



uBEATS Teacher's Guide:

Obesity

This teacher guide is a supplementary text to support the use of the uBEATS “Obesity” module for grades 6-12.

To help students develop the knowledge necessary for an incredible future in health care, we created UNMC Building Excellence in Academics Through STEM (uBEATS), an online health science resource for Nebraska students.

UNMC uBEATS modules are short (15 minutes or less), interactive online health science modules to supplement curriculum taught in grades 6 – 12. These do not replace curriculum, but they are a supplement for teachers and students incorporating evidence-based information and UNMC expert guided material. Each module is chunked into sections with formative and summative assessments with immediate feedback provided.

Tips on how to utilize uBEATS modules:

- Internet access is required to view uBEATS modules.
- For those who have access to one-to-one technology, modules can be used in or outside of the classroom as a topic introduction, extension, or review. For classrooms without individual student devices, modules can be used in whole group instruction. Formative assessment questions can use the teacher’s preferred call and response method and summative assessment questions can be displayed on the board and answered individually by students or printed and distributed to students after viewing the module.

Objectives

1. Define adult and childhood obesity.
2. Examine the causes of obesity.
3. Identify the potential health consequences of obesity.



Introduction

This module focuses on the global epidemic known as Obesity. We know that obesity does not know age, race, or gender. We also know that this chronic disease can lead to other health problems, financial stress, and even take years off one's lifespan. Currently, statistics tell us that 74% of adults are considered overweight or obese, with children and adolescents at 40%. Health systems recognize this disease and have put strategies in place to combat it. This module explores some of these strategies.

Prior Knowledge

Before beginning this module, the teacher should understand the Next Generation Science Standards (NGSS) featuring [Three-Dimensional Learning](#).

LS1.A. Structure and Function. [A Framework for K-12 Science Education](#)

The essential functions of a cell involve chemical reactions between many types of molecules, including water, proteins, carbohydrates, lipids, and nucleic acids.

Science and Engineering Practices [NGSS](#)

1. Asking questions (for science) and defining problems (for engineering)

Crosscutting Concepts [NGSS](#)

2. Cause and Effect
6. Structure and Function

Key Terms/Vocabulary

Obesity, epidemic, adult obesity, childhood obesity, Body Mass Index (BMI), Centers for Disease Control (CDC), ratio, nutrition, physical fitness, healthy diet, sugar, saturated fat, sodium, calorie, fruits, vegetables, grains, protein, dairy, illness, medications, steroids, anti-depressants, social determinants, genetics, consequences, diabetes, Type 2 diabetes, kidney disease, vision problems, cardiovascular disease.

Science Standards

Nebraska's College and Career Ready Standards for Science 2024 [Nebraska Science Standards](#)

- SC.7.8.4.B. Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as matter moves through an organism.

National Consortium for Health Science Education [NCHSE](#)

- Foundation Standard 1: Academic Foundation
 - 1.1.2. Identify basic structures and describe functions of human body systems.
 - 1.2.1. Describe etiology, pathology, diagnosis, treatment, and prevention of common diseases and disorders.

Extensions of the lesson

To help students become more familiar with the Key Terms of this module, the teacher can use the vocabulary list for a classroom Word Wall, or integrate the vocabulary into review sessions.

Encourage students to check current events for the latest news involving obesity.

Advise students to reflect privately on their own Body Mass Index (BMI).

As student misconceptions become apparent, the teacher may need to reinforce these important concepts:

- Four kinds of biomolecules essential for life are carbohydrates, fats, proteins, and nucleic acids.
- Fat in the body is a good thing. Fat gives your body energy, protects your organs, insulates against heat loss, and helps store vitamins.
- Too much fat in the body is not a good thing. Obesity can lead to diseases and disorders including Type 2 diabetes, kidney disease, vision problems, cardiovascular disease.
- Calories are a good thing; too many calories are not a good thing.
- "Going on a diet" is not necessarily a good thing. Any healthy diet must include proper nutrition and enough energy to fuel the body's physical, chemical, and mental activities.
- If a person's body takes in more food energy than it needs, it can store the extra energy as fat.
- There are many different factors that can lead to obesity.



Enrichment

Search for online video explanations of **Obesity**.

Explain the differences between **childhood obesity** and **adult obesity**.

Report on the obesity rates in countries around the world. **Develop an explanation** that would help us understand why some countries have different obesity rates than others.

Propose a list of **solutions** for **adolescent obesity**.