

# Good Eats

INTEGRATED  
CURRICULUM UNIT  
ON NUTRITION  
AND HEALTH

UNIT  
OVERVIEW

# Good Eats

## CONTENTS

	Page
<b>Unit Overview</b>	<b>1</b>
<b>Subunit 1 Overview</b>	<b>5</b>
Lesson 1.1 Biology, Chemistry, or Health Science	
Lesson 1.2 Biology, Chemistry, or Health Science	
Lesson 1.3 Health Science	
Lesson 1.4 Algebra I or Statistics	
Lesson 1.5 Biology and Statistics	
Lesson 1.6 English Language Arts	
Lesson 1.7 Algebra I	
<b>Nutrition and You</b>	<b>7</b>
<i>Food Fundamentals</i> . . . . .	7
<i>Nutrition and Growth</i> . . . . .	21
<i>Obesity: An Expanding Problem</i> . . . . .	37
<i>Biometrics Lab</i> . . . . .	45
<i>Effects of Diet on Rat Weight and Activity Lab</i> . . . . .	49
<i>Writing a Lab Report</i> . . . . .	57
<i>Am I Gaining or Losing Weight?</i> . . . . .	59
<b>Subunit 2 Overview</b>	<b>67</b>
Lesson 2.1 Health Science, Interpersonal Relations, or English Language Arts	
Lesson 2.2 Spanish I	
Lesson 2.3 English Language Arts and U.S. Government	
Lesson 2.4 English Language Arts	
<b>Nutrition and Society</b>	<b>69</b>
<i>Developing a Healthy Body Image</i> . . . . .	69
<i>Alphabet of Healthy Foods</i> . . . . .	73
<i>Fast Food Nation</i> . . . . .	79
<i>You Are What You Eat Speech Assignment</i> . . . . .	85
<b>Subunit 3 Overview</b>	<b>91</b>
Lesson 3.1 English Language Arts	
Lesson 3.2 World History or World Geography	
Lesson 3.3 Biology	
Lesson 3.4 Algebra I	
<b>Nutrition in the World</b>	<b>93</b>
<i>Arithmetic of Hunger</i> . . . . .	93
<i>World Hunger</i> . . . . .	101
<i>Genetically Modified Foods</i> . . . . .	105
<i>The Power of Two</i> . . . . .	109

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# Good Eats

## UNIT OVERVIEW

### ***Essential Question for This Unit***

Should we care about what we eat? Why?

### ***Unit Summary***

In this unit, students will learn about the connection between nutrition and health. Through interdisciplinary study in Biology, Health Science, Interpersonal Relations, English Language Arts, Mathematics, and World History, they will explore the questions of why we should care about what we eat and how food is produced. Students will explore concepts ranging from the body's physical requirements in terms of calories and nutrients to the physiological and psychological outcomes resulting from various levels of nutrition and health. They will be introduced to cellular respiration, recombinant DNA technology, and ethical issues raised by using—or withholding the use of—biotechnology to increase food production.

The students will examine the issue of adequate nutrition at both the individual and societal levels, reflecting on their own diet and health status and the importance of making good choices. They will also analyze issues connecting nutrition and food production to the welfare of the global community—by exploring the impact of recent famines in Africa—and apply this research to decisions about their own roles.

In this year-long curriculum unit, classroom work and homework include:

- A long-term experiment with laboratory animals on the physiological and behavioral effects of varying caloric intake; work will include setting up and conducting the experiment and collecting, graphing, and analyzing experimental data. (Biology and Statistics)
- A biometrics lab to analyze body types and fitness, including assignments on calculating basal metabolic rates (BMR) and body mass index (BMI) scores. (Biology, Algebra I, and Statistics)
- Collaborative research on nutrition issues in a global context, including examining the historical and contemporary effects of large-scale famines and agricultural innovations (from artificial selec-

tion to genetic engineering) on health and nutrition status and population parameters. (English Language Arts and World History)

In addition to laboratory work and cooperative group learning, this unit will also include direct instruction and classroom discussion. In the Health Science course, students will explore many of the key questions addressed in their academic courses. The Health Science course and academic courses will introduce students to a wide range of careers in the health and biomedical sciences. This will be accomplished through classroom instruction; presentations by nutrition scientists, demographers, and science writers; and work-based learning activities.

Throughout the instructional period, students will reflect on their findings and synthesize their acquired knowledge. At various points, they will present conclusions to their peers and to biomedical and healthcare professionals who will visit their school. Students will demonstrate both their academic and technical learning in a variety of ways, including expository essays, PowerPoint presentations, collages, speeches, and other written and applied work.

### ***Culminating Event***

Working in teams, students will participate in a culminating activity that will serve as a multi-disciplinary, performance-based assessment. Possible culminating activities include conducting a session of the United Nations General Assembly, requesting foundation funding for research on a nutrition-related intervention in a Third World country, or launching a healthy-nutrition campaign at a high school.

### ***Key Questions/Issues***

- What is “good” nutrition and why is it important? (Biology, English Language Arts, and Interpersonal Relations)
- What is a healthy weight and how is it measured? (Biology and Algebra I)
- Are there statistical differences in weight (and other health indicators) among different populations around the world? What factors might

contribute to those differences? How have perspectives on desirable body weight and size changed over the course of history, and why? (Statistics, Biology, and World History)

- What are the physical, behavioral, and psychological effects of a healthy diet and a “junk food” diet on humans and other animals (such as laboratory rats)? (Biology and Algebra I)
- How is research on laboratory animals used to inform our understanding of human nutrition and health? What are the issues/limitations of using small mammals to model human biochemical responses and how can they be addressed? What are the ethical issues involved in conducting research on animals? (Biology and Algebra I)
- Is good nutrition solely a personal issue, or do we have a larger obligation to the community? To the world? (English Language Arts and Interpersonal Relations)
- How has historical food production in different regions shaped the world we live in today? How has scientific research influenced production capacity, and what are the costs and benefits of such advances? (World History and Biology)

### ***Learning Scenario to Kick Off the Unit***

News of state funding for the new football stadium made the front page of the newspaper today. Owen Valley High School would finally have the new facility everyone had been waiting for. Students, teachers, and members of the community should have been happy, but controversy broke out almost immediately. The President of Crispy Munchy Snacks announced

that he would pay for new uniforms for the football team—and all other school sports—for the next 5 years in exchange for naming rights to the new stadium. The school district really needs these funds and would be pleased to name the new facility for a major corporate donor. But there is a catch. To receive this money for uniforms, the high school will have to sell Crispy Munchy potato chips and other snacks at all sporting events and in school vending machines. This will create a problem. Last year, the school district removed Crispy Munchy products, other fried snacks, and sweetened beverages from the campus as part of a Healthy Nutrition Campaign. What should be done? School leaders have decided to leave the decision about accepting the donation, using the Crispy Munchy name, and continuing or modifying the Nutrition Campaign up to a vote by students.

### ***Biomedical/Healthcare and Education Partner Roles***

In addition to the professional partnerships listed in the unit you should also include as resource speaker or culminating event participant:

- Genetic Counselor
- Diabetic Counselor
- Registered Dietician
- Nutritionist
- Respiratory Therapist
- Polysomographer (performs sleep studies)
- Athletic Trainer

**SUBUNITS AND MAJOR TOPICS (ACROSS ACADEMIC AND TECHNICAL SUBJECT AREAS)**

<b>Subunit 1</b> <i>Nutrition and You</i>	<b>Subunit 2</b> <i>Nutrition and Society</i>	<b>Subunit 3</b> <i>Nutrition in the World</i>
ALGEBRA I · BIOLOGY · CHEMISTRY · ENGLISH LANGUAGE ARTS · STATISTICS · HEALTH SCIENCE	ENGLISH LANGUAGE ARTS · HEALTH SCIENCE · SPANISH I · INTERPERSONAL RELATIONS · U.S. GOVERNMENT	ALGEBRA I · BIOLOGY · ENGLISH LANGUAGE ARTS · WORLD HISTORY · GEOGRAPHY
<ul style="list-style-type: none"> <li>• Function and processes of the digestive system</li> <li>• Composition and role of biological macromolecules in nutrition</li> <li>• Biochemical metabolism</li> <li>• Single-variable linear equations</li> <li>• Nonlinear relationships</li> <li>• Descriptive statistics (mean, median, and mode)</li> <li>• Scientific writing</li> <li>• Line graphs</li> </ul>	<ul style="list-style-type: none"> <li>• Healthy eating habits</li> <li>• Human development and puberty</li> <li>• Factors influencing self-image</li> <li>• Cultural perspectives on nutrition</li> <li>• Food production and distribution in the United States</li> <li>• Oral presentation skills</li> </ul>	<ul style="list-style-type: none"> <li>• Perspectives on hunger from various countries</li> <li>• Genetic engineering in agriculture</li> <li>• Multiple causes of hunger and famine throughout the world</li> <li>• Exponential functions</li> </ul>