

NLM's K-12 Resources

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NLM Resources to support K-12 Educators teaching health and science.

The categories of resources currently available are:

- **Biology**
 - **Careers**
 - **Environmental Health Science/Chemistry**
 - **General Health**
 - **Genetics**
-



Biology

[MedlinePlus](#)

Grades 6-12+

Easy to read health information. An excellent source for all ages.

Also available in [Spanish](#).

[PubMed](#)

Grades 11-12+

A citation index for articles from medical and life science journals.

View the PubMed [tutorial](#) for site navigation guidance.

[Visible Human Project](#)

Grades 6-12+

Complete, anatomically detailed, 3D representations of the normal male and female human bodies.

[MedlinePlus](#) is the National Institutes of Health's Web site for patients and their families and friends. Produced by the National Library of Medicine, it brings you information about diseases, conditions, and wellness issues in language you can understand. MedlinePlus offers reliable, up-to-date health information, anytime, anywhere, for free. Also available in [Spanish](#).



The screenshot shows the MedlinePlus website navigation and content. At the top, there are three green buttons with white text: "→ Health Topics", "→ Drugs & Supplements", and "→ Videos & Cool Tools". Below these is a section titled "About Your Health" with tabs for "General", "Seniors", "Men", "Women", and "Children". The "Children" tab is selected, and a list of links is displayed: "Allergy", "Asthma in Children", "Bullying", "Child Safety", "Childhood Immunization", "Children's Health", "Children's Page", "Exercise for Children", "Head Lice", and "Infant and Newborn Care". To the right of the "About Your Health" section is a video player showing a woman speaking, with the title "Never Leave Your Child Alone" and the name "Meri-K Appy, President, Safe Kids USA". Below the video player is a "MEDICAL DICTIONARY" search box with a "GO" button and the Merriam-Webster logo.

- Interactive Tutorials
- Anatomy/Surgery Videos
- Calculators & Quizzes
- Games

MedlinePlus – Additional Resources



[MedlinePlus Health Topics](#)

- Read about symptoms, causes, treatments and prevention for over 900 diseases, illnesses, health conditions and wellness issues.



[MedlinePlus -Videos & Cool Tools](#)

- Learn by watching health videos on topics such as human anatomy, surgical procedures and health news. Interactive tutorials and games are also available.



[MedlinePlus –Interactive Health Tutorials](#)

- Learn about the symptoms, diagnosis and treatment for a variety of diseases and conditions with interactive health tutorials from the Patient Education Institute.



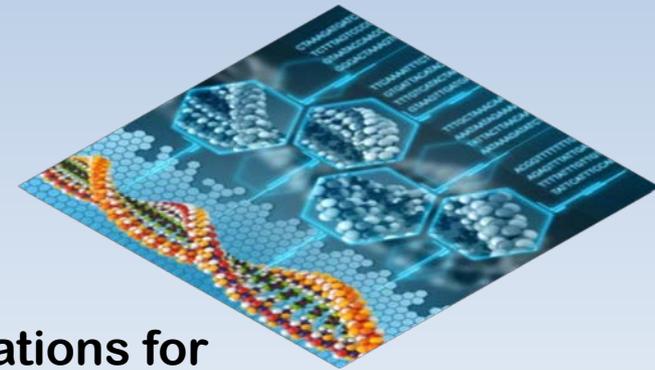
[Evaluating Internet Health Information](#)

A Tutorial from the National Library of Medicine. This tutorial teaches you how to evaluate the health information that you find of the Web (approximately 16 minutes).



PubMed.gov

US National Library of Medicine
National Institutes of Health



[PubMed](#) comprises more than 21million citations for biomedical literature from [MEDLINE](#), life science journals, and online books. PubMed is a free resource that is developed and maintained by the National Center for Biotechnology Information ([NCBI](#)), at the U.S. National Library of Medicine ([NLM](#)), located at the National Institute of Health ([NIH](#)).

PubMed provides links to [PubMed Central](#) (PMC) a free full-text archive of biomedical and life sciences journal literature at the U.S. NIH/NLM.

[PubMed Tutorials](#) are useful for those learning to use the resource.

PMC

US National Library of Medicine
National Institutes of Health

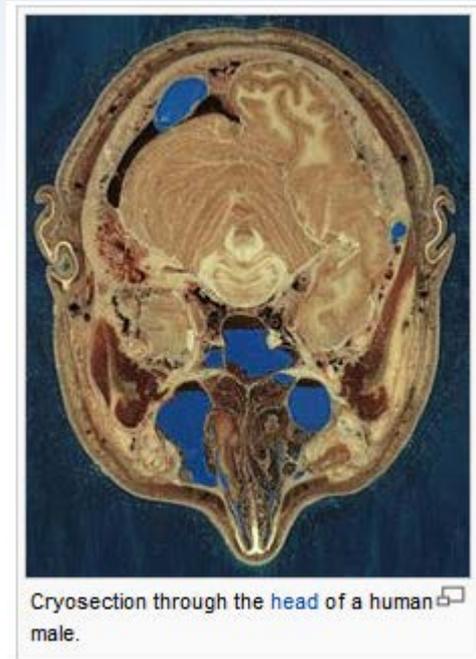


The Visible Human Project

The [Visible Human Project](#) was established in 1989 to build a digital image library of volumetric data representing complete, normal adult male and female anatomy.

It is the creation of complete, anatomically detailed, three-dimensional representations of the normal male and female human bodies.

The long-term goal of the Visible Human Project is to produce a system of knowledge structures that will transparently link visual knowledge forms to symbolic knowledge formats such as the names of body part.





Careers

[Changing the Face of Medicine: Celebrating America's Women Physicians](#)

Grades 6-12+

Features the lives and work of women physicians from the 19th century.

[Enviro-Health Links – Education, Careers, and Outreach in Toxicology and Environmental Health](#)

Grades 6-12+

Links to Web sites about education and careers in toxicology and environmental health.

[Haz-Map](#)

Grades 6-12+

This is an occupational health resource where students can choose a job and learn about its dangers.

[Health Occupations](#)

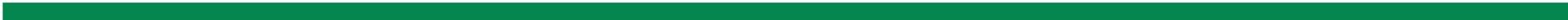
Grades 6-12+

Resource links to information about health occupations.

[LifeWorks®](#)

Grades 6-12+

An interactive career exploration web site.





*Changing the face
of Medicine*

[Changing the face of Medicine](#) honors the lives and achievements of women in medicine. Discover the many ways that women have influenced and enhanced the practice of medicine from the 19th century.

Items of interest in the [Resources](#) Section:

- **Careers** – Learn about steps you can take to join the field of medicine and advance your medical career
- **Lessons** – Teachers can locate lesson plans targeted for K-12 age groups to enhance understanding of the physiology of the body and the field of medicine
- **Suggested Reading** – Supplement lesson plans or simply further your knowledge with books/videos listed in the bibliographies



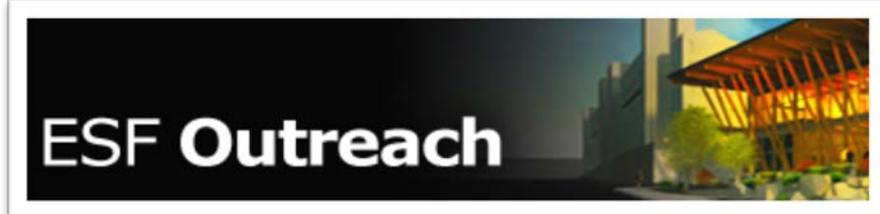
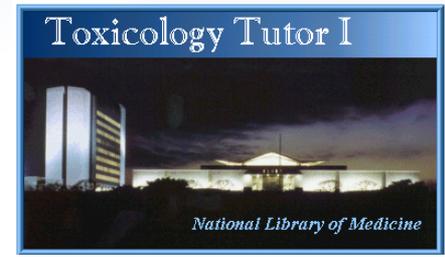


Enviro-Health Links

Education, Careers, and Outreach in Toxicology and Environmental Health

This Web site provides information geared towards education and training in Toxicology and Environmental Health on the following topics:

- Academic Program Directories
- Continuing Education and Tutorials
- Distance Learning
- K-12 Education
- Miscellaneous Specialized Resources
- General Science Resources
- Accreditation Boards
- Career Resources
- Professional Societies
- International Resources



Haz-Map

[Haz-Map](#) is an occupational health database designed for health and safety professionals and for consumers seeking information about the adverse effects of workplace exposures to chemical and biological agents.



Hazardous Agents



Occupational Diseases



High Risk Jobs



Job Tasks



Symptoms/Findings



Processes

Haz-Map shows the diseases linked to each agent and the agents linked to each disease. Agents are chemical such as formaldehyde, or biological such as grain dust. Haz-Map links jobs and hazardous job tasks with occupational diseases and their symptoms.



LifeWorks®

Explore health and medical science careers

LifeWorks® is 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.

LifeWorks® promotes awareness of the wide variety of occupations in health and medical sciences and the range of opportunities at different education levels. The site complements its factual career data by highlighting true stories of successful people. They illustrate the variety of real-life career pathways, from the carefully planned to the unpredictable.





Locate information about professionals who work in the healthcare industry.

Health Occupations

Also called: Health professions, Medical occupations, Medical professions

Find information on these occupations and more:

Art Therapist	Pharmacist
Psychiatrist	Athletic Trainer
Dental Assistant	Surgical Assistant
Veterinarian	Massage Therapist



Environmental Health Science/Chemistry

[ChemIDplus](#)

Grades 7-12+

View and manipulate chemical structures for over 388,000 chemicals. Create SIS and TRANS models, conduct structure similarity searches and view chemical synonyms.

[Environmental Health Student Portal](#)

Grades 6-8

Connecting middle school students to environmental health information.

[Household Products Database](#)

Grades 6-12+

Learn about the potential health effects of chemicals in common household products.



Environmental Health Science/Chemistry cont...

[TOXMAP](#)

Grades 9-12+

Uses maps of the U.S. to visually explore data from the EPA. Includes classroom materials.

[ToxMystery](#)

Grades 1-5

Interactive site teaching elementary school students about toxic substances in the home. Includes lesson plans and activities. Also available in [Spanish](#).

[Tox Town](#)

Grades 6-12+

Guide to commonly encountered toxic substances. Includes classroom materials. Also available in [Spanish](#).

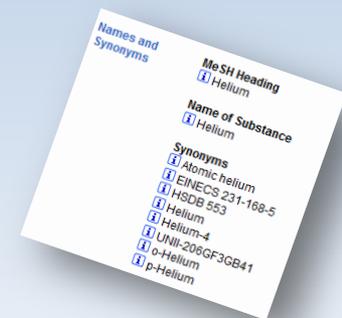
[ToxLearn](#) and [Toxicology Tutorials](#)

Grades 9-12+

Written at the introductory college student level and teaches basic toxicology principles.



[ChemIDplus](#) allows users to search compound identifiers such as chemical name or CAS Registry Number on the NLM ChemIDplus database of over 370,000 chemicals. Just type in the name of a substance of interest to you.



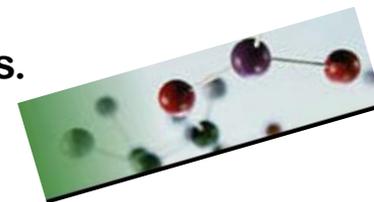
Helium

RN: 7440-59-7

Physical Properties

Physical Property	Value	Units
Melting Point	-2.68E+02	deg C
Boiling Point	-2.69E+02	deg C
log P (octanol-water)	0.28	(none)
Water Solubility	2.5	mg/L
Atmospheric OH Rate Constant	0.0	cm ³ /molecule-sec

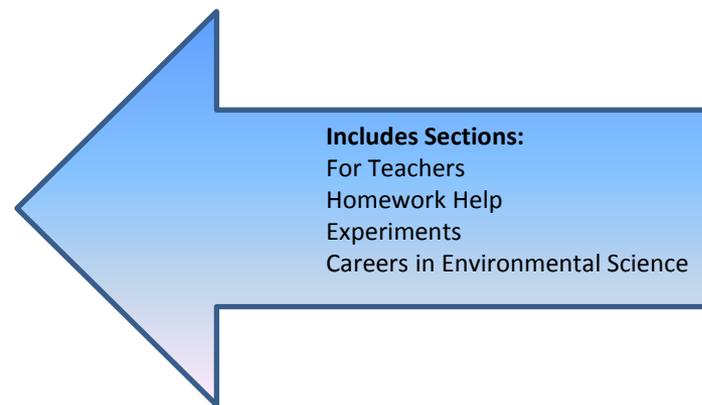
View and manipulate chemical structures for over 388,000 chemicals. Create SIS and TRANS models, conduct structure similarity searches and view chemical synonyms.



ENVIRONMENTAL HEALTH STUDENT PORTAL

Connecting Middle School Students to Environmental Health Information

The [Environmental Health Student Portal](#), a product of the National Library of Medicine (NLM), National Institutes of Health (NIH), provides a safe and useful resource for students and teachers in grades 6 – 8 to learn how the environment can impact our health. The Web site explores topics such as water pollution, climate change, air pollution, and chemicals.





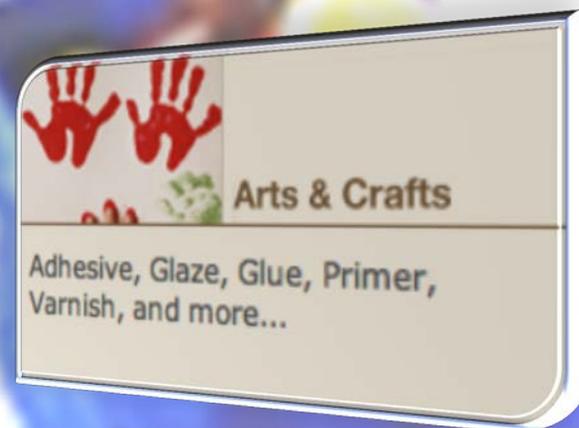
Household Products Database

Health & Safety Information on Household Products

This database links over 11,000 consumer brands to health effects from Material Safety Data sheets (MSDS) provided by manufacturers and allows scientists and consumers to research products based on chemical ingredients.

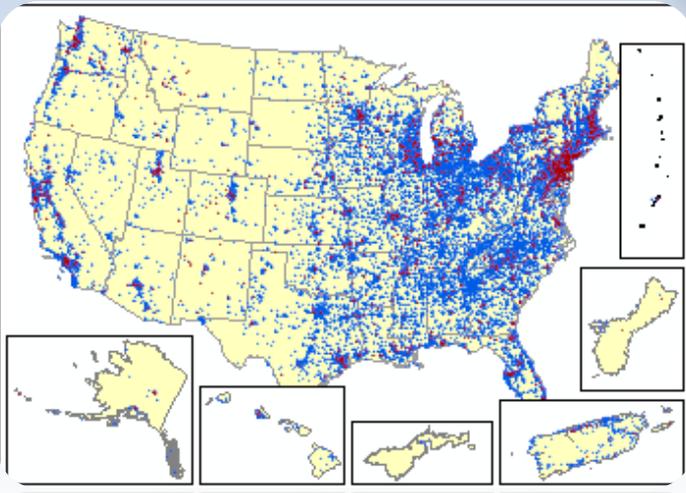
[Household Products Database](#) is designed to help answer the following typical questions:

- What are the chemical ingredients and their percentage in specific brands?
- Which products contain specific chemical ingredients?
- Who manufactures a specific brand? How do I contact this manufacturer?
- What are the acute and chronic effects of chemical ingredients in a specific brand?
- What other information is available about chemicals in the toxicology-related databases of the National Library of Medicine?



TOXMAP®

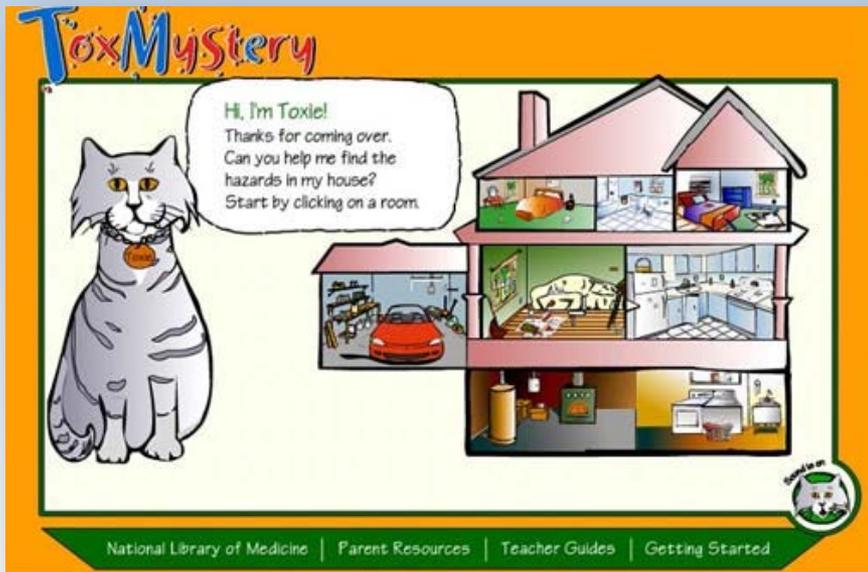
Environmental Health e-Maps



[TOXMAP® \(http://toxmap.nlm.nih.gov\)](http://toxmap.nlm.nih.gov) is a Geographic Information System (GIS) from the [National Library of Medicine \(NLM\)](http://www.nlm.nih.gov) that uses maps of the United States to help users visually explore data from the EPA's [Toxics Release Inventory \(TRI\)](http://www.epa.gov/tri/) (<http://www.epa.gov/tri/>) and [Superfund Programs](http://www.epa.gov/superfund/) (<http://www.epa.gov/superfund/>).



TOXMAP helps users create nationwide, regional, or local area maps showing where TRI chemicals are released on-site into the air, water, and ground. It also identifies the releasing facilities, color-codes release amounts for a single year or year range, and provides multi-year aggregate chemical release data and trends over time, starting with 1988.



[ToxMystery](#) was created by the United States National Library of Medicine to help children from 7-11 years old learn about household chemical hazards. Toxie the Cat helps kids find the hazards hidden in each room and offers hints when needed.

- Available in English and Spanish
- “For Teachers” section includes 3 lesson plans with student worksheets/activities
- “[Parent Resources](#)”



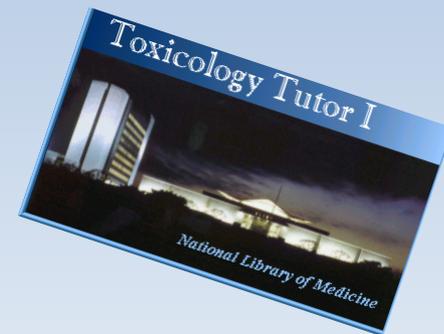
Tox Town is designed to give you information on:

Target
Audience:
Grades 6-12,
Educators, and
the General
Public



- everyday locations where you might find toxic chemicals
- non-technical descriptions of chemicals
- links to selected, authoritative chemical information on the Internet
- how the environment can impact human health
- Internet resources on environmental health topics

ToxLearn and Toxicology Tutorials



NLM Toxicology Tutorials

The [Toxicology Tutors and ToxLearn](#) were developed to provide users of NLM's toxicology databases with a working knowledge of basic toxicology principles. The tutorials are written at the introductory college student level.

The tutorials can be downloaded to run from your computer. Each tutorial is made up of about 800 files. You will need the [WINZIP®](#) utility to open the zipped files.

[ToxLearn](#) is an update to an expansion of the Toxicology Tutors. Module I: Basic Principles and Dose-Response is the first module available.

ToxLearn modules will be published as they are completed. You will need [Adobe Flash Player](#) to run ToxLearn.



Genetics

[Genetics Home Reference](#)

Grades 6-12+

Information about genetic conditions.

[Harry Potter's World: Renaissance Science, Magic and Medicine](#)

Grades-12+

Explore the genetics of the characters and the roots of the creatures and magic in the Harry Potter book series in terms of Renaissance science and historical lore. Lesson plans included.

[Help Me Understand Genetics Handbook](#)

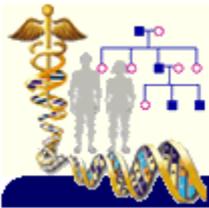
Grades 6-12+

Basic information about genetics in clear language and links to online resources.

[Science Primer](#)

Grades 7-12+

A basic introduction to the science and technology of genetics and genomes.



Genetics Home Reference

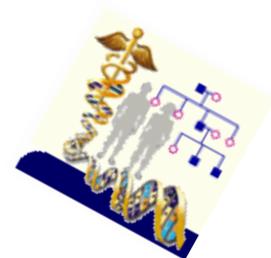
Your Guide to Understanding Genetic Conditions

Genetics Home Reference is the National Library of Medicine's web site for consumer information about genetic conditions and the genes or chromosomes related to those conditions.

Genetic Disorders A to Z and related genes and chromosomes	Concepts & Tools for understanding human genetics
Genetic Conditions The genetics of more than 700 health conditions, diseases, and syndromes.	Handbook Learn about mutations, inheritance, genetic counseling, genetic testing, genomic research, and more.
Genes More than 900 genes, health effects of genetic differences, and gene families.	Glossary Medical and genetics definitions.
Chromosomes Chromosomes, mitochondrial DNA, and associated health conditions.	Resources Links to other genetics information and organizations.

Includes Resources for:

- [Patients and families](#)
- [Educators](#)
- [Health professionals](#)
- [Genetic researchers](#)



HARRY POTTER'S WORLD

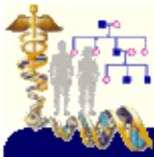
RENAISSANCE SCIENCE, MAGIC, AND MEDICINE

[Harry Potter's World](#) presents the following instructional resources for the educators in middle-and high-schools, and in higher education institutions.



The resources provide suggested instructional guides and materials that an educator may adapt in whole or in parts as he or she deems most appropriate for the student's interest, level, and academic goals.

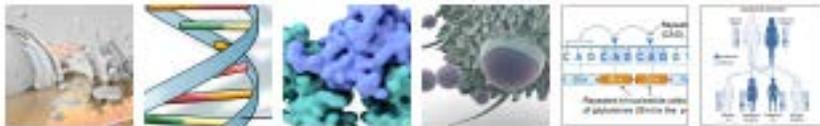




Help Me Understand Genetics Handbook

[Help Me Understand Genetics](#) presents basic information about genetics in clear language and provides links to online resources.

Illustrations



Most Popular *Handbook* pages

1. [What is DNA?](#)
2. [How many chromosomes do people have?](#)
3. [What is a chromosome?](#)
4. [What is a gene mutation and how do mutations occur?](#)
5. [What is mitochondrial DNA?](#)

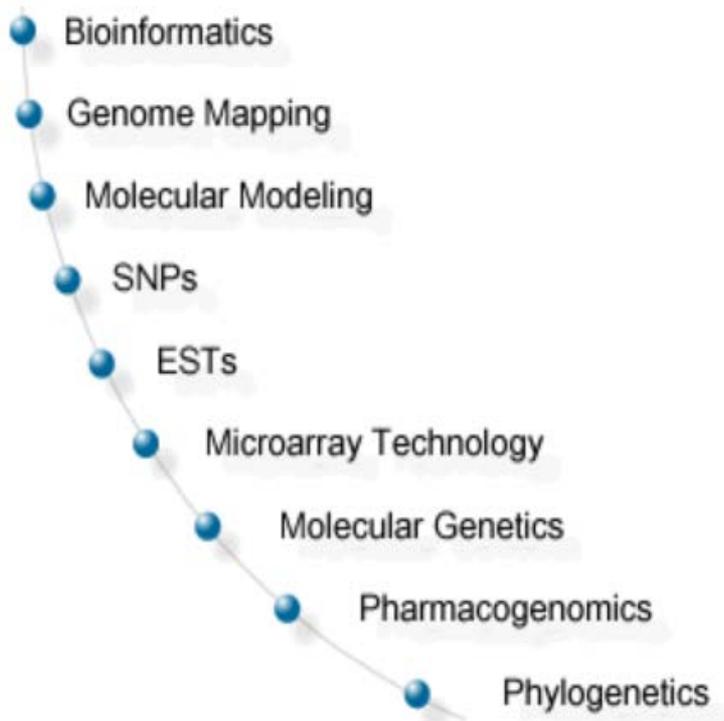
Includes sections on:

- Cells and DNA
- How Genes Work
- Mutations and Health
- Inheriting Genetic Conditions
- Genetic Consultation
- Genetic Testing
- Gene Therapy
- The Human Genome Project
- Genomic Research



A Science Primer

[A Science Primer](#) provides a basic introduction to the science and technology of genetics and genomes.



Monotonic functions are functions that tend to move only in one direction.

Genetic maps use landmarks called genetic markers to guide researchers on their gene hunt.

Topic: Genetic Maps

An **allele** is one of the variant forms of a DNA sequence at a particular locus, or location, on a chromosome. Co-segregation of alleles refers to the movement of each marker during meiosis. If a marker tends to "travel" with the disease status, the markers are said to co-segregate.



General Health

[Against the Odds: Making a Difference in Global Health](#)

Grades 6-12+

Highlights stories of communities who, in collaboration with scientists, advocates, governments and international organizations, are taking up the challenge to prevent disease and improve quality of life around the world.

[Come On, Mom, Dad, Get Healthy!](#)

Grades 6-8

This book can be used to supplement the middle school health curriculum and includes [lesson plans](#) that address nutrition, addiction health facts, and decision-making skills.

[MedlinePlus](#)

Grades 6-12+

Easy to read health information. An excellent source for all ages. Also available in [Spanish](#).

[MedlinePlus: Children's Page](#)

This section of MedlinePlus was created specifically with the child in mind to locate information on health and environmental health topics. Also available in [Spanish](#).



General Health cont...

[MedlinePlus: Teen Health](#)

This section of MedlinePlus was created specifically with the adolescent in mind to locate information on a variety of topics specific to the teen and their changing minds and bodies. Also available in [Spanish](#).

[PubMed](#)

Grades 11-12+

A citation index for articles from medical and life science journals. View the PubMed [tutorial](#) for site navigation guidance.

[PubMedHealth](#)

Grades 11-12+

Locate reviews of clinical effectiveness research, with easy-to-read summaries.

[NIHSeniorHealth](#)

Grades 9-12+

A Health and wellness information resource for older adults from the National Institutes of Health. An excellent resource for students conducting research on senior health issues.



[Against the Odds](#) highlights stories of communities who, in collaboration with scientists, advocates, governments, and international organizations, are taking up the challenge to prevent disease and improve quality of life around the world. The [Online Activities & Resources](#) section provides lesson plans and online activities, and the [Get Involved](#) section offer opportunities to view different perspectives and share one's own thoughts.





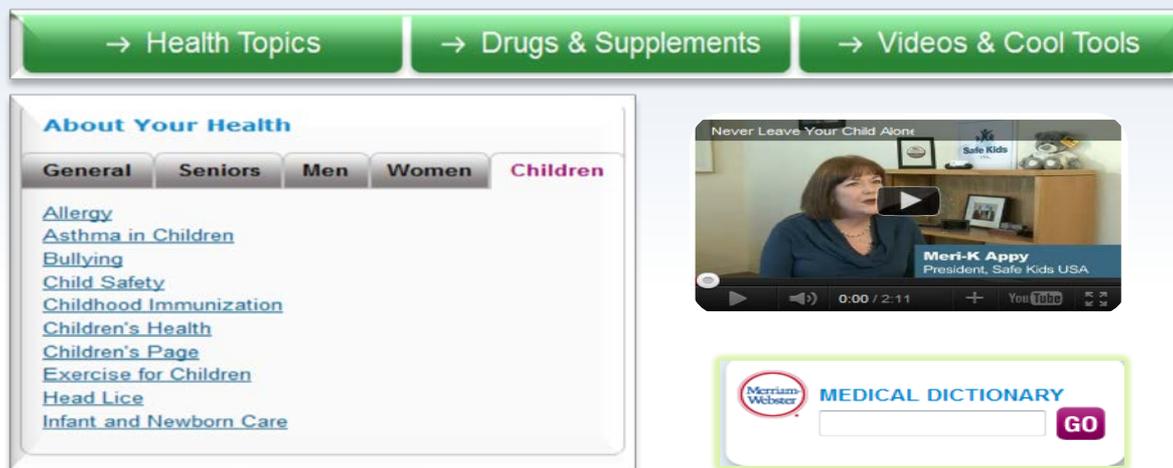
The National Library of Medicine released the book [Come on, Mom, Dad, Get Healthy! The TAPAS \(Teens Against Parent Addiction Squad\) Take Action](#). Designed to supplement the middle school health curriculum, the book employs a fictional story to address the subjects of addiction to food, smoking, and alcohol.

Includes [lesson plans](#) on key concepts such as:

- Nutrition
- Addiction health facts
- Decision making skills

Come on, Mom, Dad, Get Healthy! is a unique book that addresses the sensitive issue of parental addiction and teaches students about the quality, reliable health information resources available through the National Library of Medicine's website. Written at an age-appropriate level, the book shows characters that students can relate to in everyday situations and introduces students to health information.

[MedlinePlus](#) is the National Institutes of Health's Web site for patients and their families and friends. Produced by the National Library of Medicine, it brings you information about diseases, conditions, and wellness issues in language you can understand. MedlinePlus offers reliable, up-to-date health information, anytime, anywhere, for free. Also available in [Spanish](#).



The screenshot shows the MedlinePlus website interface. At the top, there are three green navigation buttons: "→ Health Topics", "→ Drugs & Supplements", and "→ Videos & Cool Tools". Below these is a section titled "About Your Health" with tabs for "General", "Seniors", "Men", "Women", and "Children". The "Children" tab is selected, and a list of links is displayed: "Allergy", "Asthma in Children", "Bullying", "Child Safety", "Childhood Immunization", "Children's Health", "Children's Page", "Exercise for Children", "Head Lice", and "Infant and Newborn Care". To the right of the navigation area is a video player showing a woman speaking, with the title "Never Leave Your Child Alone" and the name "Meri-K Appy, President, Safe Kids USA". Below the video player is a "MEDICAL DICTIONARY" search box with a "GO" button.

- Interactive Tutorials
- Anatomy/Surgery Videos
- Calculators & Quizzes
- Games

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[MedlinePlus –Interactive Health Tutorials](#)

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[Evaluating Internet Health Information](#)

A Tutorial from the National Library of Medicine. This tutorial teaches you how to evaluate the health information that you find of the Web (approximately 16 minutes).



Children's Page

The Children's Page within [MedlinePlus](#) was created with the child in mind. There are quizzes, games and lots of cool web sites for children to explore around a variety of health and environmental health topics. Also available in [Spanish](#).



Locate games and quizzes to supplement lessons plans from reputable sources such as NLM, CDC and more!



Teen Health

Also called: Adolescent health



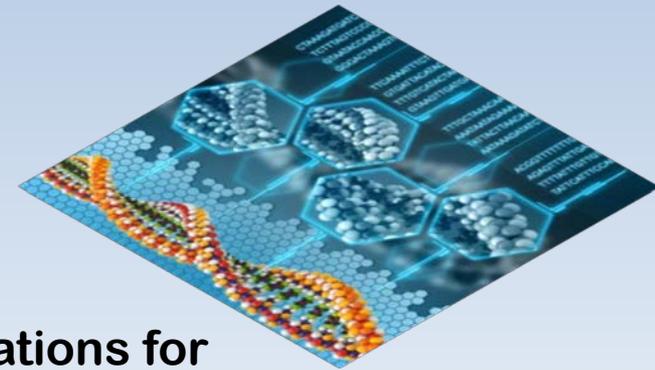
This [Teen Health](#) Page within MedlinePlus was created specifically for adolescents. It can be used to locate trusted and age appropriate information on a variety of topics:

- Nutrition
- Disease Prevention
- Self Esteem
- Mental Health
- Sexual Health
- Puberty

Links are provided to other reputable resources such as Nemours Foundation *TeensHealth* and much more. Also available in [Spanish](#).

The logo for PubMed.gov, featuring the text "PubMed.gov" in a blue, sans-serif font. The "P" and "M" are larger and more prominent, with "ub" and ".gov" in smaller text between them.

US National Library of Medicine
National Institutes of Health



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PubMed provides links to [PubMed Central](#) (PMC) a free full-text archive of biomedical and life sciences journal literature at the U.S. NIH/NLM.

[PubMed Tutorials](#) are useful for those learning to use the resource.

The logo for PubMed Central (PMC), featuring the letters "PMC" in a bold, sans-serif font, with a stylized house-like shape above the letters.

US National Library of Medicine
National Institutes of Health



[PubMed Health](#) specializes in reviews of clinical effectiveness research, with easy-to-read summaries for consumers as well as full technical reports. [Clinical effectiveness research](#) finds answers to the question “What works?” in medical and health care.



[NIH Senior Health](#) provides health and wellness information for older adults from the National Institutes of Health. If students are searching for information specific to geriatric populations this is an excellent resource.

This resource includes a “[Toolkit for Trainers](#)”, which are free, easy-to-use training materials to help older adults find reliable, up-to-date online health information on their own.



This online resource includes:

- Health Topics
- Exercise Stories
- Health Videos
- Trainer’s Toolkit





How to Reach Us (NN/LM MAR)

Web site: <http://nnlm.gov/mar>

Phone: 1.800.338.7657

1.412.648.2065

Serving Delaware, New Jersey, New York and Pennsylvania

For questions regarding the content of the NLM K-12 Resources or to request training please contact:

Lydia Collins – NN/LM MAR Consumer Health Coordinator

lydia@pitt.edu 412.624.1411

or nnlmmar@pitt.edu



Middle Atlantic Region



Educating K-12 Professionals to Meet the Health Information Needs
of Special Needs Children and Their Parents: A Collaborative
Outreach Project of Albany Medical College and the East Greenbush
Central School District:

Project Overview

Presented by:

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Schaffer Library of Health Sciences
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Columbia High School Librarian
East Greenbush Central School District

August 30, 2012



**Albany
Medical
College**

This project has been funded in part with Federal funds obtained by the Schaffer Library of Health Sciences, Albany Medical College, from the National Library of Medicine, National Institutes of Health, Department of Health and Human Services, under Contract Number HHSN276201100003C with the University of Pittsburgh, Health Sciences Library System.

Planning

- Initial discussions between AMC and EGCS D began in November 2011
- Planning Committee consisting of 3 representatives from each institution formed in February 2012
 - AMC:
 - Associate Dean for Information Resources and Technology
 - Assistant Director, Schaffer Library of Health Sciences
 - Education and Information Services Librarian, Schaffer Library of Health Sciences
 - EGCS D
 - Director of Pupil Personnel Services and Special Education
 - Columbia High School Librarian
 - Columbia High School Nurse
- Needs assessment survey conducted by the district using Survey Monkey March 2012
- Co-investigators prepared application w/Planning Committee input March 2012



Survey Results

- Distributed via e-mail to 83 school nurses, librarians, social workers, psychologists and related special education staff and served as a needs assessment
- 73 surveys were completed for an 88% response rate
- 76.6 % of respondents felt that searching health information was either very important or important in their setting
- 62.9% searched for health information on either a daily or a weekly basis



Survey Results

- 90.3% believe that health information is either important or very important in educating parents, but only 17.7% refer parents to websites for healthcare information either daily or weekly. When they do:
 - Society or Association Website: 50.7%
 - Search Engine (i.e. Google or Bing): 30.9%
 - Government Website: 5.6%





Survey Results

- Open ended question included to find out where the EGCS D staff searched for health information
- Two main resources:
 - Google (56%)
 - WebMD (33%)
- NLM resources are listed on the high school library webpage, but only one respondent (1.73%) indicated searching an NLM resource and that was PubMed. Two respondents indicated using the high school resources, but it is unknown if they consulted the listed NLM resources.



Project Overview

- Activity Highlights
 - Train-the-Trainer Sessions conducted by AMC Librarians:
 - *Class 1: Finding Reliable Professional Health Information on Web*
 - *Class 2: Searching Consumer Resources*
 - Parent/Provider Consultations conducted by EGCSO Librarians and Nurses
 - EGCSO Special Needs Parent Group Session conducted by EGCSO Librarian and Nurse, with support from an AMC Librarian
- Award funding supports:
 - Purchase of iPad2s for EGCSO librarians and nurses to use to provide consultations
 - Purchase of iPad2s to AMC library faculty to support EGCSO librarians and nurses
 - Substitutes for school nurses to attend the second train the trainer session