NLM’s Online Playground:
K-12 Health & Science Information Resources for Teachers & Students

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Who We Are

NIH
• National Institutes of Health
• Nation’s research agency

NLM
• National Library of Medicine
• World’s largest biomedical library

NNLM
• National Network of Libraries of Medicine
• Program of the NLM comprised of 8 Regional Libraries (RMLs) and 6 offices

PNR
• Pacific Northwest Region (NNLM PNR)
• Is one of the 8 RMLs
• Serves Alaska, Idaho, Montana, Oregon, Washington

What’s the difference?
The mission of NNLM is to advance the progress of medicine and improve the public health by:

- Providing all U.S. health professionals with equal access to biomedical information
- Improving the public's access to information to enable them to make informed decisions about their health
NLM K-12 Resources
Medicine/Health
- Links to reliable, authoritative health websites
- Health Topics on children/teens
- Easy-to-read articles
- Medical dictionary
- Medical encyclopedia
- Links to local services
- English, Spanish and other languages
- No Advertisements!

MedlinePlus
https://medlineplus.gov/
that pregnant women do not travel to areas where there is a Zika virus outbreak. If you travel, first talk to your doctor. You should also be careful to prevent mosquito bites.

- Use insect repellent
- Wear clothes that cover your arms, legs, and feet
- Stay in places that have air conditioning or that use window and door screens

Centers for Disease Control and Prevention

Start Here

- Zika Virus (Centers for Disease Control and Prevention)
- Zika Virus and Complications: Questions and Answers (World Health Organization)
- Zika Virus Fact Sheet (World Health Organization) Also in Spanish

Latest News

- Zika Can Harm Babies’ Vision, Too (04/16/2017, HealthDay)
- Epilepsy: Another Potential Zika Threat to Babies (04/17/2017, HealthDay)
- Another Type of Mosquito May Carry Zika (04/14/2017, HealthDay)
- More News on Zika Virus

Symptoms

- Symptoms of Zika (Centers for Disease Control and Prevention)

Diagnosis and Tests

- What Happens When I Am Tested for Zika and When Will I Get My Results? (Centers for Disease Control and Prevention) - PDF

Prevention and Risk Factors

- Help Control Mosquitoes that Spread Dengue, Chikungunya, and Zika Viruses (Centers for Disease Control and Prevention) - PDF
- Also in Spanish
- Mosquito Bite Prevention For Travelers (Centers for Disease Control and Prevention) - PDF
- Also in Spanish
- Zika and Sexual Transmission (Centers for Disease Control and Prevention) - PDF
- Also in Spanish

Treatments and Therapies
Blood

Summary
Your blood is living tissue made up of liquid and cells. The liquid is called plasma and contains water, salts, and protein. Over half of your blood is made up of red blood cells, white blood cells, and platelets.

Red blood cells deliver oxygen from your lungs to your body’s organs. They are also infected and part of your body’s defense system when you’re ill. Bone marrow, the spongy material inside your bones, makes new red blood cells. It takes about 6 days. Some white blood cells live less than one day.

Problems with your blood may include bleeding disorders like hemophilia or you lose too much blood, you may need a transfusion of blood.

Gas
Also called: Belch, Burp, Eructation, Flatus

Summary
Everyone has gas. Most people pass gas 13 to 21 times a day. Passing gas through the mouth is called belching or burping. Passing gas through the anus is called flatulence. Most of the time gas does not have an odor. The odor comes from bacteria in the large intestine that release small amounts of gases that contain sulfur.

Gas in the digestive tract comes from two sources: air that you swallow and the breakdown of undigested food by bacteria in the large intestine. Certain foods may cause gas. Foods that produce gas in one person may not cause gas in another.

You can reduce the amount of gas you have by:

- Drinking lots of water and non-fizzy drinks
- Eating more slowly so you swallow less air when you eat
- Avoiding milk products if you have lactose intolerance

Medicines can help reduce gas or the pain and bloating caused by gas. If your symptoms still bother you, see your health care provider.

NIH: National Institute of Diabetes and Digestive and Kidney Diseases
Asthma in Children
Also called: Childhood asthma

Summary
Asthma is a chronic disease that affects your airways. Your airways are tubes that carry air in and out of your lungs. If you have asthma, the inside walls of your airways become sore and swollen.

In the United States, about 20 million people have asthma. Nearly 9 million of them are children. Children have smaller airways than adults, which makes asthma especially serious for them. Children with asthma may experience wheezing, coughing, chest tightness, and trouble breathing, especially early in the morning or at night.

Many things can cause asthma, including:
- Allergens - mold, pollen, animals
- Irritants - cigarette smoke, air pollution
- Weather - cold air, changes in weather
Oxycodone
pronounced as (ox i koe' done)

Why is this medication prescribed?
How should this medicine be used?
Other uses for this medicine
What special precautions should I follow?
What special dietary instructions should I follow?
What should I do if I forget a dose?

IMPORTANT WARNING:

Oxycodone may cause serious or life-threatening breath your dose is increased. Your doctor will monitor you care breathing or asthma. Your doctor will probably tell you not such as chronic obstructive pulmonary disease (COPD, that increases the amount of pressure in your brain. They are weak or malnourished due to disease. If you experience medical treatment; slowed breathing, long pauses between

Taking certain other medications with oxycodone may in your doctor and pharmacist if you are taking or plan to be in PrevPac) and erythromycin (Erytab, Erythromycin); corta (Nizoral); and voriconazole (Vfend); benzodiazepines su diazepam (Diastat, Valium), estazolam, flurazepam, lorp carisbamazepine (Carbatrol, Epitol, Equetro, Tegretol). Other medications for human immunodeficiency virus (HIV) inc phenytoin (Dilantin, Phenytek); rifabutin (Mycobutin); rifampin may need to change the doses of your medication and you develop any of the following symptoms, call your lightheadedness, extreme sleepiness, slowed or difficult which symptoms may be serious so they can call the do-

On This Page
- Background
- How Much Do We Know?
- What Have We Learned?
- What Do We Know About Safety?
- Keep in Mind
- For More Information
- Key References

This fact sheet provides basic information about tea tree oil—common names, usefulness and safety, and resources for more information.
NIH Supplements Information

OFFICE OF DIETARY SUPPLEMENTS

DIETARY SUPPLEMENTS: WHAT YOU NEED TO KNOW
ODS experts are featured in this 2-minute video introduction to the Office of Dietary Supplements.

Dietary Supplement Fact Sheets
The Office of Dietary Supplements (ODS) fact sheets give a current overview of individual vitamins, minerals, and other dietary supplements. ODS has fact sheets in two versions—Health Professional and Consumer. Both versions provide the same types of information but vary in the level of detail. Consumer versions are also available in Spanish.

Health Information
- Frequently Asked Questions (FAQ)
- Dietary Supplements: What You Need to Know
- Dictionary
- Information en español
- more

News & Events
- Headlines
  - Dietary Supplement Information Page for Health Professionals
  - more

Find ODS on Facebook

NATIONAL CENTER FOR COMPLEMENTARY AND INTEGRATIVE HEALTH

Health
All Health Topics from A-Z
Research-based info from acupuncture to zinc.

Complementary, Alternative, or Integrative Health
What do these terms mean?

Be Informed
Learn how to make wise health decisions.

Herbs at a Glance
Uses and side effects of herbs and botanicals.

How To Find a Practitioner
Information on seeking treatment.

Information for Health Care Providers
Evidence-based medicine, continuing education, clinical practice guidelines, and more.

Featured Health Topics
Seasonal Allergies (August 2017)
Complementary Health Practices for U.S. Military, Veterans, and Families (February 2017)

New Approach to Funding Clinical Trials
NCCIH released a series of new funding opportunity announcements designed for clinical trials focused on natural product and mind and body intervention studies.

Find More Information on Facebook
Clinical effectiveness research answers the question “What works?” in medical and health care.

Provides information for consumers and clinicians on prevention and treatment of diseases and conditions.

Specializes in reviews of clinical effectiveness research.

Easy-to-read summaries for consumers as well as full technical reports.

How to read health news.

PubMed Health
PubMed comprises more than 27 million citations for biomedical literature from MEDLINE, life science journals, and online books. Citations may include links to full-text content from PubMed Central and publisher web sites.
NIH for Kids and Teens
NIH Science Education

On this page
- Resources for Students
- Resources for Educators

Resources for Students
- NIAMS Kids Pages
- Microscope Imaging Station
- Test Your Science IQ! Cells

NIH Science Education

From the NIH Director

Francis Collins, M.D., Ph.D., offers a message to high school graduates. This video was requested by a motivated graduating senior at a high school in Ontario, but it speaks to students everywhere. May 19, 2011.
MedlinePlus Guide to Healthy Web Surfing

What should you look for when evaluating the quality of health information on Web sites? Here are some suggestions based on our experience.

Consider the source -- Use recognized authorities

Know who is responsible for the content.

- Look for an "about us" page. Check to see who runs the site: is it a branch of the Federal Government, a non-profit institution, a professional organization, a health system, a commercial organization, or an individual.
- There is a big difference between a site that says, "I developed this site after my heart attack" and one that says, "This page on heart attack was developed by health professionals at the American Heart Association."
- Web sites should have a way to contact the organization or webmaster. If the site provides no contact information, or if you can't easily find out who runs the site, use caution.

Focus on quality -- All Web sites are not created equal

Does the site have an editorial board? Is the information reviewed before it is posted?

- This information is often on the "about us" page, or it may be under the organization's mission statement, or part of the annual report.
- See if the board members are experts in the subject of the site. For example, a site on osteoporosis whose medical advisory board is composed of attorneys and accountants is not medically authoritative.
- Look for a description of the process of selecting or approving information on the site. It is usually in the "about us" section and may be called "editorial policy" or "selection policy" or "review policy."
- Sometimes the site will have information "about our writers" or "about our authors" instead of an editorial policy. Review this section to find out who has written the information.

Be a cyberskeptic -- Quackery abounds on the Web

Does the site make health claims that seem too good to be true? Does the information use deliberately obscure, "scientific" sounding language?

Guide to Healthy Web Surfing
Evaluating Health Information

HEALTH TOPIC PAGE

HEALTH TOPIC PAGE

Evaluating Health Information

Summary

Millions of consumers get health information from magazines, TV or the Internet. Sometimes the information is reliable and up to date; sometimes it is not. How can you tell the good from the bad?

First, consider the source. If you use the Web, look for an "about us" page. Check to see who runs the site. Is it a branch of the government, a university, a health organization, a hospital or a business? Focus on quality. Does the site have an editorial board? Is the information reviewed before it is posted? Be skeptical. Things that sound too good to be true often are. You want current, unbiased information based on research.

NIH National Library of Medicine

Start Here

- Evaluating Internet Health Information: A Tutorial from the National Library of Medicine
- Find Quality Resources: How Do I Know If I Can Trust the Information I Find Online? (Office of the National Coordinator for Health Information Technology)
Environmental Health
Environmental Health

Summary

Our environment affects our health. If parts of the environment, like the air, water, or soil become polluted, it can lead to health problems. For example, asthma pollutants and chemicals in the air or in the home can trigger asthma attacks.

Some environmental risks are a part of the natural world, like radon in the soil. Others are the result of human activities, like lead poisoning from paint, or exposure to asbestos or mercury from mining or industrial use.

NIH: National Institute of Environmental Health Sciences

Related Health Topics

- Air Pollution
- Drinking Water
- Electromagnetic Fields
- Hazardous Waste
- Indoor Air Pollution
- Molds
- Noise
- Occupational Health
- Oil Spills
- Pesticides
- Radiation Exposure
- Water Pollution
- Wide range of environmental and toxicology topics
- Health effects
- Information for:
  - variety of professionals
  - the public
  - teachers and students
- Tutorials and guides provided
Especially for students and educators

**Starting Points**

- **Environmental Health Student Portal**
  Educational resources for middle school students and teachers on how the environment affects health

- **Tox Town**
  Interactive guide to toxic substances and environmental health issues in everyday places

- **ToxMystery**
  Provides a fun experience while teaching about household chemical hazards. For children from 7-11 years old

- **Toxicology Tutorials**
  Basic toxicology principles written at the introductory college student level

- **Household Products Database**
  Safety and health information for products used in and around the home

- **TOXMAP**
  Geographic representation of TRI data with links to other TOXNET resources
  - TOXMAP: Resources for Teachers
What is Environmental Health?

Environmental Health is the interrelationship between human health and the environment, either natural or manmade.

Learn More

Interested in a trailer of our animations about characteristics, uses, and health effects of hazardous chemicals? Please, click here to preview.
Educational Games
Genomics/Genetics
Mission statement:

To enable a new era of medicine through research, technology, and policies that empower patients, researchers, and providers to work together toward development of individualized care.
Genomic Health/Science Literacy

- Lack biology basics
- Lack mathematical concepts
- Low health literacy

- Biomedical professions
- Medical treatment
- Understand basics of health conditions
Education

Educational materials about genetics and genomics

- Smithsonian NHGRI Genome Exhibit
  A genomics exhibition from the Smithsonian and NHGRI

- Genomic Careers
  Information on careers in genomics and genetics

- Online Genetic Education Resources
  A list of online resources for learning about genomics and genetics

- Fact Sheets
  Clearly written information on the institute, genetic research and periodic concepts

- Highlights
  Genome Unlocking Life’s Code goes international!
  "Genome Unlocking Life’s Code," the traveling genomics science exhibit created by NHGRI and the Smithsonian National Museum of Natural History, needs a passport... because it’s going international for the first time! The exhibit will move on to Science North in Sudbury, Ontario, Canada. From September 20, 2017 – January 1, 2018, check out the hands-on, interactive activities sure to get you excited about the world of genomic sciences. This exhibit relates the exciting history of genomic research, showcases its sights and sounds, and highlights the increasing relevance of genomics in our lives today.

- NHGRI hosts vision meeting to advance genomic literacy
  Genomic advances are rapidly leading to exciting opportunities to use genomic information in medical care and every day life. But there is a widening gap between the pace of genomic advances and genomic literacy. To address the gap, NHGRI recently hosted a meeting that engaged people from diverse fields including K-12 students, the general public and healthcare providers. The goal was to discuss the possible launching of a proposed Genomic Literacy, Education, and Engagement (GLEE) initiative.

- Harry Potter and the Genetics of Wizarding
  For NHGRI’s National DNA Day inaugural speaker series, Eric P. Spence, Ph.D. from Duke University presented "Harry Potter and the Genetics of Wizarding." The event took place on the NIH Campus in Building 31A (Pomer Building). Room 140. It is now available on NHGRI’s YouTube channel. GenomTV. Dr. Spence is an award-winning instructor in biology who helps students place new information in context with ideas they already find familiar, like Harry Potter, Star Wars and The Avenger.

See Also

- Education and Community Involvement Branch
- GenomTV
- Genome Advance of the Month
- Education Archives

On Other Sites:

- Genome Unlocking Life’s Code
  NHGRI Smithsonian Exhibition
- GenomTV
  NHGRI’s YouTube Channel
- Teach Genetics | Learn Genetics
  At the Genetic Science Learning Center
- Genetics Education & Outreach Network
  At The American Society of Human Genetics

En Español:

- Recursos del Instituto Nacional de Genoma Humano y los INH (NHGRI) en Español

Celebrating Genomics Through Awareness

Find Events | Register An Event | Get Starter Kit | Celebrate With NHGRI | Get Activity Ideas | About DNA Day

National DNA Day is a unique day when students, teachers, and the public can learn more about genetics and genomics. The Day commemorates the completion of the Human Genome Project in April 2003, and the discovery of DNA’s double helix in 1953. Subscribe to our newsletter!
Health conditions
Genes
Chromosomes and DNA
Resources
Genetic handbook

Genetics Home Reference provides consumer-friendly information about the effects of genetic variation on human health.

Health Conditions
More than 1,100 health conditions, diseases, and syndromes
Browse A–Z

Genes
More than 1,300 genes and the health effects of genetic changes
Browse A–Z

New & Updated Pages
New Pages
17q12 duplication
ACAD9 deficiency
primary coenzyme Q10 deficiency
More New Pages...

Updated Pages
5-alpha reductase deficiency
Erhheim–Chester disease
L1 syndrome
Usher syndrome
More Updated Pages...

Genetics Home Reference
NLM Traveling Exhibits

Harry Potter's World

Because plants and their uses are important to wizardry, all students at Hogwarts School of Witchcraft and Wizardry are required to take Herbology. Harry Potter learns how to grow mandrakes, real plants studied by historical...

CONTINUE TO HERBOLOGY

LEARN more

SEE the digital gallery

BOOK the traveling exhibition

FIND OUT

GENETIC TRAITS IN HARRY POTTER

Grade level: 5–8 | Subject: science and technology

Time needed
Two to four 40-minute class periods

Four 40-minute class periods for younger students with limited knowledge of genetics (two periods for Pre-Lesson Activity and Class 1, and the other two periods for Class 2).

Two 40-minute class periods for older students with strong knowledge of genetics (one period for Pre-Lesson Activity and Class 1 and the second period for Class 2).

Description
The purpose of this lesson is to give students an introductory understanding of genetic inheritance. Students review and become familiar with basic genetic concepts and terms, such as DNA, chromosomes, genes, alleles, homozygous, heterozygous, recessive and dominant genes, genotype, phenotype, complex traits, Mendelian inheritance, and Punnett square. Students apply these to identify and examine several examples of simple and complex genetic traits in several characters in Harry Potter. Students also examine inheritance patterns of magical ability in Harry Potter, and use the concepts they have learned to identify possible genotypes of the magical abilities demonstrated by several characters in the series.

Note: The models of genetic inheritance presented in this lesson plan have been simplified so that students learn basic terms and concepts about genes and genetically inherited physical characteristics among people. In reality, many of the traits used as examples—and most traits, in general—are a far more complicated story about inheritance than discussed in this lesson plan. For furthering students' learning and exploration of the complex genetic studies, please see Extension Activity II below.

OPEN ALL

- Learning outcomes
- Background information
- Vocabulary
- Materials
- Pre-Lesson activity
- Class 1 procedures
- Class 2 procedures
NCBI Bookshelf

Genes and Diseases

- Organized by the parts of the body that genetic disorders affect
- Over 80 genetic disorder summaries
- Images and interesting facts
- PDF downloads of chapters
- Links to related research literature and pertinent websites

Genes and Diseases from NCBI Bookshelf
Base Chase
Literacy/Education Resources
Interdisciplinary Resources
make history!
expand your horizons

The Exhibition Program creates lively and informative exhibitions and educational resources that enhance awareness of and appreciation for the collections of the National Library of Medicine. Explore. Discover. Enjoy.
Focus on Health Issues

“…We condemn as a人口 rights,” a term which we only occasionally use, this which implies a dependence upon the word. We are ‘People Without…”

Temperance and women’s rights advocates called attention to family violence and agitated for reform during the mid-19th century. Despite their efforts, society as a whole continued to ignore domestic violence.

CONTINUE to GENERATIONS OF REFORMERS

LEARN more

Who were some advocates for change?

SEE the digital gallery

BOOK the traveling exhibition
Comics / Graphic Novels

- Hyperbole and a Half
- Graphic Medicine
- My Degeneration

Images copyright from various artists.
NNLM Resource Picks
March 2017 session recording

How to make the most of your National Library of Medicine traveling banner exhibition!

Recording of March 2017 NNLM Resource Picks
Careers
NLM Traveling Exhibits

High School
American Indian Science and Engineering Society (AISES)
http://www.aises.org/who/programs/press
AISES offers a variety of programs for American Indian and Alaska Native students to help them pursue science and engineering careers.

High School
ASPIRINGDOCS.ORG by the Association of American Medical Colleges (AAMC)
http://www.aspiringdocs.org
ASPIRINGDOCS.ORG is supported by the AAMC. The mission of the AAMC is to improve health care by advancing medical education, research, and patient care.

Careers in Medicine and Sciences
- High School
- Higher Education
- Post-Graduate/Medical Schools

Lesson Plans & Additional Resources
- Online Activities
- Suggested Readings
- Health Headlines

Prominent women in medicine are highlighted in the “Celebrating America’s Women Physicians” exhibit. The exhibit features women from diverse backgrounds who have made significant contributions to the field of medicine.

NATIVE VOICES
NATIVE PEOPLES’ CONCEPTS OF HEALTH AND ILLNESS

PHYSICIAN ASSISTANTS
Collaboration and care
Exhibition: Part of a Team

A PA student (right) from George Washington University observes a doctor performing an eye exam during a rotation, Washington, DC, ca. 1970s.
Courtesy National Library of Medicine

PA students are educated and trained to collaborate with other health professionals. During their coursework and clinical training, PA students learn from and work with physicians, other PAs, nurses, and additional health care professionals in a variety of settings.

American physician Eugene Stead created the profession’s partner-based foundation. He modeled the PA workforce after the collaborative relationship between Dr. Amon Johnson and his assistant, Buddy Treadwell, who had worked together in rural North Carolina since the 1940s. Dr. Stead opened the first academic PA program at Duke University in 1965, which educated students to...
Peer Tutor Project

¡VIVA! Peer Tutor Project

September 12, 2016

OUR MISSION

Biblioteca Las Américas
medlineplus.gov
Implementation Guide
History
Activities
Personnel
South Texas ISD
Publications
Awards

To empower high school students and assist them in serving their communities;

To improve the awareness and use of quality health information resources in communities; and

To create student-centered programs for community health outreach.

We offer free support for these staffing new peer tutoring programs that seek to partner teachers and high school students and wish to learn from the experiences of others.

AWARDS

2003 Texas Library Association Project of the Year
2003 HOSA Student community awareness project
2006 National School Library Media Program of the Year

FUNDED

This project has been funded in whole or in part with Federal funds from the National Library of Medicine, National Institutes of Health, under Contract No. HHSN-276-2011-00007-C with the Houston Academy of Medicine-Texas Medical Center Library.

Download our recently updated Implementation Guide!
PNR Rendezvous
August, 2016

session recording

Integrate Technology in the Classroom with NLM K-12 Resources

Presented by: Andrew Plumer
Outreach Librarian
Specialized Information Service, NLM
August 17, 2016
NLM K-12 Twitter & Newsletter

Education Connection
Working with teachers and scientific experts to provide FREE reliable resources for the classroom

This month we are celebrating genetics by providing you with great tools to use with your students in the classroom. Each week we will provide current events, fun facts, lesson plans, games and resources to help motivate your students.

Current Events for the Classroom
Spotlight on Cell Biology

New scientific discoveries are made every day, increasing our understanding of even the most basic concepts. The phases a cell goes through during its lifetime is well documented, but until recently scientists could only determine the age of a cell after it died. Scientist at NYU made an incredible breakthrough using a state-of-the art fluorescent microscope which allows them to see changes in the nucleus of living cells. Researchers observed small flickers of light emitted from the nuclear envelope. They discovered that young cells give off quick strong flickers, while old cells have fewer and weaker flickers.

So, what’s all the fuss about??? With this new insight, researchers may better understand human biology. It is hopeful, that these new discoveries will help them to gain knowledge about healthy and diseased cells. Researchers believe that structural and functional errors in the nuclear envelope may be responsible for developmental and inherited disorders.

Teacher Talk

Current events are a great way to introduce the "why we care about this topic" to students. As you begin to cover topics such as the phases of the cell cycle, recent news articles like this one can be used to get students thinking about why the science is important and how it may benefit them. You can link to the full proceedings from the National Academy of Sciences of the United States of America to learn more about this new discovery.

Looking for more resources about cell biology... take a look at these resources from the National Library of Medicine and the National Human Genome Research Institute: GeneEd – Cell Biology
NNLM PNR

- Help your students/parents/school staff be informed about health
- Provide health resources and increase health awareness to parents and the wider community
- Connect with the community through collaboration and information
- Look to NNLM PNR for great resources, classes, webinars, funding and other opportunities

NNLM PNR
https://nnlm.gov/pnr
Thank You!

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