

Health Care Pathways: Connecting Education with Careers

K-12 Resource Book



ENGAGE.... EXPERIENCE.... EDUCATE!

Developed by the:



INNOVATIVE ON-LINE TEACHING TOOLS AND RESOURCES:

General Science:

National Center for Case Study Teaching in Science

<http://ublib.buffalo.edu/libraries/projects/cases/case.html>

This site contains a primer on how and why to use case studies, as well as a collection of case studies to use in science curriculum.

Cord Communications

Tools for Contextual Learning in Science & Math:

http://www.cordcommunications.com/Free_Activities/Free_Activities.asp

Lesson examples:

- What Factors Affect Vitamin C Content in Food?
- Why are Preservatives Desirable in Our Food?

BioLogica

<http://biologica.concord.org/index.html>

BioLogica is a systems approach for learning science that offers interactive features that foster independent inquiry and scientific reasoning. It's a hypermodel for teaching high school genetics. By solving a sequence of activities, students build a body of scientific knowledge as BioLogica monitors their progress, offers helpful hints and builds a portfolio of their work. BioLogica is supported by a grant from the National Science Foundation.

The Educator's Reference Desk

<http://www.eduref.org/Virtual/Lessons/>

Lesson plans by subject. The Educator's Reference Desk provides high-quality resources and services to the education community. From the Information Institute of Syracuse, who created AskERIC, the Gateway to Educational Materials, and the Virtual Reference Desk, this reference provides resources on 2,000+ lesson plans, 3,000+ links to online education information, and 200+ question archive responses.

National Institute of Health

<http://science.education.nih.gov/supplements/>

The *NIH Curriculum Supplement Series* are interactive teaching units that combine cutting-edge science research discoveries from the National Institutes of Health, one of the world's foremost medical research centers, with state-of-the-art instructional materials. Each supplement is a teacher's guide to two weeks' of lessons on science and human health. This series is consistent with the National Science Education Standards, targets K-12 education and incorporates real scientific data. The supplements are **free** to Science Teachers and

School Administrators. Voluminous amounts of PDFs and some CD-ROMs which can be downloaded and printed.

Middle School Curriculum Series:

- The Science of Mental Illness
- The Science of Healthy Behaviors
- The Science of Mental Illness
- The Science of Energy Balance: Calorie Intake and Physical Activity
- How Your Brain Understands What Your Ear Hears
- Chemicals, the Environment, and You: Explorations in Science and Human Health
- Understanding Alcohol: Investigations into Biology and Behavior
- Doing Science: The Process of Scientific Inquiry

High School Curriculum Series:

- Cell Biology and Cancer
- Emerging and Re-emerging Infectious Diseases
- Human Genetic Variation
- The Brain: Understanding Neurobiology Through the Study of Addiction
- Sleep, Sleep Disorders, and Biological Rhythms
- Using Technology to Study Cellular and Molecular Biology

ScienceDaily

<http://www.sciencedaily.com>

Provides well organized and up-to-date articles on a broad range of science topics. Articles vary in terms of reading level. Great for class discussions, “current events” assignments, and individualized online research that students conduct.

Infectious Diseases

National Institute for Allergies and Diseases

<http://www.niaid.nih.gov/>

Provides research, activities, and publications from the institute.

ProMED: Program for Monitoring Emerging Diseases

<http://www.fas.org/promed>

Provides global monitoring on emerging diseases and links to news on outbreaks. The news and information can be useful as a basis for writing case studies.



BAM! Body and Mind

<http://www.bam.gov/teachers/index.htm>

Contains curriculum resources for teachers related to epidemiology. Contains profiles on microbes, vaccines, real life “disease detectives,” and countless other resources. Great if you have reserved the computer lab for your class, and it also features printables which can be used for your activities.



BAM! The Immune Platoon

http://www.bam.gov/sub_diseases/diseases_immuneplatoon.html

This website contains flash-animated clips on microbes, the vaccine, and the immune system. Human-looking Superheroes and villains are used to symbolize the cells of the immune system and antigens. The “Disease Database” contains printables of disease-causing microbes.

Genetics

National Human Genome Research Institute

<http://www.nhgri.nih.gov>

Provides news and research on the human genome project and features a “Teacher Resources” Link with useful information.

DNA Learning Center – Cold Spring Harbor Laboratory

<http://www.cshl.edu/>

Provides news about research in cancer, neuroscience, genetics, genomics, and bioinformatics. The “press room” contains interesting current events that can be used as reading material in science lessons.

Blazing a Genetic Trail. Howard Hughes Medical Institute

<http://hhmi.org/genetictrail/>

Provides stories on the work of HHMI researchers in the field of molecular genetics.

Access Excellence

<http://www.accessexcellence.org/>

Designed for health and bioscience teachers and students, this site provides news, curriculum resources, and links to other teachers and National

Library of Medicine

<http://www.ncbi.nlm.nih.gov/disease>

This site provides descriptions of more than 60 genetic disorders written in clear language that is accessible to a range of students. Useful for online research or if students are searching for a diagnosis to a case study.

Neurobiology and Addiction

National Institute on Drug Abuse

<http://www.nida.nih.gov/>

Provides current information on the latest research on drugs and addiction.

The Dana Foundation

<http://www.dana.org/>

Provides information on current research on the brain and brain disorders.

The Reconstructors

<http://reconstructors.rice.edu/>

An online game that features case studies set in the distant future where you reconstruct clues in order to solve opiate-related medical cases. Contains a nice blend of chemistry, neuroscience, history, public policy

Health Occupations

Health Occupations Students of America (HOSA) is the largest student organization operating in America's high schools for young people enrolled in Health Occupations/Health Sciences Programs and those interested in pursuing a career in the health professions. HOSA works closely with local and state leaders to build a pipeline to attract qualified young people to the health care industry.

HOSA Lesson Plans include:

Partnerships and Professionalism: When guest speakers are invited to the classroom, students take an active role in facilitating the process.

http://www.hosa.org/partnerships_professionalism.pdf

AIDS essay: Students will write an extemporaneous essay on a specific topic related to AIDS

http://www.hosa.org/aids_essay.pdf

Medical Technology Display: In teams students will use Internet resources to research an assigned topic related to the use of technology in the health care field. They will prepare information about their topic in the form of a health display and present their topic to the class.

http://www.hosa.org/medical_tech_display.pdf

Outbreak at Water's Edge

<http://www.mclph.umn.edu/watersedge/>

Because of their ability to see "the big picture," public health professionals play a key role in emergency preparedness and response. But what is public health, anyway? To help people understand what it is and how important public health is in emergency response, the University of Minnesota recently created an interactive online game called "Outbreak at Watersedge." This free interactive game will introduce you to the world of public health, as you help track down the source of a mysterious illness that has struck the small community of Watersedge - and stop the outbreak before more residents get sick.

Educational uses of Digital Storytelling:

The History of Radiology: excellent multimedia short video

<http://www.coe.uh.edu/digital-storytelling/example-pages/health-examples.htm>

The Medical Center of Central Georgia

http://www.mccg.org/interactive/pat_interactive.asp

Dozens of excellent visuals and interactive health tools and quizzes specific to teaching and learning about biology, human anatomy and numerous health conditions

MedMyst: Medical Mysteries on the Web

<http://medmyst.rice.edu/html/teach.html>

Sponsored by Rice University, this website offers many useful resources including interactive health games. It also includes links to the following sites:

MedMyst's Mission One Magazine

MedMyst Magazine – Infectious Diseases

<http://medmyst.rice.edu/lessons/MagID.pdf>

The printed companion to MedMyst Mission One - for both students and teachers!

BlueKids.org

<http://www.bluekids.org/teensandkids/index.asp>

(Children's Health Education Center)

This K-8 health education program has unique, interactive games that cover a variety of health-related topics.

Global Health Odyssey Museum (CDC)

Kids' Page (<http://www.cdc.gov/gcc/exhibit/>) (U.S. Centers for Disease Control and Prevention)

Websites investigating health and the human body.

Science NetLinks

Science NetLinks (<http://www.sciencenetlinks.com/>) (The American

Association for the Advancement of Science)

Providing a wealth of resources for K-12 science educators, Science NetLinks is a guide to meaningful standards-based Internet experiences for students.

Infectious Diseases Information

CDC (<http://www.cdc.gov/>) (U.S. Centers for Disease Control and Prevention)
For the definitive word on infectious disease.

WHO (<http://www.who.int/en/>) (The World Health Organization)
For information on health issues throughout the world.

Epidemic (<http://www.amnh.org/exhibitions/epidemic/index.html>)
(American Museum of Natural History)
An on-line museum exhibit from the American Museum of Natural History.

Infection, Detection, Protection
(<http://www.amnh.org/nationalcenter/infection/>)
(American Museum of Natural History)
Kid-friendly information on infectious disease and microbes.

Journey to Planet Earth: Hot Zones
(<http://www.pbs.org/journeytoplanetearth/about/hotzones.html>)
(PBS and Screenscope Inc.)
Program and educational resources detailing the effects of infectious disease on the environment.

The Microbiology Information Portal (<http://www.microbes.info/>)
(Microbes.Info)
An internet web portal that provides a firm starting point for finding information concerning microbiology.

BioInteractive (<http://www.hhmi.org/biointeractive/>)
(Howard Hughes Medical Institute)
Information, animations, lectures and virtual labs on microbiology, infectious disease and other science topics.

Highlights in the History of Microbiology
(<http://users.stlcc.edu/kkiser/History.page.html>)
(St. Louis Community College)
Historical information on microbiology.

Stalking the Mysterious Microbe (<http://www.microbeworld.org/>)
(American Society of Microbiology)
Fun and interactive site on microbiology.



Germ Theory:

Labs Online

http://www.troy.k12.ny.us/thsbiology/labs_online/school_labs/koch_lab_school.html

(Troy High School (NY) Interactive Biology Site)
Experiment on Koch's Postulate.

People:

Robert Koch (<http://almaz.com/nobel/medicine/1905a.html>)

(Nobel Prize Internet Archive)

1905 Nobel Laureate in Medicine for his investigations and discoveries in relation to tuberculosis.

HEALTH CARE CAREER EXPLORATION:

Explore Health Careers

<http://www.explorehealthcareers.org/en/index.aspx>

A comprehensive website great for students, parents and advisors; inclusive of career profiles on dozens of health and allied health careers. Sponsored by the American Dental Education Association

*LifeWorks*TM hosted by the National Institute of Health

<http://science.education.nih.gov/LifeWorks>

An interactive career exploration web site for middle and high school students. Users can browse for information on more than 100 medical science and health careers by title, education required, interest area, or median salary. Alternatively, the "Career Finder" can be used to generate a customized list of careers especially suited for users' skills and interests. True stories of successful people are illustrated through interviews highlighting the variety of real-life career pathways, from the carefully planned to the unpredictable.

Health Occupations Students of America (HOSA) Career Center

http://www.hosa.org/career/career_center.html

Excellent website for students, parents and advisors. Specific links introduce the Alumni Hall of Fame, provide specific health career profiles, comprehensive career resources and a College Center. Area Health Education Centers (AHEC) Career Information Links from across the nation are featured.

Kids Into Health Careers

<http://bhpr.hrsa.gov/kidscareers/about.htm>

This website is sponsored by the Health Resources and Service Administration. Filled with resources that include: what you should know about health careers; where and how to find financial aid for education, a list of federally funded Health Professions programs; a useful acronym glossary, a slide show presentation that addresses health care disparities and access issues related to medical treatment.

The Health Professions Network

<http://www.healthpronet.org/about/index.html>

Comprehensive career information linked 'Featured Health Professions', as well as 'Students Interested in Health Careers.' The Health Professions Network is a group of health care professionals who represent the diverse specialties of allied health professions, including provider organizations, educators, accreditors, credentialing agencies and administrators. The group works cooperatively and interactively on issues relevant to workforce development and the delivery of health care in the United States.

American Medical Association

<http://www.ama-assn.org/ama/pub/category/2302.html>

A monthly e-newsletter that covers educational trends and career-related issues for 77 health care fields.

AspiringDocs.org

<http://www.aspiringdocs.org/site/c.luIUL9MUJtE/b.2011035/apps/lk/content3.aspx>

Sponsored by the AAMC (Association of American Medical Colleges); the organization that represents all 126 accredited medical schools that grant M.D. degrees and more than 400 major teaching hospitals in the U.S. They also administer the MCAT (Medical College Admission Test) and manage the application process for medical school. At this website you will find tools, information and support to explore a career in medicine. Find podcast interviews with medical students and doctors, FAQs/resources about medical school and financing it, and all about the MCAT.

FutureFamilyDocs

<http://www.futurefamilydocs.org/index.cfm>

This website is sponsored by the Society of Teachers of Family Medicine, a multidisciplinary medical organization that offers numerous faculty development opportunities for individuals involved in family medicine education. It is designed to share information about a whole new movement, where family medicine physicians and educators are getting involved with guiding and inspiring the next generation of family physicians. Offered are resources on formal mentoring programs, from grade school through medical school education and physician stories of making a difference through mentoring and role-modeling.



The Pulse

<http://masspulse.org/>

The site dedicated to the future of health care in Massachusetts! The Pulse is a joint project of the Massachusetts Hospital Association and the Massachusetts Healthcare and Human Resources Association. It aims to be a one-stop shop of invaluable resources and information for students, potential job seekers, teachers, schools, and hospitals throughout Massachusetts. Many teaching aids are included among a comprehensive list.

CityLab: Boston University Medical Campus Academy

<http://www.bumc.bu.edu/Dept/Content.aspx?PageID=345&DepartmentID=285>

CityLab Academy is a nine month academic and laboratory skills training program for high school graduates interested in pursuing a successful career and further education in biotechnology.

Michigan Area Health Education Center Partnership

<http://www.mihott.com/Index.cfm>

Designed for students primarily- excellent selection of health professions careers to explore; career assessments; video clips with colorful, interactive and catchy graphics.

Health Career Resource Center:

<http://library.thinkquest.org/15569/>

This website, sponsored by the Oracle Education Foundation is great for high school students thinking of a career in medicine. This web site could also be an excellent asset to a science or history class because of its history of medical careers. The section on Healthcare Career Information gives an alphabetical career listing, an Interactive Career Finder, and Medical career Clusters. Pursuing Your Healthcare Career provides information on High School, College, and Graduate School. Also includes an extensive bibliography of health career sources, print and online.

The National Consortium on Health Science and Technical Education

<http://www.nchste.org/about-nchste/>

Excellent resource for career advisors Full information about student preparation for the National Health Care Foundation Skill Standards Assessment Certificate Program. Site references: National Healthcare Foundation Skills, career portfolio content criteria and a rubric and the critical components of a career cluster.

US News and World Report

<http://www.usnews.com/features/business/best-careers/best-careers-2008.html>

Odds are one in three great careers is in health care. Nine health care fields are included in the list of "31 careers with bright futures" in the annual careers issue of US News and World Report. These careers "offer strong outlooks and high job satisfaction," according to the report. Available online is a two-part profile of each career: an executive summary and a portrait of a typical day in the life.

Medical Imaging

<http://www.radiologycareersma.org/index8.html>

Comprehensive and interactive career exploration site dedicated to medical imaging, sponsored by the Boston Private Industry Council.

Reference

MassAHEC Network:

www.umassmed.edu/ahec

The MassAHEC Network at the UMass Medical School is comprised of six community based centers located across the Commonwealth, dedicated to health sciences/health care workforce development initiatives that address minority health issues and associated disparities. Through K-12 academic enrichment programs during school, after school and summers, students from economically disadvantaged and culturally diverse backgrounds participate in academic preparation, career exploration activities and meaningful community-based learning opportunities that enhance their understanding of science, math and technology.

Massachusetts Hospital Association

<http://www.mhalink.org/>

The Massachusetts Hospital Association is a voluntary, not-for-profit organization comprised of hospitals and health systems, related organizations, and other members with a common interest in promoting the health of the people of the Commonwealth. Through leadership in public advocacy, education, and information, MHA represents and advocates for the collective interests of its member hospitals and health systems, and supports their efforts to provide high quality, cost effective, and accessible care.

Boston Public Health Commission

<http://www.bphc.org/>

Home of the Boston AHEC, the BPHC is the nation's first health department. Its origin dates back to 1799, when Paul Revere was named Boston's first health officer and was formed to fight a potential outbreak of cholera. Taking innovative strides to save lives, health officials posted signs on lampposts, held meetings and led an early-day public information campaign



to reduce deaths due to cholera, a highly preventable disease. Today the BPHC offers some of the most innovative public health services to Boston residents and has been described as "the most activist arm of city government," by the Boston Globe.

Worcester Pipeline Collaborative

<http://www.umassmed.edu/wpc/index.aspx>

The Worcester Pipeline Collaborative encourages, educates and challenges minority and/or disadvantaged students for success in the health care and sciences professions where they are traditionally underrepresented.

Massachusetts Healthcare Chartbook

http://www.commcorp.org/researchandevaluation/documents/Healthcare_chartbook.pdf

Informative charts highlighting health care sector trends in Massachusetts. Developed by the Executive Office of labor and Workforce Development and Commonwealth Corporation.

GENERAL CAREER INFORMATION:

US Department of Labor:

Occupational Outlook Handbook, a nationally recognized source of career information designed to assist in career decision making.

<http://www.bls.gov/oco/home.htm>

Career Voyages

<http://www.careervoyages.gov/>

Highlights of high growth industries, including health care are reviewed. Site provides career profiles, industry overviews, sample career videos, career assessment tools (Career Compass). Resources are designed for students, parents and Career Advisors. Career Voyages is sponsored by the US Department of Education and the US Department of Labor.

InDemand magazine

<http://www.careervoyages.gov/indemandmagazine-main.cfm>

This on-line magazine from the Career Voyages website explores careers in a different high growth industry, including Health Care. It provides students as well as guidance counselors, parents and teachers with interesting and relevant information about career opportunities, education and the skills needed for various jobs. The magazines also offer resources to explore careers and tips on how to help students build successful futures.

21ST CENTURY SKILLS:

Partnership for 21st Century Skills

<http://www.21stcenturyskills.org/>

Americans increasingly recognize that the U.S. education system can and should do more to prepare our young people to succeed in the rapidly evolving 21st century. Skills such as global literacy, problem solving, innovation and creativity have become critical in today's increasingly interconnected workforce and society. Partnership for 21st Century Skills is the leading advocacy organization infusing 21st century skills into education. The e-newsletter subscription is free.

Route 21

<http://www.21stcenturyskills.org/route21/index.php>

To help education leaders and policymakers implement 21st century teaching and learning, the Partnership for 21st Century Skills launched Route 21, an online, one-stop shop for 21st century skills-related information, resources and tools

To get started, [take a tour](#) or [explore the P21 framework](#).

Core Subjects and 21st Century Themes

http://www.21stcenturyskills.org/route21/index.php?option=com_content&view=article&id=6&Itemid=3

Core Subjects and 21st Century Themes (frameworks)

Mastery of core subjects and 21st century themes is essential for students in the 21st century.

Core subjects include:

- English, reading or language arts
- World languages
- Arts
- Mathematics
- Economics
- Science
- Geography
- History
- Government and Civics

21st Century states believes schools must move beyond a focus on basic competency in core subjects to promoting understanding of academic content at much higher levels by weaving 21st century interdisciplinary themes into core subjects

EduTopia: The George Lucas Educational Foundation

<http://www.edutopia.org/>

'Information and Inspiration for Innovative Teaching in K-12 Schools'

Includes project-based Teaching Modules and technology integration approaches.

Examples:

- Exploratory Learning with a Digital Microscope
- Project-Based Learning, an Integral Approach: CSI
- Technology Integration: math & Science

Stories of innovative teaching and learning through a variety of technology media: e-newsletters, videos, DVDs, and books. You'll find detailed articles, in-depth case studies, research summaries, short documentary segments, expert interviews, and links to hundreds of relevant resources. You'll also be able to participate as a member of an online community of people actively working to reinvent schools for the twenty-first.

Videos from Edutopia:

<http://www.edutopia.org/team-learning>: Students demonstrating team learning on an emergency preparedness exercise

<http://www.edutopia.org/social-emotional-learning-overview-video>: Smart Hearts: Social and Emotional Learning Overview

<http://www.edutopia.org/pursuing-passions-after-school>: Pursuing Passions After School: Chicago's Model Educational-Enrichment Effort

<http://www.edutopia.org/media-smarts-video>: Media Smarts: Kids Learn How to Navigate the Multimedia World