



UNIVERSITY OF MICHIGAN

# Lesson #3 MyPlate! My Choice!

## LESSON OUTLINE

1. **Warm-Up/Reflect** (2 min.)
2. **Food as Energy Discussion** (5 min.)
3. **MyPlate Discussion** (10 min.)
4. **Sample Meal Activity** (3 min.)
5. **Personal Plate Reflection Discussion** (4 min.)
6. **Wrap-Up** (1 min.)

## MATERIALS

### **PROPS:**

None

### **DISPOSABLES:**

- Paper plates (1 per student)

## LESSON PREP

- Review “MyPlate Diagram” and “Build a Healthy Meal” tip sheets (see end of lesson).
- Write vocabulary words on board
- Pass out paper plate to each student as they enter the room

## VOCABULARY

calorie, nutrient, MyPlate, empty calories

## **PHS OVERARCHING ESSENTIAL QUESTIONS**

- *What does it mean to eat healthfully and be physically active, and why is it important?*
- *How do culture, experience and environment affect one’s health?*
- *What goals do I have to improve my health and the health of those around me?*

## GUIDING QUESTIONS AND CONCEPTS

1. Humans need food for energy and food is measured in calories.
  - How do the choices I make affect the amount of energy in and out of my body?
  - Why do different people need different amounts of energy?
2. All food has calories.
  - How do I make sure to get all the nutrients I need in my calories each day?
3. Eating from all food groups is important.
  - How do we decide what to eat?
  - How do we use the food groups to build a balanced meal?

## LESSON GOALS

Students will be able to...

1. Describe and calculate energy in and energy out.
2. Use MyPlate to describe a balanced meal.
3. Define food groups and what they include.
4. Assess their personal dietary choices and reflect on ways they can include more nutritional variety.

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## LESSON RATIONALE AND PURPOSE

In this lesson students will begin to explore the relationship between energy in and energy out and then use ratio and rate reasoning to solve a real-world mathematical problem about food consumption and energy expenditure. Students will convert simple fractions on the MyPlate diagram to percents. They will walk through the different components to MyPlate, and learn valuable information about the foods and nutrient benefits to each. Students will evaluate a meal to determine the appropriate food groups, and then utilize information learned to assess their own food choices and ways to improve to meet MyPlate guidelines.

## COMMON CORE STANDARDS ADDRESSED

CCSS.Math.Content.6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."*

CCSS.Math.Content.6.RP.A.3b Solve unit rate problems including those involving unit pricing and constant speed. *For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?*

### BACKGROUND INFORMATION

Children and adults alike frequently make food decisions based upon factors unrelated to what their body needs. Cost, convenience, and texture/flavor preference guide most people's decisions. Through MyPlate, students will learn that all food provides calories, but food provides different nutrients for the body depending on the food group. Children learn about food groups from a young age, but are rarely taught what these groups do for their bodies, health and wellness. This is both important and valuable information. This lesson links food groups to their physiological benefits and to the activities students engage in daily.

### RESOURCES

1. Choose MyPlate  
[www.choosemyplate.gov](http://www.choosemyplate.gov)

### LESSON EXTENTIONS

Available at the end of the lesson:

1. **Five Food Group Wrap Food Demonstration** (5-15 min.)
2. **Food Group Sticky Note Activity** (10 min.)
3. **Energy In—Energy Out Activity** (5 min.)
4. **MyPlate Food Cards Activity** (7 min.)

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### **WARM-UP/REFLECT** (2 min.)

(Materials: paper plates )

*Pass out paper plates to all students as they enter the classroom.*

- Welcome, Wellness Warriors! Last time we met we discussed our make better beverages step to focus on for the week. Who can tell me what that step was?
  - Answer: *See Healthy Habits activity from Lesson 1, and the small step that was set for make better beverages.*
- Stand up and run in place if you achieved our class step around making better beverage choices. *Allow students to run in place for 15 seconds.*
- Everyone else stand up and join in. *Let entire class run in place for 15-30 seconds.*
- Let's take our seats. It seems like many of you are working hard on our steps to reach the PHS goals. We are going to talk about another small step at the end of today's class, and I hope you continue to work towards achieving each one.
- Who can tell me what we talked about last time we met?
  - Answer: food choices are learned; culture, region, climate, and traditions impact our food choices; families have their own food traditions
- Give me thumbs up if you shared your "I Am From" poem with someone at home. Give me two thumbs up if you shared something you learned last lesson with someone. *Allow students to show thumbs up.*
- Last week we discussed food culture and how it affects our choices. Today we are going to discuss what we choose to eat within our food culture. Please take one minute and write down one of the meals you ate yesterday on the back of your plate. It can be lunch or dinner.

### **FOOD AS ENERGY** Discussion (5 min.)

CCSS.Math.Content.6.RP.A.3b

- What type of energy do humans burn?
  - Answer: Food energy

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- How do we burn it?
  - Answer: Through doing activity.
- All types of energy come in units. What unit do we use to measure heat energy?
  - Answer: Heat energy is measured in degrees.
- What unit do we use to measure electrical energy?
  - Answer: Electrical energy is measured in watts.
- Does anyone know what unit we measure food energy in?
  - Answer: Food energy is measured in calories.

**Calorie:** a unit of measurement that tells us how much energy a given food provides

- Example: A medium apple has 85 calories, 2 Tbsp. peanut butter has 188 calories
- Calories are neither good nor bad. They are simply a unit of measurement.
- We need to balance the amount of energy we take in with the amount of energy we burn doing activities. The calories from what we eat and drink is ENERGY IN. What you burn through physical activity and daily activities is ENERGY OUT.
- What things do we do that burn calories?
  - Answer: You burn calories just by breathing air and digesting food. You also burn a certain number of calories (ENERGY OUT) through your daily routine such as walking to the bus stop, walking up the stairs, eating and even breathing.
- If we don't balance ENERGY IN and ENERGY OUT, we end up either with not enough energy to feel good and be active, or with too much energy which our body must store as fat. Your ENERGY IN and OUT doesn't have to balance every day. It's having a balance over time that will help you feel your best!

- *Write on board:* ENERGY IN  ENERGY OUT   
Apple Slices  
Grilled Cheese  
Walking to the bus stop  
Basketball practice

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- People who are more active generally need more energy, but we also burn energy differently depending on gender (male or female), if we are tall or short, our age and even our genes and what we inherit from our parents.
- Most kids your age need about 1,800-2,000 calories everyday but remember that everyone is different. *Write "1,800-2,000 calories a day" on the board.* We can consume and burn those calories in all different ways. Finding our own balance is the key.
- Now that we know how much energy we need, lets talk about what foods we can choose to get that energy.

### Optional math problem:

- Sharon walks her dog every day. Sharon burns 200 calories walking her dog for 30 minutes. Today Sharon ate 600 more calories than she usually does because she went out for pancakes with her grandma. How many minutes would Sharon need to walk her dog on in order to balance out the extra calories consumed so that they don't get stored as fat? How many hours of exercise would that be?

### **MYPLATE** Discussion (10 min.)

(Materials: MyPlate Diagram)

CCSS.Math.Content.6.RP.A.1

*In this section of the lesson you will teach students about MyPlate by creating a visual on the board. You will then review the food groups and tips for each one by using the "MyPlate Diagram" with the talking points on the back, found at the end of the lesson.*

- It is best to get most of our calories from foods that are dense in nutrients such as vitamins, minerals, protein and fiber.
- Does anyone know what a nutrient is?

**Nutrient:** a food or other substance that provides energy or building materials that we need to survive.

- Since we cannot make the all the nutrients we need, we need to get them from food sources.

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- Has anyone heard of MyPlate?

*Draw a large circle on the board with a small circle on the side to represent dairy.*

**MyPlate:** is a tool we use to help us figure out what we should eat. Eating a balanced diet of all the food groups provides balanced nutrition.

- I need someone to help me finish our MyPlate. If I wanted to divide this circle into fourths, how would I do it? Can someone show me how? What percent is each section equivalent to?
  - Answer: 25%

*Direct students to use the front of their plates and divide the circle into sections like their classmate is doing on the board. Tell them to also draw a small circle in one of the sections on the left (this will take place of it being outside the circle as you have drawn on the board). Do not label sections. Refer to the "MyPlate Diagram" at the end of the lesson.*

*Ask students for the names of the different food groups. When they give a correct group, label the sections of the circle, as shown on the "MyPlate Diagram". Tell students to also label the groups on the sections of their plate. The small circle they drew on the left-hand side will be Dairy.*

- What foods can we name in each food group? *Help students to name foods within each food group.*

*Use the "MyPlate Diagram" to write key information on the board and the talking points on the back of this page to explain the different nutrients each food groups provides. Write the bulleted MyPlate diagram tips around the large MyPlate on the board. Ask students to write down some of the tips you talk about in the food group sections of their plate. Ask them to also share the ways they meet the tips in their everyday lives.*

- What food group do pop, candy, and ice cream go in?
  - Answer: These foods do not count towards our balanced plate because they don't have enough nutrients for the amount of calories they provide. These are called empty calories.

**Empty calories:** the calories from solid fats and added sugars in foods and beverages. They add to total calories, but provide no vitamins or minerals.

Some examples of "**empty calories**" are:

- The **sugars or sweeteners** in soft drinks, fruit punch, yogurt, candies, cakes, cookies, pies,

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and ice cream.

- o The **solid fats** in cookies, cakes, sausages, fatty meats, butter, and stick margarine.

*Draw a box next to MyPlate labeled “Empty Calories= added sugar and solid fats in foods”.*

- Does anyone have an example of an empty calorie food you like to eat? *Take a few examples from students.*
- So what percent of my plate should be made up of fruits and vegetables?
  - o Answer: 50%
- What percent of my plate should be made up of grains?
  - o Answer: 25%

### Optional math problem:

- Sometimes it helps to think of fruits and veggies as one big group and remember this group makes up half your plate. If I wanted to express the 50% fruits and vegetables and 25 % grains on MyPlate as a ratio how might I do that? *\*prompt students if necessary—say: what is the ratio of fruits and vegetables to grains?*
- Why can't I just eat fruit? Why do I need to eat a variety of foods?
  - o Answer: Eating a variety of different types of foods allows you to get all the nutrients that you need to stay healthy.

### **SAMPLE MEAL** Activity (3 min.)

*Use the following sample meal to demonstrate where combination and empty calorie foods are found in the MyPlate food groups.*

*Write on the board:*

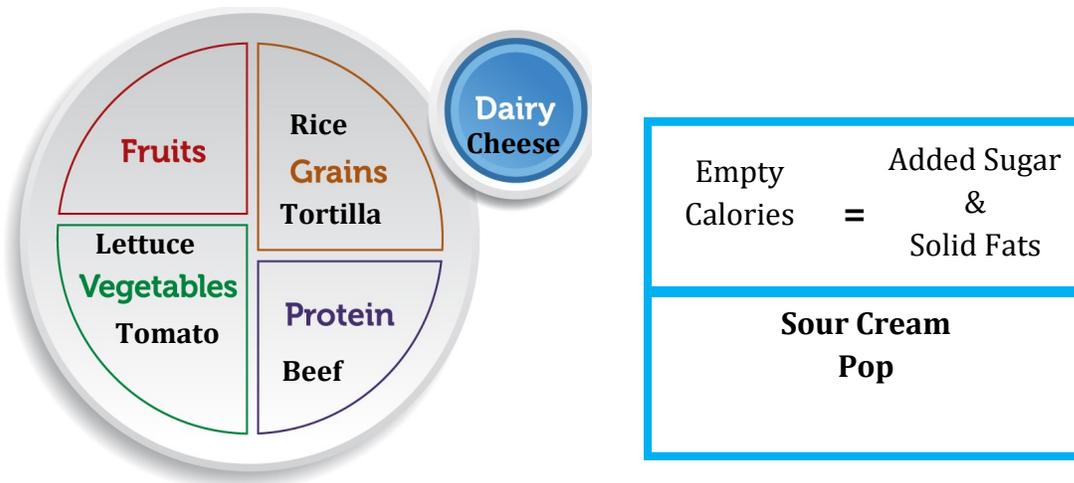
Beef burrito with cheese, tomato, lettuce and sour cream  
Rice  
Pop

- I have written a sample meal on the board. As a class we need to examine it using MyPlate as a tool. Who can tell me which food groups are found in this meal?

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Guide students through selecting the correct food group for each component of the meal (see diagram on next page). Once the student volunteers have correctly written all the meal components on the MyPlate on the board, mention the following discussion points.



### Meal Sample Discussion Points:

- Rice and Tortilla are *both* grain products. Choose brown rice, and whole grain tortillas for a healthier plate.
- Beef is a protein. Examples of leaner protein options for this meal would be: chicken, turkey, or beans.
- Lettuce and tomato are great vegetable additions. Make sure veggie choices fill a quarter of your plate.
- What food group is missing on our plate? How could we include some fruit in this meal?
- Sour Cream is in the “Empty Calories” box because it has extra fat made from solid dairy fats and little other nutritional value.
- Pop is in the “Empty Calories” box because of the added sugar and calories with no added nutritional value.

### **PERSONAL PLATE** Reflection (4 min.)

- Now think about the meal you wrote on your own plate. Take each item from your plate and break it down like we did with our sample meal into the food groups.
  - How can it be more balanced?:
  - Are any of the food groups empty? If so, fill in something you could have eaten from this food group.
  - Circle any whole grain foods on your plate. Write in one you might try if you didn't include any.

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- Did you include too many empty calorie foods? Can you consider choosing these less often? No one eats perfectly all the time, but we can take small steps to do better.
- Did you notice that half of your plate should be filled with nutritious produce (fruits and vegetables)?

*Ask a few students to share how they could add a food group onto their meals or make a better choice within the food group.*

#### **WRAP-UP** (1 min.)

- What is something you learned today that you will take home and share with others?
  - Answer: what is energy in and energy out; what is MyPlate and the different food groups; how to include more variety in our choices
- This week we are going to focus on our small step towards eating more fruits and vegetables. What is the small step our class set?
  - Answer: *See Healthy Habits activity from Lesson 1, and the small step that was set for eating more fruits and vegetables.*

Good luck, Wellness Warriors! We will check in next time on our progress.

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## Extensions

### **FIVE FOOD GROUP WRAP** *DFood Demonstration (5-15 min.)*

*(Materials: Wrap ingredients-whole wheat tortillas, turkey, Havarti cheese, cucumbers, apples, Small paper plates, cutting boards, Toothpicks, Gloves, Small knives, Wipes/Paper towel)*

- *Have students cut up vegetables and fruit. Have students make plates with half a tortilla, half a slice of cheese and half a slice of meat. Tell students they must include all ingredients in their wrap, and have them assemble wrap.*
- *Pass out recipe cards and emphasize that the wrap contains foods from all of the food groups that were discussed today.*

### **FOOD GROUP STICKY NOTE** *Activity (10 min.)*

*(Materials: 5 sticky note pads- each a different color)*

*Directions: Ask for students to volunteer a lunch or dinner for an example. Use up to 6 examples. Write meal example(s) on the board next to MyPlate. Make sure students name all the groups in combined foods: Examples: If a student says they ate pasta, ask if the sauce was made of tomatoes? Meat? Alfredo?*

- *If we know what we need and how to get it, let's see how we are doing. Let's use the meals we wrote down on our plates at the beginning of class.*

*Select a five volunteers to "color code" the MyPlate circle using the sticky notes that represent the food groups in the student's meal example(s). Give each volunteer one food group to identify on the board. Put pre-marked sticky notes on the board to remind the students which color represents which food group:*

Pink=Fruit

Green=Vegetable

Blue=Dairy

Yellow=Grain

Purple=Protein

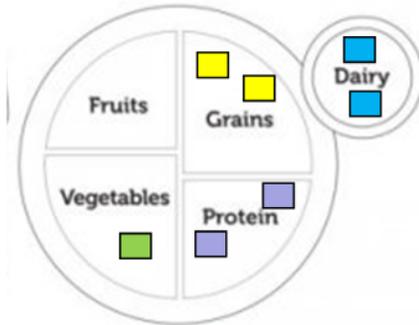
- *Our volunteers are going to "color-code" our MyPlate diagram by food group using our meal. Each color of sticky note represents a food group. Please place a sticky note on our MyPlate for any meal item you think fits within your food group. **IF** a food has lots of extra fat, or added sugar we will not count the food as a part of the food group and you should write it in the box labeled "Empty Calories" (*See board example*).*

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### VISUAL

Empty Calories:  
Pepperoni (fat)  
Coke (sugar)



### Meal Examples:

Chicken Alfredo Pasta  
with Broccoli

Pizza with Pepperoni  
and a coke

Confirm that the volunteers have selected the correct food groups for each meal, based on the MyPlate food groups, and lead the class in a discussion using the following questions:

- What food groups do we see the most of?
  - Answer: (Facilitator note: grains and proteins are usually over-represented, meaning that they take up more than half the sticky notes on the board)
- What food groups do we see the least of?
  - Answer: (Facilitator note: we usually do not see many fruits and vegetables as part of the students' meals)
- What about the "Empty Calories" foods? Why should we not eat these foods often?
  - Answer: Empty calorie foods are high in sugar and fat.
- Looking at these meals, are there ways we can increase the fruit and vegetables on our plate? MyPlate tells us to make HALF our plate fruits and vegetables!
  - Example: add bananas onto our cereal, have a salad and a piece of fruit with our pizza, have another vegetable at dinner or include some fruit as a dessert.

### ENERGY IN- ENERGY OUT Activity (5 min)

(Materials: ENERGY-IN cards, ENERGY-OUT cards, tape)

Write ENERGY IN on the board and tape the ENERGY IN cards with the calorie count folded underneath the picture so it is not showing in a column underneath. Write ENERGY OUT on the board and tape ENERGY OUT cards with the calories burned folded underneath.

- Each day we need to select foods that provide enough energy and nutrients to walk, breath, run,

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think, and play.

- We are going to demonstrate how our food and activity choices might balance out! I need two volunteers. My first volunteer I will call ENERGY IN! My second volunteer I will call ENERGY OUT! ENERGY IN volunteer please select a food from our list that you would like to use as an energy source! Once you have selected the food please unfold the card and show us what energy and nutrients we receive:
  - Example: Volunteer selects the McDonalds fry and reads the calories and information on the card flap.
- ENERGY OUT volunteer please select an ENERGY OUT activity to try to balance our ENERGY IN choice
  - Example: Volunteer selects School Work and read the calories burned on the information card.

*Record student choices and the negative or positive energy balance remaining for discussion on board. After first set of cards write the amount of energy remaining. If it is positive ask the ENERGY OUT volunteer to pick another activity card and record the new total. If it is negative ask the ENERGY IN volunteer to pick another food card.*

**\*\*NOTE:** The purpose of the activity is not to ultimately spend all the calories but to show that each time we consume food or do activity, we are changing the balance.

- Follow up questions:
  1. Did the amount of energy we took in balance with the amount of energy we burned with our activity?
  2. If you have energy left over, can it be put towards another activity?  
Answer: Yes!
  3. If you don't have enough energy for the activity would you be hungry and need to select another source of food for ENERGY IN?  
Answer: Yes!
  4. If you take in more energy than you do activity to burn, what happens to the excess energy over time? (REMEMBER we don't need to balance it EVERY DAY but over time our energy in and out should balance)  
Answer: We store this energy as fat.

*Go through as many cards as time permits.*

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### **MYPLATE FOOD CARDS** Activity (7 min.)

*(Materials: Food cards (class of 25): 6 Grain cards, 6 Fruit cards, 6 Veggie cards, 5 Protein cards, 3 Dairy cards)*

*Pass out a food card to each student. Make sure that the ratio of food cards is similar to the ratio of different foods in MyPlate. Ask all students that think they have a grain to stand up.*

- Grains are an important because they provide energy in the form of the nutrient carbohydrate and fiber. Fiber helps your digestion so you can feel healthy.

*Ask those that think they have a protein to stand up.*

- Protein foods like meats, beans and nuts provide the nutrient protein that is the building blocks of our bodies.

*Ask those that think they have a dairy product to stand up.*

- Dairy provides us with protein, minerals and fat.

*Ask those that think they have a fruit or vegetable to stand up.*

- Notice that half of the class is standing. This is because half of our plate should be made of fruits and vegetables. They give us vitamins and minerals that help our body do all the great things that it can do. They also give us fiber.