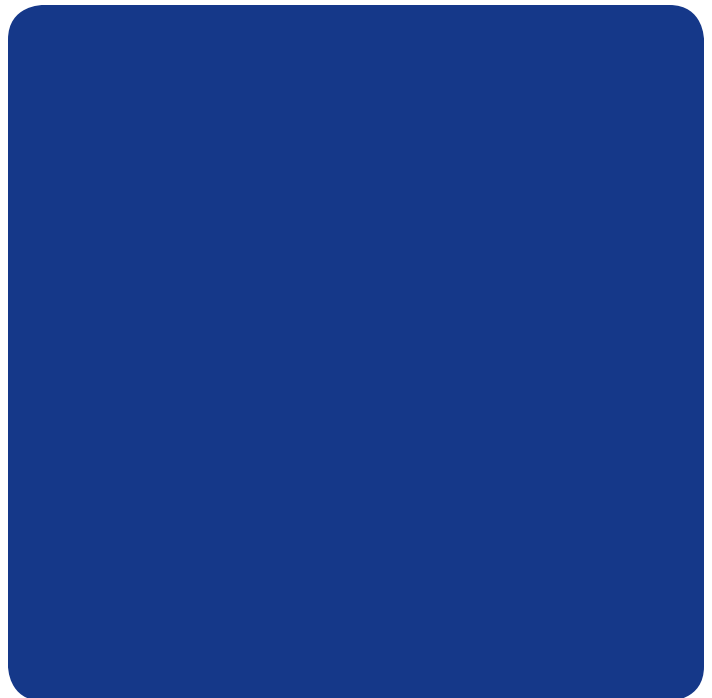


Summary of Curriculum Units

Health and Biomedical Science Program of Study
Integrated Curriculum Units



About These Integrated Curriculum Units

Successful Linked Learning pathways depend on curricula and instruction that challenge students to reach high academic standards through relevant and engaging content. These pathways offer an “integrated curriculum” that connects challenging, college-preparatory material to career-based technical concepts and applications.

We invite teachers in health and biomedical science programs of study to create this kind of curriculum by using the 10 integrated curriculum units in this compendium. Each unit is multidisciplinary, blending lessons from at least four subjects and focusing on a single, broad topic related to health and biomedical science. Every unit includes health science lessons and is linked to core concepts addressed in health science courses.

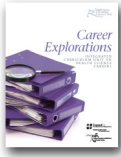
The units were produced and beta tested during a two-year collaborative project involving curriculum designers from ConnectEd: The California Center for College and Career, health science educators and healthcare industry representatives from the National Consortium on Health Science and Technology Education (NCHSTE), and teams of academic and health science teachers from 12 high schools in nine states. Complete curriculum units, including lessons and teacher resources, can be found on ConnectEd’s website at www.ConnectEdCalifornia.org.

PURPOSES

The curriculum units are intended to serve several purposes:

- Improve students’ academic achievement by integrating exciting health and biomedical science applications into the core academic curriculum.
- Increase interest in health and biomedical science careers by introducing students to the wide variety of employment opportunities.
- Provide career-related knowledge and enhance decision-making skills to help students make wise education and career choices.
- Open the doors to rewarding professional careers in healthcare and biomedical science to a broader diversity of America’s youth.

For complete curriculum units and extended summaries, visit
www.ConnectEdCalifornia.org.



Career Explorations **Integrated Curriculum Unit on Health Science Careers**

Students investigate the varied career opportunities available within the health and biomedical sciences, conduct research on possible career paths, and explore the skills needed for each one. This unit also gives students an opportunity to learn about typical activities in various jobs and helps them identify potential careers that match their interests, strengths, and goals. In addition, students explore the broader social and economic impact of their career choices, while reviewing the historical origins of various health-related careers and their significance to the welfare of humankind.

Subunit 1: A Growth Industry

Lesson 1.1 Health Science

The Hidden Infrastructure: Jobs in Health Science

Lesson 1.2 Algebra I

Demand: Our Growing and Aging Population

Lesson 1.3 Algebra I

Supply: The Problem in the Pipeline

Lesson 1.4 English Language Arts

Writing a Research Paper: Overview

Subunit 2: Taking a Closer Look

Lesson 2.1 Health Science

Know Yourself

Lesson 2.2 English Language Arts

Writing a Research Paper: Introduction to Research

Lesson 2.3 English Language Arts

Writing a Research Paper: Organizing Information

Lesson 2.4 World History or English Language Arts

Biomedical Visionaries and Advances in Health Science

Subunit 3: Finding a Good Match

Lesson 3.1 Algebra I

Comparing Salary and Education Lesson

Lesson 3.2 English Language Arts

Writing a Research Paper: Writing Process

Lesson 3.3 English Language Arts

Writing a Research Paper: Citations



Catch the Fever **Integrated Curriculum Unit on Communicable Diseases**

In this unit, students explore the emergence and impact of communicable diseases on society. Students investigate the role of microorganisms in causing disease. They also study the impact of a public health infrastructure, along with medical and pharmaceutical advances, on the evolution of microorganisms.

Subunit 1: Emergence of Disease

Lesson 1.1 Health Science

Chain of Infection

Lesson 1.2 Biology

Viruses vs. Bacteria

Lesson 1.3 Health Science

Fun With Fomites

Lesson 1.4 Biology

Evolutionary Arms Race

Lesson 1.5 Algebra I

Measure of Success

Subunit 2: Dealing With Disease

Lesson 2.1 Health Science

Clinical Epidemiology

Lesson 2.2 Algebra I

Calculating Medication Dosage

Lesson 2.3 Biology

Herd Immunity

Lesson 2.4 Algebra I or II

How Much of Each Vaccine?

Lesson 2.5 Spanish I

Alternative Medical Practices in Hispanic Culture

Subunit 3: Epidemic

Lesson 3.1 English Language Arts

Reading a Virus: How Science and Politics Treat the Flu

Lesson 3.2 English Language Arts

The Hot Zone

Lesson 3.3 World History

Macro Societies, Micro Invaders

Lesson 3.4 English Language Arts

Infectious Disease Research Presentations



Crime Scene Investigation **Integrated Curriculum Unit on Forensics**

As students take on the role of crime scene investigators to solve a murder that has occurred at the school, they integrate math, science, and language arts into the study of forensic science and associated health science careers such as pathology, forensic science, and medical examination.

Subunit 1: Murder Most Foul

Lesson 1.1 Health Science

Introduction to Forensic Investigations

Lesson 1.2 English Language Arts

You Be the Detective: Sherlock Holmes and Deductive Reasoning

Lesson 1.3 Health Science

Murder in the Classroom

Subunit 2: Crime Scene Investigations

Lesson 2.1 Algebra I

Lengthy Relationships

Lesson 2.2 Algebra II

Time of Death: The Law of Cooling

Lesson 2.3 Geometry

Suspect Radius

Lesson 2.4 Biology/Health Science

Blood Typing

Lesson 2.5 Biology

DNA Fingerprinting

Subunit 3: Convincing the Jury

Lesson 3.1 World History

Gathering Evidence, Bringing Justice

Lesson 3.2 English Language Arts

On the Case: Interviews With Professionals

Lesson 3.3 English Language Arts

The Closing Argument



Do No Harm **Integrated Curriculum Unit on Bioethics**

Students learn about the roles government plays in setting policy and supporting and regulating various aspects of the healthcare industry, and about the impact these activities have on the lives of ordinary citizens.

Subunit 1: Biomedical Research

Lesson 1.1 Health Science

Introduction to Bioethics

Lesson 1.2 Biology

Cell Division and Differentiation

Lesson 1.3 Biology

Cells Gone Wild

Lesson 1.4 Biology and English Language Arts

Stem Cell Research Report

Lesson 1.5 U.S. History or Health Science

Shaping the Research Agenda

Lesson 1.6 U.S. History

Bad Blood

Subunit 2: Pharmaceutical Advertising

Lesson 2.1 English Language Arts

The Art of Persuasion

Lesson 2.2 English Language Arts

Vintage and Modern Pharmaceutical Ads

Lesson 2.3 U.S. History or U.S. Government

Regulating Direct-to-Consumer Drug Advertising

Subunit 3: Medical Decisions

Lesson 3.1 Biology

Viruses

Lesson 3.2 Biology

Vaccines

Lesson 3.3 English Language Arts

Mandatory Immunization

Lesson 3.4 Algebra I

Accuracy in Medical Testing

Lesson 3.5 U.S. History or U.S. Government

Government Intervention

Lesson 3.6 Algebra I

Decision by the Numbers



Global Health Summit Integrated Curriculum Unit on HIV/AIDS

While focusing on the impact that HIV/AIDS continues to have around the world, students look at the biology of the disease and then delve into the social and personal implications of addressing a deadly pandemic.

Subunit 1: A Serious Situation

Lesson 1.1 English Language Arts
The Personal Toll

Lesson 1.2 Biology
HIV and the Immune System

Lesson 1.3 World Geography
The Global Impact of HIV/AIDS

Subunit 2: Treating the Problem

Lesson 2.1 Health Science
Paths of Transmission

Lesson 2.2 Biology or Health Science
HIV Treatments

Lesson 2.3 English Language Arts or Health Science
Vaccine Trials and Ethics

Subunit 3: Finding the Right Solution

Lesson 3.1 English Language Arts
Rich Countries, Poor Victims: The Global Response to AIDS

Lesson 3.2 World Geography
Existing HIV/AIDS Programs

Lesson 3.3 English Language Arts
Summit Presentations



Good Eats Integrated Curriculum Unit on Nutrition and Health

This unit examines the issue of adequate nutrition at both the individual and societal levels. Students reflect on their own diet and health status, and connect the impact of nutrition and food production to the welfare of the global community.

Subunit 1: Nutrition and You

Lesson 1.1 Biology, Chemistry, or Health Science
Food Fundamentals

Lesson 1.2 Biology, Chemistry, or Health Science
Nutrition and Growth

Lesson 1.3 Health Science
Obesity: An Expanding Problem

Lesson 1.4 Algebra I or Statistics
Biometrics Lab

Lesson 1.5 Biology and Statistics
Effects of Diet on Rat Weight and Activity Lab

Lesson 1.6 English Language Arts
Writing a Lab Report

Lesson 1.7 Algebra I
Am I Gaining or Losing Weight?

Subunit 2: Nutrition and Society

Lesson 2.1 Health Science, Interpersonal Relations, or English Language Arts
Developing a Healthy Body Image

Lesson 2.2 Spanish I
Alphabet of Healthy Foods

Lesson 2.3 English Language Arts and U.S. Government
Fast Food Nation

Lesson 2.4 English Language Arts
You Are What You Eat Speech Assignment

Subunit 3: Nutrition in the World

Lesson 3.1 English Language Arts
Arithmetic of Hunger

Lesson 3.2 World History or World Geography
World Hunger

Lesson 3.3 Biology
Genetically Modified Foods

Lesson 3.4 Algebra I
The Power of Two



Risky Business **Integrated Curriculum Unit on Health Insurance**

Students explore the various factors that can affect an individual's likelihood for future health problems and how that information influences decisions made by health insurance providers. Students in this unit take on the role of insurers and evaluate the risk of potential clients.

Subunit 1: A Risky Business

Lesson 1.1 Health Science
Insurance Is a Risky Business

Lesson 1.2 U.S. History
An Unhealthy History

Lesson 1.3 Health Science
Alphabet Soup

Lesson 1.4 English Language Arts
Starting an Insurance Company Part 1: The Vision

Subunit 2: Knowing the Risks

Lesson 2.1 Biology
Investigating Inherited Traits

Lesson 2.2 Biology
Predicting With Punnett Squares

Lesson 2.3 Biology
Pedigree Charts

Lesson 2.4 Health Science
High-Risk Behaviors

Lesson 2.5 English Language Arts
High-Risk Behaviors Workplace Brochure

Lesson 2.6 Spanish I
Impact of Environment and Society on Health and Wellness

Subunit 3: Making Decisions

Lesson 3.1 Health Science
Starting an Insurance Company Part 2: The Policies

Lesson 3.2 Algebra I
Dice With Death: Probability in Mortality Tables

Lesson 3.3 Algebra I
Medical Coverage Choices

Lesson 3.4 Physical Education
Designing a Wellness Program

Lesson 3.5 English Language Arts
Starting an Insurance Company Part 3: Choosing Clients



Safety First **Integrated Curriculum Unit on Workplace**

This unit focuses on the causes of workplace injuries and the consequences for workers, employers, and society as a whole. Students will investigate the biological and physical basis for injury on the job, regulations governing the work environment in the United States, and how public and government perception of who is responsible for work-related injuries has changed through history.

Subunit 1: Personal Injury

Lesson 1.1 Health Science
Introduction to Workplace Injuries

Lesson 1.2 Biology
Stressed Out

Lesson 1.3 Physics
Lift Right

Lesson 1.4 Health Science
Prevention of Workplace Injuries

Subunit 2: Workplace Safety

Lesson 2.1 Algebra I
Injury Trends

Lesson 2.2 English Language Arts
Understanding the Law

Lesson 2.3 Algebra II
Sound Safety

Lesson 2.4 English Language Arts
Persuasion, Propaganda, and the Public Image

Lesson 2.5 Health Science
Treatment, Rehabilitation, and Related Occupations

Subunit 3: Taking Responsibility

Lesson 3.1 World History
Workplace Safety During the Industrial Revolution

Lesson 3.2 U.S. History or U.S. Government
Burden of Responsibility: Past

Lesson 3.3 U.S. History or U.S. Government
Burden of Responsibility: Present

Lesson 3.4 English Language Arts
Workplace Injury Presentation



Second Opinion **Integrated Curriculum Unit on Complementary and Alternative Medicine**

In this unit, students explore the variety of medical practices that exist outside of conventional Western medicine. Complementary and alternative medicine, known as CAM, is becoming more widely accepted in the United States as our population becomes more diverse. At the same time, scrutiny of these practices, some of which are not subject to any regulatory oversight, is an issue that has become increasingly pressing for the healthcare industry, healthcare workers, and the general public.

Subunit 1: Old Medicine, New Places

Lesson 1.1 Health Science
Introduction to Complementary and Alternative Medicine

Lesson 1.2 World Geography
Local Cultures and Their Healing Practices

Lesson 1.3 Spanish
Curanderismo: Hispanic Folk Healing Practices

Lesson 1.4 World Geography
Medicine in Motion: Native Healing in New Societies

Lesson 1.5 English Language Arts
CAM Research Paper

Lesson 1.6 English Language Arts
Cultural Competence and Refugee Health

Subunit 2: Merging Two Traditions

Lesson 2.1 Chemistry
Introduction to Herbs and Supplements

Lesson 2.2 Chemistry
Herbal Medicine Lab

Lesson 2.3 Geometry
Pill Design

Lesson 2.4 Algebra I
Hypothesis Testing

Lesson 2.5 Social Studies
Government Regulation of CAM

Lesson 2.6 English Language Arts
CAM Debate



Waiting to Inhale **Integrated Curriculum Unit on Tobacco and Smoking**

Although smoking is perceived with increasing disfavor in the United States, it is a habit that continues to flourish around the world and is taken up by thousands of young people every day. In this unit, students explore the past and present influence of tobacco on social, political, and economic life in the United States and around the world and its impact on individual and public health.

Subunit 1: Smoking and Society

Lesson 1.1 English Language Arts
Smoking: Up Close and Personal

Lesson 1.2 World History
Tobacco Timeline

Lesson 1.3 U.S. Government
Tobacco Legislation and Litigation

Lesson 1.4 Algebra I or II
An Expensive Habit

Lesson 1.5 Algebra I
It Won't Happen to Me

Subunit 2: Smoke and Fire

Lesson 2.1 Biology
Nicotine Action Pathway

Lesson 2.2 Health Science
Effects of Tobacco Use

Lesson 2.3 Biology
The Respiratory System

Lesson 2.4 English Language Arts
Secondhand Smoke: Whom Do You Trust?

Lesson 2.5 Health Science
Smoked Out: Strategies for Stopping

Subunit 3: Smoke and Mirrors

Lesson 3.1 English Language Arts
The Power of Advertising

Lesson 3.2 English Language Arts or Visual Arts
Truth in Advertising

Lesson 3.3 English Language Arts
Niche Marketing



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ConnectEd's mission is to support the development of Linked Learning and the pathways by which California's young people can complete high school, enroll in postsecondary education, attain a formal credential, and embark on lasting success in the world of work, civic affairs, and family life.

Summary of Curriculum Units: Health and Biomedical Science Program of Study Integrated Curriculum Units

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