Dear Teacher,

We all agree that healthy eating is important for students. It not only helps their bodies, but it has been shown to help their minds too. What we ultimately choose to eat involves a complex series of back and forth internal decision making. Our choices are influenced by many factors such as hunger and stress levels, food availability, smells and taste, perceptions of health benefits, and visual appearance. For example, think for a minute why many fast food restaurants ask you after the order – “do you want fries with that?” or why cookies and pastries are placed at the counter near cash registers. This is because suggestions and placement are two strategies that have been shown to increase purchasing. Another example is at the grocery store when a special discount is offered if a certain number of items are purchased, such as 10 for $10. Even words used by restaurants such as “value” and “limited time” can influence behavior and increase purchases. There is a reason companies spend about $17 billion annually using these techniques with our children– it works!

Who Cares?
Unfortunately, most of the time these strategies are used to sell “junk” food – candy, cookies, sugary beverages, and high calorie low nutrient entrees, not nutritious food. Many Michigan children consume poor diets and are inactive, leading to health and academic consequences. According to the 2013 Michigan Youth Risk Behavior Survey, only 17% of Michigan high school students ate five servings of fruit and vegetables per day, 72% drank a can, bottle, or glass of soda three or more times per day, and 73% did not attend physical education classes in the past week. Efforts to improve Michigan children’s diets will improve their health and academic performance. This is particularly true for students living in food insecure households.

What if?
Don’t despair – what if we use these same techniques to sell healthy food? A group of scientists at the Cornell Center for Behavioral Economics in Child Nutrition Program, funded by the United States Department of Agriculture, are trying to do this – and they need our help. They have created a “Smarter Lunchroom Movement, which is working to improve eating behaviors and health of children. We would like to work with you and your students to make your school healthier through a mini-nutrition unit.

In this series of lessons, students will use Next Generation Science Standards practices to explore real world issues facing society today. These issues include: dietary habits and influences, access to healthy foods, food waste, environmental factors impacting food selection, and marketing of junk food. Students will learn:

1) The foods making up the five food groups and to name a variety of examples from each.
2) To ask questions arising from careful observation of the cafeteria and researching the problem of poor fruit and vegetable selection and consumption by students. (NGSS Practice 1)
3) To design a model based on evidence to test ideas about student cafeteria behavior (NGSS Practice 2)
4) To plan an investigation collaboratively to produce data to evaluate the cafeteria intervention. (NGSS Practice 3)
5) To analyze collected data by interpreting, graphically displaying, and considering limitations of data collection procedures. (NGSS Practice 4)

To hear about other nutrition related materials for schools, join the United States Department of Agriculture, Team Nutrition Program. It is free to all schools.
To join visit: www.fns.usda.gov/tn/join-team-become-team-nutrition-school
Lesson 1: *MyPlate, MySelf* (40 Min), Pages 6-8.

Lesson 2: Plan an investigation: How can we measure how many fruits and vegetables kids choose and eat? (45 Min), Pages 9-13.

Lesson 3: Make Changes!: How can we help kids choose and eat more fruits and vegetables in the cafeteria? Select one of three modules (45 Min), Pages 14-22.


<table>
<thead>
<tr>
<th>Lesson</th>
<th>Lesson Objective</th>
<th>Health Standards — American Cancer Society:</th>
<th>English Language Arts and Math standards — Common Core:</th>
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<tr>
<td>1: MyPlate, MySelf (Page 6)</td>
<td>1) What foods identify the five food groups and name a variety of examples from each. 2) How MyPlate serves as a reminder to eat from all five food groups.</td>
<td>Health: Standard (8.5.1): Encourage others to make positive health choices; Standard (6.2.1): Identify a short-term personal health goal and take action toward achieving the goal.</td>
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<td>2: Plan an investigation: How can we measure how many fruits and vegetables kids choose and eat? (Page 9)</td>
<td>Students will design an investigation to measure food selection in the cafeteria.</td>
<td>Planning and carrying out investigations Analyzing and interpreting data</td>
<td>• MS-ETS1-4 Engineering Design • Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.</td>
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<td>3: Make Changes!: How can we help kids choose and eat more fruits and vegetables in the cafeteria? (Page 14):</td>
<td>Students will design a solution to increase healthier food selection in the cafeteria.</td>
<td>Planning and carrying out investigations Designing solutions</td>
<td>• 3-5-ETS1-2 Engineering Design: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the goal. • MS-ETS1-1 Engineering Design • Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.</td>
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| 4: Analyze: Did your cafeteria interventions work? (Page 24) | Students will analyze if their planned intervention led to healthier food selection. | Obtaining, evaluating, and communicating information Analyzing and interpreting data | • MS-ETS1-2 Engineering Design
• Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
• MS-ETS1-3 Engineering Design
• Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success. |
Handouts provided at the end of these lessons, sorted by lesson:

Lesson 1 (Page 6):
- Student Survey (Taken Before Lesson), Page 29
- Student Survey (Taken After Lesson), Page 33
- MyPlate Myself Handout, Page 54
- MyPlate Poster - Eat Smart Play Hard
  (https://www.fns.usda.gov/sites/default/files/eatsmartposter.pdf)

Lesson 2 (Page 9):
- Pros and Cons Lists for Each Evaluation Method, Page 37

Pre-Assessment Tools:
1. Smarter Lunchrooms Scorecard,
   (https://www.smarterlunchrooms.org/sites/default/files/documents/SLM-Scorecard2.0_1.pdf), Page 49-50
2. Weigh it! Method Data Collection form PRE-data handout, Page 41
   - Weigh it! Method Student Volunteer Handout, Page 38
   - Weigh It Data Collection Process Overview, Page 56
3. Daily Production Record, Page 45

Lesson 3 (Page 14):
- Weigh it! Method Data Calculations form pre-data handout, Page 42

Post Assessment Tools:
1. Smarter Lunchrooms Scorecard,
   (https://www.smarterlunchrooms.org/sites/default/files/documents/SLM-Scorecard2.0_1.pdf), Page 49-50
2. Weigh it! Method Data Collection Form POST data handout, Page 43
   - Weigh it! Method Data Calculations form POST data handout, Page 44
   - Weigh it! Method Student Volunteer Handout, Page 38
   - Weigh It Data Collection Process Overview, Page 56
3. Daily Production Record, Page 45

Lesson 4 (Pages 24-26) & Lesson 5 (Page 28)
Lesson 1: What makes up a healthy plate
(From USDA's Serving Up MyPlate – grades 5 & 6)

Objective: In this lesson, students learn about what makes up a healthy plate. Students will be introduced to the five food groups, explore the vegetable subgroups, and discuss differences between whole grains and refined grains.

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Materials needed:
- Notebooks, Computers
- Student Survey (Taken Before Lesson), Page 29. (Taken After the Lesson), Page 33
- Student Reproducible 1: MyPlate, MySelf (Pages 54 and 55)

FIRST TASTE: Engage (40 minutes)
1) Begin the lesson by asking students to close their eyes and think about their favorite vegetable dish [note: French fries do not count]. Encourage them to think about the taste, texture, and colors of their favorite vegetable dish. Invite students to share and brainstorm descriptive words to use when talking about food. (For example: Texture — soft, chewy, crunchy; Taste — sweet, sour, spicy; Feeling — comforting, happy, warm) List these words on the board.

2) Have students take the student survey (Taken Before Lesson), Page 33. Have students put their first name and a ID (any number). Students will use the same ID on their post survey. This will show student change in knowledge of the food groups.

3) Give students 10 – 15 minutes to write about their favorite vegetable dish in their notebooks. Ask them to answer the following questions:
   a) What is your favorite vegetable dish? Does it have a name?
   b) What specific foods are part of your favorite vegetable dish?
c) **Why is it your vegetable dish meal?** *(Prompts: Is there a specific memory around the dish, when it is served, or who prepares it?)*
d) **How would you describe it to someone?** *(Prompts: Can you think of 10 or more words that describe your favorite dish? Think about the taste, what it looks like, and the colors it has, the texture, the feeling you get when you eat the dish.)*

4) When students are finished, invite volunteers to share their favorite vegetable dishes and answer the questions.

5) Next, ask students what they think it means to be healthy. What does one need to eat to be healthy? *(Accept all answers at this stage. Students will likely mention that it is important to eat fruits and vegetables.)* Explain to students that eating fruits and vegetables every day is important for healthy eating. Fruits and vegetables represent two important food groups, out of five. Do students know what the other food groups are? *(Accept all answers.)*

6) Display the [MyPlate poster](https://www.fns.usda.gov/sites/default/files/eatsmartposter.pdf) on a white board or print copies from this link as handouts. Explain that this icon shows the five different food groups: Fruits, Vegetables, Grains, Protein, and Dairy, and serves as a visual reminder to eat foods from all five food groups. By eating a variety of foods from each of the food groups, we can make sure we are feeding our bodies what we need to have energy, play hard, learn, grow, and stay healthy.

7) Explain that the Vegetable Group has five subgroups: Dark-Green, Red and Orange, Beans and Peas, Starchy, and Other. Eating vegetables from all of the subgroups helps us get different kinds of nutrients — and also makes eating more interesting and fun. Most Americans need to eat more dark-green, red, and orange vegetables, and beans and peas. Can they think of some vegetables from these subgroups that they like? Are there any that are served on the school lunch menu?

8) The Grain Group is also divided into two subgroups. But first, what is a grain? Any food made from wheat, rice, oats, cornmeal, barley, or another cereal grain is a grain product. Bread, pasta, oatmeal, breakfast cereals, tortillas, and grits are examples of grain products.

9) The two subgroups of the Grain Group are Whole Grains and Refined Grains. Whole grains contain the entire grain kernel: the bran, germ, and endosperm. (Whole grains include foods such as 100% whole-wheat bread, brown rice, oatmeal, popcorn, whole-wheat tortillas, and whole-grain cereal.) Refined grains have been sent through a mill to remove the bran and germ of the grain. The bran and germ are where all the super nutrients are so this process also removes most of the nutrients we need for good health. Examples of refined grain foods are white bread, corn bread, regular pasta, white rice, cornflakes and puffed rice cereal, and most pretzels, crackers, and cookies. MyPlate encourages us to replace some of the refined grains we are eating with whole grains, so that at least half of the grains we eat are whole grains. Instead of making a sandwich with white bread, make it with whole-wheat bread. Or have oatmeal for breakfast instead of a bagel made with refined grains. Or try something new like quinoa or millet!

10) Ask students to think about how their favorite meal fits MyPlate. Are all five food groups represented in their meal? If not, can they think of substitutions to make their favorite meal more balanced and in line with MyPlate? Have students make these adjustments and substitutions on another page in their notebook. Students may refer back to MyPlate if they need ideas. Encourage them to try it with a new vegetable or with a whole-grain food like brown rice or a whole-wheat tortilla. Also, not every meal or snack may have something from
every food group. So, if breakfast has no veggie, suggest to students that they can try munching baby carrots for an after-school snack.

11) Invite volunteers to share their favorite meals with the class and explain how they made adjustments, if needed, to fit into MyPlate. If there is time, have students create a colorful illustration of their favorite meal. Visit http://www.chooseMyPlate.gov for more ideas.

12) Give the students the Student Survey, Page 33 (Taken After Lesson). Students should use the same ID as they did on their pre-survey.

Lesson 2: Plan an investigation: How can we measure how much fruits and vegetables kids choose and eat in the cafeteria?

Objective: To ask questions arising from careful observation of the cafeteria and researching the problem of poor fruit and vegetable selection and consumption by students. (NGSS Practice 1). Students will plan and carry out an investigation to measure food selection and consumption in the cafeteria.

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Materials needed: For the cafeteria activity that occurs between lesson 2 and 3 you will need the Weigh it! Method Data Collection form PRE-data handout, Page 41 (ask the food service department or health clinic if they have a scale large enough to weigh a student standing on it while holding a trash bag. See picture of example scale below. The students should also ask food service for gloves, garbage bags, garbage cans, and a table.

Handouts needed:

- Weigh it! Method Student Volunteer Handout, Page 38
- Smarter Lunchrooms Scorecard found on page 49 and 50
- Pros and Cons Lists for Each Evaluation Method, Page 37

Background Information:

We learned in the previous lesson about what makes up a healthy plate. Students were introduced to the five food groups, explored the vegetable subgroups, and discussed differences between whole grains and refined grains. The next three lessons will present students with information about: 1) how the cafeteria is set up and how the food is displayed and positioned helps kids make the healthiest choices possible, and 2) how to collect data on how what students select and eat in the cafeteria. Through these lessons, students will learn about how certain factors (advertisement, convenience/visibility, and peer pressure) affect students’ food choices. They will apply this knowledge to help their school community make healthy choices by proposing changes for their cafeteria. With the help of the food service professionals in your school, student helpers will collect data both before and after their changes to analyze if the changes helped them and their fellow students make better choices and eat healthier.

The food environment affects how we eat in two ways:
1. Food Selection - factors that affect what we choose to get. Ex. visibility, advertising, convenience and peer pressure.
2. Food Consumption - factors that influence whether we actually eat what we selected (and how much). Ex. portion size, peer pressure, and taste.

Warm up:
A. Have students write down what they ate during their last school lunch and what questions they have about the lunch items they selected? For example, Why did I bring my lunch instead of buying a lunch? Why did I pick a apple to eat today? Why was the line to get lunch so long?

B. Share with the students that our environment can affect both our: 1) food selection and 2) food consumption. Ask the students to tell you the difference between food selection and food consumption. Food selection is choosing a food, and food consumption is actually eating the food. Ask the students what they chose and what they consumed.

C. Tell the students to pretend they are in the cafeteria and visualize everything they see there. Again, have the students brainstorm a list of questions that if answered would give them information about the factors affecting food and beverage selection of foods and beverages. For example, Why don't we have a salad bar? Why is only one vegetable served? What are the white stuff on the apples?

D. In teams, have students walk down to the cafeteria as a classroom and complete the Smarter Lunchrooms Scorecard found on page 49 and 50 or at this link https://www.smarterlunchrooms.org/sites/default/files/documents/SLM-Scorecard2.0_1.pdf. Tell the students to complete this assessment as best they can, skipping any item they cannot answer or understand. Tell them to write down questions that come to mind as they are answering the questions. If the class is large, have different teams complete the different sections of the Scorecard. Note, the Scorecard lists best practice strategies that cafeterias should use to increase healthy food selection.

D. Discussion: Using the observation and the scorecard exercise, have the students try to answer the questions they generated and summarize answers. Have students categorize the factors listed into categories. For example, environmental factors, taste factors and so forth. After the ideas are written on the board tell the students that as a part of these lessons we would like to re-design the cafeteria in small ways to help students choose and eat healthier foods. We will also learn if our changes work by measuring whether the re-design changed what kids throw away in the garbage cans.

To do this, we are going to: 1) learn how to measure fruit and vegetable selection and consumption in the cafeteria, and 2) learn about how advertising, peer pressure, convenience and visibility affect students when they are making food choices.

i. Begin by asking the following questions (10 minutes)
   • If you wanted to measure how much fruits and vegetables students were selecting and eating in the cafeteria, how would you do this? Have students discuss their answers in pairs, write down their answers in their notebooks, or share with the class.

ii. Ask students to explain the methods they chose and discuss the pros and cons of each method. (5 minutes).
The students will likely come up with methods that fall in 3 categories:

1. Method 1 (Asking each student to remember what they took and ate = Dietary Recall): Pro – detailed, comprehensive; Con – time consuming, relies on memory, requires someone to do interviews.

2. Method 2 (Looking at what each student selected and ate on their tray = Plate Waste): Pro – detailed, designed for the lunchroom; Con – time consuming, difficult to manage the high volume of trays coming to the evaluator at roughly the same time.

3. Method 3 (Weighing the food before it goes out on the line and after the students select and eat it by separating the trash = Weigh It! method): Pro – more focused, easier to weigh just the fruit and vegetables, easier to weigh what vegetables and fruit end up in the trash. Con- doesn’t evaluate the entire lunch tray, need a team of people to ensure trash is being dumped in the correct garbage cans. Have a discussion that moves the students to agree that the class should use the Weigh it! method. Since this method is the most efficient, cost effective, and easiest to implement.

iii. Through a discussion, ask the students to determine which method they think will make the most sense in the cafeteria and which method they could use themselves.
   - If they are leaning towards the plate waste method, you can say, “but wait, we have about 200 students in our school – do you think we would have enough time to look at each student’s tray?”
   - If they are leaning towards the dietary recall method, say “do you think that would take too much time?”
   - Emphasize that the Weigh It! method simplifies the measurement process within the lunchroom. It can focus only on the fruits and vegetables and uses total weight before lunch service and subtracts the amount thrown away to determine the amount of fruits and vegetables consumed by students.
   - Once the class has decided on the Weigh it! Method, have the class create a flowchart how they will use the model in the cafeteria.
   - Example Flow Chart:

     ![Flowchart]

     - Show the students how the weighing process will work. Show the students some sort of whole fruit/vegetable in a bowl (for example an apple), the scale, and trash can.
       1. Weigh the bowl with the fruit or vegetable in it, and record the weight.
       2. Have a couple students come pick up the food, and eat what they want. (This is great if you have enough for everyone to have a piece. If not, have students just pretend to eat it).
iii. Weigh the bowl with what’s leftover in it (if any) and record its weight.
iv. Have students “throw away” the food they did not consume.
v. Put the trash can on the scale and tare the scale. [Alternatively, a student can stand on the scale and tare the scale].
vi. Weigh the trash can with the food it in and record its weight. [Alternatively, the student can stand on the scale and hold the trash bag with the food in it.]
vii. Ask the students how they will know how much food was selected and how much food was consumed. Calculate this together.

- Ask the students what numbers they will have to use measure selection.
  - Selection = Weight of bowl with apples before lunch – Weight of bowl with leftover apples after lunch.

- Consumption = (Weight of apples in trash) - (Weight of bowl with apples before lunch – Weight of bowl with leftover apples after lunch)
  [Note: correction factor not needed, this formula calculates edible weight]

- Ask for volunteers to conduct the Weigh It! method in the cafeteria. They will do this activity outside the classroom and during a lunch period. Consider having shifts or collecting this data on multiple days. See the Weigh It! Method Handout for more information on the process.
  - Find time to walk through the Weigh It! Method Handout with the volunteers.

iv. Ask students to come up with a plan so all students can be involved in collecting data, weighing and measuring, and conducting the change in the cafeteria.
- To measure a change using the Weigh It! method the class first has to collect pre-conduct the Weigh It! method before a change is made in the cafeteria.
- Then students will need to make a change to the cafeteria, such as moving the fruit to new locations, creating cool fun name for a vegetable, or make video advertisements.
- Then after the changes are made they need to conduct the evaluation using the Weigh It! Data Collection Sheet once again. By doing this, they will know how much of the food was selected and consumed before the change is made and be able to compare that to how much of the food was selected and consumed after the change is made.
By comparing what was selected and consumed before and after their change, the students will be able to say that changes they made either increased, decreased or had no effect on fruit or vegetable consumption.

Between lesson 2 and 3 – students select 1 day to collect pre-data. The pre-data will be collected using the following assessments found in this document:

1) Smart Lunchroom Scorecard, Page 49-50.
2) Weight it! Data Collection Sheet, Page 41.
3) Production Record, Page 45

Pull the volunteers aside and use the Weight it! Student Volunteer Handout to walk through the process with the students. This group should get approval from the food service staff to collect 1 days’ worth of food waste pre-data.

- The Scorecard will give the class a “score.”
- The Weigh It Data will give the class the number of pounds of fruits or vegetables selected and consumed.
- The Production Record (which is handed to the head cafeteria manager to be completed) will give the class a bigger picture of what was served and selected.

These assessments can be done before and after the changes are made so students can see if their changes made the cafeteria made a difference.
Lesson 3: Make Changes!: How can we help kids choose and eat more fruits and vegetables in the cafeteria?

Objectives: Students will design a model based on evidence to test ideas about student cafeteria behavior (NGSS Practice 2) and plan an investigation collaboratively to produce data to evaluate a cafeteria intervention. (NGSS Practice 3).

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<td>Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.</td>
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Materials needed:
- Data from the Weigh it! Measurements.
- Stickers or markers that students can use to indicate their selection from the three module choices. Different materials will be needed depending which module the students select:
  - If Module 1: Convenience and visibility is selected:
    - Access to the internet, computer, and room speakers so students can hear audio.
    - Brainstorming paper or large white board.
    - Personal device with camera – to take picture of cafeteria
  - If Module 2: Advertising and Enhancing Taste Expectations, is selected:
    - Brainstorming paper or large white board.
    - Access to the internet, computer, and room speakers so students can hear audio.
  - In Module 2, students have 3 options to choose from:
    - Option 1: Create creative fun names for the fruits and vegetables being served. If this is selected cardstock and/or paper and markers are needed.
    - Option 2: Students create signs for the cafeteria. If this is selected then sign making material is needed – poster board, markers, glue, etc.
    - Option 3: Students create their own commercials for healthy fruits or vegetables. If this is selected, then video recording devices like cell phones or iPads are needed.
  - If Module 3: Peer Pressure & Taste Testing is selected:
- Brainstorming paper or large white board.
- Possibly stickers to students who take a fruit or vegetable.
- Taste test supplies and food samples (talk to your food service department for these items and about protocols)

**Warm up:**

A. As a class, use the Weigh it! Method Data Collection form PRE-data handout, Page 34 and the Weigh it! Method Data Calculations form pre-data handout, Page 35, to calculate Food SELECTION and FOOD CONSUMPTION for their selected day. Remind students the difference between food selection and food consumption is:
   - Food Selection- what we choose.
   - Food Consumption- what we actually eat from what we selected
   - Food Waste – amount of selected uneaten food thrown away in trash cans.
B. In pairs or groups, have the students calculate percentages.
C. Have students look at their results from the Weigh it! Data collection. Ask them to write down three observations about the data.
D. Ask the students if they think that kids are eating enough fruits and vegetables. Ask: Are they happy with the level of waste or do they think that kids could eat more of the fruits and vegetables that they select?
E. Also present the class with the data from the completed Daily Production Record, Page 45, and Smarter Lunchroom Scorecard Page 42-43.
F. Re-Introduce the challenge: re-design the cafeteria to help students to select and eat more fruits and vegetables. Ask them to pretend they are in the cafeteria and visualize everything you see there. If you have time, visit the cafeteria with the classroom. Brainstorm all of the factors that would affect what you select and whether you eat it. Circle *convenience and visibility*, *advertising*, and *peer pressure* as factors they can change as a class.
F. Tell them that they get to choose what they learn next from the following three choices:
   - **Module 1: Convenience and Visibility** (Note that some of the changes in module 1 will require adult help and food service approval. Make sure to tell students that they will have to work with the food service team and get an OK before making a change. If the food service team is not able to make the suggested change then pick Module 2 or 3. (Teachers should make initial contact with the food service team prior to asking students to work with them.)
   - **Module 2: Advertising and Enhancing Taste Expectations**
   - **Module 3: Peer Pressure and Taste Testing**

G. Write the three choices up on the board and ask students to raise their hand to signal which they would like to learn about and work on. Whichever choice gets the most votes is the lesson that will be taught. Alternatively, the teacher can select which module to teach.
Module 1: Convenience and visibility

Activity
1. Ask the students to generate a list of times when they have made, selected, or eaten a food because it is convenient? Brainstorm with students and categorize responses.

2. Have the students explore this interactive article as a group or in pairs. It shows how real scientists are trying to do a similar experiment that the students are doing in cafeterias. It also discusses some of the tested techniques used to encourage healthier food selection.: http://www.nytimes.com/interactive/2010/10/21/opinion/20101021_Oplunch.html

Source: adapted from the Cornell B.E.N. Center, Philosophy of School Lunchrooms: Your Favorite Eating Place: https://ed.sc.gov/districts-schools/nutrition/nutrition-program-administrative-resources/smarter-lunchrooms/resources/lunchroom-philosophy/

   a. Have students report out their observations of the article.

3. As a class, walk through the cafeteria.
   a. Have the students generate a list of questions related to healthier food choices in the cafeteria and a list of ideas that would improve the likelihood of students selecting fruits and or vegetables in the cafeteria.
      i. For example, students might ask, why do we always have carrots and apples? Why isn’t the milk colder? Why don’t we have spaghetti more often?
      ii. For example, students might suggest, having more variety of fruit, putting up signage about vegetable, having a vegetable of the day, keeping the vegetables at a warmer temperature.
   b. Have the students take a picture with a phone to remember where the food and beverages are located and how the flow of the cafeteria is set up.
   c. Once they return to the classroom, have the students map out on large pieces of paper where the different food is. Encourage students to write as many observations as possible. Prompts to use:
      • What direction do students flow through the cafeteria line?
      • What is the order in which food is presented? What do they see first? What do they see last?
      • How are things labeled? Are such labels appealing?

   Example, hand drawn cafeteria flow chart:

4. Show the following video(s), Before you start the videos ask the students to see if the video mentions any of their ideas.
   • Video: Professors Brian Wansink and David Just, Cornell University, explain how to redesign a lunchroom so that students will select healthy food. https://www.youtube.com/watch?v=BKFf5QlTqgg
Optional: Professor Brian Wansink, Cornell University, and CNN's Dr. Gupta explore the idea that people eat with their eyes and not with their stomachs. [https://www.youtube.com/watch?v=dFjqEQtgkxsQ&feature=youtu.be]

Stop at 5:03.

Partner brainstorm: Have the students reflect on the questions and ideas they generated previously and have the students generate a final list of suggestions that if changed would likely increase fruit and vegetable selection and consumption?

At this point, it would be helpful to focus on the fruit or vegetable that was selected for the Weight It! Method.

Below is a list of ideas:
- Hand out stickers or hand stamp to students that try a vegetable or fruit from the salad bar.
- Create a poster promoting a fruit or vegetable, then place it on the salad bar.
- Ask food service manager to move the salad/fruit and vegetable bar so students have to walk around it. See this article for more information about this strategy: [http://www.nytimes.com/interactive/2010/10/21/opinion/20101021_Oplunch.html]
- Ask food service manager to buy a colorful bowl and place handheld fruit in it. Ask lunch staff to put the bowl with fruit in it by register.
- Ask food service manager to find a desk lamp and shine a light on the bowl of fruit.
- Ask the food service manager to move the fruit or vegetable offerings to the front of the lunch line – this has been shown increase selection by 10 – 15%.

Have students vote on two ideas that they want to implement in the cafeteria. Only have the students vote on actions that have been approved by the cafeteria staff. Have students draw the changes on their cafeteria maps.

**Exit Card, Discussion, or Homework:** What do we know about how the environment affects healthy eating choices? What do you think is the most important convenience change that should be made in the cafeteria? Why?

Ask the kids how they will know if the changes impact students’ food selection and consumption. They will complete another data collection round with the Weigh It! Method and compare their results.
Module 2: Advertising and Enhancing Taste Expectations

Watch this commercial as a class: Clementine oranges: https://www.youtube.com/watch?v=jUYOiutrMk

Ask the students - “What techniques do companies and family/friends use to convince you to buy and eat their food?” Have the students brainstorm different methods.

After the students are finished brainstorming, write these categories on the board (and other categories if they think of more):

1. **Logic and knowledge**: Explaining the unique health benefits of the food they are selling
2. **Trusted authority**: Doctors, athletes, or even moms tell you why you should buy the product or are shown eating the food
3. **Emotion**: Eliciting positive emotions like joy, hope, fun excitement, humor or negative emotions like fear and disgust – the ad then tries to get you to associate the positive emotion with eating the food or the negative emotion with not eating the food or eating another competitor food
4. **Peer pressure**: showing people just like you happy or another positive emotion when they are eating or buying the food
5. **Enhance taste expectations**: Making the food seems super delicious and attractive with words like tasty, delicious, good, mmm mmm, etc.

Next watch these commercials:
While you are watching these commercials, tell the students to write down which technique(s) they think the company is using. You can watch one or all of them, but make sure to discuss techniques they used as you go:

- Baby carrots #1: https://www.youtube.com/watch?v=mab3qBMlr2g
- Craisins: https://www.youtube.com/watch?v=1fiWQzzuQpA
- Japanese Banana: https://youtu.be/dpqxSBclgWs

**Discussion**: Let’s talk about the commercials! Discuss the videos with a focus on these questions:
- Why did the commercials draw you in?
- What techniques were they using?
- Do you think you could use advertising to convince students to eat fruits and vegetables in the cafeteria? How?

Option 1: Students create name plates as advertisements for fruits and vegetables to enhance taste expectations.

- Create creative fun names for the fruits and vegetables being served. Make sure to include the fruit or vegetable that was selected for the Weigh It! Method. Post the creative names on the fruit and vegetable bar and/or on a menu board so all can see. Example words: Super, Power, Yummy, Crunchy, Juicy, Zesty, Delicious, Fresh Natural, Sweet, Tasty, Ripe, Exotic, Special. Announce the fun names of the featured fruits and vegetables daily over the intercom. See this food naming idea bank for more ideas: https://ohiosmarterlunchrooms.files.wordpress.com/2015/11/food-naming-wordbank.pdf
Click the links below for downloadable PDF blank food item cards. You can also just use construction paper and insert your own names, fill them out and place on the salad or Fruit and vegetable bar.

- Veggie Full (https://ohiosmarterlunchrooms.files.wordpress.com/2015/06/veggie-full-page.pdf)
- Veggie 4 Per (https://ohiosmarterlunchrooms.files.wordpress.com/2015/06/veggie-4-per-page.pdf)
- Veggie 6 (https://ohiosmarterlunchrooms.files.wordpress.com/2015/06/veggie-6-per-page.pdf)
- Fruit Full (https://ohiosmarterlunchrooms.files.wordpress.com/2015/06/fruit-full-page.pdf)
- Fruit 4 (https://ohiosmarterlunchrooms.files.wordpress.com/2015/06/fruit-4-per-page.pdf)
- Fruit 6 (https://ohiosmarterlunchrooms.files.wordpress.com/2015/06/fruit-6-per-page.pdf)

**Option 2: Students create signs for the cafeteria**

- Create or purchase colorful signs to promote the salad/fruit and vegetable bar. Make sure to include the fruit or vegetable that was selected for the Weigh It! Method. Partner with the art class to “color your cafeteria” with fruit and vegetable art. For example, Learning Zone express has posters. https://www.learningzonexpress.com/

**Option 3: Students create their own commercials for healthy fruits or vegetables**

- **Materials:** Props for advertisement like fresh fruits and vegetables, paper print-outs of fruits and vegetables (this can be from the coupon booklets at the front of grocery stores), construction paper, markers, crayons, poster paper.
- **Equipment:** Video recording devices like cell phones or iPads
- Invite the students to create advertisements to help convince the other students to make healthy nutrition choices. Make sure to include the fruit or vegetable that was selected for the Weigh It! Method. These can be posters to put up throughout the school, announcement to be read over the PA system or short videos to be shown to other classes. Teacher tip: email the videos to the other teachers in the school and ask them to show the videos to the students.

- **Advertisement Creation: Time 25 minutes**
  - Have students in groups work to convince students to eat more fruits and vegetables.
  - Constraints: The videos made should be less than 2 minutes long.
  - Students can create the movie using the video recorder on iPads or cell phones. If students have done this before they can also use iMovie, but that is not necessary.

- **Advertisement Sharing:**
  - As a class watch each video and view each poster.
  - Ask the class and have the students answer:
    - What was the goal of the advertisement?
    - What strategy did they use to convince people to reach that goal?
    - What is one thing you really liked about this advertisement?
  - Make sure to share the students’ work beyond your classroom. For example, put the posters up in the cafeteria.

**Exit Card, Discussion, or Homework:** What is the best advertising strategy to encourage healthy eating choices in cafeteria? Why? Ask the kids how they will know if the advertisement impacted students’ food selection and consumption. They will complete another data collection round with the Weigh It! Method and compare their results.
Module 3: Peer Pressure and Taste Testing

Introduction:
Ask students to think about a time when their friend got them to try a food they have never tasted or did not like. Ask how the friend got them to try the food.

Explain to the students that food companies use peer pressure to encourage students to purchase specific foods and beverages. Peer pressure is the influence a person or group of people have on others to act a certain way or purchase a certain product. For example, if all the kids in a neighborhood have bicycles, the kids without bicycles may feel peer pressure to purchase bicycles. This same behavior happens with food and beverages. If all the kids bring bottled water to school, kids who don't bring bottled water to school may feel pressure to purchase bottled water. Companies also use peer pressure to encourage young people to purchase certain foods and beverages.

Ask students if they think peer pressure can be positive, negative or both? Have students share examples from their life. Ask for food examples. You can share, researchers have learned that students will select more fruits and vegetables if students are allowed to taste test foods and if students see their friends selecting the fruit and vegetable choice.

Tell students to work with a partner or multiple partners. Tell them that you now want to brainstorm with students a list of strategies they think will increase fruit and vegetable selection and consumption using positive peer pressure techniques. Once students have generated a list ask one student from each group to share their ideas with the class. Write down their ideas on the board.

Circle the top three strategies the class thinks would be possible to do in the cafeteria. Note that some of the ideas below will require adult help and food service approval. Make sure to tell students that they will have to work with the food service team and get an OK before making a change. Make sure to include the fruit or vegetable that was selected for the Weigh It! Method.

Ideas:

- Hand out stickers to students who take a fruit or vegetable. Or place stickers on fruits and vegetables – e.g – apples, bananas, oranges, kiwi.
- Hold a taste test with the featured fruit and/or vegetable.
  - Click the links below for downloadable taste testing PDF documents:
    - [Taste Test Event Getting Started Guide](https://ohiosmarterlunchrooms.files.wordpress.com/2015/04/taste-test-gsg.pdf)
    - [Taste Test Event Suggested Ideas](https://ohiosmarterlunchrooms.files.wordpress.com/2015/06/taste-test-suggested-ideas.pdf)
    - [Taste Test Event Evaluation Form](https://ohiosmarterlunchrooms.files.wordpress.com/2015/06/tt-event-evaluation-form.pdf)
    - [Taste Test Event Flyer](https://ohiosmarterlunchrooms.files.wordpress.com/2015/06/tt-event-flyer.doc)
    - [Taste Test Event Letter](https://ohiosmarterlunchrooms.files.wordpress.com/2015/06/taste-test-letter.docx)
- **Taste Test Comment Cards**
  https://ohiosmarterlunchrooms.files.wordpress.com/2015/06/taste-test-comment-cards.pdf
- **Taste Test Stickers**
  https://ohiosmarterlunchrooms.files.wordpress.com/2015/06/taste-test-stickers.pdf
- **Take a Taste Poster**
  https://ohiosmarterlunchrooms.files.wordpress.com/2015/06/take-a-taste-poster.pdf
- **Today’s Taste Poster**
  https://ohiosmarterlunchrooms.files.wordpress.com/2015/06/todays-taste-poster.pdf

- Provide samples of featured fruit and vegetable – e.g. offer a small piece of apple as students walk in.
- Designate a set day of the week for taste testing, such as “Try it Tuesday” or “Veg Out Wednesday” – On this day, provide samples of the fruit or vegetable you want students to try.

**Exit Card, Discussion, or Homework:** Take-away: Peer pressure is all around us. Food companies use it to influence what we purchase. Peer pressure can be used for healthy eating. If more students are seen eating fruits and vegetables – maybe more students will choose them.

Ask the kids how they will know if the changes impact students’ food selection and consumption. They will complete another data collection round with the Weigh It! Method and compare their results.

**References:**
Between lesson 3 and 4 - student volunteers and select 1 day to collect post data. Consider having shifts so all the students involved in weighing and measuring.

The post data will be collected using the following assessments found in this document:

1) **Smarter Lunchroom Scorecard**: Page 42-43.
2) **Weigh it! Data Collection Sheet**: Page 36.
3) **Production Record**: Page 38.

Pull the volunteers aside and use the **Weight it! Student Volunteer Handout** to walk through the process with the students. This group should get approval from the food service staff to collect 1 day’s worth of food waste post data.

- The Scorecard will give the class a “score.”
- The Weigh it Data will give the class the number of pounds of fruits or vegetables selected and consumed.
- The Production Record (which needs to be completed by food service staff) will give the class a bigger picture of what was served and selected.
Lesson 4: Analyze: Did your cafeteria interventions work?

**Objective:** To analyze collected data by interpreting, graphically displaying, and considering limitations of data collection procedures. (NGSS Practice 4). Students will analyze if their planned intervention led to healthier food selection.

<table>
<thead>
<tr>
<th>NGSS Practices</th>
<th>5th Grade NGSS Performance Expectations</th>
<th>6-8th NGSS Performance Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obtaining, evaluating, and communicating information</td>
<td>MS-ETS1-2 Engineering Design</td>
<td>Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.</td>
</tr>
<tr>
<td>Analyzing and interpreting data</td>
<td>MS-ETS1-3 Engineering Design</td>
<td>Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.</td>
</tr>
</tbody>
</table>

1. **Begin by asking the class to make a prediction.**
   a. Write down the changes that were made. Ask students if they think the interventions led to changes in students’ eating behaviors? Why or why not?

2. **Ask for student volunteers to present the data from:**
   a. Smarter Lunchroom Scorecard, Page 49-50 (compare pre-score with post score)
   b. Daily Production Record, Page 45 (compare lunch attendance, meals served, fruit and vegetables served (before changes made vs after changes made)
   c. Weigh it! Method Data Collection Form Pre-versus Post data, Page 41 (compare changes in selection and consumption before versus after changes made).

3. **Summarize the following results:**
   a. How many fruits and vegetables did students eat pre-intervention (before changes made) versus post-intervention (after changes made)?
   b. How many fruits and vegetables were thrown away pre-intervention (before changes made) versus POST (after changes made)?

4. **Have students create bar graphs to represent the PRE- and POST- intervention data.**
   a. As a class, plot the pre-intervention data.
   b. In small groups, ask the students to graph the post-intervention data.
   c. Check the graphs as a class and have them continue to the analysis questions.
d. Ask the students to graph the available data and declare of summary statement. For example, “Offering carrots and apples in two places on the service line resulted in an increase in selection and consumption of these foods.

**Example graphs using Excel:**

- **Student Consumption of Apples**
  - Apples in Pounds
  - PRE Data Weight (Before Cafeteria Change)
  - Post Data Weight (After Cafeteria Changes)

- **Student Selection of Apples**
  - Apples in Pounds
  - PRE Data Weight (Before Cafeteria Change)
  - Post Data Weight (After Cafeteria Changes)

- **Smarter Lunchroom Scorecard**
  - Score (60 Points Maximum)
  - PRE Scorecard Score (Before Cafeteria Change)
  - Post Scorecard Score (After Cafeteria Changes)

- **Student Participation**
  - Number of students buying school lunch
  - Before Cafeteria Change
  - After Cafeteria Changes

- **Apples Eaten per Student**
  - Amount Consumed
  - Before vs After Changes
  - (Apples Consumed/number of students)
  - Before Changes
  - After Changes
5. **Conduct a group discussion with the class.**
   a. Tell the class that sometimes we are so engaged in doing, that we don’t stop and think about the WHY. The why we did what we did and how we felt about the process. Thinking about the Why is also an important step before we write our report and tell others our story.
   b. Tell them that as good scientists we also want to think about what they learned and how they would improve or change the process. Below are discussion questions. Please choose all or some of the following questions to develop a conversation regarding student reflections:

   **Data questions:**
   - What patterns do you see in the data?
   - What do these patterns imply about the intervention?
   - Does the data support saying intervention was successful? Why or why not?
   - What other factors might have affected our data?
   - What was similar or different about what we did than what professional scientists do?

   **Process Questions**
   - Which activities in the lessons did you like and why?
   - What was fun?
   - What was interesting?
   - Was anything exciting?
   - Which activities in the lessons did you not enjoy and why?

   **Lesson Content:**
   - What did you learn about how scientists investigate what people eat?
   - What did you learn about how to get your class mates to eat more fruits and vegetables?
   - What did you learn about collecting information in the cafeteria?

   **Transmittance of concepts in the home and larger school community**
   - Did you share anything you learned from this with anyone?
   - For those that did share who did you share information with?
   - Did you share with your family?
   - Did you share with your friends?
   - Did you share with another teacher?
   - What did you share?
   - For those that did not share, what would you have liked to do or learn about in the lessons that you would have shared with family or friends?

   **Question Pool (Optional):**
   - In what ways did you feel what you learned challenged your thinking? Why or Why not?
   - In what ways did you feel this experience kept your attention? Why or Why not?
   - Describe why you feel other students may or may not find this information interesting?
   - What did you like about spending time on this topic in class?
   - What activities did you like best and least?
   - While the lessons were being taught, did you feel you had enough opportunity to share your thoughts?
**Lesson 5: Science Informing Leaders and Making Lasting Change**

**Objective:** To analyze collected data by interpreting, graphically displaying, and considering limitations of data collection procedures. (NGSS Practice 4). Students will create a report which summarizes their findings and can be shared with school leaders.

This lesson is about how scientists and advocates use science to tell a story about what happened in a study. It is about how they share the data, so decision makers can make better informed decisions and help others.

Handout or pull up the Recommendation Report Template Handout (Pages 39-41) and tell the class that they will be creating a “findings report” for adult leaders in our school about our work. It might also be a report that we send to the local newspaper.

This report will be emailed or presented to the Food Service Director, Lunchroom Manager, Principal, and School Board. This depends on what the students and teacher want to do with the report. The students might consider presenting their report to the School Board while also sharing it with the local newspaper. Or the class might want to invite the food service director and staff to the classroom to discuss the findings.

Students can be broken up into groups and asked to add or edit each section of the report. The report sections are listed below.

Step 1: Have a discussion with students about who they want to share their report with. This may affect how they write up their report and what data they share.

Step 2: have students work on their report sections. Once done with their section they can join another group:
- Introduction
- What We Did
- Data We Collected
- Conclusions
- Recommendations
- Who We Would like to Thank

Step 3: Agree how they will share the report and who they will share the report with.
Handouts provided at the end of these lessons, sorted by lesson:

Lesson 1 (Page 6):
- Student Survey (Taken Before Lesson), Page 29
- Student Survey (Taken After Lesson), Page 33
- MyPlate Myself Handout, Page 54
- MyPlate Poster - Eat Smart Play Hard
  (https://www.fns.usda.gov/sites/default/files/eatsmartposter.pdf)
- Summary report on Youth Diet Quality Page 51
  https://fns-prod.azureedge.net/sites/default/files/ops/NHANES-NSLP05-10-Summary.pdf

Lesson 2 (Page 9):
- Pros and Cons Lists for Each Evaluation Method, Page 37

Pre-Assessment Tools:
1. Smarter Lunchrooms Scorecard,
   (https://www.smarterlunchrooms.org/sites/default/files/documents/SLM-Scorecard2.0_1.pdf), Page 49-50
2. Weigh it! Method Data Collection form PRE-data handout, Page 41
   - Weigh it! Method Student Volunteer Handout, Page 38
   - Weigh It Data Collection Process Overview, Page 56
3. Daily Production Record, Page 45

Lesson 3 (Page 14):
- Weigh it! Method Data Calculations form pre-data handout, Page 42

Post Assessment Tools:
1. Smarter Lunchrooms Scorecard,
   (https://www.smarterlunchrooms.org/sites/default/files/documents/SLM-Scorecard2.0_1.pdf), Page 49-50
2. Weigh it! Method Data Collection Form POST data handout, Page 43
   - Weigh it! Method Data Calculations form POST data handout, Page 44
   - Weigh it! Method Student Volunteer Handout, Page 38
   - Weigh It Data Collection Process Overview, Page 56
3. Daily Production Record, Page 45

Lesson 4 (Pages 23-25) & Lesson 5 (Page 26):
Background Information and Additional resources:

- Additional Healthy Eating Lessons:
  - Serving Up MyPlate: A Yummy Curriculum

- Trash Program and Lesson Ideas:
  - Environmental Research and Education Foundation solid waste education program [https://erefdn.org/continuing-education/](https://erefdn.org/continuing-education/)
  - Guide to Conduction Student Food Waste Audits, A Resource for Schools

- Smarter Lunchroom Ideas and Information:
  - Smarter Lunchroom Movement
  - Smarter Lunchroom Published Scientific Articles
  - Six guiding principles to improve eating behaviors
  - Tray Waste Lab & Lesson Plan – for Advanced Placement Stats
  - [http://www.commercialfreechildhood.org/resources-tools](http://www.commercialfreechildhood.org/resources-tools)
  - [https://ohiosmarterlunchrooms.files.wordpress.com/2015/04/taste-test-event.pdf](https://ohiosmarterlunchrooms.files.wordpress.com/2015/04/taste-test-event.pdf)

- Cafeteria Makeover Ideas
  - SMART School Meals Marketing Materials
  - Fresh Ideas for Fresh Vegetables
  - Ohio Seed to Salad Toolkit
  - Vegetables That Add Color, Flavor, and Crunch Mini-Poster
  - ReFresh Toolkit

- Monthly Seasonal Food Promotions
  - What's in Season?

- Michigan Healthy Eating Social Media Networks:
  - Michigan Team Nutrition Youtube Smarter Lunchroom Videos
  - Michigan Team Nutrition facebook
  - Michigan Team Nutrition Twitter

- United States Department of Agriculture (USDA) Team Nutrition
For each question, circle the one food that is the best answer.

The Choose My Plate picture shows the five food groups you should make healthy food choices from each day. The five food groups are Fruits, Vegetables, Grains, Dairy and Protein.

1. Which food belongs to the fruit food group? If you do not know the answer, make your best guess.

   ![Options]
   - Rice
   - Broccoli
   - Ice Cream
   - Apple

2. Which food belongs to the vegetable food group? If you do not know the answer, make your best guess.

   ![Options]
   - Gummy Bears
   - Hotdog
   - Winter Squash
   - Apple

Go to the next page
3. Which food is **not** grown in Montana?

- Beef
- Banana
- Kale
- Apple

**For questions 4 and 5, circle one answer that describes your eating habits.**

4. I will eat a vegetable at lunch today or tomorrow.
   - Yes
   - No
   - I don’t know

5. I will eat a fruit at lunch today or tomorrow.
   - Yes
   - No
   - I don’t know

**For questions 6 and 7, circle one answer that describes your eating habits.**

6. I eat vegetables:
   - Example vegetables include: corn, lettuce, broccoli, squash. **Do not count** French fries or chips.
   - Every day
   - 1-2 days a week
   - Most days of the week
   - Never

7. I eat fruits:
   - Example fruits include apples, cherries, pears, bananas, grapes, berries. **Do not count** fruit juice or fruit gummy snacks.
   - Every day
   - 1-2 days a week
   - Most days of the week
   - Never

Go to the next page
Look at the picture of food, and color the circle by the food that best describes how it tastes to you. Fill in the circle all the way, like this:

<table>
<thead>
<tr>
<th>Food I am Rating</th>
<th>I have never tried it</th>
<th>I don't like it</th>
<th>I like it</th>
<th>I love it</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lettuce</td>
<td>?</td>
<td>❌</td>
<td>❄</td>
<td>❌</td>
</tr>
<tr>
<td>Carrots</td>
<td>?</td>
<td>❌</td>
<td>❄</td>
<td>❌</td>
</tr>
<tr>
<td>Zucchini</td>
<td>?</td>
<td>❌</td>
<td>❄</td>
<td>❌</td>
</tr>
<tr>
<td>Spinach</td>
<td>?</td>
<td>❌</td>
<td>❄</td>
<td>❌</td>
</tr>
<tr>
<td>Cherries</td>
<td>?</td>
<td>❌</td>
<td>❄</td>
<td>❌</td>
</tr>
<tr>
<td>Beef</td>
<td>?</td>
<td>❌</td>
<td>❄</td>
<td>❌</td>
</tr>
<tr>
<td>Whole Grain Bread</td>
<td>?</td>
<td>❌</td>
<td>❄</td>
<td>❌</td>
</tr>
<tr>
<td>Beans like Pinto, Kidney or Black Beans</td>
<td>?</td>
<td>❌</td>
<td>❄</td>
<td>❌</td>
</tr>
<tr>
<td>Kale</td>
<td>?</td>
<td>❌</td>
<td>❄</td>
<td>❌</td>
</tr>
<tr>
<td>Beets</td>
<td>?</td>
<td>❌</td>
<td>❄</td>
<td>❌</td>
</tr>
<tr>
<td>Apple</td>
<td>?</td>
<td>❌</td>
<td>❄</td>
<td>❌</td>
</tr>
<tr>
<td>Winter Squash</td>
<td>?</td>
<td>❌</td>
<td>❄</td>
<td>❌</td>
</tr>
<tr>
<td>Milk</td>
<td>?</td>
<td>❌</td>
<td>❄</td>
<td>❌</td>
</tr>
<tr>
<td>Lentils</td>
<td>?</td>
<td>❌</td>
<td>❄</td>
<td>❌</td>
</tr>
</tbody>
</table>
MyPlate Matching Activity

Draw a line from each food to the correct food group on MyPlate below. For example, a line was drawn between the chicken and the protein group.

Dairy

Grains

Protein

Fruits

Vegetables

Thank you for taking this survey.
Student Survey (grades 2 and up) ----- POST
(Created and Validated by Montana Team Nutrition)

Print First Name: ____________________________ Print First Initial of Last Name: _______ Grade: _______

For each question, circle the one food that is the best answer.

The Choose My Plate picture shows the five food groups you should make healthy food choices from each day. The five food groups are Fruits, Vegetables, Grains, Dairy and Protein.

![Choose My Plate Image]

1. Which food belongs to the fruit food group? If you do not know the answer, make your best guess.

   - Rice
   - Broccoli
   - Ice Cream
   - Apple

2. Which food belongs to the vegetable food group? If you do not know the answer, make your best guess.

   - Gummy Bears
   - Hotdog
   - Winter Squash
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Go to the next page
3. Which food is not grown in Montana?

- Beef
- Banana
- Kale
- Apple

For questions 4 and 5, circle one answer that describes your eating habits.

4. I will eat a vegetable at lunch today or tomorrow.
   
   Yes  
   No  
   I don’t know

5. I will eat a fruit at lunch today or tomorrow.

   Yes  
   No  
   I don’t know

For questions 6 and 7, circle one answer that describes your eating habits.

6. I eat vegetables:
   
   Example vegetables include: corn, lettuce, broccoli, squash. Do not count French fries or chips.

   Every day  
   1-2 days a week  
   Most days of the week  
   Never

7. I eat fruits:

   Example fruits include apples, cherries, pears, bananas, grapes, berries. Do not count fruit juice or fruit gummy snacks.

   Every day  
   1-2 days a week  
   Most days of the week  
   Never

Go to the next page
Look at the picture of food, and color the circle by the food that best describes how it tastes to you. Fill in the circle all the way, like this:

<table>
<thead>
<tr>
<th>Food I am Rating</th>
<th>I have never tried it</th>
<th>I don’t like it</th>
<th>I like it</th>
<th>Food I am Rating</th>
<th>I have never tried it</th>
<th>I don’t like it</th>
<th>I like it</th>
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</thead>
<tbody>
<tr>
<td>Lettuce</td>
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<td>☹</td>
<td>☺</td>
<td>Beans like Pinto, Kidney or Black Beans</td>
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<tr>
<td>Carrots</td>
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<td>☺</td>
<td>Kale</td>
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<td>☺</td>
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<tr>
<td>Zucchini</td>
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<td>☹</td>
<td>☺</td>
<td>Beets</td>
<td>?</td>
<td>☹</td>
<td>☺</td>
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<tr>
<td>Spinach</td>
<td>?</td>
<td>☹</td>
<td>☺</td>
<td>Apple</td>
<td>?</td>
<td>☹</td>
<td>☺</td>
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<tr>
<td>Cherries</td>
<td>?</td>
<td>☹</td>
<td>☺</td>
<td>Winter Squash</td>
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<td>Beef</td>
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<td>☹</td>
<td>☺</td>
<td>Milk</td>
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<tr>
<td>Whole Grain Bread</td>
<td>?</td>
<td>☹</td>
<td>☺</td>
<td>Lentils</td>
<td>?</td>
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MyPlate Matching Activity

Draw a line from each food to the correct food group on MyPlate below. For example, a line was drawn between the chicken and the protein group.

- Spaghetti
- Kale
- Chicken
- Lentils
- Carrot
- Apple
- Fat Free Milk

Dairy
Grains
Vegetables
Protein

Fruits

Thank you for taking this survey.
Pros And Cons Lists For Each Evaluation Method:
Dietary Recall Method, Plate Waste Method, Weigh It Method

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Cafeteria "Weigh It!" Method Student Volunteer Handout

The Cafeteria "Weigh it!" method is a way to measure how much of a selected fruit or vegetable are selected and eaten in your cafeteria during lunchtime before and after changes are made in the cafeteria. You will need **at least 6 volunteers** to help each day.

**Materials needed:** rubber gloves, scale, paper, and markers, trash cans, 1 table

"WEIGH IT!" METHOD STEPS:

A. GETTING READY:

1. Read this entire handout.

2. First, GET APPROVAL from your Cafeteria Manager and Principal and together with them **select the 2 days** (PRE- and POST-) when you going to do the Weight It! Method. Explain to them that you will need to be in the cafeteria about 15-20 minutes BEFORE the lunch period to set up and weigh the amount of fruits and vegetables that will be served. Tell them you will need rubber gloves, 1 table, and all of the trash cans in the cafeteria.

3. Ask your cafeteria manager what will be served for lunch on the days you selected. Pick ONE fruit or vegetable you are going to measure that day. Ideally, you will measure the **SAME FOOD** for your PRE- AND POST- data collection, so you can tell if there has been a change for your selected food. If it is not possible to measure the same food PRE- and POST-, then try to pick foods that are similar.

4. Make several BIG signs:
   - 1 sign for a table: "PLACE ALL TRAYS AND FOOD WASTE HERE"
   - 1 sign for a trash can: "NAME OF YOUR SELECTED FRUIT OR VEGETABLE"
   - For all other trashcans, make signs that say and "ALL OTHER TRASH"

5. Recruit Adult helpers to help monitor garbage cans with students and assign volunteers:
   - Adult volunteers are helpful to generally oversee how things are going and step in where needed and to help supervise weighing.
   - 1 volunteer will make announcements during lunch that all students need to put their trays and food waste ONE THE TABLE, NOT in the trash cans. This person will also direct traffic to make sure students put their trays and food waste on the table.
   - 1 more volunteer will help direct traffic
   - 4 volunteers will be behind the table separating trash.
B. ON THE MEASUREMENT DAY:

1. Get 1 table and ALL trash cans from Cafeteria Manager: one for your selected fruit or veggie, and the rest for all other lunchroom waste.

- Set up the table near the exit from the cafeteria and place the trash cans behind the table so that children throwing away their food do not have access to the trash cans.

- Let's WEIGH IT! Determine a pre-weight of the fruits and vegetables thrown away in the trash cans. Before the lunch service:
  - Students (with adult supervision) weigh ALL THE TRAYS of the selected fruit or vegetable to determine a pre-weight for the item served. If the vegetable is served with a condiment, weigh the condiment also. Record the weights of all the trays.

- All volunteers put on rubber gloves and go to their assigned places during the lunch periods: 2 volunteers will help direct traffic, and 4 volunteers will be behind the table separating trash.

- Make an announcement to each cafeteria period: "Hi everyone, we are measuring how much fruit and veggies students eat today. This means that we are taking over the trash! Please help us out by putting all trays and food waste on this table and NOT in the garbage cans. Thanks!"

- Monitor disposal of trash during lunch service (see volunteer positions above): Collect ALL TRASH from the lunch periods that are served the fruits or vegetables from the trays you have just weighed. Separate the trash into SELECTED FRUIT OR VEGETABLE, and ALL OTHER.
  - Selected fruit or vegetables (from the tray only not from home!) go in the trash can labeled "NAME OF YOUR SELECTED FRUIT OR VEGETABLE". If the vegetable was served with a condiment, put the condiment in this trash can too.

  - All other food waste goes in the "ALL OTHER TRASH" trash cans.

  - All food waste from home goes in the "ALL OTHER TRASH" trash cans. Note: Even if students had fruits and vegetables from home, home trash needs to go in the all other trash can because you will not know how much it weighed before the students ate it.
Let's WEIGHT IT! After lunch period ends:

A. Students (with adult supervision) weigh THE SAME TRAYS of the selected fruit or vegetable they measured before lunch to determine a post weight for the item served. Weigh all the trays -- both empty trays and trays that have the fruit or vegetable leftover in the tray. Record the weights.

B. Weigh the trash of the selected fruit or vegetable

   - Remove the bag from the trash can that has the selected fruit or vegetable.
   
   - Have a student stand on the scale. **Tare the scale.**
   
   - Hand the student the trash bag containing the trashed fruit or veggie and record the weight. This is the weight of the trash only.

C. Ask the head cook to complete the Daily Production Record, see page 45.
   - This form will give the students a bigger picture of what was served and how much food was left over. Students can compare what was served and selected before changes are made and after changes are made.
## WEIGHT IT! Method Data Collection Form PRE DATA

**School Name:**

**Data Collectors’ Names:**

**Date:**

**SELECTED FOOD:** (e.g. apples, or broccoli)

**NUMBER OF STUDENTS SERVED:**

<table>
<thead>
<tr>
<th>Tray Number</th>
<th>Before Lunch Weights (SERVED)</th>
<th>After Lunch Weights (LEFTOVER)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weight of Tray WITH FOOD Before Lunch is Served (include cups and packaging)</td>
<td>Weight of Tray WITH FOOD After Lunch is Served (include cups and packaging)</td>
</tr>
<tr>
<td>Example Tray 1</td>
<td>20 pounds of sliced apples in packages</td>
<td>15 pounds of sliced apples in packages</td>
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<tr>
<td>1</td>
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**TOTAL**

**TRASH WEIGHT WITH PACKAGING (Don’t forget to TARE SCALE):**

exam

**NOTES:**
WEIGHT IT! Method Data Calculations Form PRE DATA

USE THIS FORM TO CALCULATE YOUR PRE DATA RESULTS.

1. WEIGHT SELECTED
   WEIGHT SELECTED = TOTAL WEIGHT OF FOOD SERVED - TOTAL WEIGHT OF FOOD LEFTOVER

   WEIGHT SELECTED PER STUDENT = WEIGHT SELECTED/NUMBER OF STUDENT SERVED

   Approximately 85% of a whole fruit is consumed. The rest is peel and core. If whole fruit is served, you can calculate the amount of food that was selected that student could actually eat by multiplying by the whole fruit correction factor, which is 0.85. For fruits and vegetables where the students eat the whole thing they are served, the correction factor is 1.0.
   EDIBLE WEIGHT SERVED = WEIGHT SERVED X CORRECTION FACTOR

   EDIBLE WEIGHT SELECTED = EDIBLE WEIGHT SELECTED X CORRECTION FACTOR

   EDIBLE WEIGHT SELECTED PER STUDENT = EDIBLE WEIGHT SELECTED/NUMBER OF STUDENT SERVED

2. WEIGHT CONSUMED = TRASH WEIGHT - AMOUNT SELECTED

   WEIGHT CONSUMED = TRASH WEIGHT - AMOUNT SELECTED
   Weight consumed is always the edible weight. We can only eat what is edible!

   WEIGHT CONSUMED PER STUDENT = WEIGHT SELECTED/NUMBER OF STUDENT SERVED

3. PERCENTAGES

   % of Food Served that was Selected = (Weight Selected/Weight Served) x100%

   % of Food Selected that was Consumed = (Weight Consumed/Edible weight Served) x100%

   % of Food Selected that was Trashed = (Weight Trash/Edible weight Selected) x100%

   % of Food Served that was Trashed = (Weight Trash/Edible weight Served) x100%
## WEIGHT IT! Method Data Collection Form POST DATA

### School Name:

### Data Collectors' Names:

### Date:

### SELECTED FOOD:

### NUMBER OF STUDENTS SERVED:

<table>
<thead>
<tr>
<th>Tray Number</th>
<th>Before Lunch Weights (SERVED)</th>
<th>After Lunch Weights (LEFTOVER)</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>Weight of Tray WITH FOOD Before Lunch is Served (include cups and packaging)</td>
<td>Weight of Tray WITH FOOD After Lunch is Served (include cups and packaging)</td>
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### TOTAL

### TRASH WEIGHT WITH PACKAGING (Don't forget to TARE SCALE):

### NOTES:
WEIGHT IT! Method Data Calculations Form POST DATA

USE THIS FORM TO CALCULATE YOUR PRE DATA RESULTS.

1. WEIGHT SELECTED
   \[ \text{WEIGHT SELECTED} = \text{TOTAL WEIGHT OF FOOD SERVED} - \text{TOTAL WEIGHT OF FOOD LEFTOVER} \]

   \[ \text{WEIGHT SELECTED PER STUDENT} = \frac{\text{WEIGHT SELECTED}}{\text{NUMBER OF STUDENT SERVED}} \]

   Approximately 85% of a whole fruit is consumed. The rest is peel and core. If whole fruit is served, you can calculate the amount of food that was selected that student could actually eat by multiplying by the whole fruit correction factor, which is 0.85. For fruits and vegetables where the students eat the whole thing they are served, the correction factor is 1.0.

   \[ \text{EDIBLE WEIGHT SERVED} = \text{WEIGHT SERVED} \times \text{CORRECTION FACTOR} \]

   \[ \text{EDIBLE WEIGHT SELECTED} = \text{EDIBLE WEIGHT SELECTED} \times \text{CORRECTION FACTOR} \]

   \[ \text{EDIBLE WEIGHT SELECTED PER STUDENT} = \frac{\text{EDIBLE WEIGHT SELECTED}}{\text{NUMBER OF STUDENT SERVED}} \]

2. WEIGHT CONSUMED = TRASH WEIGHT - AMOUNT SELECTED

   \[ \text{WEIGHT CONSUMED} = \text{TRASH WEIGHT} - \text{AMOUNT SELECTED} \]

   Weight consumed is always the edible weight. We can only eat what is edible!

   \[ \text{WEIGHT CONSUMED PER STUDENT} = \frac{\text{WEIGHT SELECTED}}{\text{NUMBER OF STUDENT SERVED}} \]

3. PERCENTAGES

   \[ \% \text{ of Food Served that was Selected} = \left(\frac{\text{Weight Selected}}{\text{Weight Served}}\right) \times 100\% \]

   \[ \% \text{ of Food Selected that was Consumed} = \left(\frac{\text{Weight Consumed}}{\text{Edible weight Served}}\right) \times 100\% \]

   \[ \% \text{ of Food Selected that was Trashed} = \left(\frac{\text{Weight Trash}}{\text{Edible weight Selected}}\right) \times 100\% \]

   \[ \% \text{ of Food Served that was Trashed} = \left(\frac{\text{Weight Trash}}{\text{Edible weight Served}}\right) \times 100\% \]
**Daily Production Record Handout**
Produced by the University of Iowa

| Date: __________________ |
| School: __________________ |
| Offer Versus Serve? | Yes___ No___ |
| Grades: __________________ |
| Seconds/A la Carte? | Yes___ No___ |

**Number of school meals served**: 

<table>
<thead>
<tr>
<th>Menu: Vegetables: DG</th>
<th>Quantity Prep number (# of servings, pounds, cans)</th>
<th>Serving Size</th>
<th>Amount Prepared (number of servings)</th>
<th>Leftovers (number of servings or amount as Quantity prep)</th>
<th>Comments</th>
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<table>
<thead>
<tr>
<th>Menu: Fruits</th>
<th>Quantity Prep (count for fresh fruit, pounds or cans for other)</th>
<th>Serving Size</th>
<th>Amount Prepared (number of servings)</th>
<th>Leftovers (number of servings or amount as Quantity prep)</th>
<th>Comments</th>
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<table>
<thead>
<tr>
<th>Menu: Milk</th>
<th>Quantity Prep (number of full crates multiplied by 50 + number of cartons in not full crates)</th>
<th>Serving Size</th>
<th>Amount Prepared (number of servings)</th>
<th>Leftovers (number of servings or amount as Quantity prep)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1% white</td>
<td>8 oz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skim white</td>
<td>8 oz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skim Chocolate</td>
<td>8 oz</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
TEMPATE Report – Can be used by Teacher or Students, Make Changes as Needed

Improving Fruit and Vegetable Selection and Consumption at (name of District) (name of school):

A Recommendation Report
Prepared by: Student names
With guidance from (Name of Teacher)

Introduction
We all agree that healthy eating is important for students. It not only helps their bodies, but it has been shown to help their minds too. Our choices are influenced by many factors such as hunger and stress levels, food availability, smells and taste, perceptions of health benefits, and visual appearance. For example, think for a minute why many fast food restaurants ask you after the order – “do you want fries with that?” or why cookies and pastries are placed at the counter near cash registers. This is because suggestions and placement are two strategies that have been shown to increase purchasing. Another example is at the grocery store when a special discount is offered if a certain number of items are purchased – 10 for $10. Even words used by restaurants such as “value” and “limited time” can influence behavior and increase purchases. There is a reason companies spend about $17 billion annually using these techniques with our children – it works!

This wouldn’t be a problem, however, most of the time these strategies are used to sell “junk” food – candy, cookies, sugary beverages, and high calorie low nutrient entrees. Many students consume poor diets and are inactive, leading to health and academic consequences. According to the 2013 Michigan Youth Risk Behavior Survey, only 17% of Michigan high school students ate five servings of fruit and vegetables per day, 72% drank a can, bottle, or glass of soda three or more times per day, and 73% did not attend physical education classes in the past week. Efforts to improve Michigan children’s diets will improve their health and academic performance. This is particularly true for students living in food insecure households.

In response to these concerns and opportunities, students in (NAME of Classroom) in cooperation with (Cafeteria Manager and Food Service Director Names), learned about how to measure and evaluate food selection and how to encourage student selection of fruits and vegetables. We learned to apply specific techniques tested by the Cornell Center for Behavioral Economics in Child Nutrition Program. They have created a “Smarter Lunchroom Movement,” which seeks “to equip school lunchrooms with evidence-based tools that improve child eating behaviors and thus improve the health of children.”

What We Did
In a series of lessons students learned what changes are most helpful in getting students to select fruit and vegetables, and how to evaluate the success of the changes made.

After learning about the smarter lunchroom changes our class chose the following changes to make the in lunchroom:

Focusing on Fruit
☐ At least two types of fruit are available daily
☐ Sliced or cut fruit is available daily
- Fruit options are not browning, bruised or otherwise damaged
- Daily fruit options are given creative, age-appropriate names
- Fruit is available at all points of sale (deli-line, snack windows, a la carte lines etc.)
- Daily fruit options are available in at least two different locations on each service line
- At least one daily fruit option is available near all registers (If there are concerns regarding edible peel, fruit can be bagged or wrapped)
- Whole fruit options are displayed in attractive bowls or baskets (instead of chaffing/hotel pans)
- A mixed variety of whole fruits are displayed together
- Daily fruit options are easily seen by students of average height for your school
- Daily fruit options are bundled into all grab and go meals available to students
- Daily fruit options are written legibly on menu boards in all service and dining areas

**Promoting Vegetables & Salads (If No Salad Bar, Skip These Items)**
- At least two types of vegetable are available daily
- Vegetables are not wilted, browning, or otherwise damaged
- At least one vegetable option is available in all foodservice areas
- Individual salads or a salad bar is available to all students
- The salad bar is highly visible and located in a high traffic area (if no salad bar skip)
- Self-serve salad bar utensils are at the appropriate portion size or larger for all fruits and vegetable offered (if no salad bar skip)
- Self-serve salad bar utensils are smaller for croutons, dressing and other non-produce items (if no salad bar skip)
- Daily vegetable options are available in at least two different locations on each service line
- Daily vegetable options are easily seen by students of average height for your school
- A daily vegetable option is bundled into grab and go meals available to students
- A default vegetable choice is established by pre-plating a vegetable on some of the trays
- Available vegetable options have been given creative or descriptive names
- All vegetable names are printed/written on name-cards or product IDs and displayed next to each vegetable option daily
- All vegetable names are written and legible on menu boards
- All vegetable names are included on the published monthly school lunch menu

There were two data recording events. Data collected before the change were made.

<table>
<thead>
<tr>
<th>Date Data Collected:</th>
<th>Pre (Before the change)</th>
<th>Post (After the change)</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight of Fruit/Veggie Selected</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Weight of Fruit/Veggie Thrown in Trash</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smarter Lunchroom Scorecard Score</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of servings of fruit/veggie selected</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of servings of fruit/veggie served</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Conclusions

Comparing pre- to post- data shows that the change we made (increased, decreased, or had no effect) on the selection of fruits and vegetables.

Insert pictures here before changes were made.

Insert pictures here after changes were made.

Recommendations

Given the results and our experiences, (teachers name) class feels that:

<table>
<thead>
<tr>
<th>The best thing our lunchroom does now is:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The top change(s) our lunchroom should make is (are):</td>
</tr>
<tr>
<td>The top change our lunchroom could make to increase vegetable selection is:</td>
</tr>
<tr>
<td>The top change our lunchroom could make to increase vegetable selection is:</td>
</tr>
<tr>
<td>The other ideas we have to increase student selection and consumption of fruits and vegetables are:</td>
</tr>
</tbody>
</table>

We would like to specifically thank the following people for their support of this project:
Name of food service director
Name of food service school staff
Name of classroom teacher
Others
The Smarter Lunchrooms Scorecard is a list of simple, no-cost or low-cost strategies based on research from Cornell University, that can increase participation, reduce food waste, and increase selection and consumption of healthy school food.

**INSTRUCTIONS**

1. Review the scorecard before beginning.
2. Observe a lunch period. Check off statements that reflect the lunchroom.
3. Ask other school nutrition staff, teachers, or administration about items that have an asterisk.*
4. Tally the score.
5. Discuss the results with stakeholders. Choose unchecked strategies to implement in the lunchroom.

**FOCUS ON FRUIT**
- At least two kinds of fruit are offered.
- Sliced or cut fruit is offered.
- A variety of mixed whole fruits are displayed in attractive bowls or baskets (instead of stainless steel pans).
- Fruit is offered in at least two locations on all service lines, one of which is right before each point of sale.

**VARY THE VEGETABLES**
- At least two kinds of vegetables are offered.
- Vegetables are offered on all service lines.
- Both hot and cold vegetables are offered.
- When cut, raw vegetables are offered, they are paired with a low-fat dip such as ranch, hummus, or salsa.*
- A serving of vegetables is incorporated into an entree item at least once a month (e.g., beef and broccoli bowl, spaghetti, black bean burrito).*

**HIGHLIGHT THE SALAD**
- Pre-packaged salads or a salad bar is available to all students.
- Pre-packaged salads or a salad bar is in a high-traffic area.
- Self-serve salad bar tongs, scoops, and containers are larger for vegetables and smaller for croutons, dressing, and other non-produce items.

**MOVE MORE WHITE MILK**
- Milk cases/coolers are kept full throughout meal service.
- White milk is offered in all beverage coolers.
- White milk is organized and represents at least 1/3 of all milk in each designated milk cooler.
- White milk is displayed in front of other beverages in all coolers.

**BOOST REIMBURSABLE MEALS**
- Cafeteria staff politely prompt students who do not have a full reimbursable meal to select a fruit or vegetable.
- One entree is identified as the featured entree-of-the-day, is labeled with a creative name next to the point of selection, and is the first entree offered.
- Creative, descriptive names are used for featured items on the monthly menu.
- One reimbursable meal is identified as the featured combo meal and is labeled with a creative name.
- The combo meal of the day or featured entree-of-the-day is displayed on a sample tray or photograph.

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LUNCHROOM ATMOSPHERE
- Cafeteria staff smile and greet students upon entering the service line and throughout meal service.
- Attractive, healthful food posters are displayed in dining and service areas.
- A menu board with today’s featured meal options with creative names is readable from 5 feet away when approaching the service area.
- The lunchroom is branded and decorated in a way that reflects the student body.
- Cleaning supplies or broken/unused equipment are not visible during meal service.
- All lights in the dining and meal service areas work and are turned on.
- Compost/recycling and trash cans are at least 5 feet away from dining students.
- There is a clear traffic pattern. Signs, floor decals, or rope lines are used when appropriate.
- Trash cans are emptied when full.
- A menu board with tomorrow’s featured meal with creative names is readable from 5 feet away in the service or dining area.

STUDENT INVOLVEMENT
- Student artwork is displayed in the service area or dining space.
- Students, teachers, or administrators announce today’s menu in daily announcements.*
- Students are involved in the development of creative and descriptive names for menu items.*
- Students have the opportunity to volunteer in the lunchroom.
- Students are involved in the creation of artwork or marketing materials to promote menu items.*
- Students provide feedback (informal – “raise your hand if you like.” or formal – focus groups, surveys) to inform menu development.*

SCHOOL COMMUNITY INVOLVEMENT
- A monthly menu is posted in the main office.
- A menu board with creative, descriptive names for today’s featured meal options is located in the main office.
- A monthly menu is provided to students, families, teachers, and administrators.*
- Information about the benefits of school meals is provided to teachers and administration at least annually.*
- Nutrition education is incorporated into the school day.*
- Students are engaged in growing food (for example, gardening, seed planting, farm tours, etc.)*
- Elementary schools provide recess before lunch.*
- The school participates in other food promotion programs such as Farm to School, Chef’s Move to School, Fuel Up to Play 60, Share our Strength, etc.*
- The school has applied for the HealthierUS School Challenge.*
- Smarter Lunchrooms strategies are included in the Local School Wellness Policy.*

SMARTER LUNCHROOMS SCORECARD TOTAL

Focus on Fruit ________ of 6
Vary the Vegetables ________ of 8
Highlight the Salad ________ of 4
Move More White Milk ________ of 5
Reimbursable Meals ________ of 11
Lunchroom Atmosphere ________ of 10
Student Involvement ________ of 6
School Involvement ________ of 10
Scorecard Total ________ of 60

AWARD LEVEL

Bronze 15-25
Great job! This lunchroom is off to a strong start.

Silver 26-45
Excellent. Think of all the kids that are inspired to eat healthier!

Gold 46-60
This lunchroom is making the most of the Smarter Lunchroom Movement. Keep reaching for the top!

For Scorecard FAQs visit: SmarterLunchrooms.org

The asterisk (*) indicates items that may need input from other school nutrition staff, teachers, or administration.

Smarter Lunchrooms Scorecard 2.0
© Smarter Lunchrooms Movement. Cornell University 2017
Funded in part by USDA FNS/ERS

DEFINITIONS
Point of Sale (POS): Anywhere students leave the line with food and are charged or counted, such as at a register, check-out, or P/N pad.
Point of Selection: Anywhere students select food or drink
Service Line: A designated line for meal selection—deli bar, salad bar, hot lunch line, snack window, etc.
Grab-and-Go: A pre-packaged reimbursable meal
Reimbursable Meal/Combo Meal: Any meal that meets all the USDA meal requirements and is priced as a unit
Featured Items: A fruit, vegetable, milk, or entrée that has been identified for promotion.
Background

This report uses data from the National Health and Nutrition Examination Survey (NHANES 2005-2010) to provide a comprehensive picture of the nutrient intakes, food choices, and diet quality of USDA National School Lunch Program (NSLP) participants.

Data are presented for school-aged children who participated and those who did not participate in the NSLP. Participants include children who consumed free, reduced-price, or full-price school meals. For comparison purposes, results are provided for low-income children, those eligible for free or reduced-price meals, and higher income children for both participants and nonparticipants.

Data and Methods

The report relies primarily on 24-hour dietary recall data from the 2005-2010 NHANES, supplemented with the NHANES household interview, health survey, and physical examination data, to describe food choices and supplement use, as well as to assess the adequacy of nutrient intakes of school children by income class and NSLP-participant status.

The differences between NSLP participants and nonparticipants described should not be interpreted as an effect of NSLP, because children who chose to participate may be different from nonparticipants in ways that affect food choices and diet quality. The data are from a time prior to the most recent changes in Federal nutrition standards for NSLP meals and for all food sold at school during school hours.

Diet Quality

This study examined the overall quality of diets using the Healthy Eating Index-2005 (HEI-2005), a measure used to assess how well individuals' diets compare to the Dietary Guidelines for Americans. Higher scores indicate healthier diets.

- On average, all school children fell far short of the Dietary Guidelines for Americans. The overall average score on the HEI-2005 was 58 out of a possible 100.

- Free and reduced-price NSLP participants had a higher average HEI-2005 score than nonparticipants at the same income level (61 versus 57). There were no differences between NSLP participants and nonparticipants at higher incomes.

- For all school-aged children, the average scores achieved or came close to achieving the maximum score for total grains, milk, and meat and beans. However, scores for whole grains, dark green and orange vegetables and legumes, sodium, and empty calories were low.

- Among income-eligible children, NSLP participants had a higher score for total fruit than nonparticipants (3.9 versus 2.7).

The report includes findings on the updated version of the HEI (HEI-2010) in an appendix.

Nutrient Intakes

This study examined intakes of 18 essential vitamins and minerals, macronutrients (protein, carbohydrates, and fat) as a percentage of energy, and the percentage of energy consumed as solid fats, alcoholic beverages, and added sugars (empty calories).

- Almost all school children had adequate usual intakes of most nutrients. However, a substantial minority did not have adequate usual intakes of phosphorus, vitamin C, vitamin A, and magnesium. Most children had inadequate usual intakes of calcium, vitamin E, and vitamin D.

- Almost all children consumed excess sodium, and four out of five children consumed saturated fat in excess.
• Average usual intake of potassium and fiber was below the Adequate Intake (AI) levels, but among income-eligible children, NSLP participants had higher potassium intake than nonparticipants (55 percent of AI versus 47 percent).

• Low-income NSLP participants were also more likely than low-income nonparticipants to have adequate usual intakes of vitamin A, calcium, and zinc. For calcium, more than half of low-income NSLP participants have adequate intake (56 percent) compared to only one-third (33 percent) for low-income nonparticipants. However, low-income NSLP participants were less likely to have adequate intakes of vitamin C, folate, thiamin, and iron, and most of these differences are limited to 14- to 18-year-old children.

• For all nutrients except for vitamin D, the prevalence of adequate usual intakes decreases with age and was lowest for those aged 14-18.

• Empty calories accounted for 36 percent of all calories consumed by school-age children. This proportion was slightly lower for income-eligible NSLP participants (34 percent) than for income-eligible nonparticipants (37 percent).

### Intake of Calories and Weight Status

The study estimated children’s usual calorie intakes and measured Body Mass Index (BMI) to assess the appropriateness of those intakes.

• Most children (62 percent) had a healthy weight. Sixteen percent were overweight and another 19 percent were obese.

• Among school-age boys overall, higher income NSLP participants were more likely than higher income nonparticipants to have a healthy weight (66 versus 60 percent).

• Among school-age girls overall, lower income participants were slightly less likely than lower income nonparticipants to have a healthy weight (38 versus 60 percent).

This study examined the proportion of school children consuming foods from 10 broad food groups and the average amounts consumed, both at lunch and over the course of a day. At lunch, NSLP participants were more likely than nonparticipants to consume vegetable dishes and fluid milk, and less likely to consume beverages other than milk or 100% juice, salty snacks, and sweets and desserts. Over 24 hours, most of these differences persisted but at a lower magnitude.

### Implications for NSLP Nutrition Education

This analysis revealed a number of issues that can inform nutrition education efforts among NSLP participants.

• Focus on older children. Older children, especially teenage girls, are at the greatest risk for inadequate nutrient intakes. They could be a prime audience for nutrition education efforts that promote balanced diets.

• Increase consumption of nutrient-dense food. All school children had inadequate intake of whole grains and dark green and orange vegetables and legumes.

• Reduce consumption of empty calories, saturated fat, and sodium. All school children had excess consumption of these. Decreased intakes of foods that contribute empty calories would improve the overall quality of school children’s diet and could contribute to reducing the prevalence of overweight and obesity.

• NSLP is an important source of nutrition and healthy foods, particularly for low-income children. All participants, but especially low-income participants, generally consumed more healthful food at lunch than nonparticipants.

### For More Information


USDA is an equal opportunity provider and employer.
This project has been funded at least in part with Federal funds from the U.S. Department of Agriculture. The contents of this publication do not necessarily reflect the view or policies of the U.S. Department of Agriculture, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.

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(1) mail: U.S. Department of Agriculture
Office of the Assistant Secretary for Civil Rights
1400 Independence Avenue, SW
Washington, D.C. 20250-9410;
(2) fax: (202) 690-7442; or
(3) email: program.intake@usda.gov.

This institution is an equal opportunity provider.
Create 5 days of healthy dinner meals that you would enjoy. Use MyPlate as your guide to create delicious dinners that include all five food groups. Use the resources and checklist on this page to design My 5-Day Dinner Menu Planner on page 2. After you complete the plan, follow directions to create My Physical Activity Plan and My MyPlate Goal.

Remember to:

a. Make at least half of your grains whole grains.

b. Include at least one food from the Beans and Peas Vegetable Subgroup.

c. Include at least one vegetable from the Dark-Green Vegetable Subgroup.

d. Have a variety of proteins. Each protein food may be used only once.

**MyPlate’s Food Group Menu Options**
The five food groups are important for a healthy diet. Choose a variety of foods from each for your menu. Use the following chart to get your meal plan started. *(Not a complete list. Visit [http://www.chooseMyPlate.gov](http://www.chooseMyPlate.gov) for more.)*

<table>
<thead>
<tr>
<th>GROUP</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRUITS</td>
<td>Apples, grapefruit, blueberries, watermelon, cantaloupe, plum, banana, kiwi fruit, grapes, papaya, orange, 100% fruit juice, raisins, strawberries</td>
</tr>
<tr>
<td>VEGETABLES</td>
<td>Dark-Green (broccoli, spinach, kale, bok choy, collard greens, romaine lettuce); Red and Orange (tomato, carrots, sweet potato, red pepper, butternut squash); Beans and Peas (black beans, pinto beans, soybeans, lentils, split peas); Starchy (potatoes, corn, green peas, plantains); Other (avocado, beets, okra, asparagus, mushrooms, celery)</td>
</tr>
<tr>
<td>GRAINS</td>
<td>Whole Grains (whole-wheat breads, pastas, and tortillas; whole-grain or whole-wheat crackers; popcorn; oatmeal; brown rice; and whole-wheat breakfast cereal); refined grains (white breads and rolls, flour tortillas, white rice, cornbread, and most pretzels, crackers, cookies, and noodles)</td>
</tr>
<tr>
<td>PROTEIN</td>
<td>Meats (lean beef, pork, lamb), poultry (chicken, turkey), eggs, beans and peas (black beans, falafel), processed soy products (veggie burgers, tofu), nuts and seeds (almonds, cashews, sesame seeds, peanut butter), seafood (cod, shrimp, salmon, tuna)</td>
</tr>
<tr>
<td>DAIRY</td>
<td>Milk (fat-free, low-fat, flavored, lactose-free), cheese (string cheese, cheddar, cottage cheese, mozzarella), yogurt, calcium-fortified soy milk</td>
</tr>
</tbody>
</table>

**Menu Planner Checklist: Did You...**

- [ ] Include whole grains in at least three of your dinners?
  
  What are your whole grains?

- [ ] Include at least one food from the Beans and Peas Subgroup?
  
  List your beans and peas here:

- [ ] Include at least one vegetable from the Dark-Green Vegetables Subgroup?
  
  List your dark-green vegetables here:

- [ ] Include a variety of proteins?
  
  List your protein foods here:
# MyPlate, MySelf

**My 5-Day Dinner Menu Planner**

<table>
<thead>
<tr>
<th></th>
<th>SAMPLE</th>
<th>DAY 1</th>
<th>DAY 2</th>
<th>DAY 3</th>
<th>DAY 4</th>
<th>DAY 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRUITS</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Peach</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VEGETABLES</td>
<td></td>
<td>Spinach</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRAINS</td>
<td></td>
<td>Whole-wheat roll</td>
<td></td>
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<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td>PROTEIN</td>
<td></td>
<td>Chicken</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>DAIRY</td>
<td></td>
<td>Milk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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</tbody>
</table>

**My Physical Activity Plan**

Make a plan to be active for at least 60 minutes a day!
Think of new ways you can move.

Ideas for activities that I can do on my own:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Ideas for activities that I can do with friends:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Ideas for activities that I can do at home:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

**My MyPlate Goal**

What do you want to achieve for yourself? Do you want to be more physically active? Try new foods? Learn to make healthy recipes? Pick up a new sport?

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*Serving Up MyPlate — Grades 5 & 6*

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Weigh It Data Collection Process Overview

1) Introduce yourself to the cafeteria staff and tell them about your science experiment.
2) Weigh the target food before any students arrive. See two examples below:

3) Set up your trash collection station. See two examples below:

4) collect the trays and throw away only the target food in the specific trash can:

5) Weigh the trash can on the scale (tare the scale with empty trash can). No picture provided.
6) Weigh the leftover target food in the original bins. For example, if 5 bins of apples served and 2 bins are left over after service. Weigh the two bins.