

You Are What You Eat!

Learning Objective(s):

Intended Grade Level: Middle School (6th-8th grade)

Concept 1: Observations, Questions, and Hypotheses

PO 1. Formulate a relevant question through observations that can be tested by an investigation.

Concept 2: Scientific Testing (Investigating and Modeling)

PO 4. Measure using appropriate tools (e.g., ruler, scale, balance) and units of measure (i.e., metric, U.S. customary).

Concept 3: Analysis and Conclusions

PO 5. Identify possible relationships between variables in simple investigations (e.g., time and distance; incline and mass of object).

Concept 4: Communication

PO 1. Communicate verbally or in writing the results of an inquiry.

(See W05-S3C3-01)

Lesson Summary:

Childhood obesity has become more prevalent over the years, especially in the United States where children are heavier compared to other countries. The youth in our country spend less time engaging in physical activity and consume foods rich in fats and sugars. Unfortunately, this energy imbalance can promote the development of obesity, diabetes and cardiovascular disease. This lesson will help students think about the food choices they make and their physical activity level, therefore, making better decisions for their health.

Nutrition Materials:

- Brown paper bags
- Cheetos
- Veggie Chips
- Cookies
- Rulers
- Pencils
- Notebooks

Digestive System Material:

- Yarn
- Beads
- Construction Paper
- Crayons/Markers
- Clay
- Other decorative supplies

Engage

This activity will promote an interest in nutritious eating and the digestive system. The students will have the opportunity to think about the food they consume at home and establish a connection between the unhealthy food and metabolic disorders.

- **Introduce, "nutrition", "saturated and unsaturated fats", "digestion"**

10 minutes

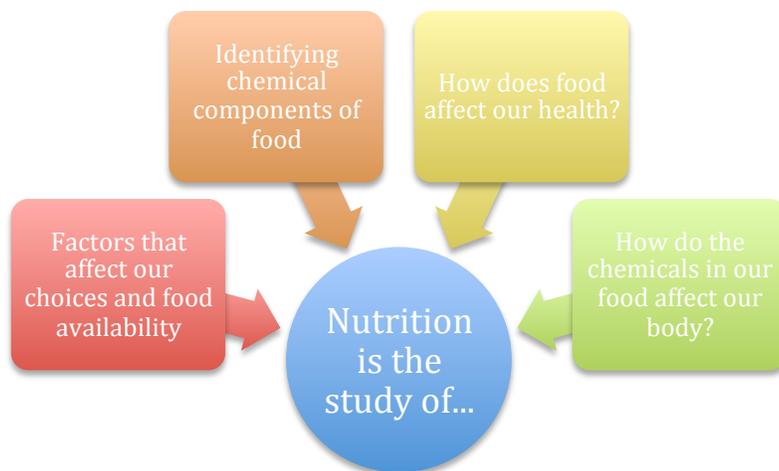
A week before the lesson, remind students to bring in their favorite snacks. Ask students about the health benefits of their chosen snack:

*Do you think your favorite food is healthy?
What makes a food healthy?*

Ask students to share what they had for dinner the night before: *Do you think that meal was healthy? Why or why not?*

20 minutes	<p>Explore</p> <ol style="list-style-type: none"> 1. After the nutrition lecture, students will be asked to complete an activity inquiring about the amount of fats and sugar in a particular food item. The food items include: cookies, veggie chips, Cheetos. Students will measure the width of the oily circles created by the food items and record it in their notebooks. We will review the answers in class. Students may work in groups. 2. Review the answers- let students answer the questions and explain their decision. 3. Thought Provoking Question: How would you describe “nutrition”? How would consuming food low in nutritional value affect our health? Are you aware of any diseases that are associated with eating poorly? <p>Safety Disclaimer: Advice students not to eat the sugar or fat.</p>
20 minutes	<p>Explain and Engage</p> <p>The second portion of the class will focus on Digestion. Students will learn basic physiology of the digestive system. Ask questions to probe their understanding of the topic:</p> <ul style="list-style-type: none"> • What do you know about the digestive system? • What are the primary functions? How does it work? <p>Video: https://www.youtube.com/watch?v=eTMzI1cblZc</p> <p>Activity:</p> <ol style="list-style-type: none"> 1. After the lecture students will have the opportunity to create their own digestive system. Students will attempt to build the digestive system without the aid of a model. At the end, students will present their work to the rest of the class. Review of the digestive system will follow this activity. Students may work in groups.
10 minutes	<p>Expand</p> <p>Students will learn about the different types of metabolic disorders that can result from an unhealthy diet and sedentary lifestyle. To keep the discussion simple and easy to understand, we will only focus on obesity.</p> <p>Materials: Obesity ppt</p> <p>Instructional Sequence: Before the start of a video, ask a question in regards to the topic. “Have you ever heard of obesity? What is obesity? Each video will be played in class to give a brief overview of diabetes and obesity. Promote discussion about food, exercise and disease.</p> <ul style="list-style-type: none"> • How can we prevent obesity? • Who can develop obesity? • What are some of the reasons that people develop these diseases?

Supplemental Terms, Definitions, and Explanations:



Nutrition: the intake of food considered in relation to the body's dietary needs.

Obesity: an accumulation of excess fat that may impair health.

Diabetes Mellitus: A chronic metabolic disorder characterized by hyperglycemia resulting from insufficient insulin secretion, resistance to action of insulin or both.

Hyperglycemia: High blood glucose

Calorie: a unit of energy-the energy it takes to raise the temperature of 1 gram of water by 1 degree Celsius.

Suggested Supplemental Teacher Resources – References/ Websites:

1. Autry, Candice, and Jennifer Jordan. "Sugars And Fats in Our Food, Oh My!" 288.7461 (n.d.): 483-84. *CDC-Science Ambassador Lesson Plans*. Web.
2. Sweazea KL, Walker BR. High fat feeding impairs endothelin-1 mediated vasoconstriction through increased iNOS-derived nitric oxide. *Horm Metab Res*. 2011;43(7):470-476. doi:10.1055/s-0031-1273763
3. Sweazea KL, Lekic M, Walker BR. Comparison of mechanisms involved in impaired vascular reactivity between high sucrose and high fat diets in rats. *Nutr Metab (Lond)*. 2010;7:48. doi:10.1186/1743-7075-7-48.
4. Sweazea KL, Walker BR. Impaired myogenic tone in mesenteric arteries from overweight rats. *Nutr Metab (Lond)*. 2012;9(1):18. doi:10.1186/1743-7075-9-18.
5. Pope, Jamie, Steven Nizielski, and Alison McCook. *Nutrition for a Changing World*. N.p.: n.p., n.d. Print.

http://www.cdc.gov/excite/ScienceAmbassador/ambassador_pgm/lessonplans/Sugar%20and%20Fats%20in%20Our%20Food%20Oh%20My.pdf