish pit in the center that you'll have to slice around. Cut a large slice on either side of the pit. Then take each slice, and score the flesh with lengthwise and widthwise cuts. Turn the skin inside out so that the cut segments pop out. Use a spoon to scoop out the cubes. Place cubes on a plate. For more information on cutting a mango, see: <https://www.youtube.com/watch?v=lvLdPjpELyU>.





## Procedure

Lesson time: 120 min. (two 60 min. parts)

### Part 1 (60 min.)

#### 1. Play Word Association Game (10 min.)

Tell students they are going to play a word association game. Distribute a blank sheet of paper and pencil to each student. Explain that you will read out 5 terms. For each term, students will write down the first food or drink that comes to mind.

The terms are as follows: sporty, snack, refreshing, healthy, and fruity. Read each and give students time to write their food or drink.

Write “sporty” on the board or chart paper. Go around the group and ask students to share their food or drink. Record students’ responses. For repeats, place a tally mark. Continue with the four other terms.

Ask students, *why do you think some foods or drinks were repeated?* (Marketing and advertising lead us to associate certain words with certain foods.)

#### 2. Introduce Marketing Strategies (10 min.)

Explain that billions of dollars are spent on designing the outside of food and beverage packages. Every word, color, and image is meant to convince us to buy the product. Nothing is on there by accident. Hold up the **Pepsi Food Package** card p. 88. Ask the students the questions in the sidebar.

#### 3. Explore Different Marketing Techniques (20 min.)

We can become more thoughtful about our food choices when we understand the techniques food companies use to design packages. For this activity, divide students into pairs. Distribute a **Pop-Tarts Food Package** card p. 89 to each pair, and give a piece of paper and pencil to each student.

Tell each pair to closely examine the **Pop-Tarts Food Package** card for colors, images, and words that might convince someone to buy this product. Instruct students to circle what they find and jot down why it is convincing. For example, SpongeBob SquarePants appears on this package. Students would circle the SpongeBob image, and write, “Kids like SpongeBob.” Give students about five minutes to examine the Pop-Tarts package.

#### Probing questions:

*Why did Pepsi put Beyoncé on its can?* (Beyoncé is famous, cool, and attractive so people will notice the product. The implication is if you drink Pepsi you can be like Beyoncé. The face makes the can stand out.)  
*Why did Pepsi choose to use these colors?* (Brand colors; pink is usually feminine.)  
*How did you know this was a can of soda?* (Logo and name.)  
*What does the logo do?* (Help to easily identify the brand and product.)  
*Which age group is Pepsi trying to sell this to?* (Adolescents and young adults.)  
*Why do you think that?*





## Procedure (cont.)

they could use this rule to guide their food choices.

Distribute the **Food Rules Lesson 3** activity sheet p. 109 to the class. Review the Food Rules from Lessons 1 and 2 that they have already learned, and ask them to write in this lesson's Food Rule in the Lesson 3 box. Encourage students to take this sheet home and share the Food Rules with their families.

### 7. Taste and Describe Fruits (25 min.)



Tell students that they will now try some fruits. Distribute a toothpick, spoon, napkin, and the **Descriptive Words** activity sheet p. 110 to each student. Have students use their five senses to taste each of the fruits. Remind them to not yuck anyone's yum.

Then, using the words on the activity sheet, have students describe how the fruits taste, look, smell, feel, and sound. For tips on how to do the tasting, see the **Fun Fruit** preparation sheet p. 83.

Ask students, *Which fruits were your favorite? Why? Do you want to eat these fruits again?* Encourage students to tell their families about the fruit.

### 8. Make an Action Plan (15 min.)

Explain to students that making an action plan can help them make food choices that will help them follow the Food Rules. Distribute the **Eat Food Action Plan** activity sheet p. 111 and a pencil to each student. Tell them they will make an action plan to replace a froot with a food. Make sure the action plan is specific and clear so they can easily know if they have achieved their plan. Share a personal example of an action plan. For example, *I'm going to eat a banana and sunflower seeds for a snack two days a week, instead of buying a bag of Doritos.* Have several students share their action plans.

An action plan is an opportunity for students to take what they learned and apply it in a meaningful and actionable way. It can help them build abilities to make good choices.

### 9. Introduce Capture It Activity (5 min.)

Explain to students that *Capture It* is an activity where they apply what they learn. Tell students their first *Capture It* assignment is to take a photo or draw a picture of a froot they want to stop eating or eat less often or in smaller amounts. Also instruct students to write a few sentences about the froot and why they want to eat less of it. They will be invited to share their *Capture It* in the next lesson.

Example: Photo of an iced tea bottle. "I really like this, but now I know it is a froot so I'm trying not to drink it. I still get it sometimes. But I know change takes time, and I'm going in the right direction."



## Pepsi Food Package

Print and cut out one for the class.





## Pop-Tarts Food Package

Print and cut one for each pair of students.





## Tricky Techniques

### Learning Tricky Techniques Used on Food Packages

There are five common marketing techniques used on food packages, which we call tricky techniques.

Companies use these techniques to convince us to buy their products. However, we are often unaware that we are being influenced. Identifying these tricks makes us better equipped to make more thoughtful choices about what to eat.

Explain to students that each of these five tricky techniques have been proven to be effective at convincing people to buy products.

*The five tricky techniques are as follows:*

1. **Celebrities:** Familiar faces like celebrities, cartoon characters, movie or TV characters/actors, and athletes are often prominently placed on food packages. These celebrities get paid a lot of money to be featured on the product, which they may not consume regularly or at all.



Joe Burrow – BodyArmor



Beyoncé Knowles – Pepsi

Celebrity endorsements are particularly appealing to adolescents. For example, sports-oriented food and beverage packages use masculine imagery to make boys want the

a celebrity appears on a food or drink package, children and adolescents rate them as tasting better than identical alternatives without the celebrity appearance on the package.<sup>1</sup>

2. **Claims:** Tell you about the contents of a product (e.g., contains fiber, made from real fruit). They often tout the health benefits (e.g., lower blood cholesterol, prevent heart disease). Claims can also describe the quality of the product (e.g., tasty, popular, naturally made). Some of these claims that sound important, such as “natural,” have no agreed-upon or FDA-approved meaning, so food companies can use them on any product they like.



Claims about the presence/absence of nutrients (e.g., protein, sugar, fat)



Snapple - “made from the best stuff on earth”

1. Packer, J., Russell, S. J., McLaren, K., Siovolgyi, G., Stansfield, C., Viner, R. M., & Croker, H. (2022). The impact on dietary outcomes of licensed and brand equity characters in marketing unhealthy foods to children: A systematic review and meta-analysis. *Obesity reviews : an official journal of the International Association for the Study of Obesity*, 23(7), e13443.



## Tricky Techniques (cont.)

### Learning Tricky Techniques Used on Food Packages (cont.)

3. **Incentive/Promotions:** Many food packages feature prizes, contests, points, premiums, sweepstakes, and clubs to entice you to like and buy the product over and over. For instance, a package might advertise a unique, limited-time edition, the inclusion of games on the back of a cereal box, or a chance to win an Xbox.



Doritos – Avengers edition



Mountain Dew – ‘Win an Xbox’

4. **Branding:** Companies spend a lot of time developing their logo and brand to make you think their brand is fun, healthy, cool, etc. The company logo is almost always on the package. A package may also contain logos of partner organizations (e.g., sponsor of the Olympics with the Olympics rings), to get the added impact of that brand.

Branding is one of the most important aspects of food marketing; companies spend a lot of effort and money not only to ensure that consumers can quickly identify their product, but also to get them to think a certain way about all their products. For example, Kellogg’s markets its breakfast cereals as a healthy start to the day. Other products bearing the Kellogg’s logo may lead consumers to think that they are also healthy just by their association with the brand.

5. **Special Design Features:** These include colors, images, and editing techniques.

#### Color

The choice of color in designing a product package is very important.

Colors are used to help consumers identify brands quickly and consistently.

Color influences moods and feelings (positive or negative), and therefore can create a certain attitude towards a product.

For example, Pepsi’s brand colors appear on this can, but are also carried out in the image. Pink lips on Beyoncé are meant to be seductive and feminine.



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90% of this assessment is based on color alone.

## Tricky Techniques (cont.)

### Learning Tricky Techniques Used on Food Packages (cont.)

#### 5. Special Design Features (cont.):

##### Images

Images provide a great deal of information to the consumer at a quick glance. They can convince you of the quality, origin, or health of a product.

For example, packaging with images of plants or natural landscapes can make you think that the product is healthy, wholesome, or contains natural ingredients, even if it doesn't.

The image on a package can influence your thinking about how much is an appropriate amount of the product to eat. Research shows that the “unit” of the product put on the package creates a norm about how much one should eat. For example, people ate more cereal when they were given a box of cereal with a larger serving displayed on the package, compared to an identical box with a smaller serving displayed on the package.<sup>1</sup>



##### Editing Techniques

Companies use many sophisticated editing techniques, like extreme close-ups, fancy lighting, and cool tricks, to make the food look better than it would in real life. Often photos are taken of models of foods—not the actual food.

For example, a bowl of cereal without milk would not look very appetizing on a cereal box. However using real milk would likely make the cereal look soggy or sink to the bottom of the bowl. That is why many cereal images you see on cereal boxes do not use milk at all. They use glue instead!

1. McGale, L. S., Smits, T., Halford, J. C. G., Harrold, J. A., & Boyland, E. J. (2020). The influence of front-of-pack portion size images on children's serving and intake of cereal. *Pediatric obesity*, 15(2), e12583.

## Tricky Techniques (cont.)

### Tricky Techniques Used on the Pop-Tarts Food Package Card



Celebrities	Claims	Incentives/Promotions	Branding	Special Design Features
1 SpongeBob SquarePants is prominently featured on the package.	<p>2 Claims to contain wild strawberry and berry suggest the product actually contains fruit and has some healthfulness.</p> <p>3 Claim of “natural” flavors will reassure parents that the product is safe for their children</p> <p>4 “Toaster pastries” claims they are easy to make.</p>	5 This product is promoted as a limited edition giving a sense of urgency and specialness.	<p>6 The brands Kellogg’s and Nickelodeon appeal to parents and children, respectively.</p> <p>7 Kellogg’s is associated with breakfast cereal. Part of Kellogg’s branding is associated with providing a healthy start to the day, implying that this product can do that. If you were to flip the box to see the ingredients list and nutrition facts, you would see it is far from healthy, and does not actually contain wild strawberries.</p>	<p>8 Underwater pattern with coral, bubbles, and jellyfish is attractive to children.</p> <p>9 Colors are mostly primary (yellow, blue, red), which are attractive to young children.</p> <p>10 The vibrant strawberry filling pictured on the package helps children and adults picture the product.</p> <p>11 SpongeBob’s eyes are looking straight out; research has shown that when eyes on a package look back at you, it increases desire for the product.</p> <p>12 The overall look of SpongeBob pulling himself out of the sea with a huge smiling face gives the package a feeling of adventure that makes it seem like it will be fun to eat.</p>



## Frood Fake Out

The five tricky techniques are seen over and over again on frood packaging. Not only is it important to practice recognizing these, but it is also important to start to recognize trends across packages. For example, many products make claims about nutrients added to or taken away from a product (e.g., high in fiber or low-fat). There are no right or wrong answers in the trends that students notice. Help students think critically and recognize that these trends will continue to change and evolve across frood packaging with the latest food craze or fad.

### Materials

1. **Frood Package** cards p. 101
2. Tape
3. Sticky note pads: blue, green, yellow, pink, and orange
4. Pencils

### Set up

1. Designate enough wall space to hang up all of the **Frood Package** cards (you can call this the frood gallery walk) around the room.
2. Tape each card somewhere at eye-level. Space them out so there is room for a small group of students to congregate around each card.
3. Draw a legend on the board or chart paper that links each color sticky tab to a tricky technique:  
Celebrities: blue  
Claims: green  
Incentives/Promotions: yellow  
Branding: pink  
Design features: orange
4. Divide the sticky note pads so each small group has some of each color.

### Procedure

1. Divide the students into groups of about four students.
2. Point out all the **Frood Package** cards posted around the room.
3. Provide each small group with all five colors of sticky notes.
4. Explain the legend on the board or chart paper displaying which colors represent which tricky techniques.
5. Assign each small group to start at a different **Frood Package** card. Place the groups at every other card to give them enough space to gather around the card.

### Frood Fake Out (cont.)


6. Instruct the groups to identify one tricky technique used on each frood package. As a group, they can determine the tricky technique (e.g., use of celebrity, use of claims, etc). Then, on the appropriate color sticky, they can briefly describe how the technique is being used to convince someone to buy the product and put the sticky on the **Frood Package** card. For example, if they see a stylized picture of cereal, they would mark it with an orange sticky that says, “Photo of cereal makes it look tasty.”
7. When groups review a food package that already is marked with one or more tricky technique, they should try to identify a different tricky technique than other groups.
8. Groups can cycle around the **Frood Package** cards twice. If they come to a card in which they cannot identify any new tricky techniques, they can discuss how the combination of all the technique used on the food package would work together to convince consumers to buy the product.
9. Bring students back to one large group and review the tricky techniques on each food package. Use the potential answers on the following pages to guide you.


### Discussion Questions

1. *What were the most common techniques that you saw? Why do you think these are used most often?*
2. *Which trends did you notice across the packages?*
3. *Why do companies use these tricky techniques on their packages? Is there anything wrong with it? If so, what?*
4. *What do you think about these tricky techniques being used on children?*
5. *How do you feel knowing that companies are trying to trick you into buying their products?*
6. *Would you want your friends or family to be tricked? How would you explain these techniques to them so they wouldn't be tricked?*

## Guide Sheet

### Frood Fake Out (cont.)


Product	Tricky Technique	Rationale
<p>BodyArmor</p> 	Celebrity: Joe Burrow	<ul style="list-style-type: none"> <li>Popular NFL athlete – Joe Burrow is recognizable; if you drink BodyArmor you will be like Joe Burrow</li> </ul>
	Claims: Natural flavors	<ul style="list-style-type: none"> <li>Seems healthy</li> </ul>
	Incentives/Promotions: Joe Burrow	<ul style="list-style-type: none"> <li>Special 'Burrow' edition, limited edition – part of a collection</li> </ul>
	Branding: <ul style="list-style-type: none"> <li>Name – 'BodyArmor' name appears on product</li> <li>Logo – black "armor" stripe</li> <li>Slogan – 'SuperStarDrink'</li> <li>Colors – black accents, bright colors</li> </ul>	<ul style="list-style-type: none"> <li>Increases recognition of product</li> </ul>
	Design Features: <ul style="list-style-type: none"> <li>Colors – orange and black</li> <li>Image of Burrow holding a football</li> </ul>	<ul style="list-style-type: none"> <li>Colors - black seem masculine, orange is eye-catching</li> <li>Image - Joe Burrow in sports attire, implication that if you drink Body Armor, you will be a successful athlete</li> </ul>


Product	Tricky Technique	Rationale
<p>Yoplait Yogurt</p> 	Celebrity: Bluey	<ul style="list-style-type: none"> <li>Popular TV character - Bluey is recognizable; watching Bluey is fun, so eating this yogurt will also be fun</li> </ul>
	Claims: <ul style="list-style-type: none"> <li>Fat free yogurt, vitamins A &amp; D, with calcium</li> <li>Berry flavored with other natural flavor, cherry flavored with other natural flavor</li> <li>50 calories per tube</li> </ul>	<ul style="list-style-type: none"> <li>Nutrient and source claims make the product seem healthy</li> <li>Buzz words (fat free, natural)</li> <li>Imply that the product is a good deal</li> </ul>
	Incentive/Promotions <ul style="list-style-type: none"> <li>Box Top for Education</li> <li>Value Pack</li> </ul>	<ul style="list-style-type: none"> <li>Box Tops are an incentive program; makes you think they support education</li> <li>Implies that product is a good deal</li> </ul>



## Guide Sheet


### Frood Fake Out (cont.)


Product	Tricky Technique	Rationale
Yoplait Yogurt (cont.)	Branding: <ul style="list-style-type: none"> <li>Name – Yoplait on product</li> <li>Logo – Yoplait with image of flower</li> <li>Slogan – “Go-Gurt”</li> </ul>	<ul style="list-style-type: none"> <li>Increases recognition of product</li> <li>Associates brand with convenience for families on the “go”</li> </ul>
	Design Features: <ul style="list-style-type: none"> <li>Colors – peaceful, natural colors of outdoor scene</li> <li>Image – Bluey and Bingo</li> <li>Product Image – bright, dual-colored yogurt cups</li> </ul>	<ul style="list-style-type: none"> <li>Colors are bright and peaceful, evoking images of playtime outside</li> <li>Bluey and Bingo are happy and waving at the consumer, implies that eating this yogurt will be fun and increase happiness</li> <li>Product colors are attractive to kids; pictures of fruit make parents think the product is good for their kids</li> </ul>

Product	Tricky Technique	Rationale
Doritos Extreme	Celebrities: <ul style="list-style-type: none"> <li>Incredible Hulk</li> <li>Captain America</li> </ul>	<ul style="list-style-type: none"> <li>Popular comic book figures that appeal to youth</li> </ul>
	Incentives/Promotions: <ul style="list-style-type: none"> <li>Limited edition action figure</li> </ul>	<ul style="list-style-type: none"> <li>Providing an action figure, and using ‘limited edition’ creates a sense of urgency to buy the product</li> </ul>
	Branding: <ul style="list-style-type: none"> <li>Name – Doritos on product</li> <li>Logo – Image of lit up triangle</li> <li>Associated Brands – Avengers</li> </ul>	<ul style="list-style-type: none"> <li>Increases recognition of product</li> <li>Avengers is a cool, exciting brand</li> </ul>
	Design Features: <ul style="list-style-type: none"> <li>Images of super heroes</li> <li>Explosion appearing behind the logo</li> </ul>	<ul style="list-style-type: none"> <li>Heroes appear in a way that makes them look heroic and powerful</li> <li>Implies a sense of adventure, of an out of this world experience</li> </ul>

## Guide Sheet


### Frood Fake Out (cont.)


Product	Tricky Technique	Rationale
<p>Frosted Flakes</p> 	<p>Celebrity: Tony the Tiger</p>	<ul style="list-style-type: none"> <li>Popular character – Tony the Tiger is recognizable; if you eat Frosted Flakes you'll be strong like Tony the Tiger</li> </ul>
	<p>Claims:</p> <ul style="list-style-type: none"> <li>Good Source of vitamin D, listed calories per serving, total fat, sodium, sugars, vitamin A, vitamin C</li> </ul>	<ul style="list-style-type: none"> <li>Nutrient claims make the product seem healthy</li> </ul>
	<p>Incentive/Promotion: 2 Bags</p>	<ul style="list-style-type: none"> <li>Implies that you're getting good value</li> </ul>
	<p>Branding:</p> <ul style="list-style-type: none"> <li>Name of Product – Frosted Flakes appears on product</li> <li>Name of Brand – Kellogg's appears on product</li> <li>Logo – Image of Tony the Tiger</li> <li>Logo – Tiger Stripes – "Earn your Stripes"</li> <li>Slogan – "They're GR-R-R-EAT!"</li> </ul>	<ul style="list-style-type: none"> <li>Increases recognition of product</li> <li>If Tony the Tiger thinks they taste great, you probably will too</li> </ul>
	<p>Design Features:</p> <ul style="list-style-type: none"> <li>Background images of happy kids playing sports</li> <li>Tony the Tiger reaching up and making a fist</li> <li>Tony the Tiger's eyes looking directly at you</li> </ul>	<ul style="list-style-type: none"> <li>Implies that this product will help you become good at sports, and be happy like other kids</li> <li>If you eat Frosted Flakes, you'll be a winner and strong, like Tony the Tiger</li> <li>Tony the Tiger is looking at you, which is a marketing technique to increase appeal</li> </ul>

Product	Tricky Technique	Rationale
<p>Fanta</p> 	<p>Claims:</p> <ul style="list-style-type: none"> <li>Caffeine free</li> <li>100% natural flavors</li> <li>With other natural flavors</li> <li>Grape</li> <li>180 calories per can</li> </ul>	<ul style="list-style-type: none"> <li>To denote a health attribute, or appropriateness for younger people</li> <li>Natural implies healthy</li> <li>Implies that there is real fruit in it</li> <li>The front of pack calorie labeling, companies think it makes them seem transparent</li> </ul>
	<p>Branding:</p> <ul style="list-style-type: none"> <li>Name – Fanta appears on product</li> <li>Logo – Fanta within circle with leaf</li> </ul>	<ul style="list-style-type: none"> <li>Increases recognition of product</li> </ul>
	<p>Design Features:</p> <ul style="list-style-type: none"> <li>Colors – purple, like grapes</li> <li>Image of bundle of grapes</li> <li>Leaves</li> </ul>	<ul style="list-style-type: none"> <li>Implies that it is made with real fruit and healthy</li> </ul>

## Guide Sheet

### Frood Fake Out (cont.)


Product	Tricky Technique	Rationale
<p>Starburst</p> 	<b>Claims:</b> <ul style="list-style-type: none"> <li>Sweet fiesta</li> <li>Natural flavors</li> <li>What's inside calories 220 11% DV per pack</li> </ul>	<ul style="list-style-type: none"> <li>Implies fun, tasty, healthy and natural</li> <li>The front of pack calorie labeling, companies think it makes them seem transparent. This package is 11% of the calories needed in a day for a whole day</li> </ul>
	<b>Incentives/Promotions:</b> <ul style="list-style-type: none"> <li>New!</li> </ul>	<ul style="list-style-type: none"> <li>Suggests introducing the product to others, who then may opt to buy it</li> <li>Offers the excitement of trying something new</li> </ul>
	<b>Branding:</b> <ul style="list-style-type: none"> <li>Name – Starburst appears in the center of the package</li> <li>Logo – Starburst within yellow almost bursting bubble</li> </ul>	<ul style="list-style-type: none"> <li>Increases recognition of product</li> </ul>
	<b>Design Features:</b> <ul style="list-style-type: none"> <li>Image of different of fruits</li> <li>Special design that looks like a drip on S in Starburst</li> </ul>	<ul style="list-style-type: none"> <li>Implies that it is made with a variety real fruits and is healthy</li> <li>Implies it will be mouth watering good</li> </ul>

Product	Tricky Technique	Rationale
<p>Cheetos</p> 	<b>Celebrity: Chester Cheetah</b>	<ul style="list-style-type: none"> <li>Popular character – Chester Cheetah is recognizable and made to seem cool; if you eat Cheetos, you'll be cool like Chester Cheetah</li> </ul>
	<b>Claims:</b> <ul style="list-style-type: none"> <li>Crunchy</li> <li>Real cheese</li> </ul>	<ul style="list-style-type: none"> <li>Claim about the appealing experience of eating the product</li> <li>Claim about the health and quality of the product</li> </ul>
	<b>Branding:</b> <ul style="list-style-type: none"> <li>Name – Cheetos appears in the center of the package</li> <li>Logo – Cheetos with glowing yellow hue in the background</li> </ul>	<ul style="list-style-type: none"> <li>Increases recognition of product</li> </ul>
	<b>Design Features:</b> <ul style="list-style-type: none"> <li>Image of Chester Cheetah on a bike</li> <li>Dangerously cheesy</li> <li>Image of product</li> <li>Image of cheese wedge</li> </ul>	<ul style="list-style-type: none"> <li>Imply that eating these will bring you adventure</li> <li>Helps visualize the product to encourage choosing it</li> <li>Implies that it has real cheese and is therefore healthy and a good quality product</li> </ul>



## Guide Sheet

### Frood Fake Out (cont.)

Product	Tricky Technique	Rationale
<p>Chips Ahoy!</p> 	<p>Claims:</p> <ul style="list-style-type: none"> <li>• Chunky</li> <li>• Real chocolate chunk cookies</li> </ul>	<ul style="list-style-type: none"> <li>• Claim about the quality of the product (more real chocolate)</li> </ul>
	<p>Incentives/Promotions:</p> <ul style="list-style-type: none"> <li>• 50 years!</li> </ul>	<ul style="list-style-type: none"> <li>• Special anniversary edition</li> </ul>
	<p>Branding:</p> <ul style="list-style-type: none"> <li>• Name of product – Chips Ahoy! name appears on product</li> <li>• Name of brand – Nabisco appears on the product</li> <li>• Logo – Chips Ahoy! with a chocolate chip dotting the “i”</li> </ul>	<ul style="list-style-type: none"> <li>• Increases recognition of product</li> </ul>
	<p>Design Features:</p> <ul style="list-style-type: none"> <li>• Image of streamers and confetti in the background</li> <li>• Celebration/birthday hat</li> <li>• Image of cookie</li> <li>• Package color is brown</li> <li>• Sealable</li> </ul>	<ul style="list-style-type: none"> <li>• Imply that eating these will be fun, like a celebration</li> <li>• Helps visualize the product to encourage choosing it</li> <li>• Like the color of chocolate</li> <li>• Convenient packaging, convenient to eat</li> </ul>

## Frood Package

Print and cut out one set for the class.





## Frood Package (cont.)





Frood Package (cont.)





## Cards

### Frood Package (cont.)





## Frood Package (cont.)





## Frood Package (cont.)



## Frood Package (cont.)





Frood Package (cont.)





Name \_\_\_\_\_

Date \_\_\_\_\_

## Food Rules Lesson 3

### Lesson 3: **The Claim Game**

Food Rule: \_\_\_\_\_

Eat food. Not too much. Mostly plants.

#### Family Tips

- Companies often charge more money for foods that claim to improve health. Trying to eat whole grains and save money at the same time? Make homemade oatmeal instead of buying expensive cereals that claim to include whole grains.
- Ironically, some of the healthiest foods don't come with any claims. Fruits and vegetables—whether fresh, frozen, canned, or dried—give us many of the nutrients we need without the slick advertising.

#### Food Rules from Previous Lessons

##### Eat Food.

- Eat food you can picture growing in nature.
- Eat food with ingredients that a third grader could pronounce.

*In Defense of Food* film clip that accompanies  
Food Fads

Watch at <http://bit.ly/idofclip3>

Learn more about *In Defense of Food* at:  
[pbs.org/indefenseoffood](http://pbs.org/indefenseoffood)

## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Descriptive Words

Directions: Use these words to describe the foods that you will try.

Acidic	Dry	Liquid	Rough	Tan
Aromatic	Dull	Little	Round	Tart
Beautiful	Earthy	Long	Runny	Tasty
Black	Fair	Luscious	Salty	Tender
Bland	Fat	Melted	Satisfying	Thick
Blue	Fibrous	Milky	Savory	Thin
Brittle	Fine	Moist	Scented	Tiny
Brown	Firm	Mushy	Scrumptious	Tough
Bumpy	Flavorful	Nice	Sharp	Unripe
Bushy	Flavorless	Oblong	Shiny	Watery
Chewy	Fluffy	Oily	Short	Wet
Chunky	Fragrant	Orange	Silky	White
Clean	Fresh	Oval	Simple	Wilted
Cold	Golden	Pale	Skinny	Yellow
Colorful	Grand	Peeled	Small	Zesty
Cool	Green	Peppery	Smooth	
Creamy	Hard	Pink	Soft	Add your own
Crispy	Healthy	Pleasing	Sour	descriptive words:
Crumbly	Heavy	Plump	Speckled	_____
Crusty	Hot	Purple	Spicy	_____
Curly	Interesting	Red	Spongy	_____
Delicious	Jammy	Rich	Spotty	_____
Doughy	Juicy	Ripe		_____



## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Eat Food Action Plan

Eating food is important to help you reach your goals. Create an action plan that will help you choose foods instead of froods.

#### My Action Plan (example)

I am going to eat: \_\_\_\_\_ instead of \_\_\_\_\_.

(food) (frood)

Time of day (check one):

- ☐ At breakfast
- ☐ In the morning
- ☒ At lunch
- ☐ In the afternoon
- ☐ At dinner
- ☐ In the evening

Days of the week (check as many as you like):

- ☐ Sunday
- ☒ Monday
- ☐ Tuesday
- ☒ Wednesday
- ☐ Thursday
- ☐ Friday
- ☐ Saturday

#### My Action Plan

I am going to eat: \_\_\_\_\_ instead of \_\_\_\_\_.

(food) (frood)

Time of day (check one):

- ☐ At breakfast
- ☐ In the morning
- ☐ At lunch
- ☐ In the afternoon
- ☐ At dinner
- ☐ In the evening

Days of the week (check as many as you like):

- ☐ Sunday
- ☐ Monday
- ☐ Tuesday
- ☐ Wednesday
- ☐ Thursday
- ☐ Friday
- ☐ Saturday









II. NOT TOO MUCH







## LESSON 4:

# DON'T BE FOOLED

## First Bite

“Cut out all carbs!” “Get 100g protein every day!” “Eat low fat or no fat!” “Take detox supplements!” We are constantly bombarded by nutrition-related marketing messages from the media. These messages are always changing to promote the newest fad-diet products (protein bars, keto-friendly treats, low-fat salad dressing, *insert trending “health food” here*).

To make food advertising messages more convincing, advertisers use persuasive strategies to appeal to topics that matter most to consumers. They know exactly which tactics will work best because they conduct in-depth market research—including interviews, focus groups, and surveys—with mothers, children, and adolescents to uncover their emotional triggers and tailor messages accordingly<sup>1</sup> Essentially, the game is rigged in favor of the food companies.

### Brainwashed by Branding?

Sometimes, we may not even realize we’re being advertised to because the ad is just *that* good. Advertisements in television, social media, video games, websites, and movies can be so covert that they influence us on a subconscious level. For example, studies show that children who watched movie clips that contained certain products, such as Pepsi and Utz Cheese Balls, consumed more of those products.<sup>2</sup> Food companies will often tap into subliminal messaging strategies by associating their products with some other positive feeling, person, or experience. By curating these associations, food companies craft personas for their brands that stick in our minds. This is why we can immediately recognize a brand based on a corner of their logo, the beginning of their tagline, or their signature

brand color. These brand associations lend additional persuasive power over our food choices. When given identical foods inside either plain packaging or packaging with the McDonald’s logo, children said the food in the McDonald’s package tasted better.<sup>3</sup> Additionally, people who saw a food commercial endorsed by a sports celebrity ate more of that food not only after seeing the commercial but also after seeing the celebrity outside of the commercial.<sup>4</sup> These studies demonstrate the power of a brand!

### Flip the Script on Froot Marketing

How can we stop being fooled by froot advertisements? One promising strategy is to strengthen our analysis of the persuasive techniques these advertisements use. When children are taught persuasion tactics and to think critically about ads, they have reduced susceptibility to food advertising.<sup>5</sup> By learning about persuasive techniques, we free ourselves from froot ads and gain tools to encourage others to choose food instead of froot.

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## LESSON 4: DON'T BE FOOLED

### Aim

Examine how food advertising and marketing influence us, often on a subconscious level.

### Food Rule

**Avoid foods you see advertised on television.**

### Film Clip

Marketing Low-Fat

### Objectives

Students will be able to:

- explain how most people can instantly recognize logos from froods and discuss how this impacts what we think about froods;
- demonstrate increased confidence in their ability to identify marketing strategies for froods;
- state and understand the lesson's Food Rule;
- generate arguments to convince peers to avoid froods advertised on television and other media sources; and
- create an ad to defend a food.

### Overview

This is the first lesson of the Not Too Much section. It begins with students learning that frood logos are easily recognizable. Students build on their understanding of the five “tricky techniques” from Lesson 3 by learning that marketing appeals to the heart and mind. Students then practice using these appeals on their peers. Next, students analyze frood ads. After watching and discussing an *IDOF* film clip about food marketing, they learn the Food Rule, “Avoid foods you see advertised on television.” Students synthesize what they learned by developing persuasive arguments to eat foods instead of froods for their peers not receiving the *IDOF Curriculum*. Lastly, they develop ads for foods (not froods).

### Materials

#### In this guide

- **Logo** cards p. 121
- **Logo Game** cards p. 124
- **Persuasive Arguments** guide sheet p. 136
- **Convince Me** cards p. 138
- **Heart and Mind** lesson resource p. 141
- **Print Ad** cards p. 146
- From Lesson 3: **Pepsi Food Package** card p. 88 and **Frood Package** Cards p. 101 (specifically: BodyArmor, Cheetos, and Frosted Flakes)
- **Food Rules Lesson 4** activity sheet p. 149

#### Other materials

- *IDOF* film clip 4: Marketing Low-Fat and AV equipment
- Board or chart paper
- Your *Capture It* piece, see Lesson 3 procedure #9 p. 87 for details
- Small paper bag
- Powerade ad clip [[www.youtube.com/watch?v=euLssVr1Njo](http://www.youtube.com/watch?v=euLssVr1Njo)]
- Frosted Flakes ad clip [[www.youtube.com/watch?v=Ve4GfDgAfK8](http://www.youtube.com/watch?v=Ve4GfDgAfK8)]
- FNV PSA clip [[vimeo.com/120688660](http://vimeo.com/120688660)]

#### For each student:

- Blank paper
- Pencil

To learn more about *In Defense of Food*, visit [pbs.org/indefenseoffood](http://pbs.org/indefenseoffood). Funding was provided by the National Science Foundation and PBS.



## Before You Begin: Total prep time: approximately two hours

### Within a few days before lesson

1. Create your own personal *Capture It* piece to share with the group. See Lesson 3, procedure #9 p. 87 for details.
2. Read over the entire lesson.

### Within a day before lesson

3. **Print and cut out cards:**
  - **Logo** cards p. 121, one set
  - **Logo Game** cards p. 124, one set. Prepare sets 1, 2, and 3. For each set, make one pile of partial logos and a second pile with full logos. Be sure logos are in the same order in each pile.
  - **Convince Me** cards p. 138, one set, and place them in a small paper bag
  - **Print Ad** cards p. 146, one set (two sets if you have more than 12 students)
4. **Print one copy per student of each activity sheet:**
  - **Food Rules Lesson 4** activity sheet p. 149
5. **Viewing appeals videos:** Load videos for viewing:
  - Powerade ad clip [www.youtube.com/watch?v=euLssVr1Njo](http://www.youtube.com/watch?v=euLssVr1Njo)
  - Frosted Flakes ad clip [www.youtube.com/watch?v=Ve4GfDgAfK8](http://www.youtube.com/watch?v=Ve4GfDgAfK8)
  - FNV PSA clip [vimeo.com/120688660](http://vimeo.com/120688660)
6. **Viewing IDOF film clip:**
  - Set up AV equipment and space for film viewing.
  - Find IDOF film clip 4: Marketing Low-Fat at <http://bit.ly/idofclip4>







## Procedure (cont.)

### 2. Review *Capture It* Piece (9 min.)

Ask students to get out their *Capture It* piece, assigned in Lesson 3. Have students join you in a sharing circle. Start by sharing your own *Capture It* piece. Show your photo or drawing and read the accompanying text.

Ask for volunteers to share their *Capture It* pieces. If anybody has more than one *Capture It* piece, instruct them to select one. Once all the students who wish to share have done so, ask students what they learned from doing their own *Capture It* and from sharing.

### 3. Persuade Peers (15 min.)

Explain to students that in this activity they have an opportunity to come up with a convincing argument. Ask students if they can think of a time when they had to convince someone of something (e.g., a friend to see a movie with you). *How did you do it? Was it easy? Did you succeed?* Use the **Persuasive Arguments** guide sheet p. 136 and **Convince Me** cards p. 138 to facilitate this activity. Be sure to ask students the discussion questions on the bottom of the **Persuasive Arguments** guide sheet.

This activity provides scaffolding needed for students to be able to understand persuasive techniques used in food advertising and marketing and to learn about how they can be less

, fi , u

### 4. Learn About Persuasive Marketing (15 min.)

Ask students, *do you think the persuasive arguments you just created are similar to what food advertisers do to convince us to buy a product? If so, how?* Have students recall the five tricky techniques they learned in Lesson 3: Celebrities, Claims, Incentives/Promotions, Branding, Special Design Features. Explain that in addition to these tricky techniques, food marketers use appeals to the heart and mind. Use the **Heart and Mind** lesson resource **Appeals About Food** section p. 141 to review examples of appeals. Then use the Pepsi, BodyArmor, Cheetos, and Frosted Flakes cards from Lesson 3 and the **Heart and Mind** lesson resource **Appeals on Product Packages** section p. 142 to explain how these appeals are used on packaging.

Ask a few students to share one food they will try to eat less of now that they have learned about these marketing strategies.

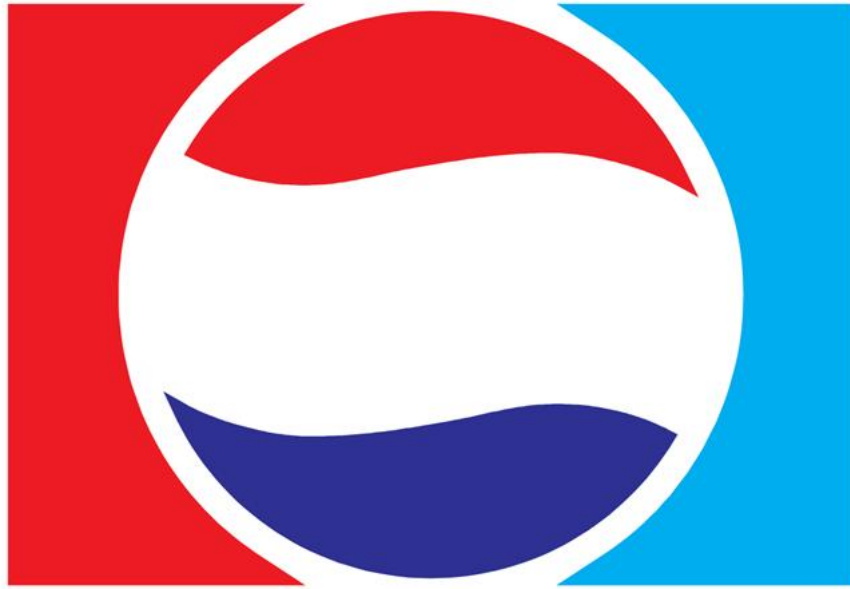






## Logo

Print and cut one set for the class.





## Cards

### Logo (cont.)



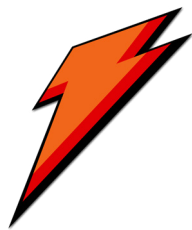
## Logo (cont.)



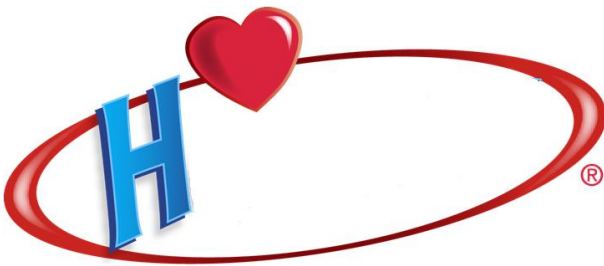


## Logo Game: Set 1

Print and cut one set for the class.



Logo Game: Set 1 (cont.)



Logo Game: Set 1 (cont.)

j



Jamba Juice®

**K**

**KFC®**

**D  
D**





Logo Game: Set 1 (cont.)



Logo Game: Set 2



Logo Game: Set 2 (cont.)

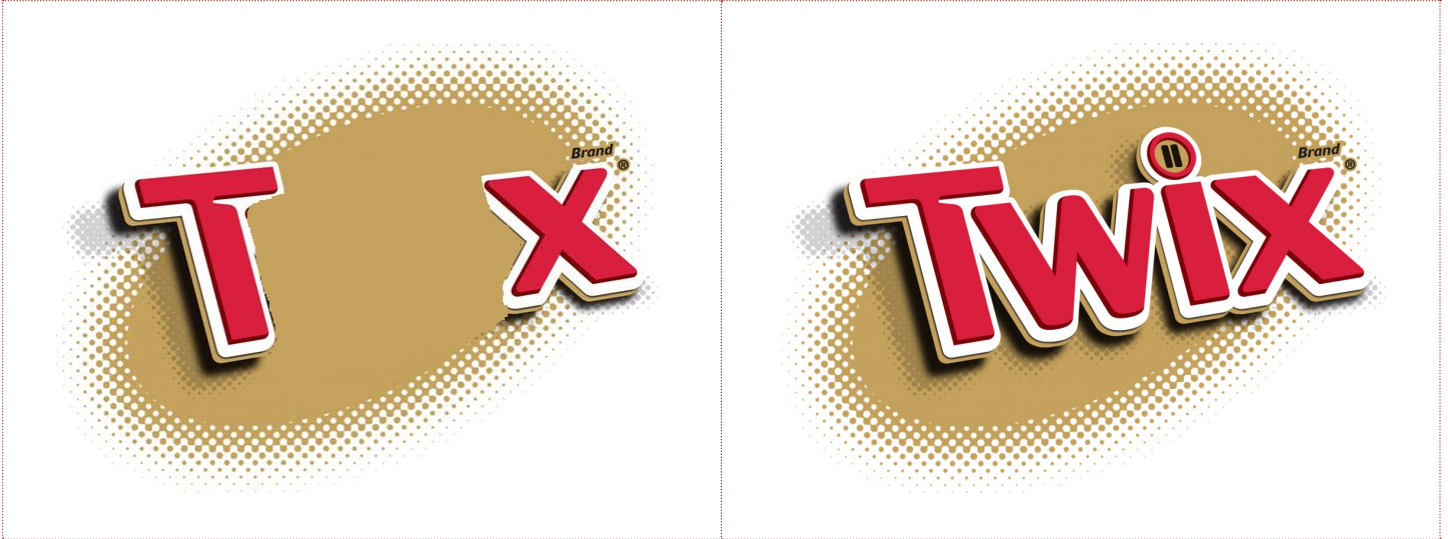




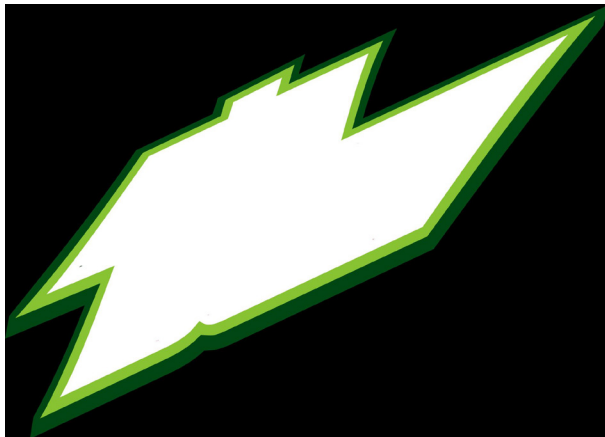
Logo Game: Set 2 (cont.)



Logo Game: Set 2 (cont.)

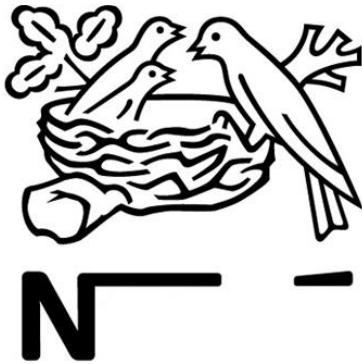
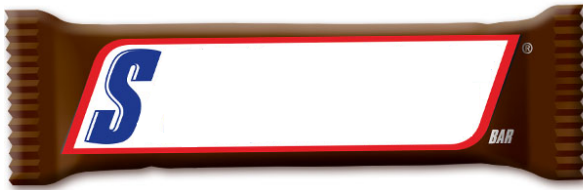


## Logo Game: Set 3





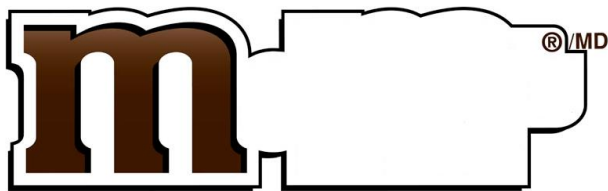
Logo Game: Set 3 (cont.)



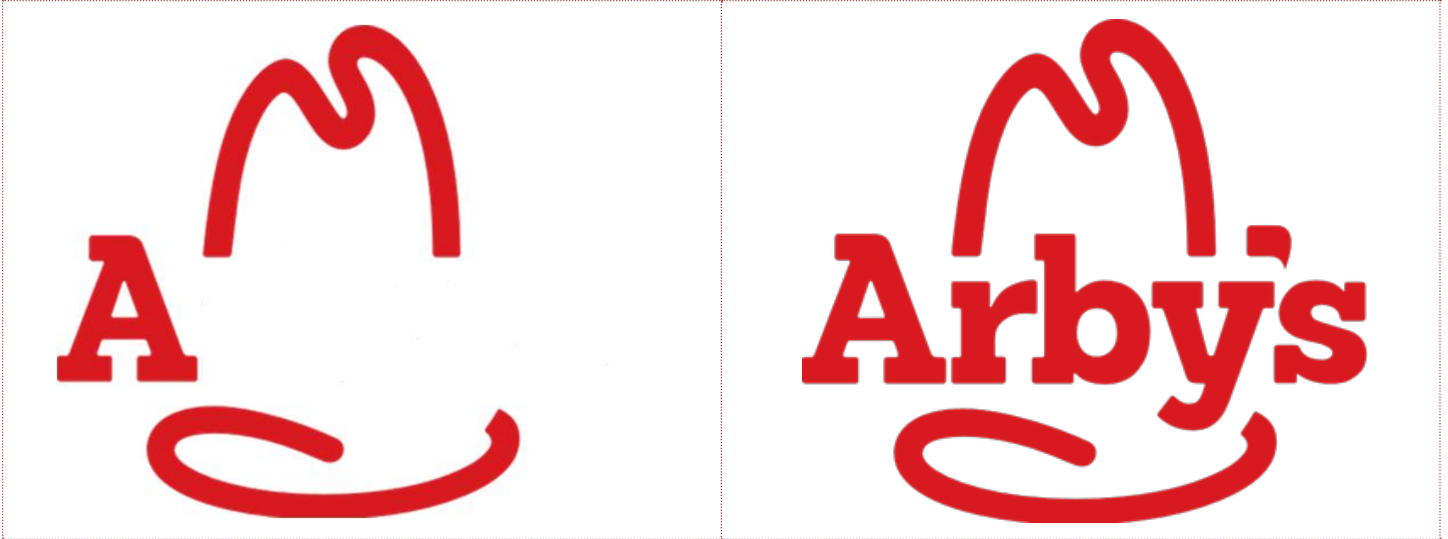
Good Food, Good Life



Logo Game: Set 3 (cont.)



Logo Game: Set 3 (cont.)





### Persuasive Arguments

In this activity, students learn the power of persuasion by creating convincing arguments.

#### Materials

- Small paper bag
- *Convince Me* cards p. 138

#### Set up

1. Cut out *Convince Me* cards and place them in the small paper bag.

#### Procedure

1. Read the following to students:

A new movie came out and you are dying to see it. The problem is that you don't want to go alone. Your friend doesn't particularly like going to the movies; he doesn't want to spend a lot of money and tickets are \$15.00! Try and convince him to go see the movie with you.

2. Explain that to convince someone to go to the movies with you, you could use three types of appeals.

Appeals to the **heart** create emotion. Example: One of your friend's saw the movie and loved it! He said it was hilarious. Tell your friend how much you will appreciate it if he or she goes with you

Appeals to the **mind** share facts. Examples: You can pay for his ticket. Ten of your friends saw it and liked it. Have students share their own appeals and classify them as heart or mind.

3. Explain to students that they can put together **several appeals** to construct an argument, which can be more convincing than one appeal alone.
4. Now, try creating an argument for this example:

Your friend Mia throws a football with a powerful spiral and wants to be a star quarterback. She is graduating middle school and tryouts for the high school football team are in a month. The school has never had a girl on the football team before. A decision needs to be made on whether girls are allowed to play on the football team. You were selected to make a case in front of the school leaders. What would you argue and why?

5. Give students a minute to construct an argument. Have students share. For each appeal, classify as heart or mind.
6. Have students pick one *Convince Me* card out of the paper bag. Instruct them to come up with convincing arguments, using appeals to the heart or mind. They can use one, two, or all three appeals.
7. Give students five minutes working independently to generate an argument for their scenario.
8. Ask for four volunteers to read their scenario, and then present their argument to the class.



## Guide Sheet

### Persuasive Arguments

#### Discussion Questions

1. *What made arguments convincing? What was not convincing?*
2. *How would you use what you've learned when you try to persuade someone in the future?*



## Cards

### Convince Me Cards

Print, cut out, and place cards in a paper bag.

<p>You are on vacation in Puerto Rico with , u u , p a coupon for ½ price snorkel equipment. Convince your elderly grandmother to go snorkeling with you.</p>	<p>You are on a baseball team. You just found out , one of your buddies wa's thrown off the team for using performance-enhancing drugs. You know that other players are as well. The coach thinks everyone should be thrown off the team. You think they deserve another chance. Argue your case with the coach.</p>
<p>The winter Olympics features bobsledding, , u , u , snowman building should be added as an u , , / Olympic Committee to add snowman building to the next Winter Games.</p>	<p>You want to start a business washing neighborhood park benches. Convince your neighbors to invest in your business. , , A u u ,</p>
<p>The mayor has expressed interest in donating money to build a new sports' facility in one neighborhood in your city. It will have a pool, a skateboard park, basketball courts, and a baseball diamond. The mayor is deciding where to build the facility. Convince the mayor that your neighborhood is the most deserving.</p>	<p>Have you ever had hummus before? It's a spread made from chickpeas. Your friend has never tried hummus and tends to hate eating anything new. Convince him that it is worth trying.</p>
<p>A unicorn landed on your roof and you became friends. Your parents want to call the Humane Society to get them to take the unicorn away. Convince them to let you keep it.</p>	<p>There is a new kid in school. She is from China and doesn't speak a lot of English. She sits by herself at lunch. Convince your friends to let her join you at the lunch table today.</p>





## Cards

### Convince Me Cards (cont.)

You once read the ingredient list for grape soda and saw that there are no grapes in grape soda. What the heck?! Convince your friend that he is wasting his money buying grape soda.

Each year everyone talks about how great the Easter Bunny is because it brings chocolate and candy. Convince your friends that the Easter Bunny is the scariest of all holiday

You have been volunteering at a retirement home on the weekends. Convince your best friend to volunteer with you.

A friend of yours is thinking about getting an illegal-downloading app that lets her get new music and movies for free. Convince her that this is not a good idea.

Last night a spaceship descended on your home and aliens visited you. You hung out with them for the whole night. Convince your family aliens are real.

You want to stay up when your parents want you to go to bed. Convince your parents that you are old enough to choose your own bedtime.

You have a crush on a girl/boy at school. But she/he doesn't even know who you are. Convince her/him to go out on a date with you.

This has been going on for too long: naked pets are everywhere! You think the government needs to do something about all these naked pets!! You have an opportunity to meet with your congressperson. Convince him/her that pets should wear clothes.



## Cards

### Convince Me Cards (cont.)

You are at the grocery store with your family. Your little sister wants Bluey yogurt and your dad puts it into the grocery cart. Convince your family that they should think twice about getting that yogurt.

OMG!! You are sitting beside Simone Biles on the subway. You saw her in a Powerade commercial a few weeks ago and read a Tweet that Powerade paid her \$1 million dollars to act in the commercial. Convince her to stop doing ads for froods like Powerade.

Your principal is looking for a celebrity to come to your school. Think about the celebrity who you think would be best to come and speak to your classmates, and then convince your principal to invite this person.

This year, your family is going to Six Flags amusement park. It has the highest and fastest roller coasters. You want your friend to come on your family trip with you. Convince your friends' parents to let him come with you.

## Heart and Mind

Advertisers want us to buy their products. To do this, they appeal to our heart and mind.

### Appeals About Food

#### *Appeals to the Heart*

Create positive emotions with a product or brand (e.g., love, excitement, pride, togetherness/community, nostalgia, adventure, desire, satisfaction, popularity). Examples:

- Chester Cheetah appears on Cheetos bags riding a dirt bike. This implies a sense of adventure, as do the words “dangerously cheesy.”
- A picture of Joe Burrows, a popular and successful NFL player, on a bottle of Body Armor evokes feelings of coolness and success that a person gets when consuming this product.
- “Hungry? Grab a Snickers®.”
- Mountain Dew television commercials make you think that if you drink Mountain Dew, you will have an exciting adventure with friends.



#### *Appeals to the Mind*

Provide information about a product or brand so we think good things about it. Examples:

- Nutrition information is highlighted on the front of the package, such as Reduced Fat Oreos.
- Words such as nature, natural, pure, and tasty are frequently used on food packages, such as Nature Valley Granola Bars. However, these words don't have a legal definition. Companies can use them on any product they choose.
- 4 out of 5 dentists recommend Trident Gum. This builds a sense of trust that this must be a good product.
- “Choosy moms choose Jif” (peanut butter). This makes moms think they are doing the right thing if they choose Jif brand peanut butter.
- Yoplait has an affiliation with Disney (a trusted company for kids' entertainment) on their Frozen-themed yogurt.
- Cheerios and Quaker Life Cereal have an affiliation with the American Heart Association. This associates their brands with heart-healthy foods.



## Heart and Mind (cont.)

### Appeals on Product Packages

#### Pepsi Package

**Heart:** Beyoncé's lips are pink and pursed open. She is coyly glancing at you. These project feelings of being alluring, desirable, seductive.



**Heart:** Image of a popular performer, Beyoncé makes Pepsi a cool product.

#### BodyArmor Package

**Mind:** Orange Mango flavor associates the drink with fruit and health.

**Heart:** Joe Burrows casually throws a football, implying that if you drink Body Armor, you can also embody casual coolness.



**Heart:** Black is a strong color that is typically masculine, implying strength and masculinity.

**Mind:** Image of a respected athlete, Joe Burrow, suggests BodyArmor can improve your athletic abilities.

#### Cheetos Package

**Mind:** "Real Cheese" implies the product is good quality.

**Heart:** "Dangerously Cheesy" appeals to adventure.



**Heart:** Bright, youthful, vibrant colors imply a young and hip product.

**Heart:** Chester Cheetah on a dirt bike appeals to adventure.

## Heart and Mind (cont.)

### Appeals on Product Packages (cont.)

#### Frosted Flakes Package

**Mind:** The Kellogg's brand is associated with wholesome breakfast cereals.

**Heart:** Tony the Tiger is strong, if you eat Frosted Flakes you'll be strong too.

**Heart:** "They're GR•R•REAT!" suggests that the product tastes great and makes you feel great.



**Mind:** Nutrition information on top of package gives facts about the product. Vitamin D is also highlighted.

**Heart:** "Earn your stripes" implies achievement and being part of Tony the Tiger's team.

**Heart:** Background of happy, athletic kids, implies if you eat this product, you will be happy and athletic.

**Mind:** "2 bags for Freshness" implies quality.

### Appeals in Video Advertisements

#### Simone Biles and Powerade: an Appeal to the Heart

[www.youtube.com/watch?v=euLssVr1Njo](https://www.youtube.com/watch?v=euLssVr1Njo)

Simone Biles is widely considered the most decorated and famous gymnast. After a wildly successful career, she experienced a mental block that affected her spatial awareness. To focus on her mental health, she took a break from gymnastics in 2021. In 2023, she returned to the sport and continued to succeed and win gold medals. This ad is a great example of an appeal to the heart that associates the emotional journey of Simone's career with Powerade.

*Why does the ad focus on Simone's story instead of simply showing her winning competitions? (Appeals to emotion and builds a connection between the viewer and Simone's values.)*

*How might viewers relate their own experiences to the message of this ad? (Many people have been told they "can't" or "don't belong"—so seeing someone prove doubters wrong offers a sense of shared struggle and triumph.)*

*What emotions do you feel after watching this ad? (Inspiration, strength, defiance, power.)*

*How are these emotions tied to the brand? (The ad ends with Simone successfully landing a flip. This is followed by her running past a Powerade bottle. This connects Powerade to Simone's journey.)*

## Heart and Mind (cont.)

### Appeals in Video Advertisements (cont.)

#### *Mighty Mighty Tigers and Frosted Flakes: an Appeal to the Heart and Mind*

[www.youtube.com/watch?v=Ve4GfDgAfK8](http://www.youtube.com/watch?v=Ve4GfDgAfK8)

*What are people chanting?* (Kellogg's is using one of the most famous team chants. If you sang this song, chances are you remember being a part of something special, and it made you feel connected to others.)

*Why is the chant broken up so that different people are chanting different lines?* (This further adds to a sense of community and solidarity that Frosted Flakes is connected to all different sports.)

*Why is everybody doing some kind of sport?* (So every viewer can connect to the commercial.)

*How does that chant make you feel?* (Frosted Flakes builds a community among anyone who plays any kind of sport.)

*What does the claim "part of a healthy breakfast" imply?* (Frosted Flakes are good for you.)

### Appeals in Print Advertisements

#### *Doritos Jacked*

**Heart:** The image of aircrafts lifting the chip implies adventure.

**Heart:** "Jacked" implies strong — strong flavor and strong body.

**Mind:** "Bigger. Bolder. Thicker." implies you get a lot from these chips.



**Heart:** The explosion plume implies adventure and an explosion of flavor.

**Heart:** "Insanest Chip Ever" implies a sense of adventure.



## Heart and Mind (cont.)

### Appeals in Print Advertisements (cont.)

#### Sierra Mist Natural

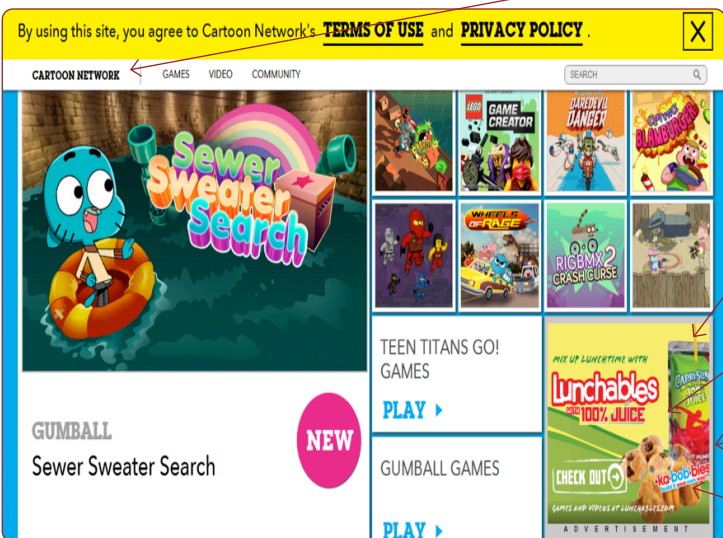
**Heart:** “I’d trade my yellow stripe for a mouth right now” appeals to humor and implies Sierra Mist Natural is irresistible.



**Mind:** “Natural” in the name and “with other natural flavors,” “caffeine free,” and “made with real sugar” imply the product is healthy.

**Mind:** “The soda nature would drink if nature drank soda” and beautiful mountain and sky associate Sierra Mist Natural with nature.

#### Lunchables



**Mind:** Cartoon Network provides credibility through association.

**Mind:** Including Capri Sun brand provides credibility through association.

**Mind:** “With 100% juice” implies natural and healthy.

**Heart:** Cartoon images imply fun and adventure.

**Heart:** The name Kabobbles is a made up word, making the product feel fun and interesting.

## Print Ads

Print and cut one for the class.





## Print Ads (cont.)

*"I'd trade my yellow stripe  
for a mouth right now."*  
*-Rainbow*



**SIERRA  
Mist.  
NATURAL**  
lemon-lime soda  
WITH OTHER NATURAL FLAVORS  
CAFFEINE FREE  
MADE WITH REAL SUGAR

**THE SODA NATURE WOULD DRINK *if* NATURE DRANK SODA™**  
**Made with real sugar and nothing artificial.**


SIERRA MIST NATURAL and THE SODA NATURE WOULD DRINK IF NATURE DRANK SODA are trademarks of PepsiCo, Inc.



## Print Ads (cont.)

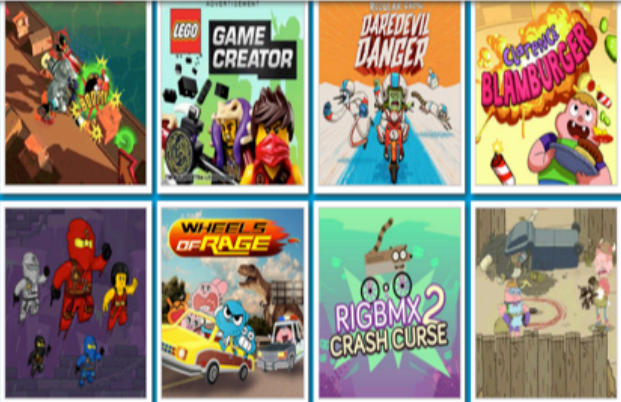
By using this site, you agree to Cartoon Network's [TERMS OF USE](#) and [PRIVACY POLICY](#) ✕

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GUMBALL  
Sewer Sweater Search

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GAMES  
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## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Food Rules Lesson 4

#### Lesson 4: **Don't Be Fooled**

Food Rule: \_\_\_\_\_

Eat food. Not too much. Mostly plants.

#### Family Tips

- When we buy products that we see on television, we are paying for the food companies' marketing budget as well as the food itself.
- Many television commercials are for snacks that are froods—chips, candy, and sugary drinks. But, there are great snacks that are foods—fruits, nuts, and seeds.

#### Food Rules from Previous Lessons

##### Eat Food.

- 1 Eat food you can picture growing in nature.
- 2 Eat food with ingredients that a third grader could pronounce.
- 3 Avoid products that make health claims.

*In Defense of Food* film clip that accompanies  
Marketing Low-Fat

Watch at <http://bit.ly/idofclip4>

Learn more about *In Defense of Food* at:  
[pbs.org/indefenseoffood](http://pbs.org/indefenseoffood)



## LESSON 5: SUPERSIZED









### First Bite

When it comes to saving time and energy, the the brain is a master of shortcuts. For example, you probably didn't notice the extra "the" in the previous sentence. This phenomenon, called the repetition effect, has been widely studied and is an example of the quick judgments our brains make to reduce processing speed.<sup>1</sup> These shortcuts come in handy to reduce our mental load. Can you imagine how exhausting walking would be if you had to consciously decide how to take every step? Although beneficial most of the time, mental shortcuts can have negative side effects. Specifically, using mental shortcuts when deciding how much to eat can lead to eating more than our body needs to feel satiated and nourished.<sup>2</sup>

### It's Not You, It's Your Brain

How do you decide how much to eat? If you're like most people, you probably don't give it too much conscious thought. Visual cues, previous experiences, value-for-money, food-unit sizes, package labels, and package sizes all influence our expectations and selections of serving sizes.<sup>3-6</sup> Interestingly, how much we consume is largely determined by how much we are served rather than our internal feelings of fullness.<sup>7</sup> For example, moviegoers given oversized buckets of popcorn ate 45% more than those with standard buckets—even when the popcorn was stale!<sup>7,8</sup> Additionally, studies have shown that people who consume larger servings of food do not typically report greater feelings of fullness.<sup>9-11</sup>

This becomes a problem when you consider U.S. serving sizes have dramatically increased over time—especially for fast food, salty snacks, sugary drinks, and other froods.<sup>12</sup> For example, cheeseburgers, popcorn, sodas, and bagels have nearly doubled in size (see image to right). These supersized servings can pose a challenge to healthy dietary choices.

Portion Distortion			
Late 1900s	2000s	Late 1900s	2000s
Bagel		Popcorn (medium bag)	
 3 inches	 6 inches	 5 cups	 11 cups
Cheeseburger		Soda	
 4.5 ounces	 8 ounces	 6.5 ounces	 20 ounces

### Hack Your Psychology

Use your understanding of psychology to influence your brain to make better choices. When you go out to eat, order the small size, ask the server to pack up half of the dish before bringing it out, or share a meal with a friend. Switch out large plates, cups, and bowls for smaller ones. Cut food into smaller pieces before serving. Small habits like these can make a big difference for your health.

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## LESSON 5: SUPERSIZED

### Aim

Increase awareness that our environment influences when, what, and how much we eat.

### Food Rule

Choose smaller plates and glasses.

### Film Clip

Serve More, Eat More

### Objectives

Students will be able to:

- recognize that large packages and portions make us eat more;
- identify foods that come in large packages;
- state and understand the lesson's Food Rule;
- strategize ways to eat less food, despite it being everywhere; and
- demonstrate increased confidence in choosing smaller portions of foods.

### Overview

This lesson begins with students taking a serving of popcorn as part of an experiment. Examining optical illusions and watching an *IDOF* film clip teaches students that our eyes play tricks on us. Then, students pour liquid into different glasses, learning that shape influences how much we pour. Continuing the popcorn experiment, students discover the amount served varies based on the size of the bag they were given. They learn the Food Rule, “Choose smaller plates and glasses.” Students come up with an action plan to “small-size it” and enjoy popcorn flavored with herbs and spices.

### Materials

#### In this guide

- **“Pop” Culture** preparation sheet p. 153
- **Optical Illusion** cards p. 160
- **Portion Persuasions** guide sheet p. 167
- **Measure It** activity sheet p. 169
- **Food Rules Lesson 5** activity sheet p. 170
- **Small-size It Action Plan** activity sheet p. 171
- **Popcorn Tasting** guide sheet p. 172
- **Popcorn Party** activity sheet p. 174

#### Other materials

- *IDOF* film clip 5: Serve More, Eat More and AV equipment
- All materials and ingredients from **“Pop” Culture** preparation sheet p. 153

#### Other materials (cont.)

- Tape
- Food coloring
- Dish towel or paper towels
- 2 2-gallon resealable bags

#### For each small group\*

- 1 pint water jug (16 oz. or 500 ml)
- Tall, thin glass (16 oz. or less)\*\*
- Short, wide glass (16 oz. or less)\*\*
- Graduated 2-cup measuring cup
- Scissors

#### For each student

- Marker
- Pencil
- 2 tasting cups

\* If you have trouble getting multiples of these materials, do this activity as a demonstration with one set

\*\* These glasses need to be the same volume but different shapes or sizes (e.g., both 8 oz. or both 16 oz.)



## Before You Begin: Total prep time: approximately two hours

### Within a few days before lesson

1. Purchase ingredients and gather materials for popcorn experiment and tasting. See “*Pop*” *Culture* preparation sheet p. 153 for details.
2. Review the entire lesson.

### Within a day before lesson

3. Print and cut out cards:
  - *Optical Illusion* cards p. 160, two sets for the class.
4. Print one copy per student of each activity sheet:
  - *Measure It* activity sheet p. 169
  - *Food Rules Lesson 5* activity sheet p. 170
  - *Small-size It Action Plan* activity sheet p. 171
  - *Popcorn Party* activity sheet p. 174 (plus two extra copies for cooking stations)
5. Viewing *IDOF* film clip:
  - Set up AV equipment and space for film viewing.
  - Find *IDOF* film clip 5: Serve More, Eat More at <http://bit.ly/idofclip5>
6. Popcorn experiment and tasting: See “*Pop*” *Culture* preparation sheet p. 153 for details.
  - Clean all food preparation and eating surfaces with countertop cleaner.
  - Make popcorn.
  - Either make shaker mix recipes before the lesson, or have ingredients, measuring spoons, and resealable snack bags ready to make shaker mix with students during the lesson.
  - Set out two large bowls of popcorn, each with a scoop or ladle.
7. **Culminating project:** Have all students’ culminating projects ready for them to work on.

## "Pop" Culture

Popcorn is used in two different parts of this lesson. This sheet will help you prepare for both parts. Please note: The amounts listed here are for a class of 10–15 student; for smaller or larger classes, adjust accordingly.

### Shop for ingredients

#### For popcorn experiment:

- 1 ½ cups popcorn kernels (to make 30 cups of popcorn)

#### For tasting:

- 30 cups popcorn (from popcorn experiment)
- Ingredients for the shaker mix recipes you choose (see below)
- Oil (peanut, coconut, or vegetable)
- Salt

### Gather materials

#### For experiment:

- Air popper, stove, or microwave to make popcorn
- 2 large bowls
- 2 ladles or serving spoons (same size, identical if possible)
- 15 lunch-size paper bags (about 5" x 3" x 10 ½")
- 15 hardware-size paper bags (about 4 ½" x 2 ½" x 8")

Note: these are a little smaller than lunch bags.

#### For tasting:

- 2 snack-size resealable bags
- 4 sets of measuring spoons

### Complete advanced preparation of ingredients

- Pop 1 ½ cups of popcorn kernels to make about 30 cups of popcorn. Depending on the facilities available to you, make stovetop, microwave (not the frood version!), or air-popped popcorn.
- Divide the popcorn in about half, and place each half in one of the large bowls. Place a ladle or serving spoon in each bowl.
- Have the paper bags ready to distribute to students. Make sure about half the students get the larger bags and half get the smaller bags.





## "Pop" Culture (cont.)

### To Prepare Popcorn for Tasting

Select two shaker mix recipes and purchase ingredients. If possible, have students prepare shaker mix recipes during class. If not, make the shaker mix recipes and bring them to class.

### Shaker Mix Recipes

All shaker mix recipes for 15 cups of popped popcorn.



#### 1. Mexican-Mole Popcorn Shaker Mix

- 2 tablespoons unsweetened cocoa powder
- 1 tablespoon chili powder (mild)
- 1 tablespoon sweet paprika
- 2 teaspoons ground cumin
- 2 teaspoons brown sugar
- 1 teaspoon ground black pepper
- 1 teaspoon dry oregano
- 1 teaspoon granulated sugar
- 1 teaspoon kosher salt



#### 2. Moroccan Popcorn Shaker Mix

- 1 teaspoon ground cumin
- 1 teaspoon ground ginger
- 1 teaspoon kosher salt
- $\frac{3}{4}$  teaspoon freshly ground black pepper
- $\frac{1}{2}$  teaspoon ground cinnamon
- $\frac{1}{2}$  teaspoon ground coriander
- $\frac{1}{4}$  teaspoon ground allspice
- $\frac{1}{4}$  teaspoon ground cloves
- $\frac{1}{4}$  teaspoon cayenne



#### 3. Caribbean Jerk Popcorn Shaker Mix

- $3\frac{1}{2}$  teaspoons dried thyme
- 2 tablespoons toasted coconut flakes
- $1\frac{1}{2}$  teaspoons brown sugar
- $\frac{3}{4}$  teaspoon ground allspice
- $\frac{1}{2}$  teaspoon kosher salt
- $\frac{1}{2}$  teaspoon ground black pepper
- $\frac{1}{4}$  teaspoon ground cinnamon
- $\frac{1}{4}$  teaspoon ground cumin
- $\frac{1}{4}$  teaspoon cayenne pepper

### "Pop" Culture (cont.)



#### 4. Italian Popcorn Shaker Mix

- 4 tablespoons grated Parmesan cheese
- 2 tablespoons dry oregano
- 1 teaspoon garlic powder



#### 5. Chinese Popcorn Shaker Mix

- 3 tablespoons sesame seeds
- 3 teaspoons powdered ginger
- 2 teaspoons garlic powder
- Pinch of cayenne

### To add Shaker Mix to the Popcorn

Place about 15 cups of popcorn in a large bowl. Add 1 tablespoon oil and  $\frac{1}{2}$  teaspoon salt. Gently stir until all popcorn is coated. Add shaker mix to popcorn and gently stir until shaker mix is evenly distributed on popcorn. Serve.







## Procedure (cont.)

*What happens when people in Brian Wansink's study have to serve themselves pasta a second time, but this time on a smaller plate? (They serve themselves less food when it is on the smaller plate.) Do they notice they served less food? (No, they didn't.)*

*What other factors impact our food choices according to the film? (The order food is served on a buffet line.) How? (We fill up our plates with foods that come first on the buffet line, so we take more of those. We take fruit when it is put right near the cash register because it's convenient.)*

*Do you think it is right to make changes in school cafeterias that would encourage students to make healthier choices? Why or why not?*

*What are some places that encourage unhealthy choices? (Fast food restaurants, movie theaters, all-you-can-eat buffets.)*

*What does Michael Pollan mean when he talks about "social engineering" from corporations? (Often food package sizes influence how much people eat. Companies add things to foods to make people crave them.) How is the Big Gulp an example of social engineering? (Sizes of drinks dictate how much people will drink. The bigger the drink, the more of it we will consume.)*

*What are the implications of consuming larger and larger portions? (People are eating too much and gaining too much weight.) Why might these package sizes make it difficult for someone to manage their weight? (It's difficult to know that you are eating more than you should. Since large packages are everywhere, we too often eat more than we should.)*

### 4. Measure out Different Portions (15 min.)

Even though the students have learned how our eyes can play tricks on us, they may still have a hard time assessing portion sizes. This activity will teach them about the phenomenon called portion persuasions, which influences how much we eat. Divide students into groups. Use the **Portion Persuasions** guide sheet p. 167 to lead this activity. Student will also use the **Measure It** activity sheet p. 169 during this activity. Be sure to ask the students the discussion questions on the bottom of the **Portion Persuasions** guide sheet.



## Procedure (cont.)

### 5. Do We Eat What We are Served? (2 min.)

Tell students to think about the last time they ate a fast-food meal. Ask students to raise their hand if they ate the whole meal. Have the students look around and see how many students have their hands up. If there are any students who did not raise their hands, ask them how much they ate.

Ask students, *From what you have learned so far, why do you think so many people ate the whole meal?*

### 6. Reveal Popcorn Experiment (10 min.)

Explain that when they took popcorn at the beginning of the lesson, they were part of an experiment. Sort the paper bags by size. *From what you have learned so far in this lesson, what do you think was the purpose of giving out small and large bags?* (To show how bag size influenced how much you served.) Using two large resealable bags, have students help you empty the contents of the small paper bags into one resealable bag. Empty the contents of the large paper bags into the other resealable bag.

Hold up the two resealable bags for students to see the difference. Remind students that people eat the portion they are served. This may make people eat more than they actually want. In our current food environment with large portions of foods, this can lead to eating large amounts on a regular basis.

#### Probing questions:

*What do you think would be the impact of choosing a large food portion once in a while? (Probably not such a big impact.) How about over and over again? (This can lead to weight gain and risk of diet-related diseases.)*

## Part 2 (60 min.)

### 7. Learn the Food Rule (5 min.)

Write the Food Rule for this lesson on the board: “Choose smaller plates and glasses.” Ask students to give examples of how they could use this rule to guide their food choices. Distribute the **Food Rules Lesson 5** activity sheet p. 170 to the class, and ask students to write down this lesson’s Food Rule. Encourage students to take home the sheet and discuss the Food Rule with their families.

#### Probing questions:

*How can you use this rule? (Smaller plates, cups, bowls). Are there particular foods you would want to use smaller dishes for? (Foods.)*

### 8. Make a Small Size It Action Plan (5 min.)

Remind students that making an action plan can help them make their own choices, not ones they are being manipulated to make. Distribute the **Small-size It Action Plan** activity sheet p. 171. Ask students, *What do you think small-sizing it means? What are some ways that you can small-size your food choices?*

Ask students to choose a food to small size. Think about how the Food Rule may help them. Share an example: I usually get a double cheeseburger; I will now get a regular-size cheeseburger.



## Procedure (cont.)

### 9. Review *Capture It* Activity (15 min.)

Have students get out their *Capture It* pieces assigned in Lesson 4. They should have photographed or drawn a food that is hard for them to resist and written about why it is hard to resist. Have students join you in a sharing circle. Start by sharing your own *Capture It* piece.

Ask for volunteers to share their *Capture It* pieces. Once all the students who wish to share have done so, ask students, *What were some common reasons foods were hard to resist?* For each of these reasons, have students brainstorm strategies to help them resist foods.

### 10. Taste Flavored Popcorn (20 min.)



Tell students they are going to create interesting flavor shakers using spices and herbs from all over the world to put on popcorn. Have students clean their hands and join you in the area of the room designated for cooking and eating. Use the **Popcorn Tasting** guide sheet p. 172 to lead this activity. Be sure to ask students the discussion questions on the bottom of the **Popcorn Tasting** guide sheet.

Distribute a **Popcorn Party** activity sheet p. 174 to each student to take home to their families.

### 11. Work on Culminating Projects (Remaining time)

Throughout the curriculum, students have done creative projects. In Lesson 1, they created a food farm skit. In Lesson 4, they created a television commercial for a food. They have created two *Capture It* pieces to help them reflect on their food environments. Allow students to spend the remainder of the lesson working on one or more of these projects. They will share these as culminating projects during the last session.

#### Probing questions:

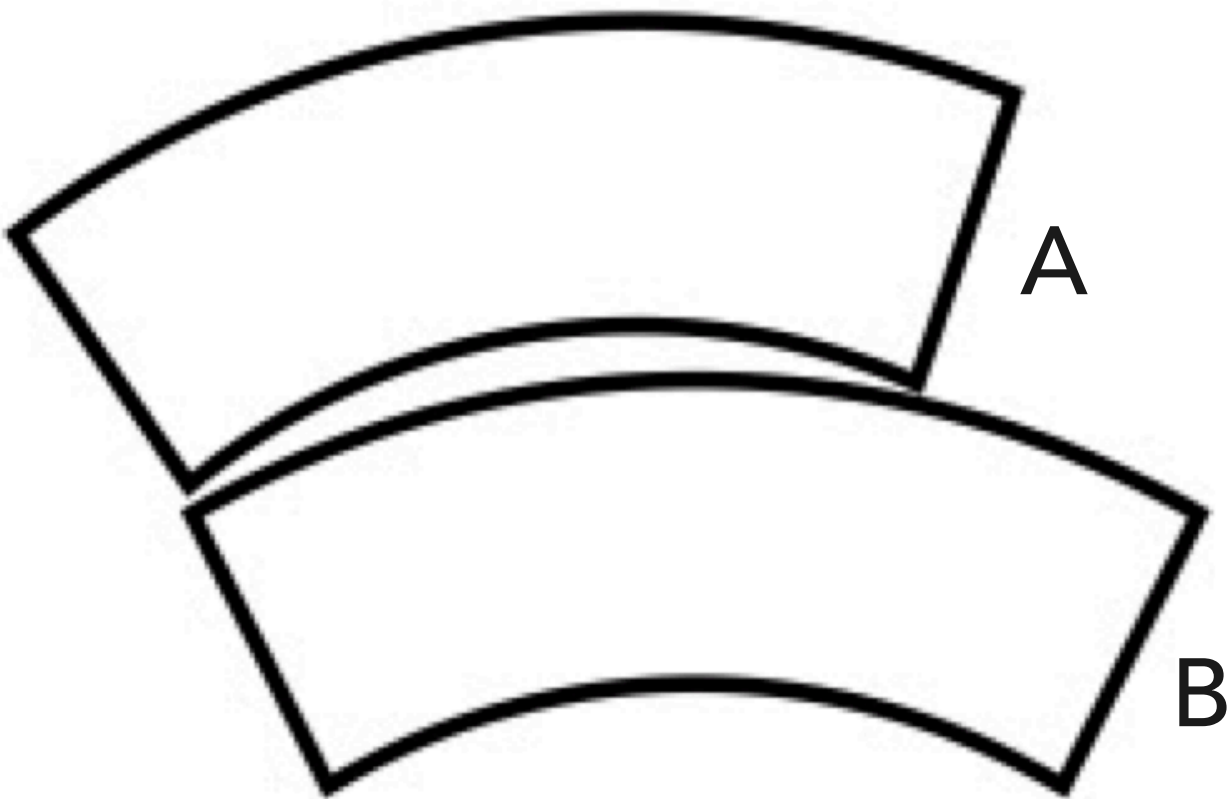
*What do you think small-sizing is?* (Small-sizing means choosing smaller portions of what is offered at a fast-food restaurant. It also means using smaller plates, bowls, and cups to serve yourself at home. It can mean sharing foods (when you choose to eat them) with someone else to cut the portion in half.)

Students sharing ideas with each other can be a very powerful way for them to increase their desire to eat fewer food and more food.



## Optical Illusion

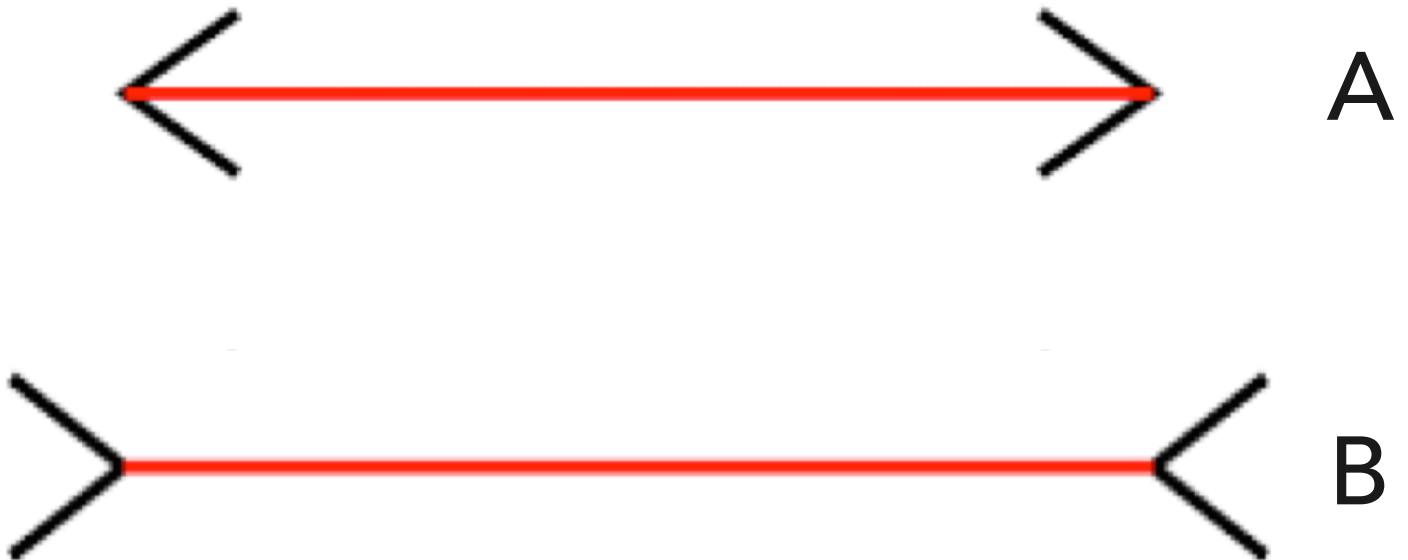
Print two sets of cards for the class.



Which shape looks bigger, A or B?

Original source Joseph Jastrow. (1889). Images retrieved from <https://exploreprsychology.wordpress.com/tag/colour-illusion/>

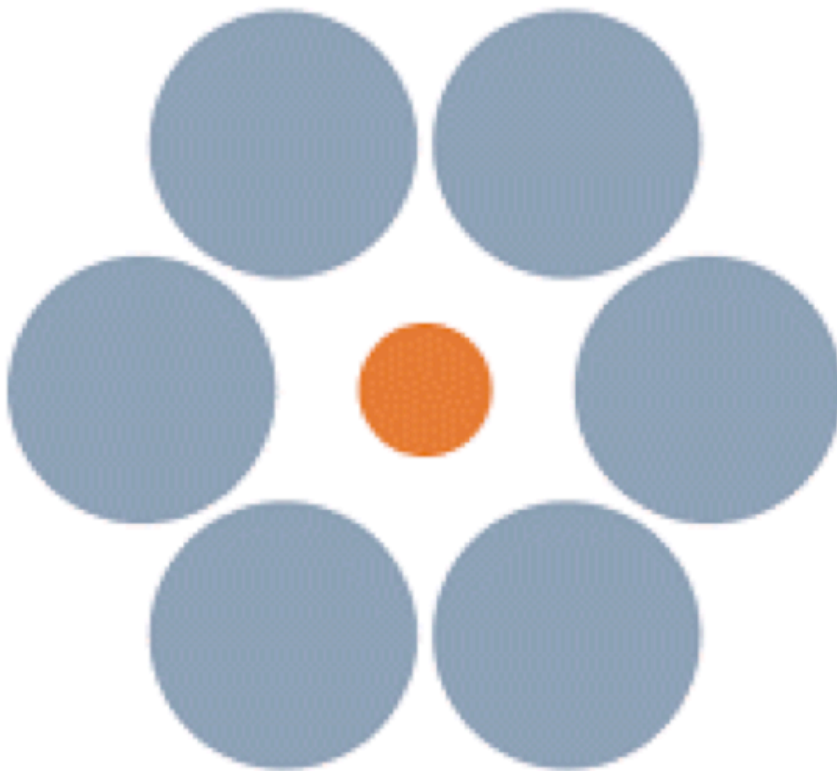
## Optical Illusion (cont.)



Which line looks bigger, A or B?

Original source Mueller Lyer. (1889). Images retrieved from [http://psychology.wikia.com/wiki/Mueller\\_Lyer\\_illusion](http://psychology.wikia.com/wiki/Mueller_Lyer_illusion)

## Optical Illusion (cont.)



A



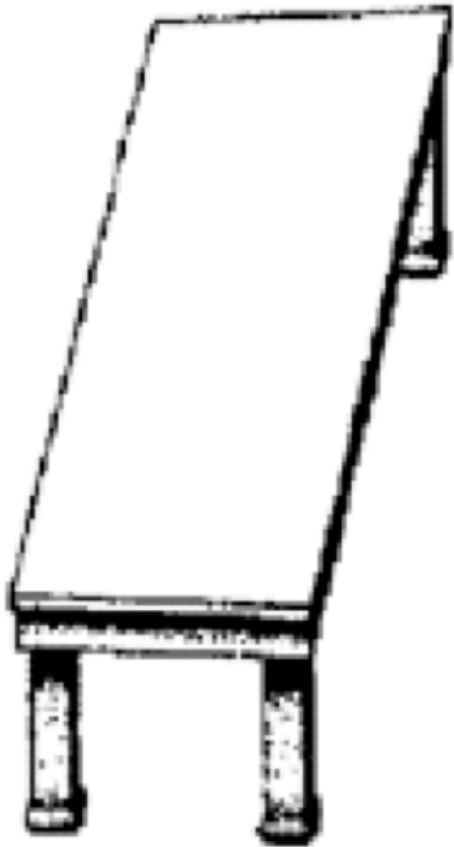
B

Which inner circle looks bigger, A or B?

Original Source Hermann Ebbinghaus (1850–1909). Images retrieved from [https://en.wikipedia.org/wiki/Ebbinghaus\\_illusion](https://en.wikipedia.org/wiki/Ebbinghaus_illusion)



## Optical Illusion (cont.)



A



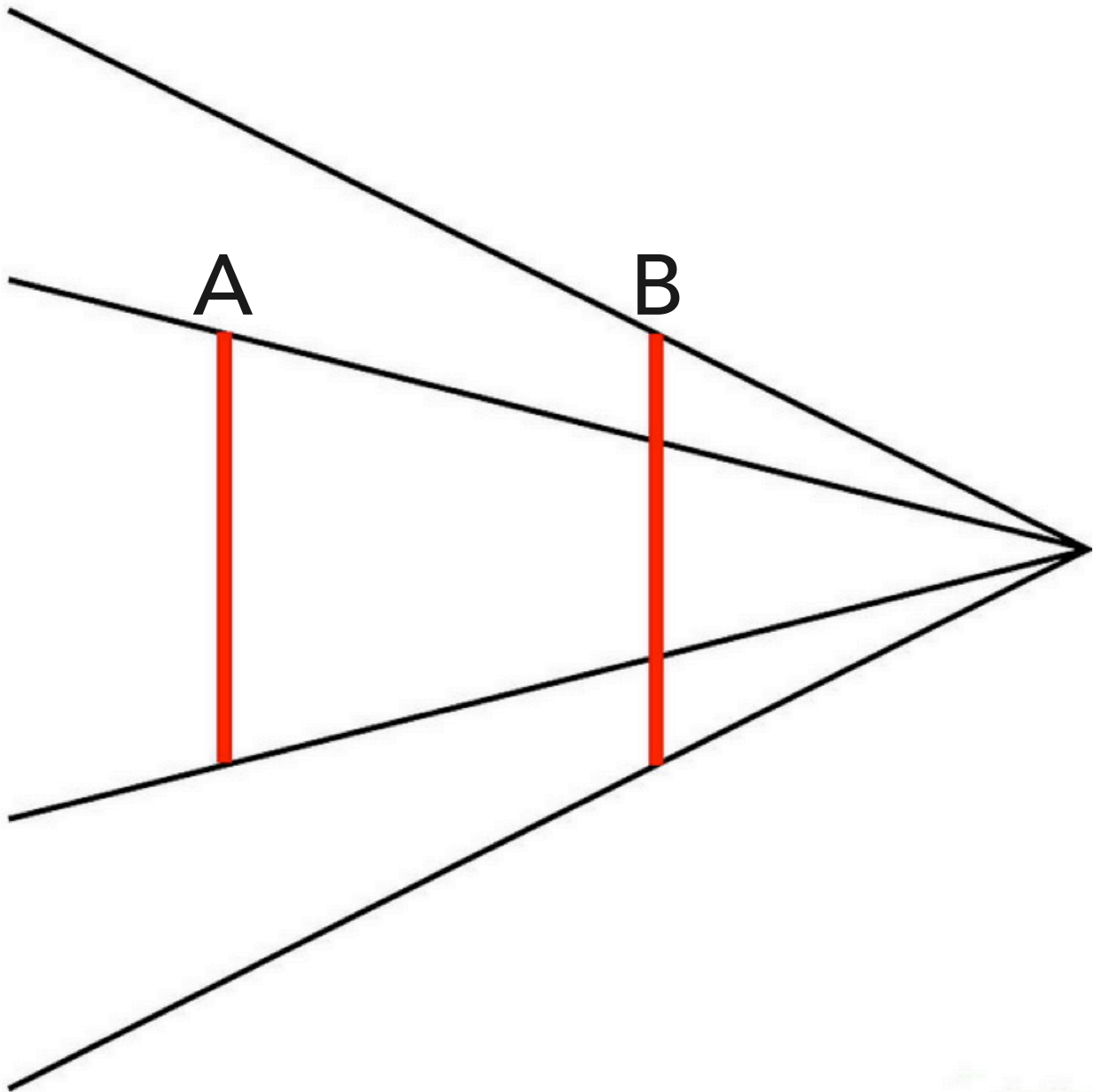
B

Which table looks longer? Which table looks wider?

Source unknown. (n.d.) Image retrieved from

<https://www.google.com/search?hl=en&q=table+optical+illusion&tbs=isch&tbs=simg:CAQSjAEaiQELEKjU2AQaAggKDAQsQsIynCBpiCmAlAxIougfVE-oTpgjuAaUI4hOEA-UtnwPeNdw13TXRP-Y16CfDNq4o6zXbNRwrkwjcM0VgRYXqRXTI3kusiNBwHgEaxnUwQRc-GqPZrevkh37yrAPCQuci4cTog2AIAIMCxCOrv4IGgoKCAgBEgQPKNemDA&sa=X&ved=0CBoQwg4oAGoVChMInfHytqmHyQIViuMmCh0FdQHG&biw=1287&bih=710#imgsrc=T7P2lfGLbfgkVM%3A>

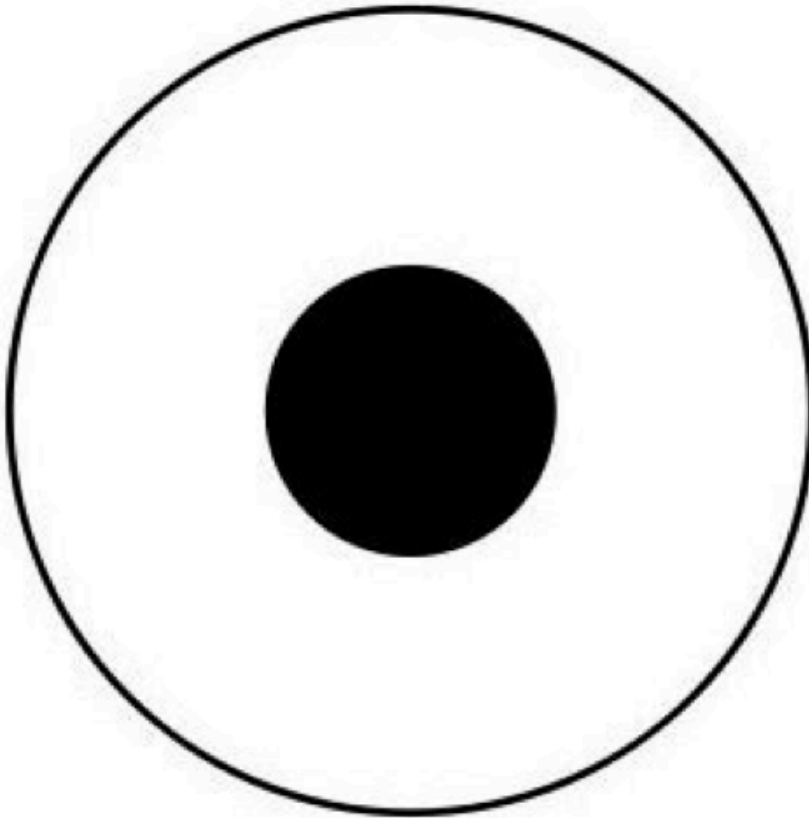
## Optical Illusion (cont.)



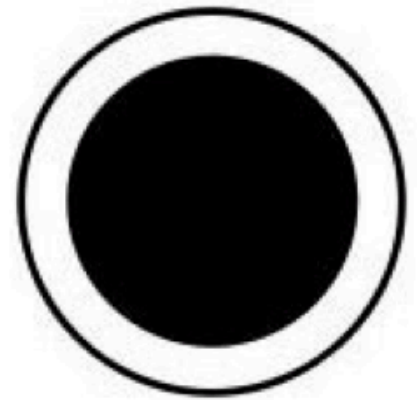
Which vertical line looks longer, A or B?

Original Source Mario Ponzo. (1911). Images retrieved from <http://fineartamerica.com/featured/ponzo-illusion-spl-and-photo-researchers.html>

## Optical Illusion (cont.)



A



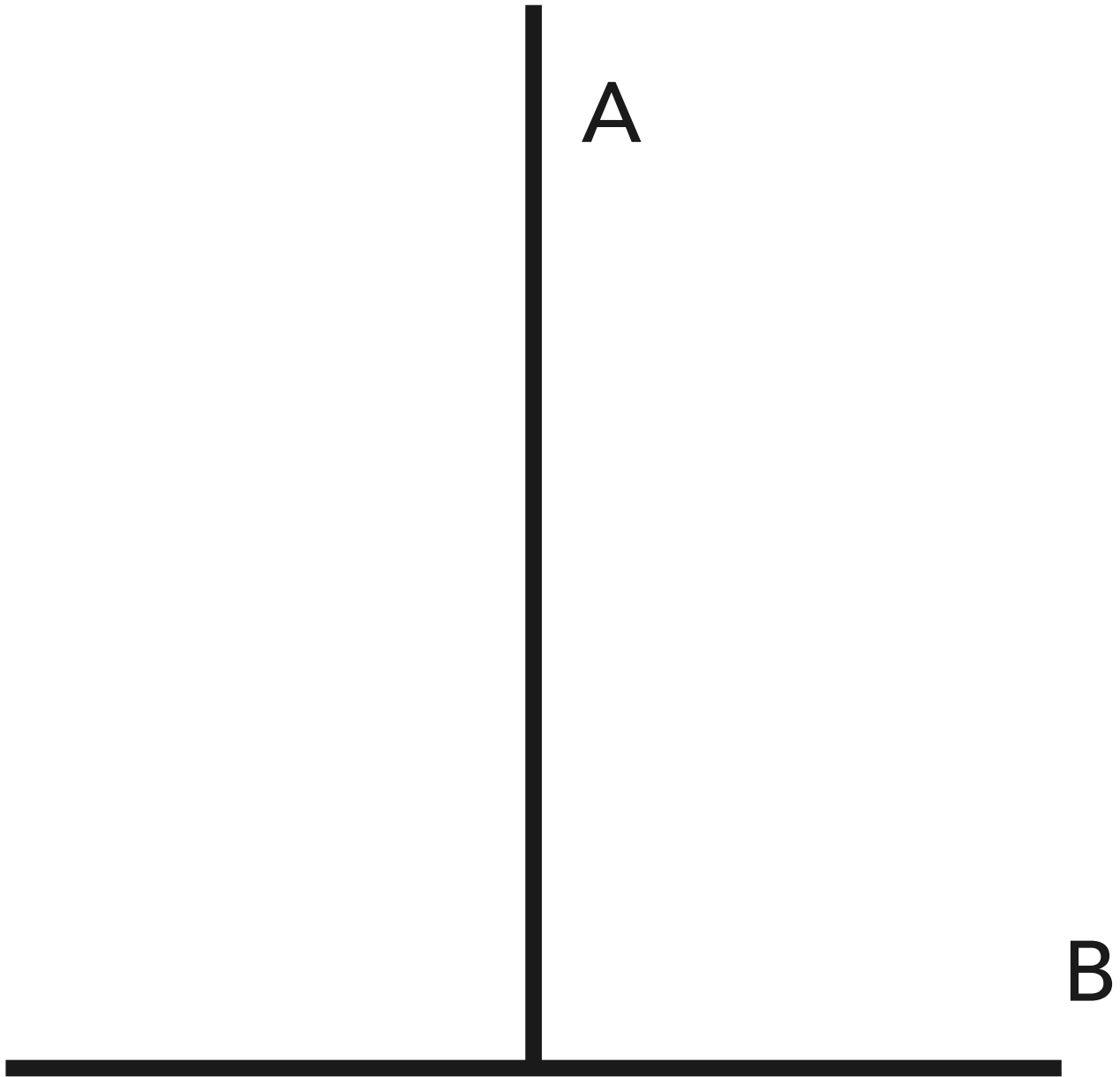
B

Which inner circle looks bigger, A or B?

Original source Joseph Remi Leopold Delboeuf (1831 – 1896) Images retrieved from [https://en.wikipedia.org/wiki/Delboeuf\\_illusion](https://en.wikipedia.org/wiki/Delboeuf_illusion)



## Optical Illusion (cont.)



Which line looks longer, A or B?

Source unknown. (n.d.) Retrieved from [http://www.esa.int/spaceinimages/Images/2004/06/The\\_reversed\\_T\\_illusion](http://www.esa.int/spaceinimages/Images/2004/06/The_reversed_T_illusion)

### Portion Persuasions

Our eyes may not be the best judges of portion sizes, which can lead us to consume more than we think. However, if we can understand the effect of these “portion persuasions,” we can come up with strategies that will help us make better decisions about portions.

### Materials

#### For the class:

- Dish towels or paper towel, in case of a spill

#### For each small group:\*

- 1 pint water jug (16 oz. or 500 ml)
- Water
- Food coloring
- Tall, thin glass (16 oz. or less)
- Short, wide glass (16 oz. or less—same volume as the tall, thin glass)
- Graduated 2-cup measuring cup

#### For each student:

- *Measure It* activity sheet p. 169
- Pencil

\*Note: If have only one set of these materials, do this as a class demonstration.

### Set up

1. Fill each jug with water. Add a few drops of food coloring.
2. For each small group, set up one jug of colored water; a tall, thin glass; a short, wide glass; and a measuring cup.
3. Have the *Measure It* activity sheets and pencils ready to distribute to students.
4. Have one measuring cup and a jug of colored water handy to demonstrate how to use a graduated measuring cup properly.

### Procedure

1. Show students how to use a graduated measuring cup. Put the graduated cup on a flat surface. Pour 1 cup of water into it. Allow the water to stop moving. Show students how to read the graduated markings by looking at them at eye level.
2. Divide students into small groups.
3. Provide each group with one jug of colored water; a tall, thin glass; a short, wide glass; a measuring cup; a *Measure It* activity sheet p. 169; and a pencil.
4. Have students follow instructions on the *Measure It* activity sheet by trying to pour the same amount of water in the different shaped glasses. They should complete two trials.



## Guide Sheet

### Portion Persuasions (cont.)

5. Have groups look at their results from trial 1. Ask about trial 1 results. *Who had the same amount in both glasses? Who had more in the tall glass? Who had more in the wide glass?*
6. Ask the same for trial 2.

### Discussion Questions

1. *Which glass looks like it would hold more water? (The tall glass) Is this the case? (No. Both glasses hold the same amount of water.)*
2. *Were you able to accurately pour the same amount of water into both glasses? (Most students will pour more water into the short, wide glass.)*
3. *What do you think is the impact of not being able to accurately judge how much a cup holds? (It could lead us to consume more or less than we want.)*
4. *How do you think large food packages influence how much we eat? (They makes us eat more.)*





## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Measure It

In this activity, you will pour colored water into different shaped glasses and learn how the shape of

1. Pour water from the jug into one of your glasses.
2. Pour water from the jug into the other glass. Try to pour the same amount as you poured in the
3. Use the measuring cup to measure how much water you poured into each glass. Record the amounts in the Trial 1 box.
4. Pour all water back into the jug, and repeat steps 1–3 using the Trial 2 box.

#### Trial 1

Tall, thin glass: \_\_\_\_\_ oz.

Short, wide glass: \_\_\_\_\_ oz.

#### Trial 2

Tall, thin glass: \_\_\_\_\_ oz.

Short, wide glass: \_\_\_\_\_ oz.



## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Food Rules Lesson 5

#### Lesson 5: **Supersized**

Food Rule: \_\_\_\_\_

**Eat food. Not too much. Mostly plants.**

#### Family Tips

- Did you know that when we eat from smaller plates we eat less? Keep the smaller cups, bowls, and plates in the front of your cabinets so those are the ones your family grabs when they are hungry.
- Supersize portions may seem like a bargain, but when we factor in the long-term health care costs of eating that much food, small sizes are the real deal.
- Another way to small-size it is to get a large and share.

#### Food Rules from Previous Lessons

##### **Eat Food.**

- 1 Eat food you can picture growing in nature.
- 2 Eat food with ingredients a third grader could pronounce.
- 3 Avoid products that make health claims.

##### **Not Too Much.**

- 4 Avoid foods you see advertised on television.

*In Defense of Food* film clip that accompanies  
**Serve More, Eat More**

Watch at <http://bit.ly/idofclip5>

Learn more about *In Defense of Food* at:  
[pbs.org/indefenseoffood](http://pbs.org/indefenseoffood)



## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Small-size It Action Plan

You learned that portion persuasions make you eat too much food. Make an action plan to small-size a food. When we small-size foods and eat more foods, we make choices that help us reach our goals. Use the table below to track when you small-size it.

#### Sample

The food I am going to small size is \_\_\_\_\_ french fries \_\_\_\_\_.

The size I usually have is \_\_\_\_\_ large \_\_\_\_\_.

My new size will be \_\_\_\_\_ small \_\_\_\_\_.

Date	Day of week	I small-sized it!	Describe how you did it
10/27	Thursday		I split large fries with two friends.
11/1	Tuesday		I chose small fries.
11/4	Friday		I chose small fries. I like eating a small; I feel less full.
11/9	Wednesday		I convinced my friends to eat small-sized fries. They only eat small now too.

#### My Action Plan

The food I am going to small size is \_\_\_\_\_.

The size I usually have is \_\_\_\_\_.

My new size will be \_\_\_\_\_.

Date	Day of week	I small-sized it!	Describe how you did it

Adapted from the Food Day School Curriculum. Used with permission.



### Popcorn Tasting

Popcorn can be a blank canvas for all sorts of flavors. In this activity, students explore a variety of flavors from many different cultures.

This guide sheet is needed only if you are making the shaker mix recipes during class.



### Materials

- 4 sets of measuring spoons
- All ingredients for your 2 shaker recipes
- 2 snack-size resealable bags
- Oil (peanut, coconut, or vegetable)
- Salt
- 2 copies of **Popcorn Party** activity sheet p. 174

#### For each student:

- 2 tasting cups

### Set up

1. Designate an area of the room for cooking and eating.
2. Set up a cooking station for each shaker mix recipe. At each station, place 2 sets of measuring spoons, 1 snack-size resealable bag, and all ingredients for the shaker mix recipe. If any ingredients are in both recipes, put them at one of the stations, and tell students to share.
3. Place a **Popcorn Party** activity sheet at each station.

### Procedure

1. Have students clean their hands and join you in the cooking and eating area.
2. Divide students into two groups.
3. Demonstrate using a measuring spoon by showing students how to fill it to the top. Be sure students can properly identify the correct spoon for the amounts listed in the recipe.
4. Instruct students to measure out all ingredients in their recipe and place them in the snack-size resealable bag.
5. If you have not already, be sure to evenly divide and place the popcorn from the popcorn experiment in the two large bowls.
6. Place 1 tablespoon of oil and 1 teaspoon of salt in each bowl of popcorn, and gently stir until all popcorn is evenly coated with the oil and salt.
7. Sprinkle the shaker mix onto the popcorn, and again gently stir until all popcorn is evenly coated.
8. Give each student two tasting cups and let them to scoop a little popcorn from each bowl into each of their two tasting cups.
9. Encourage students to look at and smell the spices while they munch on their popcorn.



## Guide Sheet

### Popcorn Tasting (cont.)

#### Discussion Questions

1. Which was your favorite flavor? Why? Does it remind you of anything else you have tried? What?
2. Would you introduce any of these flavors to a friend? How would you describe each of the popcorn flavors to a friend?

## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Popcorn Party

Popcorn is a favorite American snack. It's hard to imagine walking into a movie theater without its scent inviting you inside.

Americans started eating popcorn in the early 1800s.<sup>2</sup> It quickly became popular and got the name "popcorn" because of "the noise it makes on bursting open".<sup>2</sup> Although popcorn got its name in America, other cultures also consumed it long before us.



### What Makes Popcorn Pop?

2 u , , u , u , , , u <sup>1</sup> and/or over heated u sand.<sup>2</sup> Nowadays, we pop popcorn in air poppers, the microwave, or pots on the stove. But what makes popcorn pop?

The popcorn kernel is a seed. It comes from a different variety of corn than we are used to eating on the cob: one with much harder kernels. As with most seeds, inside the protective covering is a soft and moist center. When the kernel is heated, the moisture within turns into steam. Then the outer , fi , , u , u , , , ,

Below are some recipes for shaker mixes you can add to popcorn. Try them out! You can also get creative and make your own interesting blends of herbs and spices to add to popcorn.

Pop  $\frac{3}{4}$  cup kernels to make about 15 cups of popcorn. We recommend using an air popper. Then make the shaker mix by adding all ingredients to a small, resealable bag.

Add 1 tablespoon oil. We recommend peanut, melted coconut, or vegetable oil. Add 1 teaspoon salt to the popcorn. Stir gently until coated. Add the shaker mix, and stir gently until all popcorn is coated.



Mexican-Mole



Moroccan



Caribbean



Italian



Chinese

1. Grobman, A., Bonavia, D., Dillehay, T. D., Piperno, D. R., Iriarte, J., & Holst, I. (2012). Preceramic maize from Paredones and Huaca Prieta, Peru. *Proceedings of the National Academy of Sciences*, 112(20270109).

2. Avery, T. (2013). Popcorn: A "Pop" History. Retrieved from: <http://www.pbs.org/food/the-history-kitchen/popcorn-history/>



## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Popcorn Party (cont.)

#### Shaker Mix Recipes

##### 1. Mexican-mole Popcorn Shaker Mix

- 2 tablespoons unsweetened cocoa powder
- 1 tablespoon chili powder (mild)
- 1 tablespoon sweet paprika
- 2 teaspoons ground cumin
- 2 teaspoons brown sugar
- 1 teaspoon ground black pepper
- 1 teaspoon dry oregano
- 1 teaspoon granulated sugar
- 1 teaspoon kosher salt



##### 2. Moroccan Popcorn Shaker Mix

- 1 teaspoon ground cumin
- 1 teaspoon ground ginger
- 1 teaspoon kosher salt
- $\frac{3}{4}$  teaspoon freshly ground black pepper
- $\frac{1}{2}$  teaspoon ground cinnamon
- $\frac{1}{2}$  teaspoon ground coriander
- $\frac{1}{4}$  teaspoon ground allspice
- $\frac{1}{4}$  teaspoon ground cloves
- $\frac{1}{4}$  teaspoon cayenne



##### 3. Carribbean Jerk Popcorn Shaker Mix

- 3  $\frac{1}{2}$  teaspoons dried thyme
- 1  $\frac{1}{2}$  teaspoons brown sugar
- $\frac{3}{4}$  teaspoon ground allspice
- $\frac{1}{2}$  teaspoon kosher salt
- $\frac{1}{2}$  teaspoon ground black pepper
- $\frac{1}{4}$  teaspoon ground cinnamon
- $\frac{1}{4}$  teaspoon ground cumin
- $\frac{1}{4}$  teaspoon cayenne pepper



##### 4. Italian Popcorn Shaker Mix

- 4 tablespoons grated Parmesan cheese
- 2 tablespoons dry oregano
- 1 teaspoon garlic powder



##### 5. Chinese Popcorn Shaker Mix

- 3 tablespoons sesame seeds
- 3 teaspoons powdered ginger
- 2 teaspoons garlic powder
- Pinch of cayenne





## LESSON 6:

# DIA-BEAT IT!

## First Bite

Imagine putting gas into a car, but the engine can't access it. The tank fills up, but the car still sputters and stalls because it can't use the fuel to run. Over time, that unused gas breaks down, clogging the system and damaging the engine. This is similar to what happens with diabetes. The body has fuel (glucose, a type of sugar) available, but the cells can't access that fuel. As glucose builds up in the bloodstream, it starts to damage other bodily systems. Some long-term consequences of uncontrolled diabetes include nerve damage, kidney damage, foot ulcers, blindness, and even death.<sup>1</sup>

### Insulin: The Glucose Gatekeeper

When we eat food, the body breaks down carbohydrates into a simple sugar called glucose. Glucose enters the bloodstream and causes blood sugar levels to rise. In response to this, the pancreas secretes the hormone insulin. Insulin enables glucose to enter cells that need it for energy. You can think of insulin as a delivery signal that tells the cells, "Open up, energy is here!" In type 1 diabetes, the pancreas stops producing insulin altogether.<sup>2</sup> The delivery signal is never sent, so glucose piles up in the bloodstream with no way to reach the cells. In type 2 diabetes, insulin is still produced, but the cells stop listening to the signal.<sup>2</sup> The cells become deaf to insulin's knock at the door; they don't open up like they used to. As a result, glucose can't get inside efficiently, leading to high blood sugar and low cellular energy.

### Diabetes on the Rise

Type 1 diabetes typically develops early in life, and researchers believed it results from a combination of genetic predisposition and environmental factors. In contrast, type 2 diabetes usually appears later, around age 42.<sup>2</sup> Additionally, risk factors for type 2 diabetes are well understood and many are actually within our control. Overweight, obesity, high sugar and fat intake, physical

inactivity, and smoking are all linked to the development of type 2 diabetes.<sup>3</sup> Alarming trends show that diabetes is on the rise both in the U.S. and globally. In 1915, only 1 in 100 Americans had diabetes. By 2021, that number had climbed to 12 in 100, and projections estimate it will reach 33 in 100 by 2050.<sup>4-5</sup> Even more concerning is the sharp increase in type 2 diabetes diagnoses among children, which doubled between 2001 and 2017.<sup>6</sup> The burden of this disease is not evenly distributed: Hispanic and Black Americans are disproportionately affected, reflecting broader health disparities in the U.S.<sup>7</sup>

### Tell Diabetes to Dia-beat It

The choices we make today can impact our likelihood of developing diabetes tomorrow. We can tell diabetes to dia-beat it by eating real, whole foods like fruits, vegetables, beans, and legumes; engaging in regular physical activity; and maintaining a healthy weight.<sup>8</sup>

### References

1. Papatheodorou, K., Banach, M., Bekiari, E., Rizzo, M., & Edmonds, M. (2018). Complications of Diabetes 2017. *Journal of diabetes research*, 2018, 3086167.
2. Tao, Z., Shi, A., & Zhao, J. (2015). Epidemiological perspectives of diabetes. *Cell biochemistry and biophysics*, 73(1), 181-185.
3. Roglic, G. (2016). WHO Global report on diabetes: A summary. *International Journal of Noncommunicable Diseases*, 1(1), 3-8.
4. Center for Disease Control. (2024, May) National Diabetes Statistics Report. Center for Disease Control website. Retrieved, July 3, 2025, <https://www.cdc.gov/diabetes/php/data-research/index.html>
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6. Lawrence, J. M., Divers, J., Isom, S., Saydah, S., Imperatore, G., Pihoker, C., ... & SEARCH for Diabetes in Youth Study Group. (2021). Trends in prevalence of type 1 and type 2 diabetes in children and adolescents in the US, 2001-2017. *Jama*, 326(8), 717-727.
7. Menke, A., Casagrande, S., Geiss, L., & Cowie, C. C. (2015). Prevalence of and trends in diabetes among adults in the United States, 1988-2012. *Jama*, 314(10), 1021-1029.
8. Alkhatib, A., Tsang, C., Tiss, A., Bahorun, T., Arefanian, H., Barake, R., ... & Tuomilehto, J. (2017). Functional foods and lifestyle approaches for diabetes prevention and management. *Nutrients*, 9(12), 1310.





## LESSON 6: DIA-BEAT IT!

### Aim

Understand that eating froods instead of foods increases our risk of getting sick.

### Food Rules

**Make water your beverage of choice.**

**Sweeten and salt your food yourself.**

### Film Clips

**Sugar Flood**

**Diabetes: An Epidemic**

### Objectives

Students will be able to:

- describe how rates of type 2 diabetes are rising, and how type 2 diabetes develops;
- discuss disparity in type 2 diabetes rates in the U.S.;
- calculate teaspoons of sugar in snacks and beverages, and recognize various names for sugar;
- apply the Food Rules to make healthier beverage and snack choices; and
- create a personal action plan to eat fewer froods.

### Overview

This lesson begins with students investigating type 2 diabetes and learning how prevalence rates have changed. Through watching an *IDOF* film clip and participating in a simulation activity, students learn how type 2 diabetes develops. Then, students calculate how much sugar is in popular snacks and beverages and learn the Food Rules, “Make water your beverage of choice,” and “Sweeten and salt your food yourself.” Students make homemade ginger ale to apply the Food Rules practically. They watch a second *IDOF* film clip that highlights how diabetes impacts youth. Then they create an action plan to consume less sugary froods. The lesson ends with students writing a poem on their personal experiences with sugar and froods in their neighborhoods.

### Materials

#### In this guide

- ***Prevalence Rates*** guide sheet p. 184
- ***Investigating Blood Sugar*** guide sheet p. 186
- ***Grab 2*** cards p. 188
- ***Food Rules Lesson 6*** activity sheet p. 210
- ***Sugar Sugar Everywhere!*** activity sheet p. 211
- ***Not Too Much Action Plan*** activity sheet p. 212

#### Other materials

- *IDOF* film clips 6a & 6b: Sugar Flood and Diabetes: An Epidemic

#### Other materials (cont.)

- 3 paper bags
- Permanent marker
- 253 dry white beans
- 47 dry red beans
- 3 resealable sandwich bags
- 4 clear plastic cups
- 2 plastic spoons
- Plastic fork
- 2 ½ cups sugar
- 2 6-9 inch pieces fresh ginger
- 32 oz. bottle seltzer

#### For each student:

- Pencil
- Paper
- 1 oz. tasting cup

To learn more about *In Defense of Food*, visit [pbs.org/indefenseoffood](http://pbs.org/indefenseoffood). Funding was provided by the National Science Foundation and PBS.





## Before You Begin: Total prep time: approximately two hours

### Within a few days before lesson

#### 1. Purchase ingredients and make ginger syrup:

- Thinly slice 2 cups ginger. Save a piece of ginger to show students.
- Add sliced ginger and 2 cups water to small sauce pan and bring to boil on high heat. Reduce heat to medium and simmer for 20 minutes.
- Turn off heat. Use slotted spoon to scoop out ginger. Discard ginger. Add  $\frac{1}{8}$  cup sugar and stir to dissolve.
- If not using ginger syrup right away, store it in a sealed container in the refrigerator.
- Note: if you have the capacity to make the syrup with the students during the lesson, do so as a demonstration in front of the class. Make the syrup at the beginning of the lesson so it has plenty of time to cool before the ginger ale tasting.

#### 2. Review the entire lesson.

### Within a day before lesson

#### 3. Print and cut out cards:

- One set of **Grab 2** cards p. 188 for the class. Fold so the front side has the food image and the back side has the nutrition panel. Lay cards on a table with food image facing up, keeping beverages and snacks separate.

#### 4. Print one copy per student of each activity sheet:

- **Food Rules Lesson 6** activity sheet p. 210
- **Sugar Sugar Everywhere!** activity sheet p. 211
- **Not Too Much Action Plan** activity sheet p. 212

#### 5. Diabetes rate activity:

- Use the permanent marker to label the 3 paper bags as “past,” “present,” and “future.”
- Fill the “past” bag with 99 white beans and 1 red bean.
- Fill the “present” bag with 88 white beans and 12 red beans.
- Fill the “future” bag with 67 white beans and 33 red beans.
- Label the 3 resealable sandwich bags as “past,” “present,” and “future.”

#### 6. Viewing IDOF film clips:

- Set up AV equipment and space for film viewing.
- Find IDOF film clip 6A Sugar Flood <http://bit.ly/idofclip6a> and 6B Diabetes: An Epidemic at <http://bit.ly/idofclip6b>

#### 7. Investigating blood sugar activity:

- Use the permanent marker to label the plastic cups as “food,” “digestive system,” “blood stream,” and “cells.”
- Label both the plastic spoon and fork as “insulin.”

#### 8. Homemade soda activity: Set out seltzer, ginger syrup, and tasting cups.





## Procedure (cont.)

### 5. Explore How Floods Increase Diabetes Risk

(15 min.)

Point out the **Grab 2** cards p. 188 you laid out. Explain that they are going to learn how consuming these foods can increase risk of type 2 diabetes.

Explain that the nutrition facts panel shows how much sugar is in products. Pull out the Arizona Iced Tea and Nutter Butter Bites cards to use as examples. Show students the place on the nutrition facts label where it says “servings per container.” The Arizona Iced Tea with Lemon Flavor is 2.5 servings and the Nutter Butter Bites is 3 servings. To get the total sugar in the container, the number of servings needs to be multiplied by grams of sugar. For the Arizona Iced Tea with Lemon Flavor, 24 grams of sugar X 2.5 servings is 60 grams total. For the Nutter Butter Bites, 9 grams of sugar X 3 servings is 27 grams total.

Since we can picture teaspoons more easily than we can picture grams, the cards show teaspoons of sugar. To get from grams to teaspoons, divide total grams sugar in a product by four. For example, 60 grams divided by 4 is 15 teaspoons.

Use the labeled cups and sugar from the previous activity to measure out the 15 teaspoons of sugar in the Arizona Iced Tea with Lemon Flavor and the 6.75 teaspoons of added sugar in the Nutter Butter Bites, so students can visually see this beverage and snack combination has 21.75 teaspoons of sugar.

Tell students the U.S. government recommends having no more than 12.5 teaspoons of added sugar a day, and less is better. The above snack and beverage combination is almost double the recommended maximum for the entire day.

Tell students they will now learn how much sugar is in other beverage and snack combinations. Choose a student volunteer to select one beverage and one snack card. Have the student flip the cards to reveal the nutrition facts panel. Ask the student who selected the cards to add up how many teaspoons of sugar is in this snack and beverage.

Have another student select two cards, and add up the sugar in the beverage and snack. Compare to the 12.5 teaspoon limit. Continue having students choose pairs until the cards are gone.

### 6. Learn the Food Rule (8 min.)

Ask students to share ideas for how they might change their snack and beverage choices to stay below the 12.5 teaspoons a day maximum.

Write the Food Rules, “Make water your beverage of choice” and “Sweeten and salt your food yourself” on the board or chart paper. Brainstorm reasons why it might be difficult to make water the beverage

#### Probing questions:

*What do you notice about the items that everyone selected? (Most are over the 12.5 teaspoon limit)*

*Do any of the items that you selected surprise you? (E.g., how much sugar is in soda; how much sugar is in fruit chews.)*

*How do you feel about the amount of sugar in beverages and snacks?*

You may want to mention that the snacks on the **Grab 2** cards also contain

u   '   u   '   u   '   ,  
carbohydrate that add to the disease risk of consuming these.





## Procedure (cont.)

of choice and strategies to overcome these barriers. Then have students brainstorm some foods with little or no added sugar they could snack on in place of foods.

Distribute the **Food Rules Lesson 6** activity sheet p. 210 and a pencil to each student. Have them record these Food Rules. Encourage students to take the sheet home and share the Food Rules with their families.

### Part 2 (60 min.)

#### 7. Identify Sugar in Ingredient Lists (5 min.)

Looking at the nutrition facts panel for sugar can be complicated. Now, students will determine if reviewing ingredient lists on food packages is a possible solution to finding foods with less added sugar.

Distribute the **Sugar, Sugar, Everywhere** activity sheet p. 211 and a pencil to everyone. Have students circle all ingredients they think are forms of sugar. Give them about two minutes.

Ask a volunteer to read the items circled in row 1. Ask if anyone circled other items in that row. Repeat for rows 2 and 3. Finally, reveal that everything on the sheet is a form of sugar.

Ask students, *If you wanted to determine whether a product had a lot of sugar, would it make sense to bring this list with you to compare with product ingredient lists?* (Not really. This list does not include all forms of sugar. Using the ingredient list to eat less sugar is impractical.)

Explain that this is another reason why we want to eat foods instead of foods. Foods generally have less added sugar. Eating foods instead of foods can lower our risk for diabetes.

#### 8. Make Homemade Soda (15 min.)



In this tasting activity, students make homemade ginger ale. Have students clean their hands and join you in the area of the room designated for tasting.

Explain that one way to reduce the amount of sugar you eat while still eating flavorful food is to add your own sugar (or other flavors) to basic food items.

Ask students, *What are some examples of how you could flavor your own food?* (Add fruit to water/club soda, add fruit or jam to plain yogurt, flavor plain oatmeal with cinnamon and sugar.) Chances are, if you are adding your own sugar, you will add less than food companies do.

#### Probing questions:

*What are some possible solutions to help you reduce how much sugar you eat? (Choose foods more often, eat smaller portions of foods, add water.)*





## Procedure (cont.)

### 11. Write a Poem (20 min.)

Students saw a powerful form of art called spoken word poetry in the film clip. A young lady expresses how sugar impacts her life. Explain to students that they have an opportunity to think about and reflect on how sugar and sugary foods impact their lives.

Ask if anybody has heard of spoken word poetry before. Often, hip hop songs are examples of spoken word poetry. Explain that spoken word poetry is written on a page, but typically performed out loud for an audience. It uses rhythm, rhymes, word plays, and slang.

Ask students to work alone or with a partner to write a poem. Remind students that powerful spoken word poems can make the listener feel like they can see, hear, smell, feel, and maybe even taste what is described in the poem.

Give students about 20 minutes to work on their poems. Indicate that they will also have time in future lessons to work on their poems. They will be invited to share their poem as a culminating project in the last lesson.





## Prevalence Rates

This activity will help illustrate changes in prevalence rates for type 2 diabetes. Prevalence means the proportion of people in the U.S. with diabetes. In 1915, 1 in 100 people had type 2 diabetes. In 2012, 9 in 100 people have type 2 diabetes. If current trends continue, by 2050, as many as 33 in 100 people may have type 2 diabetes.

## Materials

- 3 paper bags
- 1 permanent marker
- 253 dry white beans
- 47 dry red beans
- 3 resealable sandwich bags
- Tape

**For each student:**

- Paper
- Pencils

## Set up

1. If you have not already completed the preparation for this activity, see #5 in **Before you Begin**.
2. There are 100 beans in each paper bag. Divide 100 by the number of students in your class to determine how many beans each student will draw from each bag.
3. Designate a space for students to sit in a circle.
4. Have the paper bags with the beans and the empty resealable sandwich bags in front of you.

## Procedure

1. Have students sit in a circle.
2. Distribute a sheet of paper and pencil to each student. Instruct them to draw three columns on their paper and write “past” at the top of the left column, “present” at the top of the middle column, and “future” at the top of the right column.
3. Explain that you have three bags of beans: past, present, and future. Tell students how many beans they should take from each bag, without looking. Pass the bags in this order: past, present, and future. Have students put the beans in the appropriate column, being careful not to mix them up.
4. When all students have taken beans, empty any remaining beans into their respective sandwich bags and place them in front of you.
5. Ask students, *What do you think the beans could represent?* (The beans represent people: red beans for people with diabetes, and white beans for people without diabetes.)

past	present	future

### Prevalence Rates (cont.)

6. Have students look at the beans in the “past” column. Ask, *Who has a red bean for a person with diabetes?* Explain that in the early 1900s, only 1 in 100 people had diabetes, so there was only 1 red bean in the Past bag.
7. Have students look at the beans in the “present” column. Ask, *Who has a red bean for a person with diabetes?* Explain that today, 12 in every 100 people have diabetes.<sup>1</sup> This makes it much more likely that people would know someone with diabetes.
8. Lastly, draw attention to the “future” column. Ask, *Who has a red bean for a person with diabetes?* Explain that health professionals project that if our current food-based diet and low levels of physical activity continue, by 2050 as many as 33 in 100 people (one-third) may have diabetes.<sup>2</sup>
9. Pass around the sandwich bags, and have students place their beans in the appropriate bag. Once all the beans are in the three bags, have students examine the bags to understand the prevalence of diabetes in the past, present, and future.
10. Clarify differences between type 1 and type 2 diabetes. Explain that type 1 diabetes comes on suddenly and is usually diagnosed when people are young. People with type 1 diabetes have to start taking insulin injections from the time they are diagnosed. Ask, *Do you know anyone with type 1 diabetes?* Type 2 diabetes develops slowly and is partially due to environmental factors such as the kinds of food that are available and affordable, ability to get enough exercise and sleep, and how much stress people experience. Type 2 diabetes is the kind of diabetes that is most rapidly increasing.

### Discussion Questions

1. *What does this activity demonstrate?* (Helps to visualize how many people around us have diabetes; rates are rising.) *How does it make you feel?*
2. *Based on what you have experienced about your food environments, what do you think this tells you?* (That foods are everywhere, and eating too much food can make us sick.)

1. Centers for Disease Control. (2024, May) *National Diabetes Statistics Report*. Center for Disease Control website. Retrived, June 26, 2025, <https://www.cdc.gov/diabetes/php/data-research/index.html>

2. Boyle, J. P., Thompson, T. J., Gregg, E. W., Barker, L. E., & Williamson, D. F. (2010). Projection of the year 2050 burden of diabetes in the US adult population: dynamic modeling of incidence, mortality, and prediabetes prevalence. *Population health metrics*, 8, 1-12.

# Investigating Blood Sugar

In this simulation, students investigate how type 2 diabetes develops over time.\*

## Materials

- 4 clear plastic cups
- Small bowl
- Plastic spoon
- Plastic cup
- Permanent marker
- 2 cups sugar

## Set up

1. If you have not already completed the preparation for this activity, see #7 in **Before you Begin**.

## Procedure

1. Ask for five student volunteers to play the following roles: food, digestive system, bloodstream, insulin, and cells. Have the volunteers stand in that order.  
Give the students the appropriately labeled cups for their roles. Give the student playing insulin the spoon.  
Fill the food cup with sugar.
2. Explain to students that when we eat food (point to the student playing food), it goes into our digestive system (point to the student playing digestive system), which includes our mouth, stomach, and intestines. Food is broken down into very small pieces and then moves into our bloodstream (point to student playing bloodstream). One of the things that moves into the bloodstream is sugar. A hormone called insulin (point to the student playing insulin) transfers the sugar from the bloodstream into the fat, muscle, and liver cells (point the student playing cells).
3. **This scenario models a healthy snack, such as a piece of fruit:**  
Instruct the person playing food to carefully pour about 2 teaspoons of sugar into the digestive system cup.  
Have the person playing digestive system pour the sugar into the bloodstream's cup.  
Have the person playing insulin use the spoon to scoop sugar from the bloodstream's cup into the cell's cup.  
Explain that as insulin moves sugar into cells, the blood sugar level goes back down to normal.
4. **This scenario models a high sugar snack, such as a large soda and a candy bar:**  
Have the student playing food pour about  $\frac{1}{2}$  cup sugar into the digestive system's cup.  
Then the digestive system pours the sugar into the bloodstream's cup.  
Have the student playing insulin use the spoon to scoop sugar from the bloodstream's cup into the cell's cup.  
Point out to students that the insulin has to work longer and harder since there is more sugar.

\*To watch a video of this activity, go to <http://bit.ly/oqqYvq>

Adapted from *Choice, Control & Change*. Linking Food and the Environment curriculum series, Teachers College, Columbia University



### Investigating Blood Sugar (cont.)

5. This scenario models eating many high sugar snacks every day for many years:

Have the person playing food pour about half a cup of sugar into the digestive system's cup. Digestive system pours the sugar into the bloodstream's cup.

Have the person playing insulin continue to scoop sugar into the cell's cup. While this is going on, instruct the person playing food to pour more sugar into the digestive system's cup (add more sugar to the food cup if needed).

Have digestive system pour the sugar into the bloodstream's cup. Instruct the person playing insulin to keep working. It is insulin's job to clear sugar from the blood and move it to the cells. If needed, have food pour more sugar into digestive system's cup so the bloodstream cup stays full of sugar.

After about a minute, take away the spoon and switch to the fork. Explain that this is what many scientists think happens in the body. When there is a steady supply of sugar to clear from the blood, insulin stops working properly and does not move sugar out of the blood as it should. When blood sugar stays at too high a level, a person has type 2 diabetes.

### Discussion Questions

1. *Why do you think it is important to keep your insulin working properly?*
2. *What could you do to prevent getting type 2 diabetes? Does your environment make this challenging? Why?*

## Cards

### Grab 2

Cut out one set for the class.

#### Nutrition Facts

Serving Size 1 bottle  
Servings Per Container 1

Amount Per Serving

**Calories** 240    **Calories from Fat** 0

% Daily Value\*

**Total Fat** 0g    **0%**

Saturated Fat 0g    **0%**

Trans Fat 0g

**Cholesterol** 0mg    **0%**

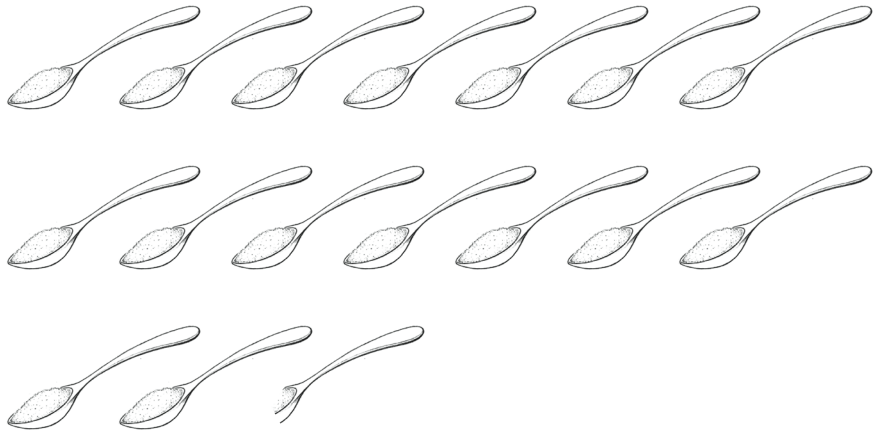
**Sodium** 75mg    **3%**

**Total Carbohydrate** 65g    **22%**

Dietary Fiber 0g    **0%**

Sugars 65g

**Protein** 0g



**65 grams ÷ 4 grams/teaspoon = 16.25 teaspoons sugar**



## Cards

### Grab 2 (cont.)

#### Nutrition Facts

Serving Size 1 bottle  
Servings Per Container 1

Amount Per Serving

**Calories** 190    **Calories from Fat** 0

% Daily Value\*

**Total Fat** 0g    **0%**

Saturated Fat 0g    **0%**

Trans Fat 0g

**Cholesterol** 0mg    **0%**

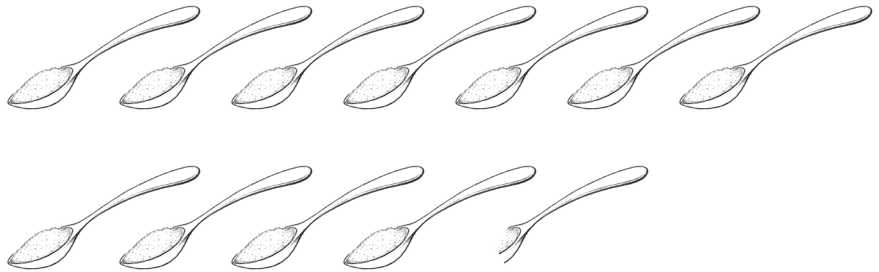
**Sodium** 15mg    **1%**

**Total Carbohydrate** 46g    **15%**

Dietary Fiber 0g    **0%**

Sugars 45g

**Protein** 0g



**45 grams ÷ 4 grams/teaspoon = 11.25 teaspoons sugar**





## Cards

### Grab 2 (cont.)

#### Nutrition Facts

Serving Size 1 bottle  
Servings Per Container 1

Amount Per Serving

**Calories** 0      **Calories from Fat** 0

% Daily Value\*

**Total Fat** 0g      **0%**

Saturated Fat 0g      **0%**

Trans Fat 0g

**Cholesterol** 0mg      **0%**

**Sodium** 0mg      **0%**

**Total Carbohydrate** 0g      **0%**

Dietary Fiber 0g      **0%**

Sugars 0g

**Protein** 0g

**0 grams ÷ 4 grams/teaspoon = 0 teaspoons sugar**



## Cards

### Grab 2 (cont.)

#### Nutrition Facts

Serving Size ☐

Servings Per Container ☐

Amount Per Serving

**Calories** 90      **Calories from Fat** 0

% Daily Value\*

**Total Fat** 0g      **0%**

Saturated Fat 0g      **0%**

Trans Fat 0g

**Cholesterol** 0mg      **0%**

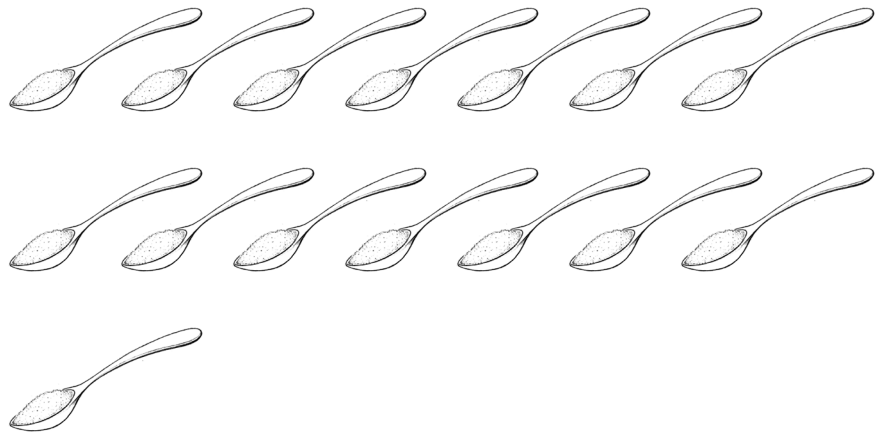
**Sodium** 10mg      **0%**

**Total Carbohydrate** 25g      **8%**

Dietary Fiber 0g      **0%**

Sugars 24 g

**Protein** 0g



2.5 servings X 24 grams = 60 grams  
60 grams ÷ 4 grams/teaspoon = 15 teaspoons sugar



## Cards

### Grab 2 (cont.)

#### Nutrition Facts

Serving Size 1 pouch  
Servings Per Container 1

Amount Per Serving

**Calories** 60      **Calories from Fat** 0

% Daily Value\*

**Total Fat** 0g      **0%**

Saturated Fat 0g      **0%**

Trans Fat 0g

**Cholesterol** 0mg      **0%**

**Sodium** 0mg      **0%**

**Total Carbohydrate** 15g      **5%**

Dietary Fiber 0g      **0%**

Sugars 15g

**Protein** 0g



$$15 \text{ grams} \div 4 \text{ grams/teaspoon} = 3.75 \text{ teaspoons sugar}$$





## Cards

### Grab 2 (cont.)

#### Nutrition Facts

Serving Size ☐  
Servings Per Container 1

Amount Per Serving

**Calories** 130    **Calories from Fat** 0

% Daily Value\*

**Total Fat** 0g    **0%**

Saturated Fat 0g    **0%**

Trans Fat 0g

**Cholesterol** 0mg    **0%**

**Sodium** 270mg    **11%**

**Total Carbohydrate** 34g    **11%**

Dietary Fiber 0g    **0%**

Sugars 34g

**Protein** 0g



**34 grams ÷ 4 grams/teaspoon = 8.5 teaspoons sugar**



## Cards

### Grab 2 (cont.)

#### Nutrition Facts

Serving Size 1 Bottle  
Servings Per Container 1

Amount Per Serving

**Calories** 260    **Calories from Fat** 0

% Daily Value\*

**Total Fat** 0g    **0%**

Saturated Fat 0g    **0%**

Trans Fat 0g

**Cholesterol** 0mg    **0%**

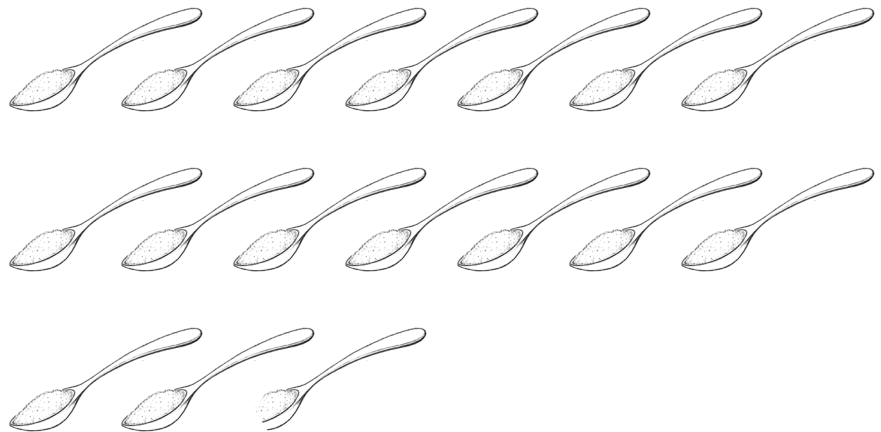
**Sodium** 80mg    **3%**

**Total Carbohydrate** 70g    **23%**

Dietary Fiber 0g    **0%**

Sugars 67g

**Protein** 0g



**67 grams ÷ 4 grams/teaspoon = 16.75 teaspoons sugar**



## Cards

### Grab 2 (cont.)

#### Nutrition Facts

Serving Size ☐  
Servings Per Container 1

Amount Per Serving

**Calories** 160    **Calories from Fat** 0

% Daily Value\*

**Total Fat** 0g    **0%**

Saturated Fat 0g    **0%**

Trans Fat 0g

**Cholesterol** 0mg    **0%**

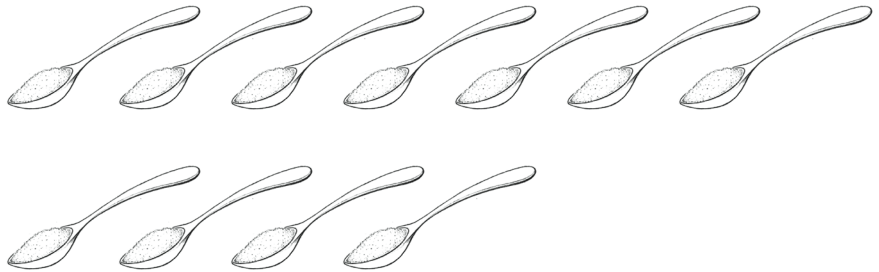
**Sodium** 55mg    **2%**

**Total Carbohydrate** 44g    **15%**

Dietary Fiber 0g    **0%**

Sugars 44g

**Protein** 0g



**44 grams ÷ 4 grams/teaspoon = 11 teaspoons sugar**





## Cards

### Grab 2 (cont.)

#### Nutrition Facts

Serving Size ☐  
Servings Per Container 1

Amount Per Serving

**Calories** 120    **Calories from Fat** 0

% Daily Value\*

**Total Fat** 0g    **0%**

Saturated Fat 0g    **0%**

Trans Fat 0g

**Cholesterol** 0mg    **0%**

**Sodium** 0mg    **0%**

**Total Carbohydrate** 31g    **10%**

Dietary Fiber 0g    **0%**

Sugars 31g

**Protein** 0g



$$31 \text{ grams} \div 4 \text{ grams/teaspoon} = 7.75 \text{ teaspoons sugar}$$



## Cards

### Grab 2 (cont.)

#### Nutrition Facts

Serving Size ☐  
Servings Per Container 1

Amount Per Serving

**Calories** 0      **Calories from Fat** 0

% Daily Value\*

**Total Fat** 0g      **0%**

Saturated Fat 0g      **0%**

Trans Fat 0g

**Cholesterol** 0mg      **0%**

**Sodium** 5mg      **0%**

**Total Carbohydrate** 0g      **0%**

Dietary Fiber 0g

Sugars 0g

**Protein** 0g

0 grams ÷ 4 grams/teaspoon = 0 teaspoons sugar



## Cards

### Grab 2 (cont.)

#### Nutrition Facts

Serving Size ☐  
Servings Per Container 1

Amount Per Serving

**Calories** 120    **Calories from Fat** 0

% Daily Value\*

**Total Fat** 0g    **0%**

Saturated Fat 0g    **0%**

Trans Fat 0g

**Cholesterol** 0mg    **0%**

**Sodium** 210mg    **8%**

**Total Carbohydrate** 30g    **10%**

Dietary Fiber 0g

Sugars 28g

**Protein** 0g



**28 grams ÷ 4 grams/teaspoon = 7 teaspoons sugar**





## Grab 2 (cont.)

## Nutrition Facts

Serving Size ☐  
 Servings Per Container 1 package

Amount Per Serving

**Calories** 280      **Calories from Fat** 130

% Daily Value\*

**Total Fat** 14g      **22%**

Saturated Fat 5g      **25%**

Trans Fat 0g

**Cholesterol** 5mg      **2%**

**Sodium** 140mg      **6%**

**Total Carbohydrate** 35g      **12%**

Dietary Fiber 1g      **4%**

Sugars 30g

**Protein** 4g



$30 \text{ grams} \div 4 \text{ grams/teaspoon} = 7.5 \text{ teaspoons sugar}$



## Cards

### Grab 2 (cont.)

#### Nutrition Facts

Serving Size 1 cake  
Servings Per Container 2

Amount Per Serving

**Calories** 150      **Calories from Fat** 41

% Daily Value\*

**Total Fat** ☐      **7%**

Saturated Fat ☐      **13%**

Trans Fat 0g

**Cholesterol** 20mg      **7%**

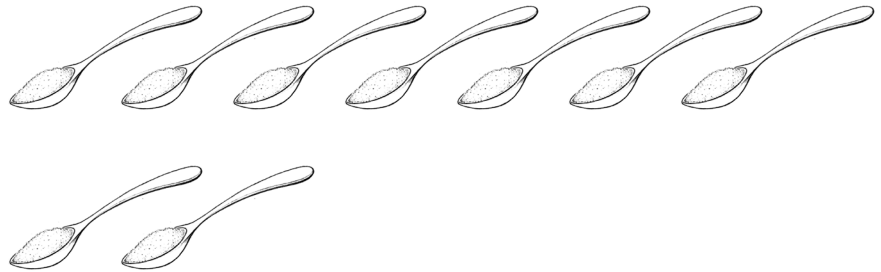
**Sodium** 220mg      **9%**

**Total Carbohydrate** 27g      **9%**

Dietary Fiber 0g      **0%**

Sugars 18g

**Protein** 1g



$$2 \times 18 \text{ grams} = 36 \text{ grams}$$

$$36 \text{ grams} \div 4 \text{ grams/teaspoon} = 9 \text{ teaspoons sugar}$$



## Cards

### Grab 2 (cont.)

#### Nutrition Facts

Serving Size 40 g

Servings Per Container ☐

Amount Per Serving

**Calories** 150      **Calories from Fat** 0

% Daily Value\*

**Total Fat** 0g      **0%**

Saturated Fat 0g      **0%**

Trans Fat 0g

**Cholesterol** 0mg      **0%**

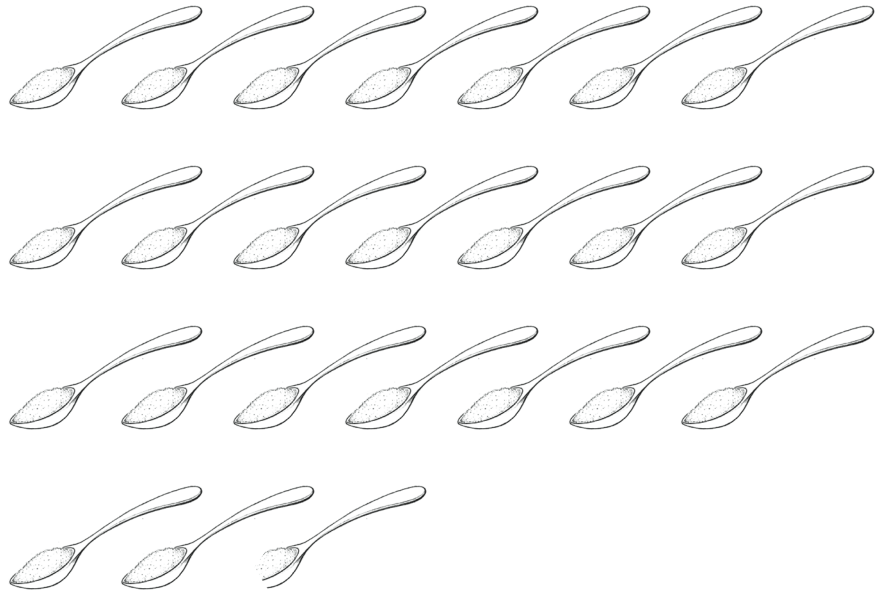
**Sodium** 25mg      **1%**

**Total Carbohydrate** 37g      **12%**

Dietary Fiber 0g      **0%**

Sugars 26g

**Protein** 0g



$$3.5 \times 26 \text{ grams} = 91 \text{ grams}$$

$$91 \text{ grams} \div 4 \text{ grams/teaspoon} = 22.75 \text{ teaspoons sugar}$$





## Grab 2 (cont.)

## Nutrition Facts

Serving Size 1 pastry  
Servings Per Container 2

Amount Per Serving

**Calories** 200      **Calories from Fat** 45

% Daily Value\*

**Total Fat** 5g      8%

Saturated Fat 1g      8%

Trans Fat 0g

**Cholesterol** 0g      0%

**Sodium** 170mg      7%

**Total Carbohydrate** 38g      13%

Dietary Fiber <1g      3%

Sugars 16g

**Protein** 2g



$$2 \times 16 \text{ grams} = 32 \text{ grams}$$

$$32 \text{ grams} \div 4 \text{ grams/teaspoon} = 8 \text{ teaspoons sugar}$$



## Cards

### Grab 2 (cont.)

#### Nutrition Facts

Serving Size 1 cake  
Servings Per Container 1

Amount Per Serving

**Calories** 480      **Calories from Fat** 230

% Daily Value\*

**Total Fat** 27g      **41%**

Saturated Fat 13g      **67%**

Trans Fat 0g

**Cholesterol** 5g      **2%**

**Sodium** 380mg      **16%**

**Total Carbohydrate** 55g      **18%**

Dietary Fiber 1g      **4%**

Sugars 27g

**Protein** 5g



$$27 \div 4 \text{ grams/teaspoon} = 6.75 \text{ teaspoons sugar}$$



## Cards

### Grab 2 (cont.)

#### Nutrition Facts

Serving Size 40 g

Servings Per Container ☐

Amount Per Serving

**Calories** 130    **Calories from Fat** 0

% Daily Value\*

**Total Fat** 0g    **0%**

Saturated Fat 0g    **0%**

Trans Fat 0g

**Cholesterol** 0mg    **0%**

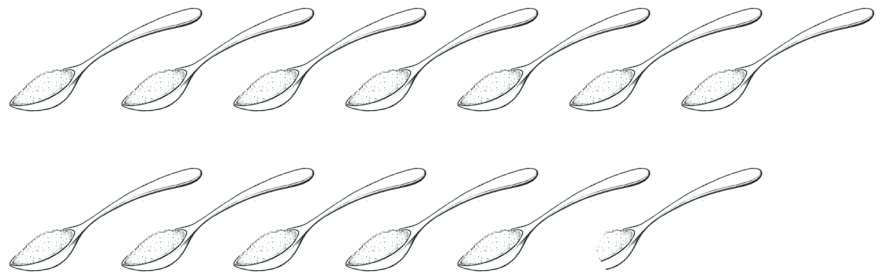
**Sodium** 15mg    **1%**

**Total Carbohydrate** 31g    **10%**

Dietary Fiber 0g

Sugars 18g

**Protein** 1g



$$2.8 \times 18 \text{ grams} = 50.4 \text{ grams}$$

$$50.4 \div 4 \text{ grams/teaspoon} = 12.6 \text{ teaspoons sugar}$$





## Cards

### Grab 2 (cont.)

#### Nutrition Facts

Serving Size 30g  
Servings Per Container 3

Amount Per Serving

**Calories** 140      **Calories from Fat** 50

% Daily Value\*

**Total Fat** 6g      **9%**

Saturated Fat 1g      **8%**

Trans Fat 0g

**Cholesterol** 0g      **0%**

**Sodium** 120mg      **5%**

**Total Carbohydrate** 21g      **7%**

Dietary Fiber 1g      **3%**

Sugars 9g

**Protein** 2g



$$3 \times 9 \text{ grams} = 27 \text{ grams}$$

$$27 \div 4 \text{ grams/teaspoon} = 6.75 \text{ teaspoons sugar}$$



## Grab 2 (cont.)

## Nutrition Facts

Serving Size 1 bag  
Servings Per Container 1

Amount Per Serving

**Calories** 250      **Calories from Fat** 120

% Daily Value\*

**Total Fat** 13g      **20%**

Saturated Fat 5g      **25%**

Trans Fat 0g

**Cholesterol** 5g      **2%**

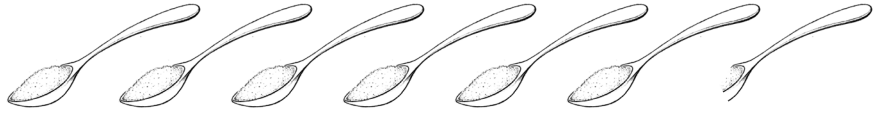
**Sodium** 25mg      **1%**

**Total Carbohydrate** 30g      **10%**

Dietary Fiber 2g      **8%**

Sugars 25g

**Protein** 0g



$$25 \div 4 \text{ grams/teaspoon} = 6.25 \text{ teaspoons sugar}$$



## Grab 2 (cont.)

## Nutrition Facts

Serving Size 2 cookie bars  
Servings Per Container 1

Amount Per Serving

**Calories** 260      **Calories from Fat** 110

% Daily Value\*

**Total Fat** 12g      **18%**

Saturated Fat 7g      **35%**

Trans Fat 0g

**Cholesterol** 5mg      **2%**

**Sodium** 100mg      **4%**

**Total Carbohydrate** 34g      **11%**

Dietary Fiber 1g      **4%**

Sugars 24g

**Protein** 0g



$$44 \div 4 \text{ grams/teaspoon} = 6 \text{ teaspoons sugar}$$





## Cards

### Grab 2 (cont.)

#### Nutrition Facts

Serving Size 29g  
Servings Per Container 3

Amount Per Serving

**Calories** 130      **Calories from Fat** 50

% Daily Value\*

**Total Fat** 6g      **9%**

Saturated Fat 2g      **10%**

Trans Fat 0g

**Cholesterol** 0mg      **0%**

**Sodium** 140mg      **6%**

**Total Carbohydrate** 21g      **7%**

Dietary Fiber 1g      **4%**

Sugars 11g

**Protein** 0g



$$3 \times 11 \text{ grams} = 33 \text{ grams}$$

$$33 \div 4 \text{ grams/teaspoon} = 8.25 \text{ teaspoons sugar}$$



## Grab 2 (cont.)

## Nutrition Facts

Serving Size 4 cookies  
Servings Per Container 1

Amount Per Serving

**Calories** 190      **Calories from Fat** 80

% Daily Value\*

**Total Fat** 9g      **14%**

Saturated Fat 3g      **15%**

Trans Fat 0g

**Cholesterol** 0mg      **0%**

**Sodium** 120mg      **5%**

**Total Carbohydrate** 27g      **9%**

Dietary Fiber 1g      **3%**

Sugars 13g

**Protein** 2g



$$13 \div 4 \text{ grams/teaspoon} = 3.25 \text{ teaspoons sugar}$$





## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Food Rules Lesson 6

#### Lesson 6: **Dia-Beat It!**

Food Rules: \_\_\_\_\_

**Eat food. Not too much. Mostly plants.**

#### Family Tips

- Carry a reusable water bottle with you. That way, you will not have to buy a beverage when you get thirsty. Insulated bottles keep water cold, making it especially refreshing in warmer weather.
- Add fruit slices to water or seltzer for a lightly sweetened drink.
- Try adding fruit and a bit of honey to plain yogurt.
- Make air-popped popcorn and add your own salt, herbs, and spices for a tasty and fun snack.

#### Food Rules from Previous Lessons

##### **Eat Food.**

- 1 Eat food you can picture growing in nature.
- 2 Eat food with ingredients a third grader could pronounce.
- 3 Avoid products that make health claims.

##### **Not Too Much.**

- 4 Avoid foods you see advertised on television.
- 5 Choose smaller plates and glasses.

*In Defense of Food* film clips that accompanies

**Sugar Flood and Diabetes: An Epidemic**

Watch at <http://bit.ly/idofclip6a> and <http://bit.ly/idofclip6b>

Learn more about *In Defense of Food* at:

[pbs.org/indefenseoffood](http://pbs.org/indefenseoffood)





## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Sugar Sugar Everywhere

Highlight or circle all the ingredients listed below that are a form of sugar.

- |    |                      |                        |                          |                        |                                 |                            |                    |
|----|----------------------|------------------------|--------------------------|------------------------|---------------------------------|----------------------------|--------------------|
| 1. | Raw sugar            | Buttered<br>syrup      | Panocha                  | Florida<br>crystals    | Icing sugar                     | Barley malt                | Fruit juice        |
| 2. | Dextran              | c<br>syrup             | Galactose                | Cane juice<br>crystals | High-<br>fructose<br>corn syrup | Glucose                    | Date sugar         |
| 3. | Agave<br>nectar      | Ethyl<br>maltol        | Evaporated<br>cane juice | Turbinado<br>sugar     | Confection-<br>er's sugar       | Yellow<br>sugar            | Molasses           |
| 4. | Dextrose             | Demerara<br>sugar      | Corn syrup<br>solids     | Fructose               | Sucrose                         | Diatase                    | Beet sugar         |
| 5. | Organic<br>raw sugar | Barbados<br>sugar      | Grape sugar              | Honey                  | Brown rice<br>syrup             | Crystalline<br>fructose    | Malt syrup         |
| 6. | Brown<br>sugar       | Treacle                | Carob<br>syrup           | Invert sugar           | Caramel                         | Golden<br>sugar            | Corn syrup         |
| 7. | Glucose<br>solids    | Blackstrap<br>molasses | Sugar                    | Castor<br>sugar        | Lactose                         | Maltose                    | Muscovado<br>sugar |
| 8. | Cane<br>sugar        | Golden<br>syrup        | Rice syrup               | Diastatic<br>malt      | Sorghum<br>syrup                | Fruit juice<br>concentrate | Maple syrup        |



## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Not Too Much Action Plan

**L u** , , , , **u** , , , **u** , **u** ,

help keep you healthy so you can work towards your goals.

Create an action plan that will help you stay away from too much food!

#### My Action Plan: (example)

I am going to eat: homemade popcorn instead of cheetos.  
(food) (food)

Time of day (check one):

- ☐ At breakfast
- ☐ In the morning
- ☒ At lunch
- ☐ In the afternoon
- ☐ At dinner
- ☐ In the evening

Days of the week (check as many as you like):

- ☒ Sunday
- ☒ Monday
- ☐ Tuesday
- ☒ Wednesday
- ☒ Thursday
- ☐ Friday
- ☐ Saturday

#### My Action Plan:

I am going to eat: \_\_\_\_\_ instead of \_\_\_\_\_.  
(food) (food)

Time of day (check one):

- ☐ At breakfast
- ☐ In the morning
- ☐ At lunch
- ☐ In the afternoon
- ☐ At dinner
- ☐ In the evening

Days of the week (check as many as you like):

- ☐ Sunday
- ☐ Monday
- ☐ Tuesday
- ☐ Wednesday
- ☐ Thursday
- ☐ Friday
- ☐ Saturday





III. MOSTLY PLANTS





## LESSON 7:

# ROOTING FOR PLANTS

## First Bite

How would you describe a “superfood”? Maybe it prevents cancer, slows aging, aids in weight management, supports your immune system, reduces inflammation, or protects against diseases such as Alzheimer’s, cardiovascular disease, and diabetes. One single superfood may not exist, but a group of superfoods does: plants. Fruits, vegetables, whole grains, nuts, and seeds contain compounds called polyphenols, which are shown to provide all the previously listed benefits and more.<sup>1-2</sup>

### From Seeds to Leaves

Eating mostly plants doesn’t mean going fully vegetarian or vegan—it just means shifting your plate so the majority of what you eat comes from plant sources. To tap into the health benefits from plants, focus on eating all parts of plants. Seeds, roots, stems, leaves, flowers, and fruits are all parts of plants that we can eat. Seeds include beans, whole grains, nuts, and seeds themselves. Roots include carrots and turnips. Stems include asparagus and rhubarb. Leaves include spinach and collard greens. Perhaps somewhat surprisingly, flowers include broccoli and cauliflower. Fruits, defined by botanists as the part of the plant that produces seeds, include plums, peppers, tomatoes, squash, and cucumbers. Opting for a variety of plant parts from the seeds to the fruits can make eating plants more fun and provide even more health benefits.

### Small Swaps, Big Wins

Americans are some of the highest consumers of meat. In fact, the average American consumes 128 g of meat per day, which is more than three times the global average.<sup>3</sup> Switching out animal protein for plant protein comes with an abundance of benefits for ourselves, the environment, and our wallets. Consuming plant protein is associated with lower all-cause mortality. One study found that replacing just 3% of daily calories (about 60 kcal in a 2,000-calorie diet) from meat protein with plant protein was associated with a 10% reduction in the risk

of death, with higher reductions for switching out red meat.<sup>4</sup> In addition to providing health benefits, plant protein is more environmentally friendly. For example, 1 kg of edible protein from kidney beans requires 10 times less water, fuel, fertilizer, pesticide, and land than the same amount from beef.<sup>5</sup> As an added bonus, plants are generally cheaper per serving than meat, helping people save approximately 14–30% per meal when they choose plant-based meals instead of meat-based ones.<sup>6</sup>

### Mostly Plants

One way to eat more plants is to visualize your plate as a grid divided into fourths. The USDA MyPlate guideline is to fill  $\frac{1}{2}$  your plate with fruits and vegetables;  $\frac{1}{4}$  with grains such as rice, pasta, quinoa, or potatoes; and  $\frac{1}{4}$  with a protein source—either from plants such as beans, nuts, or seeds, or animals such as meat, poultry, fish, or eggs.<sup>7</sup> By adhering to MyPlate, at least  $\frac{3}{4}$  of your plate will be filled with plants, and you will find yourself easily following the guideline to consume Mostly Plants.

### References

1. Hossain, M. S., Wazed, M. A., Asha, S., Amin, M. R., & Shimul, I. M. (2025). Dietary phytochemicals in health and disease: mechanisms, clinical evidence, and applications—A comprehensive review. *Food Science & Nutrition*, 13(3), e70101.
2. Yin, R., Kuo, H. C., Hudlikar, R., Sargsyan, D., Li, S., Wang, L., ... & Kong, A. N. (2019). Gut microbiota, dietary phytochemicals, and benefits to human health. *Current pharmacology reports*, 5, 332-344.
3. Daniel, C. R., Cross, A. J., Koebnick, C., & Sinha, R. (2011). Trends in meat consumption in the USA. *Public health nutrition*, 14(4), 575–583.
4. Song, M., Fung, T. T., Hu, F. B., Willett, W. C., Longo, V. D., Chan, A. T., & Giovannucci, E. L. (2016). Association of animal and plant protein intake with all-cause and cause-specific mortality. *JAMA internal medicine*, 176(10), 1453-1463.
5. Sranacharoengpong, K., Soret, S., Harwatt, H., Wien, M., & Sabaté, J. (2015). The environmental cost of protein food choices. *Public health nutrition*, 18(11), 2067–2073.
6. Springmann, M., Clark, M. A., Rayner, M., Scarborough, P., & Webb, P. (2021). The global and regional costs of healthy and sustainable dietary patterns: a modelling study. *The Lancet Planetary Health*, 5(11), e797-e807.
7. United States Department of Agriculture. (2011) MyPlate.gov website. Retrieved, July 9, 2025, <http://www.myplate.gov/>.



## LESSON 7:

# ROOTING FOR PLANTS

### Aim

To increase familiarity with and excitement about eating plant-based foods.

### Food Rule

**If it came from a plant, eat it.  
If it was made in a plant, don't.**

### Film Clip

**Going Farming!**

### Objectives

Students will be able to:

- explain why it is important to eat mostly plants;
- list plant-based foods that are fruits, vegetables, grains, and proteins;
- categorize plant-based foods as seeds, roots, stems, leaves, flowers, and fruits;
- demonstrate ability to prepare an all-plant-based dish; and
- use descriptive words to describe the sensory qualities of the dish they prepare.

### Overview

In this lesson, students begin the section on Mostly Plants by looking at cards with close up photos of plants. Then, they learn about MyPlate and what kinds of foods are plant-based. Watching the *IDOF* film clip, students learn about foods available in different neighborhoods and see other students excited about making and eating plant-based food. They learn the Food Rule, “If it came from a plant, eat it. If it was made in a plant, don’t.” Then they learn practical strategies for choosing plant-based foods and create a Mostly Plants action plan. To experience eating all different parts of plants, students make and eat a plant-part salad. Finally, students work on their culminating projects.

### Materials

#### In this guide

- ***Plant-part Salad*** preparation sheet p. 217
- ***Close-up*** cards p. 223
- ***Guess Me*** activity sheet p. 229
- ***Close Up Answer Sheet*** lesson resource p. 230
- ***MyPlate*** lesson resource p. 231
- ***Plant-food Mysteries*** activity sheet p. 232
- ***Plant-food Mysteries Answer Sheet*** lesson resource p. 234
- ***Food Rules Lesson 7*** activity sheet p. 236
- ***Mostly Plants Action Plan*** activity sheet p. 237
- ***Edible Plants*** lesson resource p. 239
- ***Visualizing Plant-part Salad*** lesson resource p. 240
- ***Making Plant-part Salad During Class*** lesson resource p. 241

#### In this guide (cont.)

- ***Take Home Plant-part Salad Recipe*** activity sheet p. 243

#### Other materials

- *IDOF* film clip 7: Going Farming! and AV equipment
- All ingredients and cooking materials from ***Plant-part Salad*** preparation sheet p. 217

- Countertop cleaner
- Paper towels
- Tape

#### For each student:

- Pencil
- Tasting cup
- Fork
- Slip of paper

To learn more about *In Defense of Food*, visit [pbs.org/indefenseoffood](http://pbs.org/indefenseoffood). Funding was provided by the National Science Foundation and PBS.



## Before You Begin: Total prep time: approximately two hours

### Within a few days before lesson

1. Purchase ingredients and gather cooking materials for the salad-making activity. See *Plant-part Salad* preparation sheet p. 217 for details.
2. Review the entire lesson.

### Within a day before lesson

3. **Print and cut out cards:**
  - *Close Up* cards p. 223, one set, hang up around room.
4. **Print one copy per student of each activity sheet:**
  - *Guess Me* activity sheet p. 229
  - *Plant-food Mysteries* activity sheet p. 232
  - *Food Rules Lesson 7* activity sheet p. 236
  - *Mostly Plants Action Plan* activity sheet p. 237
  - *Take Home Plant-part Salad Recipe* activity sheets p. 243
5. Explore eating mostly plants: Print *MyPlate* lesson resource p. 231
6. Viewing *IDOF* film clip:
  - Set up AV equipment and space for film viewing.
  - Find *IDOF* film clip 7: Going Farming! at <http://bit.ly/idofclip7>
7. Appreciate eating plant parts: Print 1 copy of *Edible Plants* lesson resource p. 239.
8. **Preparing plant-part salad:**
  - Print *Making Plant-part Salad During Class* lessons resource p. 241, at least 2 copies to be placed at the cooking station. Print more copies if you have a large class.
  - Clean all food preparation and eating surfaces with countertop cleaner.
  - Set up the salad-making and dressing-making stations with ingredients and cooking materials for each. See *Making Plant-part Salad During Class* lessons resource for details. Note: the salad-making station needs the bigger area.
9. **Culminating project:** Have all students' culminating projects ready for them to work on.



### Plant-part Salad

To experience eating all parts of the plant, including seeds, roots, stems, leaves, flowers, and fruits, students will make a plant-part salad. This recipe makes enough salad for 10-15 students—for smaller or larger classes, adjust accordingly.

#### Shop for ingredients

##### For salad:

- Wild rice (need 1 ½ cup dry rice)
- 3 medium spring onions (scallions)
- Edamame (need 2 cups shelled)  
Buying shelled and frozen is easiest. If unshelled, shell yourself.  
If you cannot find edamame, use frozen peas.
- 2 medium carrots
- Small head cauliflower (need 2 cups)
- Small bunch parsley (need 1 cup)
- Dried cranberries (need ¾ cup)
- Sesame seeds (white or black, need 2 tablespoons)

##### For dressing

- Kosher salt (need 2 teaspoons)
- Black pepper (need 1 teaspoon)
- Sesame oil (need 5 tablespoons)
- Rice vinegar (need ¼ cup)
- Honey (need 2 teaspoons)

#### Gather materials

##### For salad:

- Large bowl
- Large spoon
- 2 graters (for carrots)
- 2 plastic knives (for cauliflower)
- 2 cutting boards or large paper plates (for cauliflower)
- 2 pairs kitchen scissors (for cutting spring onion)
- Small bowl (for placing torn parsley)
- Set of measuring cups
- Set of measuring spoons

##### For dressing:

- Small bowl
- Fork
- Large plate
- Set of measuring cups
- Set of measuring spoons

#### Complete advanced preparation of ingredients

- **Rice:** Combine 1 ½ cup uncooked wild rice with 3 cups water in a medium size pot with a lid. Bring to a boil and then reduce the heat to medium. Cook the wild rice covered at a simmer for 40-45 minutes. The wild rice will burst open when it is cooked. When it's done, fluff rice with a fork.
- **Spring onions (scallions):** Wash and remove any dirt from inside the green leaves.
- **Edamame:** If using frozen edamame or peas, let thaw before class. If you have edamame with shells, remove beans from the shells before class.
- **Carrots:** Wash (no need to peel).
- **Cauliflower:** Wash and remove outer leaves.
- **Parsley:** Wash and dry leaves. Cut off and discard stems.



## Procedure

Lesson time: 120 min. (2 60-min. parts)

### Part 1 (60 min.)

#### 1. Check in on Action Plans (5 min.)

Remind students that in Lesson 6, they completed the *Not Too Much Action Plan* activity sheet p. 212, where they planned to eat a food instead of a food. Ask students to share their successes. Compliment students on the changes they have been able to make. Ask students to share challenges. Encourage peer-to-peer interaction about how to overcome challenges. Remind students to keep working on current and previous action plans.

#### 2. Introduce Mostly Plants Section (1 min.)

Remind students of the three themes of the curriculum: Eat food. Not too much. Mostly plants. These are the seven words Michael Pollan recommends to answer the question, “What should I eat to be healthy?” Tell students Lessons 7–9 are the Mostly Plants section of the curriculum.

#### 3. Get Up Close with Plants (8 min.)

Point out the *Close Up* cards p. 223 placed around the room and explain that these are extreme close ups of different foods—all of which are plants.

Divide students into pairs, and provide each student with the *Guess Me* activity sheet p. 229 and a pencil. Each *Close Up* card picture has a number on the top right-hand corner, which corresponds to a numbered box on the *Guess Me* activity sheets. The pairs walk around, examine the cards, and record their guesses for each *Close Up* card on the activity sheet.

When each pair has completed the activity sheets, have them check with you to see how many they got correct. The *Close Up Answer Sheet* lesson resource p. 230 has the answers. The team who gets the most correct wins! Crown the winning team the Guess Me champion. Have the winning team help you reveal the plant-based foods found on each *Close Up* card.

#### 4. Explore Eating Mostly Plants (4 min.)

Ask students to share what they think it means to eat mostly plants. Have each student share the first two or three words that pop into their minds. Tell students it is fine to repeat what others said or to pass if they cannot think of anything.

Tell students that eating mostly plants is a great way to help them reach







## Procedure (cont.)

marketed, and easy to buy). *Now that you know what you do, what kinds of things could you tell people about the foods that they eat, especially when they are mostly foods?*

*What were the Bronx Chefs making in their cooking class? (Pasta and pesto.) Are these foods or foods? Why? What are some members of the community doing to fight back against their unhealthy food environment? What are some things you can do in your home/school/community to fight back and defend food?*

### 7. Learn the Food Rule (12 min.)

Write the Food Rule on the board or chart paper, “If it came from a plant, eat it. If it was made in a plant, don’t.” *What do you think this means?*

*What kinds of things come from plants? (Eat more of everything they just filled in on the **Plant-food Mysteries** activity sheet.) What does “made in a plant” refer to? (Made in a factory. This is a way of saying to eat fewer foods).*

Distribute the **Food Rule Lesson 7** activity sheet p. 236 to the class, and have students write this lesson’s Food Rule in the Lesson 7 box.

Students can also use some of the previous Food Rules to help them as they choose plant-based foods. For example, when choosing breads, cereals, and cereal bars, they can remember the rule: “Eat foods with ingredients a third grader could pronounce.” This guideline can help students choose products made with few whole or minimally processed ingredients, as opposed to ones that contain many highly processed ingredients and additives.

Students can also look for items that are whole grains, which have all the parts and nutrients that are in the grain seed. To eat whole grains, they can choose bread made with whole-wheat flour instead of white flour or choose brown rice instead of white rice.

### 8. Make An Action Plan (13 min.)

Remind students this section is called Mostly Plants, but that does not necessarily mean to eat *only* plants. Eating a diet that is mostly plants can also include eating foods from animals: meat, poultry, fish, eggs, and dairy products. Often, foods from animals are paired with foods from plants, such as scrambled eggs on toast or a turkey sandwich on whole wheat bread with lettuce and tomato. What we want to strive for is eating more foods from plants and fewer foods from animals.

Distribute the **Mostly Plants Action Plan** activity sheet p. 237 to all students. Explain that they are going to circle options of plant-based foods they already eat or would like to eat for breakfast, lunch, dinner, and snacks. On the blank lines, they can write in other options.

## Procedure (cont.)

Have students work independently on this sheet for about five minutes. Then ask students to share what they wrote on the blank lines. Students can write on their own sheets any ideas from their classmates that sound appealing.

Encourage students to use this sheet as they make food choices in the future and to share it with their families.

Have a few students share their action plans and share ideas for how they will stick to their plans.

## Part 2 (60 min.)

### 9. Build Appreciation for Eating Plant (5 min.)

Explain that we eat all the different parts of plants: seeds, roots, stems, leaves, flowers, and fruits.

Draw a chart on the board or chart paper with six columns. Label the columns as “seeds,” “roots,” “stems,” “leaves,” “flowers,” and “fruits.” As a group, brainstorm as many edible plant parts for each column as you can. Use the **Edible Plants** lesson resource p. 239 to guide you. Leave the **Edible Plants** lesson resource in a place where students can see it as they make the salad, in case they want to look at it to learn more about the plants we eat.

### 10. Prepare Plant-part Salad (40 min.)



Explain to students that they will now work together to make a plant-part salad that includes all different parts of the plant.

Have students clean their hands and join you in an area set up for food preparation. Review the ingredients in the salad. Have students call out the plant part for each ingredient. Use the **Visualizing Plant-part Salad** lesson resource p. 240.

Assign about one-fourth of the students to make the dressing. Be sure the students who make the dressing measure out the ingredients. Assign the rest to make the salad. Work with this group and have them divide the tasks of grating carrots, cutting scallions, cutting cauliflower, and tearing parsley.

Have students refer to the page of the **Making Plant-part Salad During Class** lesson resource p. 241 at their station for details of how to make the salad or dressing.

Once the salad is made and the dressing has been incorporated, serve approximately ½ cup portions in the tasting cups.



## Procedure (cont.)

### 11. Name the Plant-part Salad (3 min.)

Have students sit together to enjoy their creation. Encourage them to use descriptive words to describe how it tastes, smells, looks, feels in their mouths, and sounds when they eat it.

The plant-part salad remains nameless! Provide students with a slip of paper, and have them write down a name for the salad. They should not put their name on the slip. Collect the slips and read out the names. Ask students to call out a name they like that was not their own. Once you have three favorite names chosen, have the class vote on their favorite.

Distribute the ***Take Home Plan-part Salad Recipe*** activity sheet p. 243 to students, and have them fill in the name of the salad. They can fill in the name voted as the favorite, the name they came up with, or another name they like. Encourage them to share the recipe and their descriptions of the salad with their families.

### 12. Assign *Capture It* Piece (2 min.)

Remind students that *Capture It* pieces allow them to apply what they are learning in their real lives. Tell them that for this *Capture It*, they are going to take a photo or draw a picture of a plant-based food they like to eat with a friend or family member. Ask students to write a few sentences about why they chose this food and what they like about it. Remind students this *Capture It* piece can be displayed as part of their culminating project in Lesson 10.

### 13. Work on Culminating Project (Remaining time)

Throughout the curriculum, students have done creative projects. In Lesson 1, they created a food farm skit. In Lesson 4, they created a television commercial for a food. They have created two *Capture It* pieces to help them reflect on their food environments. Allow students to spend the remainder of the lesson working on one or more of these projects. They will share these as culminating projects during the last session.



## Close Up

Print and cut out one set for the class.

1



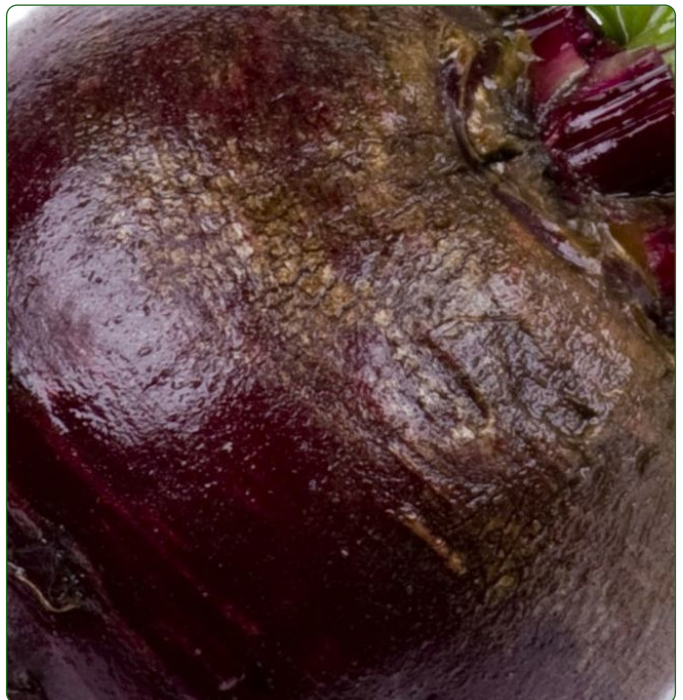
2



3



4



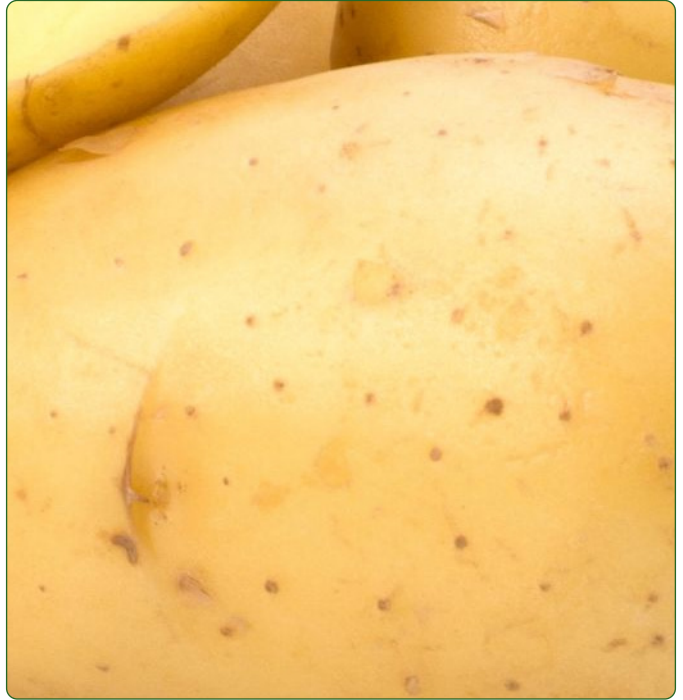


Close Up (cont.)

5



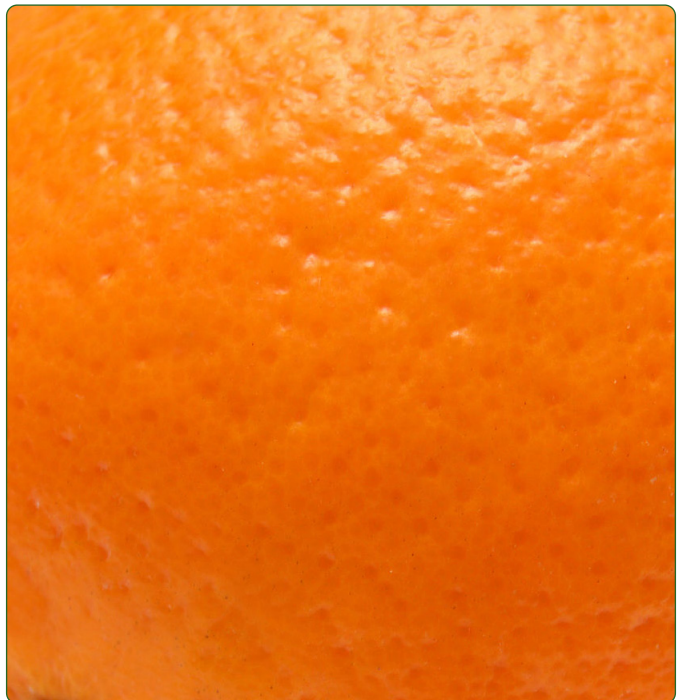
6



7



8





Close Up (cont.)

9



10



11



12



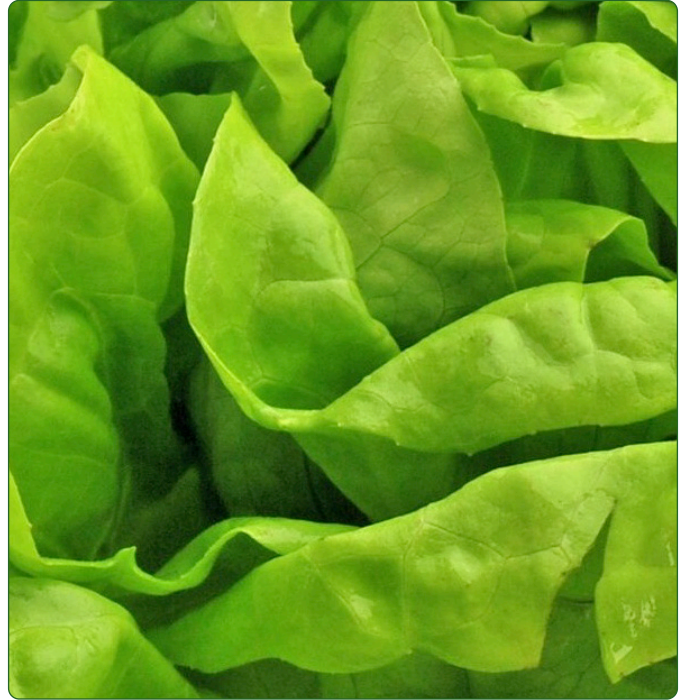


Close Up (cont.)

13



14



15



16







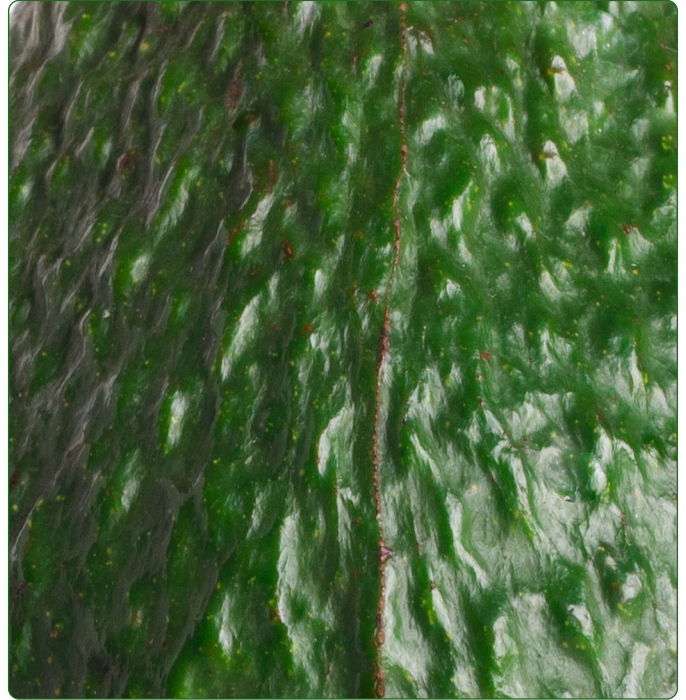
## Cards

### Close Up (cont.)

17



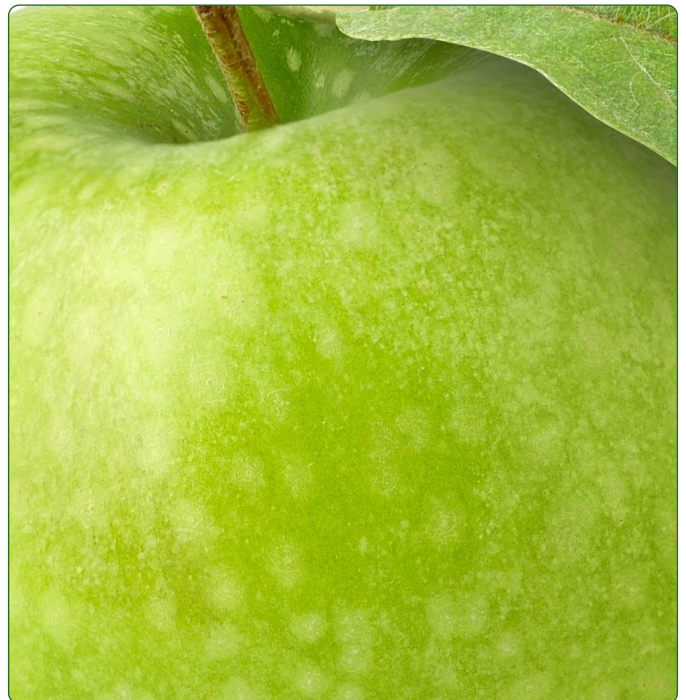
18



19



20





Close Up (cont.)

21



22







Activity Sheet

Name\_\_\_\_\_

Date\_\_\_\_\_

Guess Me

Look at the plant picture, and guess what food it is. Each picture is numbered. Write your guess in the corresponding box below.

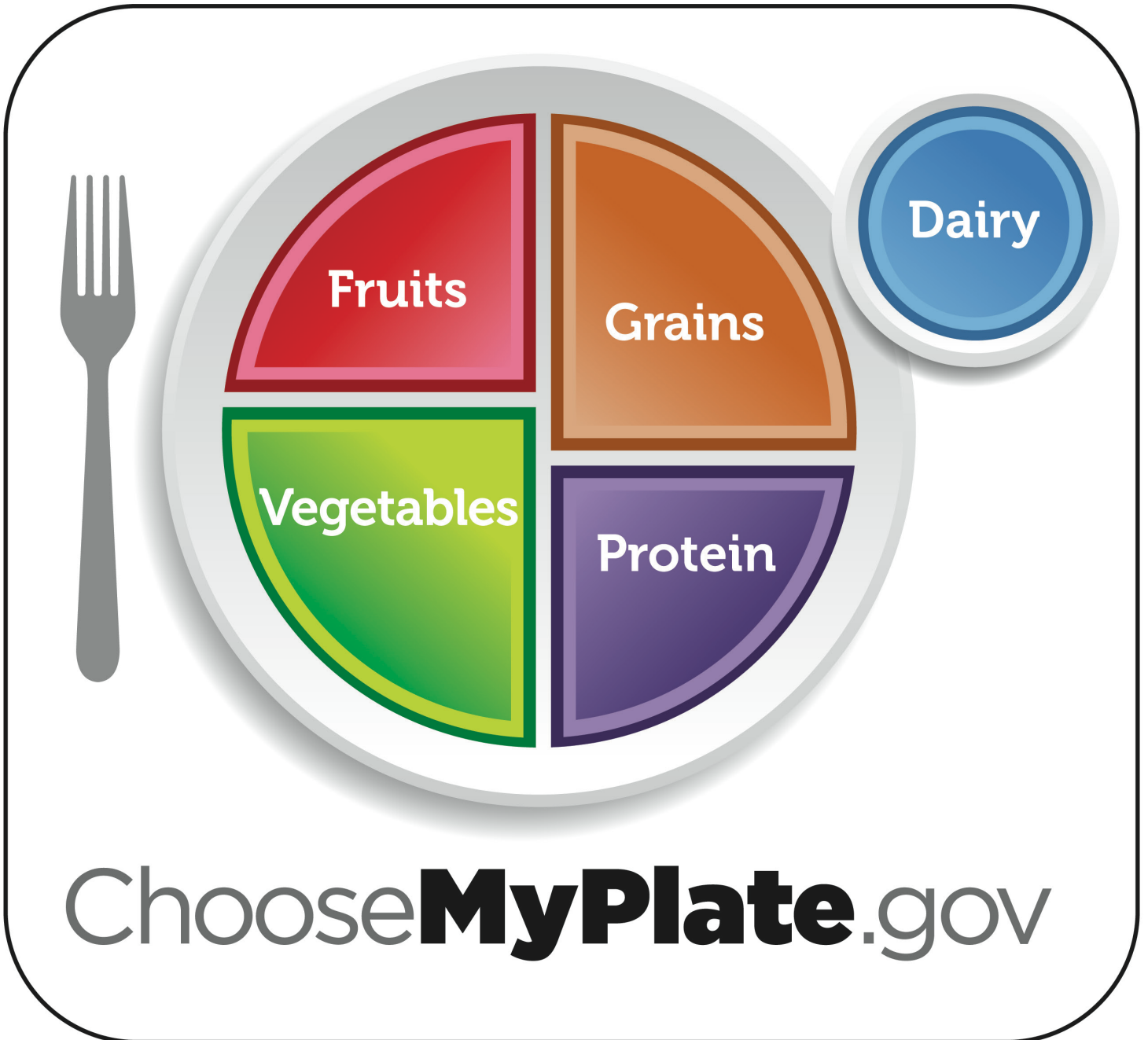
1.	12.
2.	13.
3.	14.
4.	15.
5.	16.
6.	17.
7.	18.
8.	19.
9.	20.
10.	21.
11.	22.

## Close Up Answer Sheet

This sheet provides the answers for the *Close Up* cards.

1. Carrot	12. Celery
2. Cauliflower	13. Cantaloupe
3. Strawberry	14. Lettuce
4. Beet	15. Almond
5. Asparagus	16. Red bean
6. Potato	17. Collard greens
7. Broccoli	18. Avocado
8. Orange	19. Peas
9. Cucumber	20. Apple
10. Sunflower seeds	21. Pineapple
11. Kiwi	22. Cilantro

## MyPlate





## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Plant-food Mysteries

#### To eat mostly plants

Make half your plate **fruits** and **vegetables**!

Fresh are fabulous, and so are:

\_\_\_ r \_\_\_ z \_\_\_ n

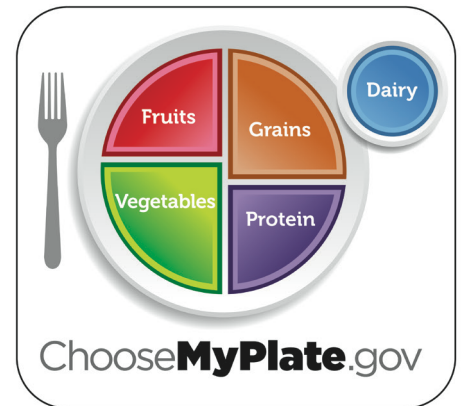
c \_\_\_ n \_\_\_ d

d r \_\_\_ d

Also try:

a \_\_\_ p \_\_\_ e \_\_\_ a u \_\_\_ e

\_\_\_ r u \_\_\_ t s \_\_\_ a d



Have **grains**! Great choices are:

\_\_\_ r \_\_\_ a d

p \_\_\_ s \_\_\_ a

c e \_\_\_ e \_\_\_

r \_\_\_ c \_\_\_

t \_\_\_ r \_\_\_ l l \_\_\_ s

## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Plant-food Mysteries (cont.)

#### To eat mostly plants (cont.)

Make some of your protein **plant-based**! Try:

b \_ \_ a \_ \_ s

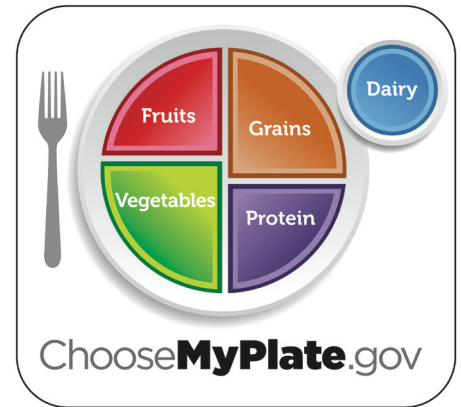
n \_ \_ t \_ \_

s \_ \_ \_ d \_ \_

\_ \_ u \_ \_ m u s

\_ \_ e a \_ \_ \_ t \_ \_ u t \_ \_ e \_ \_

\_ \_ r a \_ \_ l m \_ \_ x



## Plant-food Mysteries Answer Sheet

### To eat mostly plants

Make half your plate **fruits** and **vegetables**!  
Fresh are fabulous, and so are:

f r o z e n

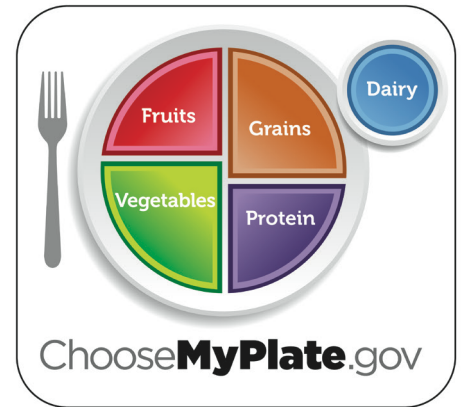
c a n n e d

d r i e d

Also try:

a p p l e      s a u c e

f r u i t      s a l a d



Have **grains**! Great choices are:

b r e a d

p a s t a

c e r e a l

r i c e

t o r t i l l a s



## Plant-food Mysteries Answer Sheet (cont.)

### To eat mostly plants (cont.)

Make some of your protein **plant-based**! Try:

b e a n s

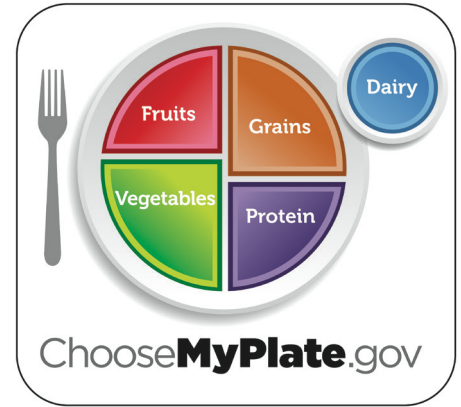
n u t s

s e e d s

h u m m u s

p e a n u t b u t t e r

t r a i l m i x



## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Food Rules Lesson 7

#### Lesson 7: **Rooting for Plants**

Food Rule: \_\_\_\_\_

Eat food. Not too much. Mostly plants.

#### Family Tips

- Make half your plate fruits and vegetables. Make another quarter a grain like rice, bread,   
, u u , L u ,  
a protein source: beans, nuts,   
, u ,  
eggs.
- Eat all different parts of plants: seeds, roots, stems, leaves,   
, u ,
- Try making a trail mix with nuts, seeds, dried fruit, and cereal. Put it in small, resealable bags to have around as a grab-and-go snack.

#### Food Rules from Previous Lessons

##### Eat Food.

- 1 Eat food you can picture growing in nature.
- 2 Eat food with ingredients a third grader, could pronounce! u
- 3 , Avoid products that make, health, claims.

##### Not Too Much.

- 4 Avoid foods you see advertised on television.
- 5 Choose smaller plates and glasses.
- 6 Make water your beverage of choice. Sweeten and salt your food yourself.

*In Defense of Food* f i l m c l i p t h a t a c c o m p a n i e s  
Going Farming!

Watch at <http://bit.ly/idofclip7>

Learn more about *In Defense of Food* at:  
[pbs.org/indefenseoffood](http://pbs.org/indefenseoffood)

## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Mostly Plants Action Plan

A great way to eat mostly plants is to know different plant-based foods you would like to have for meals and snacks. For the breakfast, lunch, dinner, and snacks sections below, circle foods you already eat and those you would like to eat. You can circle as many as you want. If there are other options you would like, write them on the blank lines. Use this list to give you ideas as you make food choices.

Remember, fruits and vegetables can be fresh, frozen, dried, or canned.

### Breakfast

#### Fruits

strawberries  
blueberries  
orange  
apple  
banana  
\_\_\_\_\_  
\_\_\_\_\_

#### Grains

cereal<sup>a</sup>  
oatmeal  
roll  
bagel<sup>a</sup>  
bread<sup>a</sup>  
\_\_\_\_\_  
\_\_\_\_\_

#### Protein

almonds  
peanuts  
peanut butter<sup>b</sup>  
peanuts  
\_\_\_\_\_  
\_\_\_\_\_

### Lunch

#### Fruits

peach  
nectarine  
grapes  
apple  
kiwi  
\_\_\_\_\_  
\_\_\_\_\_

#### Vegetables

broccoli  
green beans  
collard greens  
salad  
cucumbers  
\_\_\_\_\_  
\_\_\_\_\_

#### Grains

bread<sup>a</sup>  
rice<sup>c</sup>  
tortillas<sup>a</sup>  
pasta<sup>a</sup>  
crackers<sup>a</sup>  
\_\_\_\_\_  
\_\_\_\_\_

#### Protein

beans  
cashews  
peanut butter<sup>b</sup>  
hummus  
bean soup  
\_\_\_\_\_  
\_\_\_\_\_

Footnotes:

<sup>a</sup> Pay attention to the amount of sugar.

<sup>b</sup> If you are using peanut butter, make sure it is 100% peanuts and does not contain any added sugar or oil.

<sup>c</sup> Try brown rice instead of white rice when you can.



# Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

## Mostly Plants Action Plan (cont.)

### Dinner

#### Fruits:

orange  
pears  
cantaloupe  
watermelon  
plum  
\_\_\_\_\_  
\_\_\_\_\_

#### Vegetables:

u  
spinach  
butternut squash  
beets  
asparagus  
\_\_\_\_\_  
\_\_\_\_\_

#### Grains:

bread<sup>a</sup>  
rice<sup>c</sup>  
tortillas<sup>a</sup>  
pasta<sup>a</sup>  
quinoa  
\_\_\_\_\_  
\_\_\_\_\_

#### Protein:

beans  
cashews  
peanut butter<sup>b</sup>  
hummus  
bean soup  
\_\_\_\_\_  
\_\_\_\_\_

### Snack

#### Fruits:

apple  
orange  
banana  
blueberries  
honey dew  
\_\_\_\_\_  
\_\_\_\_\_

#### Vegetables:

carrots  
peppers  
celery  
snow peas  
cucumber  
\_\_\_\_\_  
\_\_\_\_\_

#### Grains:

cereal<sup>a</sup>  
cereal bars<sup>a</sup>  
pita bread<sup>a</sup>  
oatmeal  
crackers<sup>a</sup>  
\_\_\_\_\_  
\_\_\_\_\_

#### Protein:

hummus  
walnuts  
,  
pumpkin seeds  
trail mix  
\_\_\_\_\_  
\_\_\_\_\_

## Action Plan

Add a plant-based food that you usually do not eat.

Twice in the next week, I will have \_\_\_\_\_  
write in a plant-based food here

at \_\_\_\_\_  
choose when: breakfast, lunch, dinner, or snack

#### Footnotes:

<sup>a</sup> I , , , u , u , , u , , , , ,

attention to the amount of sugar.

<sup>b</sup> f , , , u , fi , u , , , u , u , u

<sup>c</sup> Try brown rice instead of white rice when you can.

## Edible Plants

Allow students to share all the plant parts they have already tried or are familiar with, and help them categorize them. You can supplement with this list below.

Seeds	Roots	Stems	Leaves	Flowers	Fruit
Sunflower seeds Sesame seeds Pumpkin seeds Beans (all varieties) Lentils Peas Walnuts Pecans Almonds Peanuts Wheat Rice Chickpeas	Carrots Beets Parsnips Radishes Daikon Turnip Celeriac Rutabaga Jicama	Asparagus Potato <sup>a</sup> Celery Hearts of Palm Rhubarb Bamboo shoots Broccoli stems Ginger <sup>a</sup> Taro	Lettuce Collard greens Cilantro Parsley Basil Cabbage Spinach Beet greens Swiss chard Bok choy Kale Leek Onion <sup>b</sup>	Cauliflower Broccoli Artichoke Squash blossoms Marigolds <sup>c</sup>	Strawberry Orange Cucumber <sup>d</sup> Kiwi Cantaloupe Avocado <sup>d</sup> Apple Pineapple Bell peppers <sup>d</sup> Eggplant <sup>d</sup> Squash <sup>d</sup> Tomato <sup>d</sup> Tomatillo <sup>d</sup> Chili pepper <sup>d</sup> Zucchini <sup>d</sup> Melons Tangerine Lemon Lime Berries Pears Cherries Peaches Green beans <sup>e</sup> Snow peas <sup>e</sup> Sugar snap peas <sup>e</sup>

Footnotes:

- Ginger and potatoes – even though we may think of them as roots since they are under the soil, they are actually underground stems!
- Onions – even though we may think of an onion as a root because it grows under the soil, the part we eat is actually a leaf.
- Marigold flowers – some flowers, like marigolds, are pretty to look at and tasty to eat.
- When we think about the parts of plants we eat, we are thinking like a plant scientist, or botanist. To a botanist, anything that has seeds or a pit inside is the fruit of the plant. Many things that are vegetables to a chef are a fruit when we are thinking about them as a plant part.
- Pods with seeds inside are a fruit when we think about them as a plant part.

## Visualizing Plant-part Salad

Discovering there are so many parts of the plant that are edible and delicious can make eating mostly plants much easier. Below is a recipe for a plant-part salad that uses all parts of the plant discussed in this lesson: seeds, roots, stems, leaves, flowers, and fruits.

**SEEDS.** Student may have tried sesame seeds in Lesson 1 as part of hummus or in Lesson 6 in the Chinese popcorn shaker mix.

**LEAVES.** As the name indicates, a **spring onion**, or **scallion**, is part of the onion family. The little white bulb grows underground and the light green leaves shoot up from the ground. You can eat them both. Just cut off the tiny roots at the base of the bulb.

**ROOTS.** Most of us think of **carrots** as being orange, but did you know they also come in other colors like white, yellow, red, and purple?

**FRUITS.** **Cranberry** is a fruit that grows on dwarf shrubs. At first, the berries are white. They turn red as they ripen.



**FLOWERS AND STEMS.** As the name implies, the top of the **cauliflower** is a flower, but the stalk is a stem.

**LEAVES.** **Parsley** is an herb. We typically eat the leaves of the plant.

**SEEDS.** **Wild rice** is in the grass family. It is native to North America and grew wild in the upper great lakes of the U.S. and Canada. Native Americans would harvest wild rice by using beater sticks to knock the ripe seeds off the grass into the bottoms of their canoes.

**SEEDS.** Students may have tried **edamame** in Lesson 1. As with all beans, it is a seed.



## Making Plant-part Salad During Class

Place this page by the salad-making station. Makes enough for 10–15.



Salad ingredients	Salad materials
<ul style="list-style-type: none"> <li>• Cooked wild rice</li> <li>• Spring onions (scallions)</li> <li>• Edamame</li> <li>• Carrots</li> <li>• Cauliflower</li> <li>• Parsley</li> <li>• Dried cranberries</li> <li>• Sesame seeds</li> </ul>	<ul style="list-style-type: none"> <li>• Large bowl</li> <li>• Large spoon</li> <li>• 2 graters (for carrots)</li> <li>• 2 plastic knives (for cauliflower)</li> <li>• 2 cutting boards or large paper plates (for slicing cauliflower)</li> <li>• 2 pairs kitchen scissors (for spring onion)</li> <li>• Small bowl (for torn parsley)</li> <li>• Set of measuring cups</li> <li>• Set of measuring spoons</li> </ul>

### Directions for Salad

- ☐ 1. Add wild rice to the large mixing bowl.
- ☐ 2. Use the kitchen scissors to cut the 3 spring onions into small pieces, from the green tip to the white stem. Do not use the roots. Add spring onions to the large mixing bowl.
- ☐ 3. Measure 2 cups edamame. Add them to the large mixing bowl.
- ☐ 4. Grate 2 carrots. Add grated carrots to the large mixing bowl.
- ☐ 5. Break ½ head cauliflower into bite-sized pieces. Cut any pieces you can't break. Add cauliflower to the large mixing bowl.
- ☐ 6. Tear parsley leaves into small pieces, placing them in a small bowl. Measure out 1 heaping cup, and add it to the large mixing bowl.
- ☐ 7. Measure ¾ cup dried cranberries, and add them to the large mixing bowl.
- ☐ 8. Measure 2 tablespoons sesame seeds, and add them to the large mixing bowl.
- ☐ 9. Add the dressing to the salad, and gently stir the entire mixture until all ingredients are combined.

## Making Plant-part Salad During Class (cont.)

Place this page by the salad-making station.

Dressing ingredients	Dressing materials
<ul style="list-style-type: none"> <li>• Kosher salt</li> <li>• Black pepper</li> <li>• Sesame oil</li> <li>• Rice vinegar</li> <li>• Honey</li> </ul>	<ul style="list-style-type: none"> <li>• Small bowl</li> <li>• Fork</li> <li>• Large plate</li> <li>• Set of measuring cups</li> <li>• Set of measuring spoons</li> </ul>

### Directions for Dressing

- ☐ 1. Measure ingredients over the large plate to prevent spills.
- ☐ 2. Put 1 teaspoon kosher salt and 1 teaspoon black pepper into the small bowl.
- ☐ 3. Add 5 tablespoons sesame oil.
- ☐ 4. Add  $\frac{1}{4}$  cup rice vinegar.
- ☐ 5. Add 2 teaspoons honey.
- ☐ 6. Mix dressing with a fork until blended.
- ☐ 7. Add dressing to the salad, and gently stir entire mixture until ingredients are combined.



Name \_\_\_\_\_

Date \_\_\_\_\_

## Take Home Plant-part Salad Recipe

### Ingredients

- 1½ cups wild rice, cooked according to package directions
- 3 medium spring onions (scallions), sliced
- 2 cups cooked and shelled edamame
- 2 medium carrots, grated
- 1 cup parsley leaves, torn into small pieces
- ¾ cup dried cranberries
- 2 tablespoons sesame seeds
- 1 teaspoon kosher salt
- 1 teaspoon black pepper
- 5 tablespoons sesame oil
- ¼ cup rice vinegar
- 2 teaspoons honey



Time: Active time 20 minutes

Makes 5-6 cups

### Directions

1. In a large bowl, combine wild rice, scallions, edamame, carrots, parsley, cranberries, and sesame seeds. Stir to combine.
2. In a small bowl, combine kosher salt, black pepper, sesame oil, rice vinegar, and honey. Whisk with a fork until well blended. Drizzle dressing over the rice mixture.
3. Stir to combine.
4. Enjoy!





## LESSON 8:

# COLOR YOUR WORLD

## First Bite

Imagine eating the same meal—chicken and rice—three times a day, every day, for an entire month. By the end of the month, you'd likely be so tired of it that you'd lose your appetite. Most people get bored when they eat the same thing over and over, and even end up eating less compared to when they're offered a variety of foods.<sup>1-3</sup> This phenomenon is called sensory-specific satiety, and it's driven by our evolutionary history.<sup>4</sup> Because humans require a diverse array of nutrients, our brains are wired to crave a variety of foods. This instinctive drive for nutrients is also why a plate filled with a variety of colors looks more appealing than a monotone plate. For example, that chicken and rice meal can be made more appetizing by mixing black beans in with the rice, grilling red pepper with the chicken, and adding broccoli on the side.

### Dietary Variety: Double-edged Sword

Our innate drive to consume many different foods can either be health-promoting or health-detracting depending on the type of foods (or froods) we select. If we fill our plate with vibrant, bright food such as fruits, vegetables, fish, beans, and whole grains, we will be more excited to eat these rich sources of nutrients. However, just as our biology drives us to eat a variety of healthy foods, it can also motivate us to consume more saturated fat, sugar, and total calories than we need when presented with a variety of unhealthy froods.<sup>5-6</sup>

### Taste The Rainbow

We can hack into our brain for the better by creating a rainbow of real food at each meal. The first step to create a vibrant plate is to purchase vibrant ingredients. At the grocery store, opt for colorful fruits and vegetables with the deepest, richest shades of green, blue, purple, red, orange, and yellow. Select beans with deep, rich colors

and whole grains with more color such as brown rice and steel-cut oats. You can often find uniquely colored foods at farmers markets, such as purple and yellow carrots or blue potatoes. Shopping there also offers the added benefits of eating seasonally, supporting local farmers, boosting the regional economy, and fostering a sense of community.

Building a rainbow plate will not only make eating more fun, but it will also be better for you. Eating a diverse diet of colorful, nutritious foods is associated with less excess weight, a more diverse gut microbiome, reduced risk of diabetes, and even reduced incidence of depression and cognitive decline.<sup>7-9</sup>

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## LESSON 8: COLOR YOUR WORLD

### Aim

Build confidence and desire to eat mostly plants.

### Food Rule

**Eat your colors.**

### Film Clip

**Vegetable Surprise**

### Objectives

Students will be able to:

- identify a variety of different-colored fruits and vegetables that they could eat;
- express increased enthusiasm for eating different-colored fruits and vegetables;
- appreciate the taste of different-colored fruits and vegetables; and
- demonstrate increased confidence in their ability to add different-colored fruits and vegetables to their diets.

### Overview

This lesson begins with a guessing game to expose students to a variety of fruits and vegetables. After brainstorming fresh fruits and vegetables in each color category, students discuss what it means to eat their colors. Students then examine what they eat and think about ways to eat more colors through plant-based foods. Next, students learn the Food Rule, “Eat your colors,” and discuss how they can make eating plant-based foods into a habit. Finally, students watch an *IDOF* film clip in which other kids get excited about trying plant-based foods before making and eating a colorful dish themselves.

### Materials

#### In this guide

- **5-color Salad** preparation sheet p. 247
- **Secret Garden** cards p. 252
- **Color Columns** activity sheet p. 256
- **Food Rules Lesson 8** activity sheet p. 257
- **Eat Your Colors Action Plan** activity sheet p. 258
- **Making 5-color Salad During Class** lesson resource p. 259
- **Take Home 5-color Salad Recipe** activity sheet p. 260

#### Other materials

- *IDOF* film clip 8: Vegetable Surprise and AV equipment
- All ingredients and cooking materials from **5-color Salad** preparation sheet p. 247
- Countertop cleaner
- Paper towels
- Tape

#### For each small group

- Sheet chart paper
- Several markers

#### For each student:

- Pencil
- Plate
- Fork



## Before You Begin: Total prep time: approximately two hours

### Within a few days before lesson

1. Purchase ingredients and gather cooking materials. See **5-color Salad** preparation sheet p. 247 for details.
2. Review the entire lesson.

### Within a day before lesson

3. Print and cut out cards:
  - **Secret Garden** cards p. 252, one set for each small group.
4. Print one copy per student of each activity sheet:
  - **Color Columns** activity sheet p. 256
  - **Food Rules Lesson 8** activity sheet p. 257
  - **Eat Your Colors Action Plan** activity sheet p. 258
  - **Take Home 5-color Salad Recipe** activity sheet p. 260
5. **Brainstorming fruits and vegetables:** On the board or chart paper, draw a table with 5 columns: red, orange, yellow, green, and blue/purple. See the **Color Columns** activity sheet for details.
6. **Viewing IDOF film clip:**
  - Set up AV equipment and space for film viewing.
  - Find IDOF film clip 8: Vegetable Surprise at <http://bit.ly/idofclip8>
7. **Preparing 5-color salad:**
  - Print **Making 5-color Salad During Class** lessons resource p. 259, at least 2 copies to be placed at the cooking station. Print more copies if you have a large class.
  - Clean all food preparation and eating surfaces with countertop cleaner.
  - Set up the salad-making station with ingredients and cooking materials. See **Making 5-color Salad During Class** lessons resource for details.
8. **Culminating project:** Have all students' culminating projects ready for them to work on.



### 5-color Salad

Students make 5-color Salad to learn about the variety of colors in plant-based foods.

#### Shop for ingredients

This makes enough for 10-15 students. Double ingredients if you have over 15 students.

- Mixed beans (need 2 15-oz. cans)
- Peppers (3 different colors, if available in your grocery store)
- Small head of red cabbage (need  $\frac{1}{4}$  head)
- Small bunch parsley (need 1 cup leaves)
- Corn kernels (frozen is best, need 2 cups)
- Celery (need 3 stalks)
- Olive oil (need  $\frac{1}{4}$  cup)
- 2 lemons (need 3 tablespoons lemon juice)
- Kosher salt (need  $\frac{1}{2}$  teaspoon)
- Cumin (need 2 teaspoons)
- Cayenne pepper (need a pinch)

#### Gather equipment

- Medium bowl (for drained mixed beans)
- Large bowl
- Large spoon
- 3 plastic knives
- 3 cutting boards or large paper plates (for slicing peppers)
- 3 pairs of scissors (for cutting cabbage)
- Small bowl (for torn parsley)
- Citrus juicer (for lemons)
- Small bowl (for lemon juice)
- Set of measuring cups
- Set of measuring spoons

#### Complete advanced preparation of ingredients

- **Beans:** Open cans of mixed beans, drain liquid, and rinse with water. Put in a medium bowl for students.
- **Peppers:** Wash, slice in half, and pull out seeds in the center.
- **Red cabbage:** Wash, cut off one fourth, and separate leaves.
- **Parsley:** Wash and dry leaves; cut off and discard stems.
- **Corn:** Rinse to thaw frozen corn kernels.
- **Celery:** Rinse stalks.
- **Lemons:** Cut in half.





## Procedure

Total lesson time: 120 min (2 60-min. parts)

### Part 1 (60 min.)

#### 1. Check in on Action Plans (5 min.)

Remind students that in Lesson 7 they completed the **Mostly Plants Action Plan** activity sheet p. 237 where they made a plan to eat more plant-based foods. Ask students to share their successes. Compliment students on the changes they have been able to make. Ask students to share challenges. Encourage peer-to-peer interaction about how to overcome challenges. Remind students to keep working on their current and previous action plans.

#### 2. Review Capture It Piece (5 min.)

Ask students to get out their *Capture It* piece, assigned in Lesson 7, to capture a plant-based food in their home or community that they like to eat. Have students join you in a sharing circle.

Ask for volunteers to share their *Capture It* pieces. If anybody has more than one *Capture It* piece, instruct them to select one. Once all the students who wish to share have done so, ask students what they learned from doing their own *Capture It* and from sharing.

#### 3. Guess the Fruit or Vegetable (10 min.)

Tell students they will play a guessing game called secret garden. Write three prompts on the board or chart paper: *What color is it? What does it taste like? What is the texture?* Tell students they will each be assigned a fruit or vegetable. They have to guess what it is based on their peers' answers to these three questions. Tell students not to give away the fruit or vegetable when answering their peers' questions. For example, if their peer has a card with carrot, do not say, "it tastes 'carrot-y.'"

Select one **Secret Garden** card p. 252 to demonstrate, calling on students to answer your three questions.

Divide the class into small groups, and provide each group with a set of **Secret Garden** cards placed facedown. Have all students in the group draw cards at the same time and hold their cards word-side out on their foreheads. Tell students to have one person ask the three questions and guess their food card. If correct, put the card face up, if incorrect, face down. The next person in the group asks the questions and so on. When each student has gone, everyone draws another card. Give students 10 minutes to play the game. The student in the group that has the most



## Procedure (cont.)

correct guesses wins. Allow groups to keep the **Secret Garden** cards for the next activity.

### 4. Brainstorm Fruits and Vegetables (10 min.)

Tell students to work in their small groups to come up with as many fruits and vegetables in each color category—red, orange, yellow, green, and blue/purple—as possible. Provide each student with a **Color Columns** activity sheet p. 256 and a pencil. Once they are done, have groups write the total number of fruits and vegetables per color in the space at the bottom of each column. If you have not already, draw the table from the **Color Columns** activity sheet on board or chart paper.

Determine the group with the most fruits and vegetables in the red column. Have that group come to the front of the room and ask their classmates to call out fruits and vegetables that are red. Write them onto the board or chart paper in the red column. Also include what the group had on its sheet.

Students should then ask their peers the following discussion questions:  
*Are any fruits or vegetables on this list ones that you have not tried? Which fruits and vegetables from this list are foods that your family cooks at home? Which is your favorite?*

Repeat this activity for each color column.

### 5. Learn the Food Rule (5 min.)

Explain to students that the Food Rule for this lesson is, “Eat your colors.” Distribute the **Food Rules Lesson 8** activity sheet p. 257, and have students write in the Food Rule. Encourage students to take home the sheet and discuss the Food Rule with their families.

### 6. Brainstorm How to Eat More Colors (15 min.)

Provide each small group with a sheet of chart paper and several markers. Ask them to brainstorm specific ways they can add a variety of colors of fruits and vegetables to their meals and snacks. Have them record their ideas on chart paper. Remind them to be specific, similar to their action plans. For example, “take 3 different-colored vegetables at the salad bar at school lunch” is more specific than “eat vegetables at school.” Explain that each group will share one idea. Give groups about 5–10 minutes, and then have each group tape its chart paper to a wall. Allow each group to share one of its favorite ideas. If time allows, ask each group to share a second idea. Encourage students to look at the ideas generated by all groups.

**Probing Questions:** *Have you ever heard of the terms “eat your colors?” What do you think it means?*







## Procedure (cont.)

### 10. Work on Culminating Projects (20 min.)

Throughout the curriculum, students have done creative projects. In Lesson 1, they created a food farm skit. In Lesson 4, they created a television commercial for a food. They have created three *Capture It* pieces to help them reflect on their food environments. Allow students to spend the remainder of the lesson working on one or more of these projects. They will share these as culminating projects during the last session.



## Cards

### Secret Garden

Print one set for each small group.

orange

pineapple

red  
pepper

potato

cucumber

edamame





Secret Garden (cont.)

eggplant

grape

u

cherry

yellow  
pepper

papaya



## Cards

### Secret Garden (cont.)

corn

peach

cranberry

pumpkin

blueberry

turnip



Secret Garden (cont.)

mushroom

mango

avacado

green  
pepper

plum

carrot





Activity Sheet

Name\_\_\_\_\_

Date\_\_\_\_\_

Color Columns

8 , , , , , u , u , , u ,  
the columns below. Then, tally up all the fruits and vegetables you came up with for each color, and write the totals in the boxes at the bottom.

<div>Red</div> <div></div>	<div>Orange</div> <div></div>	<div>Yellow</div> <div></div>	<div>Green</div> <div></div>	<div>Blue/Purple</div> <div></div>
<div>Total</div> <div></div>	<div>Total</div> <div></div>	<div>Total</div> <div></div>	<div>Total</div> <div></div>	<div>Total</div> <div></div>



## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Food Rules Lesson 8

#### Lesson 8: **Color Your World**

Food Rule: \_\_\_\_\_

**Eat food. Not too much. Mostly plants.**

#### Family Tips

- Look for fruits and vegetables that are deep, rich shades of green, blue, purple, red, orange, and yellow. Deeper colors have more of the special compounds in plant-based foods that make them so healthy.
- Try to serve meals with plenty of colors. They will be more visually appealing, more delicious, and more nutritious.
- If there is a farmers market in your community, shop there when you can.

#### Food Rules from Previous Lessons

##### **Eat Food.**

- 1 Eat food you can picture growing in nature.
- 2 Eat food with ingredients a third grader could pronounce.
- 3 Avoid products that make health claims.

##### **Not Too Much.**

- 4 Avoid foods you see advertised on television.
- 5 Choose smaller plates and glasses.
- 6 Make water your beverage of choice. Sweeten and salt your food yourself.

##### **Mostly Plants.**

- 7 If it came from a plant, eat it. If it was made in a plant, don't.

*In Defense of Food* film clip that accompanies  
Vegetable Surprise

Watch at <http://bit.ly/idofclip8>

Learn more about *In Defense of Food* at:  
[pbs.org/indefenseoffood](http://pbs.org/indefenseoffood)

## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Eat Your Colors Action Plan

Now that you know of all the different fun colors that fruits and vegetables come in, create an action plan to help you eat more colors!

#### My Action Plan: (example)

I am going to eat a: red tomato by adding it to my sandwich.  
(color) (plant-based food) (a food I eat)

Time of day (check one):

- ☐ At breakfast
- ☐ In the morning
- ☒ At lunch
- ☐ In the afternoon
- ☐ At dinner
- ☐ In the evening

Days of the week (check as many as you like):

- ☐ Sunday
- ☐ Monday
- ☒ Tuesday
- ☐ Wednesday
- ☒ Thursday
- ☐ Friday
- ☐ Saturday

#### My Action Plan:

I am going to eat a: \_\_\_\_\_ by adding it to \_\_\_\_\_.  
(color) (plant-based food) (a food I eat)

Time of day (check one):

- ☐ At breakfast
- ☐ In the morning
- ☐ At lunch
- ☐ In the afternoon
- ☐ At dinner
- ☐ In the evening

Days of the week (check as many as you like):

- ☐ Sunday
- ☐ Monday
- ☐ Tuesday
- ☐ Wednesday
- ☐ Thursday
- ☐ Friday
- ☐ Saturday



## Making 5-color Salad During Class

Place this page by the salad-making station.

Salad ingredients	Salad materials
<ul style="list-style-type: none"> <li>• Mixed beans</li> <li>• Peppers</li> <li>• Red cabbage</li> <li>• Parsley</li> <li>• Corn</li> <li>• Celery</li> <li>• Olive oil</li> <li>• Lemons</li> <li>• Cumin</li> <li>• Salt</li> <li>• Cayenne pepper</li> </ul>	<ul style="list-style-type: none"> <li>• Large bowl</li> <li>• Large spoon</li> <li>• 3 plastic knives (for peppers and celery)</li> <li>• 3 pairs of scissors (for shredding red cabbage)</li> <li>• Cutting board or paper plates (for peppers and celery)</li> <li>• Small bowl (for torn parsley)</li> <li>• Citrus juicer</li> <li>• Small bowl (for lemon juice)</li> <li>• Set of measuring cups</li> <li>• Set of measuring spoons</li> </ul>

### Directions for Salad

- ☐ 1. Add 2 cans mixed beans to large bowl.
- ☐ 2. Cut 3 peppers into small pieces. Add peppers to large bowl.
- ☐ 3. Cut 3 stalks celery into small pieces. Add celery to large bowl.
- ☐ 4. Use scissors to cut cabbage leaves into thin strips. Add cabbage strips to the large bowl.
- ☐ 5. Tear parsley leaves into small pieces, placing them in a small bowl. Measure out 1 heaping cup and add it to the large bowl.
- ☐ 6. Measure 2 cups corn kernels. Add corn to the large bowl.
- ☐ 7. Juice lemons with citrus juicer. Measure 3 tablespoons lemon juice and add to small bowl.
- ☐ 8. Measure  $\frac{1}{4}$  cup olive oil and add to the small bowl.
- ☐ 9. Measure 2 teaspoons cumin and add to the small bowl.
- ☐ 10. Measure  $\frac{1}{2}$  teaspoons of salt and add to the small bowl.
- ☐ 11. Take 1 pinch of cayenne pepper and add to the small bowl.
- ☐ 12. Use one of the measuring spoons to stir the lemon juice mixture.
- ☐ 13. Pour lemon juice mixture over salad in large bowl. Stir everything together with large spoon.

Name\_\_\_\_\_

Date\_\_\_\_\_

## Take Home 5-color Salad Recipe

### Ingredients

- 15 ounce can of mixed beans, drained and rinsed
- 2 peppers (different colors if possible), de-seeded and chopped
- ½ cup red cabbage, shredded
- ½ cup chopped parsley leaves
- 1 cups frozen corn, rinsed to thaw
- 2 stalks celery, chopped
- 2 tablespoons olive oil
- 1½ tablespoons lemon juice
- 1 teaspoons cumin
- ¼ teaspoon salt
- pinch of cayenne pepper

Makes 5–6 cups

### Directions

1. Place all ingredients in a large bowl. Stir to combine. Enjoy!





## LESSON 9:

# LETTUCE TURNIP THE BEET

## First Bite

“Bon appétit,” “à la carte,” “sauté,” and “entrée” are just a few of the phrases Americans have borrowed from France to describe the culinary experience. Phrases such as these serve to highlight the cultural importance the French prescribe to food and eating. In addition to borrowing culinary phrases from the French, we would do well in America to borrow French culinary traditions. The traditional French eating style includes three meals a day, taken in groups around a table at fixed times. These meals involve relatively high preparation time and meal duration, and they typically include a variety of foods over three courses.<sup>1</sup> Following historical, cultural eating habits can help us embrace a healthier lifestyle focused on intentional preparation and mindful eating

### Cultural Cuisine

France is not the only country with culinary traditions worth emulating. A variety of regional cultural diets can (and should!) be celebrated as part of a healthy lifestyle, including diets from the Mediterranean, Latin America, East Asia, and Africa.<sup>2-4</sup> In particular, the Mediterranean diet, which emphasizes seasonal fruits and vegetables, seeds, nuts, olive oil, and fish, has been extensively researched and linked to lower incidence of hypertension, metabolic syndrome, diabetes, neurodegenerative disorders, cardiovascular disease, and obesity.<sup>5</sup> By ditching the Western diet characterized by high intake of processed foods, red meat, sugars, and soft drinks, we can welcome in a wide range of health benefits.<sup>6</sup>

### Nothing Beats a Home-cooked Meal

One common thread among traditional diets is, historically, they all involved preparing food at home. Cooking food at home is not only associated with increased fruit and vegetable intake, but it also offers psychosocial benefits such as greater development of personal relationships and establishment of stronger cultural identities.<sup>7</sup> After the food is cooked, we mustn't

overlook the importance of how we eat it! Sharing meals together at home is linked with decreased risk of obesity, eating disorders, violence, and substance abuse and greater rates of academic achievement among adolescents. Additionally, family meals are associated with better family communication, family cohesion, and parent-child relationships.<sup>8-9</sup>

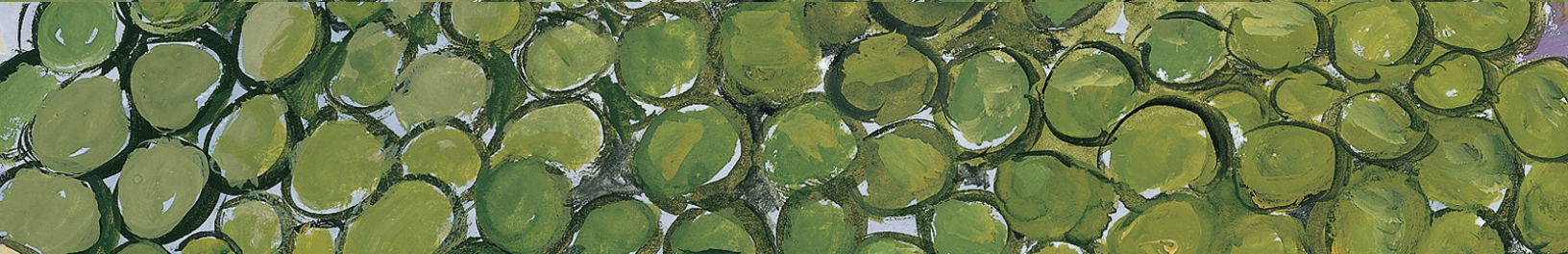
### Follow the Rules...Most of the Time

As we wrap up the *IDOF Food Rules*, we must make one important caveat. These rules are catchy, memorable ways to help us eat well. However, we will be more successful in the long-term if we are not too restrictive or obsessed with what we eat. So, follow the rules—most of the time.

### References

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## LESSON 9:

# LETTUCE TURNIP THE BEET

## Aim

Create practical strategies to keep following the Food Rules, most of the time.

## Food Rule

**Eat more like the French do.**

## Film Clip

Secrets of the French

## Objectives

Students will be able to:

- discuss a plant-based food from their own culture;
- strategize solutions to barriers to eating healthy by providing advice to others;
- assess their own abilities to make healthy changes; and
- prepare and share a plant-based dish with their peers.

## Overview

In this lesson, students wrap up *Mostly Plants*. By sharing a favorite plant-based food from their own family or culture and watching an *IDOF* film clip, they gain appreciation for how other cultures eat. Then they work in small groups to review challenges faced by other kids who are trying to eat healthfully. Students revisit their action plans and consider how to make them routine. They prepare a poster board with their culminating project to be displayed during the celebration in Lesson 10. Students look back on everything they've learned and see how they have become food defenders. Finally, after making a plant-based dish, they sit and enjoy it together to practice the Food Rule, "Eat more like the French do."

## Materials

### In this guide

- *Melon Mint Parfait* preparation sheet p. 264
- *Food Rules Lesson 9* activity sheet p. 269
- *Scenario* cards p. 270
- *Consider This* cards p. 271
- *Give Advice* lesson resource p. 272
- *Taking Action* activity sheet p. 274
- *Making Melon Mint Parfait During Class* lesson resource p. 278
- *I am a Food Defender* activity sheet p. 277
- *Take Home Melon Mint Parfait* activity sheet p. 279

### Other materials

- *IDOF* film clip 9: Secrets of the French and AV equipment

### Other materials (cont.)

- All ingredients and cooking materials from the *Melon Mint Parfait* preparation sheet p. 264

- Countertop cleaner
- Paper towels
- Markers
- Glue sticks
- Colored pencils or markers

#### For each student:

- Index card
- Pencil
- Poster board (about 28"x22")
- Culminating projects they are working on (e.g., *Capture It*, poem, skit, ad)
- Clear plastic cup
- Spoon

To learn more about *In Defense of Food*, visit [pbs.org/indefenseoffood](http://pbs.org/indefenseoffood). Funding was provided by the National Science Foundation and PBS.



## Before You Begin: Total prep time: approximately two hours

### Within a few days before lesson

1. Purchase ingredients, and gather cooking materials. See *Melon Mint Parfait* preparation sheet p. 264 for details.
2. Review the entire lesson.

### Within a day before lesson

3. Print and cut out cards:
  - *Scenario* cards p. 270, one set for each small group
  - *Consider This* cards p. 271, one set for each small group
4. Print one copy per student of each activity sheet:
  - *Food Rules Lesson 9* activity sheet p. 269
  - *Taking Action* activity sheet p. 274
  - *I am a Food Defender* activity sheet p. 277
5. Viewing IDOF film clip:
  - Set up AV equipment and space for film viewing.
  - Find IDOF film clip 9: Secrets of the French at <http://bit.ly/idofclip9>
6. Culminating project: Have all students' culminating projects ready for them to work on.
7. Preparing melon mint parfait:
  - Print *Making Melon Mint Parfait During Class* lessons resource p. 278, at least 2 copies to be placed at the cooking station. Print more copies if you have a large class.
  - Clean all food preparation and eating surfaces with countertop cleaner.
  - Set up the parfait making station with ingredients and cooking materials. See *Making Melon Mint Parfait During Class* lessons resource for details.

### Melon Mint Parfait

Students will make a Melon Mint Parfait and shared a plant-based snack together. This is enough for 10–15 students to taste ½ cup portions. Adjust amounts for the number of students you have.

#### Shop for ingredients

- Melon (purchase whole or peeled and cut; get cantaloupe, honey dew, watermelon, or a combination, need 4 cups)
- Citrus fruit (purchase whole or peeled and cut; get grapefruit, oranges, or both, need 2 cups)
- Mixed fruit (choose any fruit not already used, need 2 cups)
- Small bunch of mint (need ½ cup)
- Plain yogurt (need 2 cups)
- Granola (need 1 cup)
- Nuts or seeds (e.g., pistachios, almonds, or sunflower seeds, need 1 cup)
- Honey (need ½ cup)

#### Gather materials

- Large bowl
- Large spoon
- 3 plastic knives
- 3 plastic cutting boards or paper plates (for cutting fruit)
- 4 small spoons
- Set of measuring cups
- Set of measuring spoons

#### Complete advanced preparation of ingredients

- **Melon:** If purchased whole: peel, de-seed, and cut into bite-sized pieces.
- **Citrus fruit:** If purchased whole: peel, de-seed, and cut into bite-sized pieces.
- **Mixed fruit:** Wash, prepare as appropriate. Students will cut into bite-sized pieces.
- **Mint:** Wash, cut and discard stems.









## Procedure (cont.)

can influence the specific foods people eat, when they eat, who they eat with, where they eat, how much they eat.)

### 4. Learn the Food Rule (3 min.)

Write the Food Rule on the board or chart paper: “Eat more like the French do.” Explain that this means embracing some French food routines (e.g., making eating a group occasion, eating slowly, eating smaller portions, and eating more foods and fewer foods). Many other cultures around the world have similar routines. The full meaning of this Food Rule is not limited to the food culture of France. There is a lot students can learn from the range of family and cultural food traditions they’ve shared with each other.

Encourage students to ask their parents, grandparents, and great-grandparents about some of these traditions and to look for opportunities to practice them.

Distribute the **Food Rules Lesson 9** activity sheet p.269 to the class, and have students write in this lesson’s Food Rule. Encourage them to discuss this Food Rule with their families. They will use **Food Rules Lesson 9** activity sheet in their next activity.

### 5. Solve Challenges to Eating Healthfully (20 min.)

Explain that, like them, youth around the country experience challenges as they try to eat healthfully.

Divide students into small groups. Provide each group with one set of both the **Scenario** and **Consider This** cards p. 270 and p. 271 respectively. Also remind them to keep their **Food Rules Lesson 9** activity sheet handy.

Explain that the **Scenario** cards present real life situations of middle and high school students from across the U. S. Tell students that their job, as food defenders, is to come up with advice for the person who said the quote. Encourage them to think about and use all of what they have learned throughout the *IDOF Curriculum*.

Explain that the **Consider This** cards provide questions to generate advice ideas. They do not have to answer all the **Consider This** card questions for each scenario. Suggest that they choose 2–3 per scenario. Use the **Give Advice** lesson resource p. 272 to provide suggestions to groups that are stumped.

Give groups about 10–12 minutes to discuss the scenarios, and then allow the groups to share their scenario and advice.



## Procedure (cont.)

### 6. Make Personal Food Policies (20 min.)

Remind students that throughout the *IDOF Curriculum*, they have made and followed-up on action plans.

Discuss the progress your class has made to change how they eat. Based on conversations you have had about their action plans and the ideas they generated in the previous activity, praise their thoughtful efforts to change their eating. Use specific examples if possible. Acknowledge that change can be hard and takes time and effort, especially in food environments with many foods and few foods.

Provide students with ***Taking Action*** activity sheets p. 274 and pencils, and tell them they will continue to work in the same small groups. Explain that this sheet has spaces for them to fill in the action plans that they created in previous lessons. Tell the students the last page is for them to think about two changes they want to make as part of their routines. These can be called personal food policies—a short list of things they will regularly do to follow the lesson themes: Eat food. Not too much. Mostly plants.

After students complete filling out the ***Taking Action*** activity sheet, have the groups discuss what has been easy about making changes and what has been hard. Encourage students to discuss strategies for how to be successful at making changes.

Then hold a class discussion using the questions in the sidebar. Encourage students to stay in touch and continue to help each other make their action plans part of their daily routines.

Encourage students to take home their completed ***Taking Action*** activity sheets and share with their families.

#### Probing Questions:

Were you able to follow your action plan? Were some changes easier than others? What can you do to help you continue to follow these actions plans over the next week, next month, and onwards? Do you think you made any changes that are now habits (you just do the healthful behavior automatically)? Why? Why not? Which ones? Which could you work on?

## Part 2 (60 min.)

### 7. Create Culminating Project Posters (20 min.)

Remind students that the Lesson 10 is the final lesson and celebration. During that lesson, they will have the opportunity to share their culminating projects. Now, they will take stock of what they've learned on the road to becoming food defenders.

Provide each student with the ***I am a Food Defender*** activity sheet p. 277 and a pencil. Encourage students to reflect on what they have learned and look over the ***Food Rules Lesson 9*** and ***Taking Action*** activity sheets as they complete the questions on the ***I am a Food Defender*** activity sheet.

Place glue sticks and markers in an accessible area. When students have completed the ***I am a Food Defender*** activity sheet, provide them with



## Procedure (cont.)

a sheet of poster board and instruct them to glue their ***I am a Food Defender*** activity sheet and their culminating project (e.g., *Capture It*, poem) to the poster board. Tell students that everyone's poster boards will be hung on the wall during the culminating celebration.

### 8. Prepare Melon Mint Parfait (40 min.)



Explain that students have an opportunity to make a simple yet delicious, mostly plant-based dish. Like the French, and many other cultures, they will sit down with others, enjoy their food, and eat small portions.

Have students clean their hands and join you in an area of the room set up for food preparation. Use the ***Making Melon Mint Parfait During Class*** lesson resource p. 278 to lead this activity.

Once the parfaits are complete, have students sit together to enjoy their creations. Encourage them to use descriptive words to describe how it tastes, smells, looks, feels in their mouths, and sounds when they eat it. Discuss what ingredients they especially liked, and what they might want to include next time they make this.

Distribute copies of the ***Take Home Melon Mint Parfait*** activity sheet p. 279 to students, and encourage them to make the recipe at home with their families.

## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Food Rules Lesson 9

#### Lesson 9: **Lettuce Turnip the Beet**

Food Rule: \_\_\_\_\_

**Eat food. Not too much. Mostly plants.**

#### Family Tips

- Most traditional cultural recipes are healthy, especially those with lots of plant-based ingredients. Cook and eat dishes from your family's culture whenever you can.
- Think about the healthy changes your family has made and be proud. Plan for how you can make these changes permanent habits.
- Cook and eat as a family at least once a week. Family meals are a great way to stay close and share conversation.

#### Food Rules from Previous Lessons

##### **Eat Food.**

- 1 Eat food you can picture growing in nature.
- 2 Eat food with ingredients a third grader could pronounce.
- 3 Avoid products that make health claims.

##### **Not Too Much.**

- 4 Avoid foods you see advertised on television.
- 5 Choose smaller plates and glasses.
- 6 Make water your beverage of choice. Sweeten and salt your food yourself.

##### **Mostly Plants.**

- 7 If it came from a plant, eat it. If it was made in a plant, don't.
- 8 Eat your colors.

*In Defense of Food* film clip that accompanies  
Secrets of the French

Watch at <http://bit.ly/idofclip9>

Learn more about *In Defense of Food* at:  
[pbs.org/indefenseoffood](http://pbs.org/indefenseoffood)

## Scenario

Cut out one set for each small group.

1. "My parents buy the food. So when there is junk food around, I eat it. It's what's available."<sup>1</sup>  
- 7th grade, female

Scenario Card

2. "When I get home from school, I'm so hungry. I think I should eat some fruits, but then I see chips ... they're easier... it just feels like the easier thing to do."<sup>2</sup>  
- 6th grade, male

Scenario Card

3. "I don't eat lunch ...Some of my friends don't eat their lunch; they just take snacks and stuff, so everyone else  
, , 3 , ,  
- 8th grade, female

Scenario Card

1. Student in *IDOF Curriculum* Pilot Class, personal communication, October 19, 2015.
2. Bauer, K. W., Yang, Y. W., & Austin, S. B. (2004). "How can we stay healthy when you're throwing all of this in front of us?" Findings from focus groups and interviews in middle schools on environmental influences on nutrition and physical activity. *Health Education & Behavior*, 31(1), 34-46.
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Cards

Consider This

Cut out one set for each small group.

<p>Could choosing foods instead of froods help? How?</p> <p>Consider This Card</p>	<p>Could sharing any of the Food Rules help? Which ones? Why?</p> <p>Consider This Card</p>
<p>Could convincing someone help? Who? How?</p> <p>Consider This Card</p>	<p>Could making an action plan help? What could the plan be?</p> <p>Consider This Card</p>
<p>Could small-sizing it help? How?</p> <p>Consider This Card</p>	<p>Could eating before you get too hungry help? How? What could the plan be?</p> <p>Consider This Card</p>

## Give Advice

### Scenario card #1

*"My parents buy the food. So when there is junk food around, I eat it. It's what's available." - 7th grade female*

**Possible solutions (from the Consider This cards):**

*Could choosing foods instead of froods help? How?*

Look around your home. What foods are available? Are their fruits, nuts, seeds, and other foods that make good snacks? If so, try those when you want a snack.

*Could convincing someone help? Who? How?*

Tell the person who does the food shopping for your home what foods (instead of froods) you would like them to buy for snacks. Use appeals to the heart and mind. Once the food shopper is convinced, give him or her a specific shopping list, such as apples, grapes, carrots, peppers, sunflower seeds, and peanuts.

*Could small-sizing it help? How?*

If you are hungry and the only thing around are froods (as in this scenario), have a small portion. If you are still hungry, have a little more.

*Could sharing any of the Food Rules help? Which ones? Why?*

Share and discuss these Food Rules with the food shopper: "Eat food you can picture growing in nature." "Eat foods with ingredients a third grader could pronounce." "Avoid products that make health claims." Many of the other Food Rules might also work.

*Could making an action plan help? What could the plan be?*

If it is hard to resist froods, make an action plan to have a specific food (e.g., a fruit, vegetable, seeds or nuts) on certain days in the next week.

*Could eating before you get too hungry help? How? What could the plan be?*

Yes, eating before you get too hungry makes it easier to resist froods. Bring foods with you to have as snacks before you are very hungry.

### Scenario card #2

*"When I get home from school, I'm so hungry. I think I should eat some fruits, but then I see chips ... they're easier... it just feels like the easier thing to do." - 6th grade male*

**Possible solutions (from the Consider This cards):**

*Could choosing foods instead of froods help? How?*

There are lots of easy snacks that are crunchy or salty such as chips. You could grab a handful of pepitas, granola, or crackers with hummus.

### Give Advice (cont.)

*Could convincing someone help? Who? How?*

Ask the person who does the food shopping for your home to keep foods like chips out of the house. Ask them to help you cut up fruits and vegetables to keep in the refrigerator so they are easy to grab when you get home.

*Could small-sizing it help? How?*

If you really want some chips, try putting a few in a small bowl or plate. Close and put the bag away before you start eating.

*Could sharing any of the Food Rules help? Which ones? Why?*

Use the Food Rule, “Choose smaller plate and cups” as a reminder to have a smaller serving of chips. “Sweeten and salt your own food” can guide you to dip carrots in a little honey or sprinkle some salt on cucumber slices. This can make these food snacks more satisfying.

*Could making an action plan help? What could the plan be?*

Decide at the beginning of the week on which days you would select fruits or other foods instead of chips for a snack. Use the action plan to help you make choices.

*Could eating before you get too hungry help? How? What could the plan be?*

If we wait until we are really hungry, then it is harder to eat less or follow an action plan. Pack a piece of fruit that you can eat on the way home from school so the chips don’t look so tempting when you get home.

### Scenario card #3

*“I don’t eat lunch...Some of my friends don’t even eat their lunch; they just take snacks and stuff, so everyone else finishes in like 5 minutes.” – 8th grade female*

**Possible solutions (from the Consider This cards):**

*Could choosing foods instead of foods help? How?*

Bringing a yummy, plant-based dish to share with your friends might convince them to sit and eat lunch.

*Could convincing someone help? Who? How?*

Come up with a convincing argument for why it is a good idea for your friends to sit down and enjoy a meal with you. Use appeals to the heart and mind.

*Could sharing any of the Food Rules help? Which ones? Why?*

Share the “Eat more like the French do” Food Rule. In France, and other cultures around the world, eating is an occasion when people take time to enjoy their foods, even during school lunch!

*Could making an action plan help? What could the plan be?*

Make a plan with your friends to sit and eat lunch together on certain days in the next week.



Name \_\_\_\_\_ Date \_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

## Taking Action

Remember your action plans? Fill in what you decided to do for each below. If you do not remember,

## Lessons 3 and 6

**Eat a food instead of a frood.**

I tried to eat \_\_\_\_\_ instead of \_\_\_\_\_.  
(food) (frood)

I tried to eat \_\_\_\_\_ instead of \_\_\_\_\_.  
(food) (froid)

Discuss with your group what was **easy** and what was **hard** about eating the food instead of the food.

## Lesson 5

Small-size a frood.

The frood I tried to small-size was \_\_\_\_\_.

My typical portion size:\_\_\_\_\_. My new small-sized portion:\_\_\_\_\_.

Discuss with your group what was **easy** and what was **hard** about small-sizing the flood.



## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Taking Action (cont.)

#### Lesson 7

**Add a plant-based food you do not typically eat.**

I tried to eat \_\_\_\_\_ at \_\_\_\_\_.  
(plant-based food) (breakfast, lunch, dinner, or snack)

Discuss with your group what was **easy** and what was **hard** about adding the plant-based food.

#### Lesson 8

**Eat your colors.**

I tried to add a \_\_\_\_\_ \_\_\_\_\_.  
(color) (plant-based food)

The food I tried to add it to: \_\_\_\_\_.  
(food I usually eat, e.g., sandwich, cereal)

Discuss with your group what was **easy** and what was **hard** about adding the plant-based food to something you usually eat.



## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Taking Action (cont.)

#### Personal Food Policies

**These are your habits that help you to Eat food. Not too much. Mostly plants.**

Below are several examples:

- I carry a reusable water bottle in my backpack so I always have water to drink, and I am less likely to stop and buy a food like soda.
- I make oatmeal for breakfast and top it with fruit and yogurt. I also add peanut, soy, or sun butter when I want extra creaminess.
- I take the salad bar at lunch and try to have at least three different-colored fruits and vegetables.
- I carry fruit, nuts, or homemade trail mix in my backpack so I always have a snack with me.
- I plan at least one night each week when I cook and eat with my family.
- I take a small plate, and once I am done eating, I wait a few minutes to decide if I want seconds.
- I order small sizes when I eat at fast food places.
- I shop at the farmers market when I can.
- I try to make my meal portions look like MyPlate.

**Write two of your personal food policies.**

- \_\_\_\_\_  
\_\_\_\_\_
- \_\_\_\_\_  
\_\_\_\_\_

**Share your personal food policies with your family, and  
have them develop some personal food policies too!**





Activity Sheet

Name\_\_\_\_\_

Date\_\_\_\_\_

I am a Food Defender

/ , , u , , fi , fi , , , , , peers in the culminating celebration in Lesson 10.

L , , , ,

One of my favorite plant-based foods is

My goal\* for the next year is

*Eating more foods and fewer froods will help you reach your goal.*

One way I have changed how I eat is

One way I still want to change how I eat is

\* Your goal is something you want to get better at in the next year, such as playing a musical instrument, playing a sport, dancing, writing poetry, cooking, or gardening. Example 1: In the next year, I want to get better at keeping a basil and parsley plant alive in my window sill. Example 2: In the next year, I want to get better at my baseball swing.

## Making Melon Mint Parfait During Class

Place this page by the salad-making station.

Salad Ingredients	Salad Materials
<ul style="list-style-type: none"> <li>• Melon</li> <li>• Citrus fruit</li> <li>• Mixed fruit</li> <li>• Mint</li> <li>• Yogurt</li> <li>• Granola</li> <li>• Nuts or seeds</li> <li>• Honey</li> </ul>	<ul style="list-style-type: none"> <li>• Large bowl</li> <li>• Large spoon</li> <li>• 3 plastic knives</li> <li>• 3 cutting boards or 3 large paper plates</li> <li>• 4 spoons (for yogurt, granola, nuts or seeds, and honey)</li> <li>• Set of measuring cups</li> <li>• Set of measuring spoons</li> </ul>

### Directions for Salad:

- ☐ 1. Add cut-up melon and citrus fruit to the large mixing bowl.
- ☐ 2. Use the plastic knives to cut mixed fruit into bite-sized pieces. Add cut fruit to the large mixing bowl.
- ☐ 3. Tear the mint into small pieces. Add mint to the large mixing bowl.
- ☐ 4. Stir all the ingredients in the large mixing bowl together to combine.
- ☐ 5. Layer the elements of the parfait in each students' tasting cup in the following order:
  - a.  $\frac{1}{4}$  cup fruit salad
  - b. 3 spoonfuls yogurt
  - c.  $\frac{1}{4}$  cup fruit salad
  - d. 3 spoonfuls of granola
  - e. 3 spoonfuls yogurt
  - f. 2 spoonfuls nuts or seeds
  - g. Honey drizzled over the top



Name \_\_\_\_\_

Date \_\_\_\_\_

## Take Home Melon Mint Parfait Recipe: Eat Mostly Plants

### Ingredients

- 2 cups fresh melon (cantaloupe, honeydew, watermelon, or a combination) cut into bite-sized pieces
- 1 cup citrus fruit (grapefruit, oranges, or a combination) peeled and cut into bite-sized pieces
- 1 cup mixed fruit (such as berries, apples, pears, bananas) cut into bite-sized pieces
- ½ cup chopped fresh mint leaves
- 1 cup plain, unsweetened yogurt
- ½ cup granola
- ½ cup nuts or seeds (such as pistachios, almonds, or walnuts), chopped if necessary
- ¼ cup honey



Makes 4 servings

Time: Active time 20 minutes

### Directions

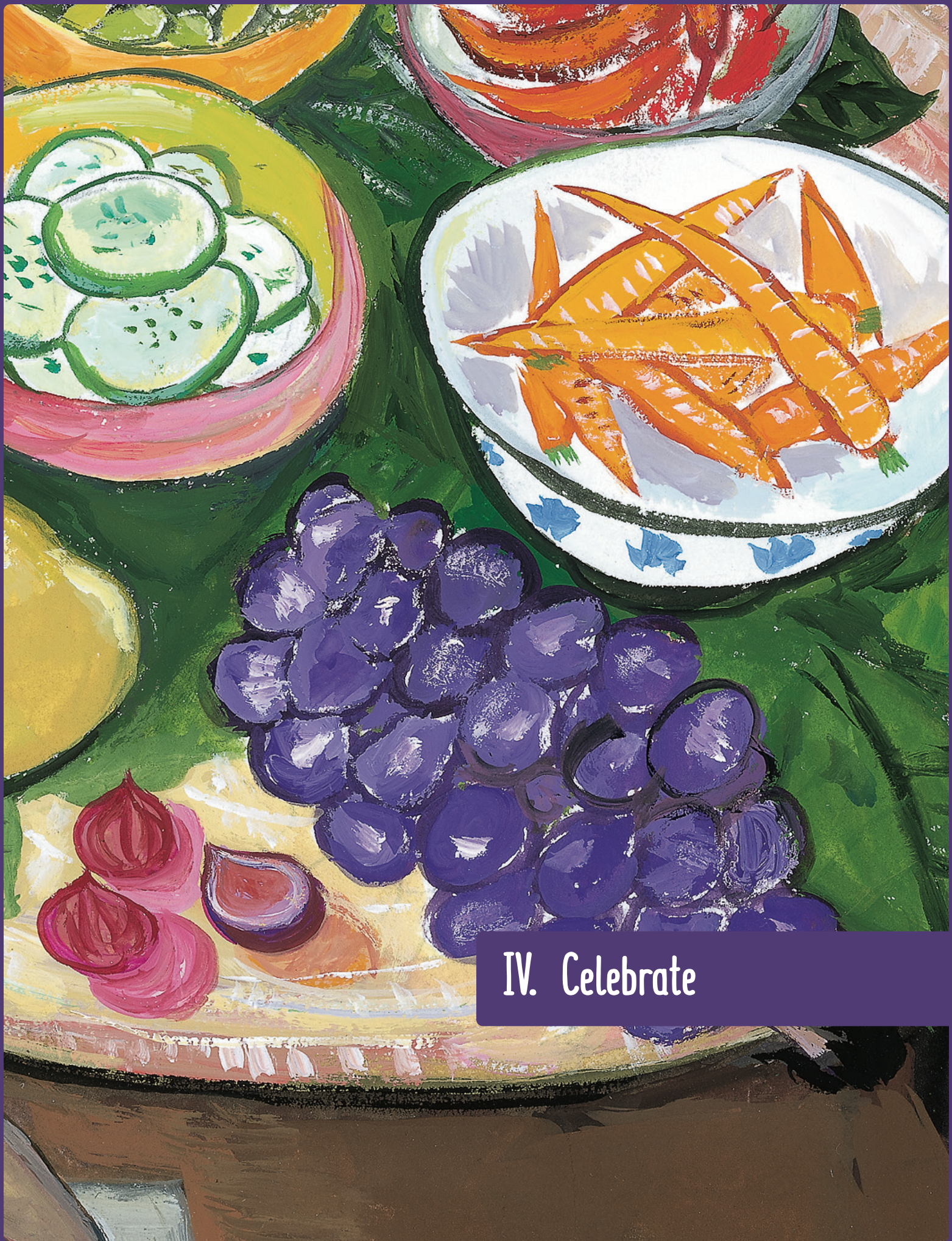
1. Combine melon, citrus fruit, mixed fruit, and mint in a large mixing bowl.
2. Layer the parfait elements in 4 clear glasses. Follow this order:
  - ½ cup fruit salad
  - 2 tablespoons yogurt
  - ½ cup fruit salad
  - 2 tablespoons granola
  - 2 tablespoons yogurt
  - 2 tablespoons nuts or seeds
  - Honey drizzled over the top
3. Enjoy!











#### IV. Celebrate





## LESSON 10:

# EAT FOOD. NOT TOO MUCH. MOSTLY PLANTS.

## First Bite

Since 2000, the quality of the American diet has improved by about 10%.<sup>1-4</sup> On average, we're eating more whole grains, nuts, and seeds. Soda sales are down. Fewer people are grabbing processed meats off the shelves.<sup>3-4</sup> Even our youngest eaters, kids aged 2 to 19, are eating better, especially at school.<sup>4-5</sup> This shift didn't happen overnight. It's the result of many small choices, bold policies, and a growing awareness that what we eat matters.

### The Road Ahead: A Mixed Plate

Despite these positive changes, we're still far from where we need to be. The average American's healthy eating score today is 58 out of 100.<sup>1</sup> Most of us are still missing the mark on fruits, vegetables, healthy fats, and beans, and we are eating too many refined grains, salty foods, added sugars, and saturated fats.<sup>1</sup> Additionally, socioeconomic disparities related to diet quality persist and have even worsened for some categories. While medium/high-income individuals have decreased their consumption of processed meats and added sugars in recent years, low-income individuals have actually increased their consumption, leading to a widened diet quality gap.<sup>6</sup> We must do better to provide education and access for all Americans, regardless of their socioeconomic status.

### Join the Revolution

We can continue to support a positive trend towards healthier diets by modeling behavior change, inspiring the rising generation, and advocating for change in our local communities. By setting personal goals and following the *IDOF Food Rules*, we model healthier habits for the people around us. Young people are empowered to eat healthy when they know the impact of diet on their health and what constitutes a healthy diet.<sup>7</sup> In our community, we can promote greater access and

availability of healthy foods by advocating for community gardens, farmers markets, healthy vending machines, and healthier school meals.<sup>8</sup>

### Our Hope

Today's adolescents may be spending their allowance on snack foods, but tomorrow they'll be the grocery shoppers, parents, voters, and decision-makers who shape our food system. They deserve the chance to grow up in a world where healthy food is normal, affordable, and available to all. Our challenge is to give them the tools, knowledge, and environment to make better choices not just for themselves, but for their families and communities. Our hope is to create a world where the norm is to Eat food. Not too much. Mostly plants.

### References

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## LESSON 10:

# EAT FOOD. NOT TOO MUCH. MOSTLY PLANTS.

## Aim

Celebrate and share what students have learned throughout the *IDOF Curriculum*.

## Food Rule

**Break the rules once in a while.**

## Film Clip

**Join the Movement**

## Objectives

Students will be able to:

- describe what they have learned about being food defenders;
- express an increased desire to follow the Food Rules and an understanding of why it's OK to break the rules once in a while;
- present projects they have worked on through the curriculum; and
- express increased enjoyment of food and desire to cook and eat with friends and family.

## Overview

This lesson begins with students reviewing questions from Lesson 1 *Getting to Know You Bingo* activity sheet. Then they become aware of how many other people are joining the food movement by watching the *IDOF* film clip. Drawing on what they have learned, they provide one piece of advice to help their peers to continue to Eat food. Not too much. Mostly plants. Then, students receive advice from other middle school students trying to eat healthfully. To celebrate, students share their culminating projects, learn the final Food Rule, review all the Food Rules, enjoy a pizza party, and review what they have learned.

## Materials

### In this guide

- *Pizza Party* preparation sheet p. 285
- *Getting to Know You Bingo* activity sheet (from Lesson 1) p. 32
- *Get Advice* cards p. 290
- *Food Defenders* lesson resource p. 292
- *Food Rules Lesson 10* activity sheet p. 293
- *Be the Change* activity sheet p. 294
- *Advocacy Project Ideas* lesson resource p. 295

### Other materials

- *IDOF* film clip 10: Join the Movement and AV equipment
- Chart paper
- Tape
- Countertop cleaner
- Paper towels

### Other materials (cont.)

- Ingredients from the *Pizza Party* preparation sheet p. 285
- Pizzas (see *Before You Begin* for details)
- 2 2-quart pitchers

### For each student:

- Envelope
- 5" x 7" index card
- Pencil
- Marker
- Culminating project poster (made in Lesson 9)
- Culminating projects (e.g., scripts for skits, *Capture It* pieces, ads)
- Plate
- Cup
- Napkin
- Sheet of paper

To learn more about *In Defense of Food*, visit [pbs.org/indefenseoffood](http://pbs.org/indefenseoffood). Funding was provided by the National Science Foundation and PBS.



## Before You Begin: Total prep time: approximately two hours

### Within a few days before lesson

1. Purchase toppings for the pizza. See **Pizza Party** preparation sheet p. 285 for details.
2. Locate a restaurant to order pizza from. Order from a local pizzeria (instead of a chain pizza restaurant), if possible.
3. Review the entire lesson.

### Within a day before lesson

4. **Print and cut out cards:**
  - **Get Advice** cards p. 290, enough sets for each student to get one card. Place each card in an envelope, and seal the envelope.
5. **Print one copy per student of each activity sheet:**
  - **Food Rules Lesson 10** activity sheet p. 293
  - **Be the Change** activity sheet p. 294
6. **Coming full circle activity:** Print and review the **Getting to Know You Bingo** activity sheet p. 32 (Lesson 1) .
7. **Viewing IDOF film clip:**
  - Set up AV equipment and space for film viewing.
  - Find IDOF film clip 10: Join the Movement at <http://bit.ly/idofclip10>
8. **Sharing culminating projects:**
  - Hang up each student's culminating celebration poster around the room for students to congregate around. You can also have students do this at the beginning of the lesson.
  - Print one copy of the **Food Defenders** lesson resource p. 292., write all students' names on the sheet, and hang it up in the classroom.
9. **Pizza party celebration:**
  - Prepare pizza toppings. See **Pizza Party** preparation sheet p. 285 for details.
  - Order pizza, enough for each person to have 2 slices. Plan delivery time for the second half of the lesson.
  - Clean all food preparation and eating surfaces with countertop cleaner.
  - Set out pizza, pizza toppings, plates, and napkins.
  - Fill pitchers with cold water and add one prepared fruit to each pitcher. See **Pizza Party** preparation sheet p. 285 for details. It is best to add fruit before class starts, so the fruit flavors infuse the water.



## Preparation Sheet

### Pizza Party

To celebrate and eat together, students eat pizza after adding a variety of toppings.

#### Shop for ingredients

**Toppings for 10-15 students to put on their pizza slices. Choose 4–5 toppings.**

- 6 medium or 3 large tomatoes
- Olives (need 1 cup)
- Peas (frozen, need 1 cup)
- Arugula (need 6 cups)
- Olive oil (need 1 tablespoon)
- Pesto (need 2 cups)
- Basil leaves (need 2 cups)
- 3 bell peppers
- 3 mild chili peppers
- Mushrooms (need 2 cups)

**Fruit for infused water. Choose 2 fruits.**

- 4 lemons
- 4 limes
- Strawberries (need 2 cups)
- Cucumber
- Watermelon (need 2 cups)

#### Gather materials

- Plastic storage containers (for prepared pizza toppings)
- 2 1-quart resealable bags

### Complete advanced preparation of ingredients

Wash all vegetables and fruit before preparing.

**Vegetables for pizza topping: After completing preparation, place in plastic storage containers to bring to class.**

- **Tomatoes:** Slice thinly
- **Olives:** Drain if necessary.
- **Peas:** Thaw
- **Arugula:** Place in bowl and drizzle with 1 tablespoon of olive oil. Lightly toss.
- **Pesto:** If it has nuts, make a label for the pesto, indicating type of nuts in it.
- **Basil:** Wash and dry thoroughly. Remove stems and discard. Keep leaves whole.
- **Bell peppers:** Slice thinly
- **Mild chili peppers:** Slice thinly.
- **Mushrooms:** Slice thinly

**Fruit for infused water: After completing preparation, place in resealable bags to bring to class.**

- **Lemons:** Slice thinly
- **Limes:** Slice thinly.
- **Strawberries:** Slice thinly.
- **Cucumbers:** Slice thinly.
- **Watermelon:** Cut into small cubes.







## Procedure (cont.)

peers. Ask students to be specific in their advice. It can be a Food Rule, or something they make up.

Once students are done, invite them to tape their index card onto the chart paper. Review each students' piece of advice. If students have phones with cameras allow them to take a photo of the chart paper with the advice so they can remember it.

Distribute an envelope containing a **Get Advice** card p. 290 to each student. Explain that in each envelope is a piece of paper with advice from another middle school student. Allow students to open their envelopes to see what advice they received.

### 4. Share Culminating Projects (25 min.)

This last lesson celebrates that every student in the program has officially become a food defender. Explain that they now have an opportunity to share what they have done to become a food defender. Move around as a class to each student's poster, and have each student present a poem, an ad for a food, a *Capture It Piece*, his or her definition of food, his or her favorite food, and/or an eating behavior change he or she has made.

Once everyone has had an opportunity to present, point out the **Food Defenders List** lesson resource p. 292 hanging in the classroom. Show students that it has the names of the food defenders they have learned about. Since they are now also food defenders, their names have been added to the list. As they have seen, people like Kristen Bell, Stephen Curry, Billie Eilish, Chris Paul, and Tabitha Brown have all joined the food movement. All around the country, others like them and like the students are becoming food defenders and fighting for change.

Congratulate everyone on their successes and participation.

## Part 2 (60 min.)

### 5. Learn the Food Rule (5 min.)

Provide each student with the **Food Rules Lesson 10** activity sheet p. 293. Direct students to the Lesson 10 Food Rule, "Break the rules once in a while." Ask, *what do you think this means?* (Allow students to share ideas.)

Explain that the Food Rules are a guide. Being too strict about always following the rules is not realistic or pleasurable. That is why they learned to "Eat more like the French do" and appreciate the pleasure of food. Remind students that the Food Rules can help them eat more foods and fewer froods. This will help them reach their goals, make their



## Procedure (cont.)

own informed decisions about what they eat, decrease their chances of developing diseases such as diabetes, and keep them healthy.

Encourage students to take the **Food Rules Lesson 10** activity sheet home as a way to remember all of the Food Rules. Suggest that the students continue to discuss the Food Rules with their families.

### 6. Get Involved in the Food Movement (15 min.)

Remind students in the *IDOF* film clip they saw people around the country getting involved in the food movement. Ask, *Do you see the food movement happening in your community?* Have students describe what is happening in their community.

Explain that one way to get involved in the food movement is to advocate for better food to be made available and affordable for all people. *What would you like to change in your neighborhoods or communities to make it easier to Eat food. Not too much. Mostly plants.? What could you do to initiate these changes?* (Ask local store owners to stock healthy and affordable snacks. Ask their schools to remove froods from vending machines. Ask their principal to remove unhealthy food advertisements from their school.)

Distribute the **Be the Change** activity sheet p. 294 to each student. Either work as a whole class, or have students work in small groups to come up with projects. The projects can be to change the environment at their home, their school, their community, or other location. Use the **Advocacy Project Ideas** lesson resource p. 295 for ideas.

### 7. Have a Pizza Party Celebration (30 min.)

Tell students that to celebrate how much they have accomplished, they are having a party. Invite students to take a slice of pizza and choose one or more topping to put on their pizza.

Have everyone sit down and eat together. Use the questions in the sidebar as conversation starters.

Encourage students to try new toppings if they have a second slice. Also encourage students to add plant-based toppings when they have pizza at home.

### 8. Review *IDOF Curriculum* (15 min.)

Ask students to create one question based on something they learned during *IDOF* for their peers. Provide each student with a blank sheet of paper and a pencil to write their question.

**Probing Questions:** *What can you do to prepare and eat more meals with your friends and family? What advice do you have for friends who have not gone through the IDOF Curriculum? What are some of your best memories from the IDOF Curriculum?*





## Procedure (cont.)

Once they are done, have them hand the sheets to you. As you collect them make an onion ball. Crumple the first sheet into a ball so the question is folded into the center of the ball. One by one wrap the sheets around the ball until you have formed an onion ball of layered questions.

Bring everyone together in a circle to play a game of onion ball. Peel the first sheet of paper (the outer layer of the onion ball) and read the question out loud. Have students stand if they know the answer. Select a student to call out the answer. If correct throw the ball to that student. Have the student peel off the next layer and following the same procedure to read the question, have a student answer it and toss the ball. Continue until the ball is gone.

To review the onion ball activity in Lesson 2, see [Before You Begin #10 p. 53](#) and [Procedure #7 p. 57](#).

## 9. Encourage Students to Continue Defending Food

Congratulate students on all they accomplished and the positive changes they have made in themselves, their families, and their communities. Encourage them to continue to Eat food. Not too much. Mostly Plants. and follow the Food Rules now and long into the future.



Get Advice

Print enough sets for each student to get one card. Place each card in an envelope and seal the envelope.

<p>To be a food defender:</p> <p>"Eat at least one fruit and vegetable each day."<sup>1</sup></p>	<p>To be a food defender:</p> <p>"Have a better variety of fruit and vegetables at home."<sup>1</sup></p>
<p>To be a food defender:</p> <p>"Eat three meals a day."<sup>2</sup></p>	<p>To be a food defender:</p> <p>"Eat at the dinner table so you don't get distracted."<sup>3</sup></p>
<p>To be a food defender:</p> <p>"Tell your friends about healthy eating. If they're going to eat junk food, just tell them to eat just a little bit, and then</p> <p>u ' u ' fi u u ' <sup>3</sup></p>	<p>To be a food defender:</p> <p>"Your family has a big , , u , talk to them about how to set a good example."<sup>3</sup> , ,</p>



Get Advice (cont.)

<p>To be a food defender:</p> <p>“Take a piece of fruit or vegetables, instead of taking a packet of chips to school.”<sup>3</sup></p>	<p>To be a food defender:</p> <p>“Go to the supermarket to help Mom buy food and help make it with her.”<sup>3</sup></p>
<p>To be a food defender:</p> <p>“Bring food with you so you’re not tempted with junk food.”<sup>3</sup></p>	<p>To be a food defender:</p> <p>“Set a goal. I have a goal to drink two bottles of water per day, when I get home from school everyday. My mom gives me a bottle. I drink it right away and I have half of that goal accomplished.”<sup>4</sup></p>

1. Davison, J., Share, M., Hennessy, M., Knox, B.S. (2015). Caught in a ‘spiral’. Barriers to healthy eating and dietary health promotion needs from the perspective of unemployed young people and their service providers. *Appetite*;85:146-154.

2. Croll, J.K., Neumark-Sztainer, D., Story, M. (2001). Healthy eating: what does it mean to adolescents? *Journal of nutrition education*;33(4):193-198.

3. Stephens, L.D., McNaughton, S.A., Crawford, D., Ball, K. (2015). Nutrition promotion approaches preferred by Australian adolescents attending schools in disadvantaged neighbourhoods: a qualitative study. *BMC Pediatrics*;15:61.

4. Jara, E.A. (2009). Improving School Lunch in Communities of Color: A Case Study of Promising Middle School Food Practices. Berkeley: Public Health, University of California.





## Food Defenders

Kristen Bell

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Stephen Curry

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Billie Eilish

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Chris Paul

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Tabitha Brown

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Michael Pollan

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Anthony Scavotto

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## Activity Sheet

Name \_\_\_\_\_

Date \_\_\_\_\_

### Food Rules Lesson 10

Lesson 10: **Eat food. Not too much. Mostly plants.**

Food Rule: \_\_\_\_\_

**Eat Food. Not Too Much. Mostly Plants.**

#### Family Tips

- Find out about how people are promoting good food in your community, such as discounts for purchasing fruits and vegetables at farmers markets or improving school meals. Get involved however you can.
- Try to make healthy choices for your family. Also know it's OK to break the rules once in a while.
- Celebrate healthy changes you have made, and keep making small changes—they add up to **fi** , **u** , **fi**

#### Food Rules from Previous Lessons

##### **Eat Food.**

- 1 Eat food you can picture growing in nature.
- 2 Eat food with ingredients a third grader could pronounce.
- 3 Avoid products that make health claims.

##### **Not Too Much.**

- 4 Avoid foods you see advertised on television.
- 5 Choose smaller plates and glasses.
- 6 Make water your beverage of choice. Sweeten and salt your food yourself.

##### **Mostly Plants.**

- 7 If it came from a plant, eat it. If it was made in a plant, don't.
- 8 Eat your colors.
- 9 Eat more like the French do.

*In Defense of Food* f i l m c l i p t h a t a c c o m p a n i e s  
Join the Movement

Watch at <http://bit.ly/idofclip10>

Learn more about *In Defense of Food* at:  
[pbs.org/indefenseoffood](http://pbs.org/indefenseoffood)



Activity Sheet

Name\_\_\_\_\_

Date\_\_\_\_\_

Be the Change

Now that you are a food defender, you can become part of the food movement. How would you like to change the food available in your home, your school, or your community?

\_\_\_\_\_
(title of your project)

Steps to complete your project	Completion Date

How would you know if your project is successful?

Adapted from the Food Day School Curriculum. Used with permission.



## Advocacy Project Ideas

### At home

- **Home Inventory:** Make an inventory of foods and froods you have in your home. Talk with your family about buying more foods and fewer froods and how you can work with your family to find ways to apply the Food Rules and the family tips that were on all the Food Rule activity sheets.

#### HOME INVENTORY

Foods you have in your home	Froods you have in your home

- **Family Action Plans:** Create family action plans, similar to the personal action plans you have made. Come up with a plan for how you will help your family be successful at making changes.
- **Family Cooking Night:** Plan a day to go to a farmers market or supermarket to buy some fresh fruits and vegetables. Follow The Kids Cook Monday, and make Monday evening the night for the family to cook and eat together. Also, look up other online sources of great recipes.

### At school

- **School Water Fountain Inventory:** Make a list of working and non-working water fountains in your school. Write a letter to your school principal asking that non-working water fountains be fixed, stating reasons why it is important to have access to water in school.

#### SCHOOL WATER FOUNTAIN INVENTORY

Location	Working?		Notes
	Yes	No	

## Advocacy Project Ideas (cont.)


- **Healthy Fundraisers:** Talk to your school principal and members of the Parent Teacher Association (PTA) to get a list of school fundraisers. Research healthy fundraisers and present these ideas to administrators and parents. Check out [www.cspi.org/resource/healthy-school-fundraising-success-stories](http://www.cspi.org/resource/healthy-school-fundraising-success-stories) to help you get started.
- **Healthy Classroom Celebrations, Snacks, and Rewards:** Come up with a list of foods, not froods, for your class to have during celebrations and other classroom events. Encourage your teacher and peers to make them into a classroom food policy.
- **Start a School Garden:** Find out what it would take to start a school garden and talk with parents and school administrators about next steps. Check out [gardensforhumanity.org/wp-content/uploads/2016/08/Starting-a-School-Garden-Step-by-Step.pdf](http://gardensforhumanity.org/wp-content/uploads/2016/08/Starting-a-School-Garden-Step-by-Step.pdf) to get started.

## In the community

- **Community Water Fountains:** Inventory how many working vs. non-working water fountains are in your community and nearby parks. Write a letter to the city or town mayor or other individuals responsible for getting non-working water fountains fixed and for getting new water fountains installed.
- **Increase Healthful Foods in Local Stores:** Walk around your neighborhood and search online to find the places that sell food in your community. Determine which stores could potentially stock more food and fewer froods. You might also encourage the use of smaller sizes of froods. Come up with a plan for how to talk to store owners about making this switch. Let them know that you and your friends will buy the foods! It is a good idea to start with a store where you already go frequently.
- **Start a Farmers Market:** If your community does not have a farmers market, look online for organizations that run farmers markets in your city or state, and ask what you would need to do to get a farmers market started in your community.







This curriculum, a companion to the PBS documentary *In 1800*, gives people aged 10 to 14 new tools to think critically about food. Students prepare delicious recipes, create performance poetry, and participate in peer-to-peer learning to investigate the question, "What should I eat to be healthy?" As they progress through the ten lessons, they will discover what Michael Pollan means by his now-famous answer: Eat Food. Not Too Much. Mostly Plants.

For more information, please email  
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**Laurie M. Tisch Center for  
Food, Education & Policy**  
Program in Nutrition

Teachers College, Columbia University