

Lesson 7: Balance Your Calories

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Time Required

Estimated lesson timing is 40-60 minutes; however, this lesson can be expanded or shortened, as needed. We encourage you to tailor it to fit within the available class time. If time is limited, we recommend focusing on the Getting Started, Teaching Instructions and Reflections sections.

Audience

High school students grades 9-12

Lesson Overview

In this lesson, your students will learn about calories, including what a calorie is and how your body uses calories. They will also learn about the concept of calorie balance and its relationship to weight management. Your students will create a SuperTracker profile to determine their personal calorie needs and break into small groups to discuss and answer questions about calories and calorie balance.

Getting Started

- **Why is this lesson important?** As teens make more of their own food choices, it is important that they consider the effects of those choices on their overall health. Teens live in the moment and sometimes don't consider the longer-term effects of their food choices. This lesson provides an opportunity to learn about calorie intake and the importance of maintaining a balance between calories consumed and expended.
- **What can you do about it?** Frame this lesson as an opportunity to better understand the role of food choices in weight management. Make sure to consider teen motivations, including maintaining a healthy weight and having a positive body image. A great way to start this lesson is to ask students about their most recent meal and how many calories they think it had.
 - Follow up with a question about how much physical activity might be necessary to use those calories.
 - When you choose foods to eat, do you ever consider how much physical activity might be necessary to use the calories in that meal?

Revisit this exercise following the lesson to see if student views have changed.

Teacher's Lesson Preparation

Preparation

- Watch the My Plan site tour video, Getting Started: How to get My Plan, on YouTube (2 min. 59 sec.).
Link: <https://www.youtube.com/watch?v=MukLDO5kGh8&feature=youtu.be>
- Review navigation of the SuperTracker website.
Link: <http://www.SuperTracker.usda.gov>

Materials	<ul style="list-style-type: none"> • Make copies for each student of the Balance Your Calories handout.
Setup	<ul style="list-style-type: none"> • Computers with internet access for teacher and your students; if not available, then arrange for another location, such as a library or computer lab, with internet access. • Screen and projector.

Lesson Objectives

Following this lesson, your students should be able to:

1. Define the term “calorie.”
2. Describe the importance of calorie balance in managing weight.
3. Identify how many calories they need in a day.

Teaching Instructions

1. Consider beginning with a stretch and exercise break (suggested activities found on page 13-14).
2. Then, provide a brief overview of the topics to be covered and what you want students to get out of this lesson.
 - Begin the lesson with class discussion - **ask your students:**
 - What do you believe a calorie is?
 - Do you look at the calories in the foods you eat on a daily basis?
 - Do you know how many calories you should consume each day?
 - Have you seen menus with calorie counts? Do the calorie listings influence your decisions on foods to order or eat?
3. Explain what a calorie is:
 - A calorie measures the amount of energy in a food or drink.
 - The foods you eat and beverages you drink give your body the energy it needs to keep you going. For example, your body uses energy to breathe, keep your heart beating, to grow, and to do physical activities like walking, jumping, and running.
 - Talk to your students about how the body burns calories doing basic functions like breathing, growing, and healing. The body is always burning calories, how much and at what rate varies based on age, sex, activity level and “basal metabolic rate,” the rate at which the body burns energy while at rest.
 - Opportunity to explain body mass index to students (a measure of body fat based on height and weight) and show students the BMI calculator to find out how many calories they burn at rest on a daily basis (<https://nccd.cdc.gov/dnpabmi/calculator.aspx>).

- Ask your students to list some ways their bodies use energy and burn calories that they may not have considered (e.g., breathing, walking to the cafeteria, smiling, fighting illness, healing a cut or a broken bone, raising your hand in class, laughing, etc.).
 - Talk with your students about the impact of the daily food choices and how small decisions like choosing a salad or a smaller portion can substantially cut calories.
 - Use the example of fast food to illustrate calorie intake - one super-sized fast food meal can have more than a day's worth of calories.
 - Ask your students to think about the ways in which they consume calories. Do they think about consuming calories in beverages as well as foods? In snacks as well as in main meals?
 - Share with your students that Americans typically drink about 400 calories every day. (Link: <https://www.choosemyplate.gov/ten-tips-make-better-beverage-choices>)
 - More more information on making better food choices, go to <https://www.choosemyplate.gov/ten-tips-make-better-food-choices>



Show your students this brief video from the CDC, which discusses finding caloric balance when choosing foods. Link: <https://www.cdc.gov/cdctv/healthyliving/healthyeating/finding-balance-obesity.html>

4. Describe the concept of calorie balance.

- **Ask your students** to think of a seesaw or teeter-totter as a way to show different relationships between amount of calories consumed and burned. What would that look like? There is a handout that diagrams this relationship at the end of the lesson that diagrams this relationship.
- Liken the metaphor of a seesaw to the concept of calories in and calories out.
 - "Calories in" are the calories from foods and beverages you eat and drink.
 - "Calories out" are the calories your body uses for body functions (like breathing and growing) and physical activity.
- Talk to your students about what calories in and calories out means for them on a day-to-day basis.
 - In general:
 - If you eat and drink the same amount of calories that your body uses, your weight stays the same.
 - If you eat and drink less calories than your body uses, your weight will go down because your body must burn fat and muscle to get the energy it needs.

- If you eat and drink more calories than your body uses, your weight will go up because your body stores the extra energy as fat.



If you have internet access in your classroom, show your class the Centers for Disease Control and Prevention site: Finding a Balance, which includes a short video:

Link: <http://www.cdc.gov/healthyweight/calories/index.html>

5. Explain that in addition to calories, your body needs the nutrients in foods in order to work properly.
- Balanced nutrition is important to ensure your body can work properly, fight off illness and reduce risk of injury. Explain that in order to keep your body functioning in top shape, it's important to eat foods from all five food groups: Fruits, Vegetables, Grains, Protein Foods, and Dairy.
 - Talk to your students about the benefits of each food group and how they provide important nutrients that your body needs. Foods in the low-fat dairy group (such as milk and yogurt) provide calcium and vitamin D, which are important for healthy bones to help you grow and avoid injury.
 - Vegetables and Fruits are important sources of many nutrients, including potassium, dietary fiber, folate (folic acid), vitamin A, and vitamin C. These nutrients help do a range of things in the body from controlling blood pressure to protecting vision and keeping your immune system working properly to help you avoid getting sick.
 - Whole Grains provide nutrients such as dietary fiber, several B vitamins (thiamin, riboflavin, niacin, and folate), and minerals (iron, magnesium, and selenium). Whole grains give you energy. Minerals do a range of things from keeping your blood healthy to helping you have healthy muscles.
 - Lean Protein provides building blocks for strong bones, muscles, cartilage, skin, and blood. They are also building blocks for enzymes, hormones, and vitamins that help keep you healthy. You need to get enough protein every day because your body doesn't store it, the way it does with carbohydrates and fat.
 - It's also important to choose foods and beverages with less saturated fat, sodium, and added sugars.
 - Saturated fat is a type of fat that you should try to limit. Too much saturated fat can increase your risk for heart disease. Replace saturated fat with unsaturated fat. Foods that contain more saturated fat, for example butter, are usually solid at room temperature. Whereas foods that contain more unsaturated fat, for example vegetable oil, are usually liquid at room temperature.
 - Sodium is found in salt and many processed foods. Too much sodium is bad for your health. It can increase your blood pressure and your risk for a heart attack and stroke, two leading causes of death in the United States. Eating less sodium can reduce risk for high blood pressure.
 - Added sugars are sugars and syrups that are added to foods or beverages when they are processed or prepared. This does not include naturally occurring sugars such as those in milk and fruits. Added sugars provide calories without adding nutritional value.

6. Ask your students to describe what it means to be a healthy weight and what the benefits are. Prompt your students with some examples, listed below:
 - Managing your weight can help you stay healthy and feel good.
 - No matter what your weight is, eating a healthy diet and being physically active can help you be the best version of yourself.
 - Healthy comes in many shapes and sizes!
 - A healthy weight for you may be different than a healthy weight for someone else.
 - Be proud of your body and how you look. You were born an original! You don't need to be a copy of someone else.
7. Capture your student responses on the chalkboard and talk about the positives they have shared and how they impact overall happiness and satisfaction.



Use ChooseMyPlate.gov to show your students:

- The number of calories burned by moderate and vigorous physical activities.
- Demonstrate how many calories are burned by different activities in an hour versus 30 minutes.
- Ask them to calculate how many minutes of exercise would be needed to burn the calories from three of their favorite foods using the SuperTracker tools.

8. Explain that different people have different calorie needs depending on their age, sex, height, weight, and how much physical activity they do.
 - Reinforce that there is no "right" number of calories that works for every person and that each person has different calorie needs based on many factors. Point out that calorie needs will also change as they age.
9. Let your students know that they can use SuperTracker to determine how many calories their bodies' need in a day.



Tip

Show your students the chart on the National Institutes of Health site which illustrates how to plan a healthy meal by selecting an item from each food category.

Link: https://www.nhlbi.nih.gov/health/educational/lose_wt/eat/menus.htm

10. Go to the SuperTracker website.

Link: www.supertracker.usda.gov

11. Have your students log in to their profiles.

12. After logging in, “My Plan” will open in new window. Or, if popup blockers are on, navigate to the My Plan page.

Link: <https://www.supertracker.usda.gov/myplan.aspx>

13. Point out where to find the total calorie allowance in the plan.

My Plan

This plan shows your daily food group targets — what and how much to eat within your Calorie allowance. Enter your meals in Food Tracker to see how you stack up. Talk with your health care provider about an eating pattern and physical activity program that is right for you.

Erica's Plan
Your plan is based on a 2000 Calorie allowance.

Calories	Allowance
Total Calories	2000 per day

Food Group	Food Group Amount	“What counts as...”	Tips
Grains	6 ounce(s) per day	1 ounce of Grains	Tips

14. Once your students have their plans, ask them to find their daily calorie allowance.

15. As your students review their plan, point out that their plan also includes information about what types of foods to eat. Remind your students that:

- There are no magic foods to eat for good health.
- Eat foods from the major food groups.
- Choose foods that are high in nutrients such as fruits, vegetables, whole grains, lean protein, and low-fat dairy. Minimize consumption of foods that are high in calories but low in nutrients such as regular soda, cookies, and candy. Most of the calories in these foods come from added sugars and/or saturated fats.

16. Break up your students into small groups of (four to six per group) and distribute the Balance Your Calories handout.

- Ask your students to discuss questions 1-8 and write down their group's answers. Your students will also complete a meal planning exercise where they determine how to reduce calories in a daily menu without losing nutritional value.
- Question 9 in the handout will ask each group to come up with a physical activity the class could do together for a few minutes at the beginning of class (e.g. dancing, stretching etc.). Let your students know that each group will get a chance to lead the class in their activity. Assign an upcoming class day to each group.
- Your students will also complete a meal planning exercise (Question 10) where they determine how to reduce calories in a daily menu.

 Tip

Ask your students to name actors, athletes and rock stars of all body shapes and sizes, who they consider to be healthy.

 Tip

- Ask your students to calculate and compare the average calories burned for their classroom activity.
- Provide a comparison of high- and low-calorie burning activities.
- Consider using a guest judge, such as coach or PE teacher, or have your students vote on the best activity.
- As appropriate, share photos of the activities on the school's website.

Reflection, Evaluation and Discussion

Summarize the lesson and concepts as well as the learning objectives. Reinforce the importance of maintaining a balance between calories consumed and energy expended. Note that there may be days where they consume more or less calories than they expend. Underscore the importance of establishing balance over time.

Encourage your students to reflect on the topics learned by asking questions such as:

- Why does our body need calories?
- Why do we need to balance our calories in with our calories out?

- Are there any changes to your eating and physical activity habits you're considering based on what you learned in this lesson?
- What foods or activities surprised you the most?
- Will you factor in calorie content in future food decisions?



Beyond the Classroom

In School

Post infographics and tip sheets around the school that focus on health eating active lifestyles for teens. Check out the MyPlate Infographics page and the MyPlate MyWins Tip Sheets pages for print-ready files. <https://www.choosemyplate.gov/infographics>, <https://www.choosemyplate.gov/ten-tips>

Out of School

Create personal family plan of small changes to increase calories burned (e.g. take the stairs, park farther from store) and try it out for a week.

Wellness Council

Have students set up a “walk or bicycle to school” day. Encourage school staff to participate and wear school colors.

Notes

Record any notes about this lesson. For example, how well did your students understand the material? Are there any changes to the lesson you would like to make for next time?



Tip



Resources

- Walking: A Step in the Right Direction
Link: <https://www.niddk.nih.gov/health-information/weight-management/walking-step-right-direction>
- Centers for Disease Control and Prevention, Division of Nutrition, Physical Activity and Obesity
Link: http://www.cdc.gov/physicalactivity/success/children_example_maria.htm

Name:

Date:

Balance Your Calories

Note

Have your students take this quiz (questions 1-8 below) both before and after the lesson to demonstrate what they have learned. Ask them to chart the change in their level of knowledge.

Instructions

Discuss each question with your group and fill in your answers together.

1. What does it mean to balance your calories?

2. In general, if the calories that you eat and drink are equal to the calories your body uses, your weight...

- Goes down
- Stays the same
- Goes up

3. In general, if the calories that you eat and drink are less than the calories your body uses, your weight...

- Goes down
- Stays the same
- Goes up

4. If the calories that you eat and drink are more than the calories your body uses, your weight...

- Goes down
- Stays the same
- Goes up

5. How do you know if your calories in and calories out are out of balance?

6. Why do different people need to eat a different number of calories?

7. List three ways your body uses energy.

8. Which physical activity do you think requires more energy?

Walking for 10 minutes

Running for 10 minutes

Why do you think this activity requires more energy?

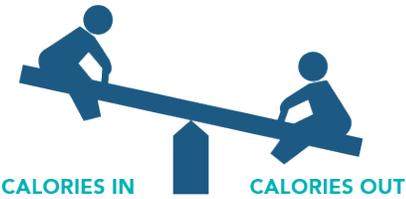
9. As a group, pick a physical activity our class could do together. You'll be assigned an upcoming class day to lead our class in the activity you've chosen for a few minutes at the start of class.

Our group's activity will be: _____

Mia is a 16-year-old who needs about 2,000 calories a day. Below are the foods Mia ate today. She ate 2,908 calories, which is over her daily calorie limit. She wants to make sure she eats a balanced diet that meets her body's nutrition needs within an appropriate calorie level. Can you help Mia get closer to her daily calorie limit without losing important nutrition that her body needs? Cross out items and/or edit the amounts to help Mia.

Meal	Foods/Beverages	Calories	Food Groups				
			Fruit	Veg	Grains	Protein Foods	Dairy
Breakfast	Whole grain cereal – 1 cup	110			X		
	Low-fat milk – ½ cup	51					X
	Banana	105	X				
	Brownie – 2 inch square	129			X		
Lunch	BBQ chicken sandwich on whole wheat bun	257			X	X	
	Orange	31	X				
	Baby carrots – 6	25		X			
	Ranch dressing – 2 Tablespoons	143					
	Low-fat milk – 1 cup	102					X
Snack	Gummy bear candy – 1 cup	673					
Dinner	Spaghetti – 1 cup	220			X		
	Spaghetti sauce – ½ cup	80		X			
	Meatballs – 3 meatballs	164				X	
	Parmesan cheese – 1 Tablespoon	22					X
	Side salad with lettuce, cucumber, avocado, and chickpeas – 1 ½ cups	108		X			
	Ranch dressing – 1 Tablespoon	71					
	Apple – ½ apple	36	X				
	Soda – 1 can	150					
Snacks	Whole wheat crackers – 6	102			X		
	Peanut butter – 1 Tablespoon	97				X	
	Low-fat strawberry yogurt – 1 8-oz container	232					X
		Total Calories: 2908					

Calorie Balance

If...	Your weight will...	Diagram
You eat and drink the same amount of calories that your body uses	Stay the same	 <p>CALORIES IN CALORIES OUT</p>
You eat and drink less calories than your body uses	Go down	 <p>CALORIES IN CALORIES OUT</p>
You eat and drink more calories than your body uses	Go up	 <p>CALORIES IN CALORIES OUT</p>