



THE NATIONAL SCIENCE DIGITAL LIBRARY

# Resources, Tools, and Services for the Educator



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NSDL Education and Outreach Specialist



Teachers Domain Workshop  
July 20, 2007



# The National Science, Technology, Engineering, and Mathematics Education Digital Library (NSDL)

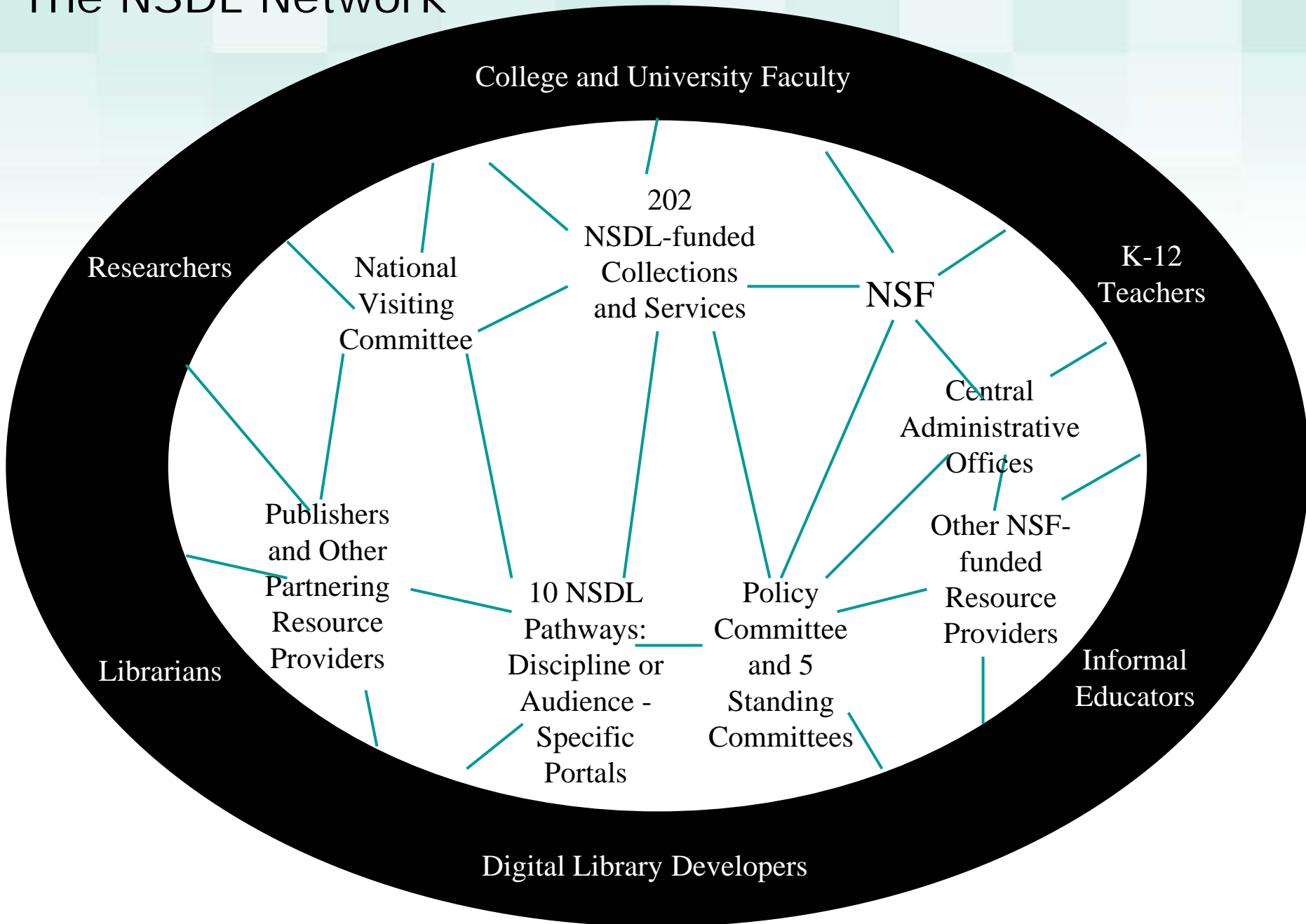


The screenshot shows the NSDL website homepage. At the top, the NSDL logo is displayed with the tagline "THE NATIONAL SCIENCE DIGITAL LIBRARY". Below the logo is a navigation bar with buttons for "EXPLORE", "SHARE", "LEARN", and "CREATE". The main content area is divided into sections for different user groups: "K-12 Teachers", "Librarians", "University Faculty", "First Time Users", and "NSDL Community". Each section lists "Top Picks" and provides links to "Resources of Interest", "Using NSDL", "Research Articles", "Newsfeeds", and "Events Calendar". A search bar is located at the top right of the main content area. The footer contains links for "Sign In", "Contact", "Help", "Privacy", "Sitemap", "Funded by NSF", and "Email this page".



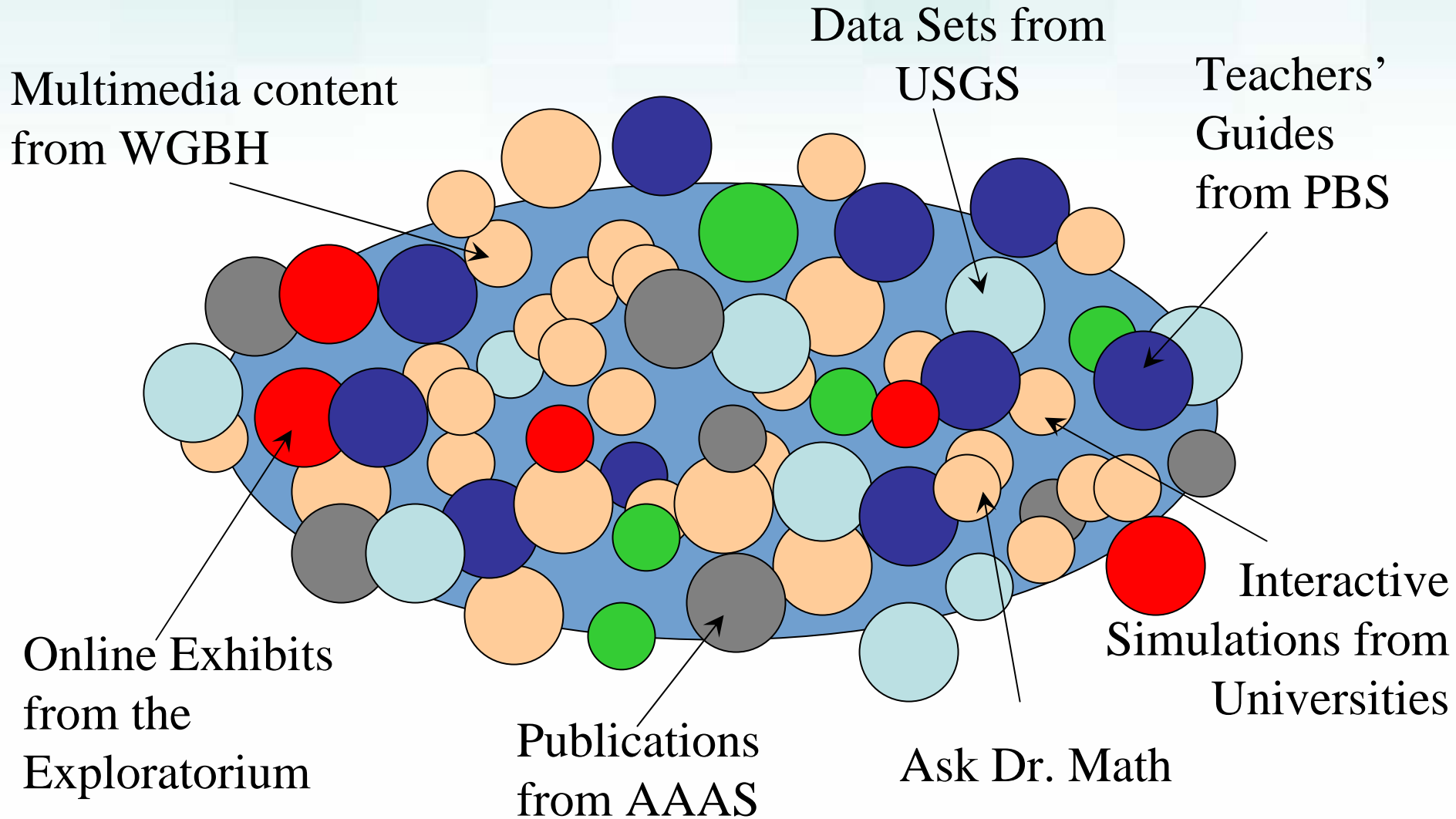
Established to catalyze and support continual improvements in STEM education at all levels (K-12, Higher Education, and Lifelong Learning).

# The NSDL Network



# Why a Digital Library?

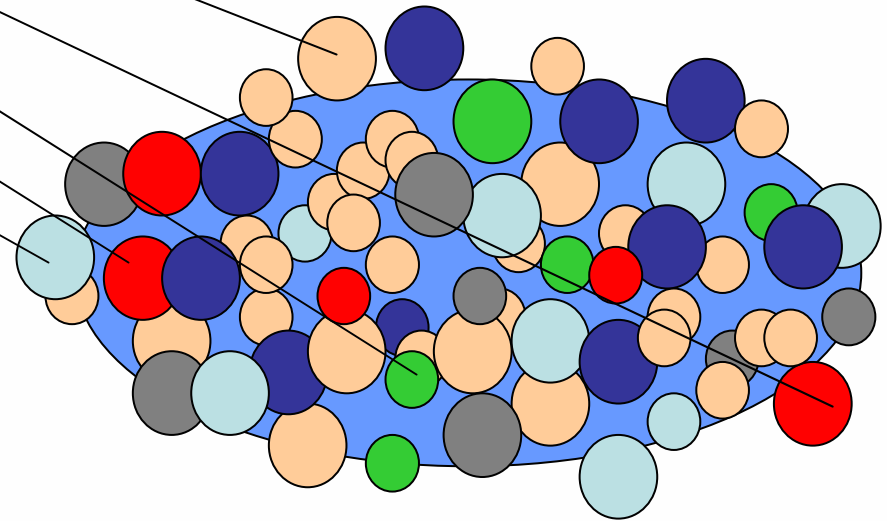
Resources are Scattered across the Internet



# Digital Libraries Offer Coordinated Access



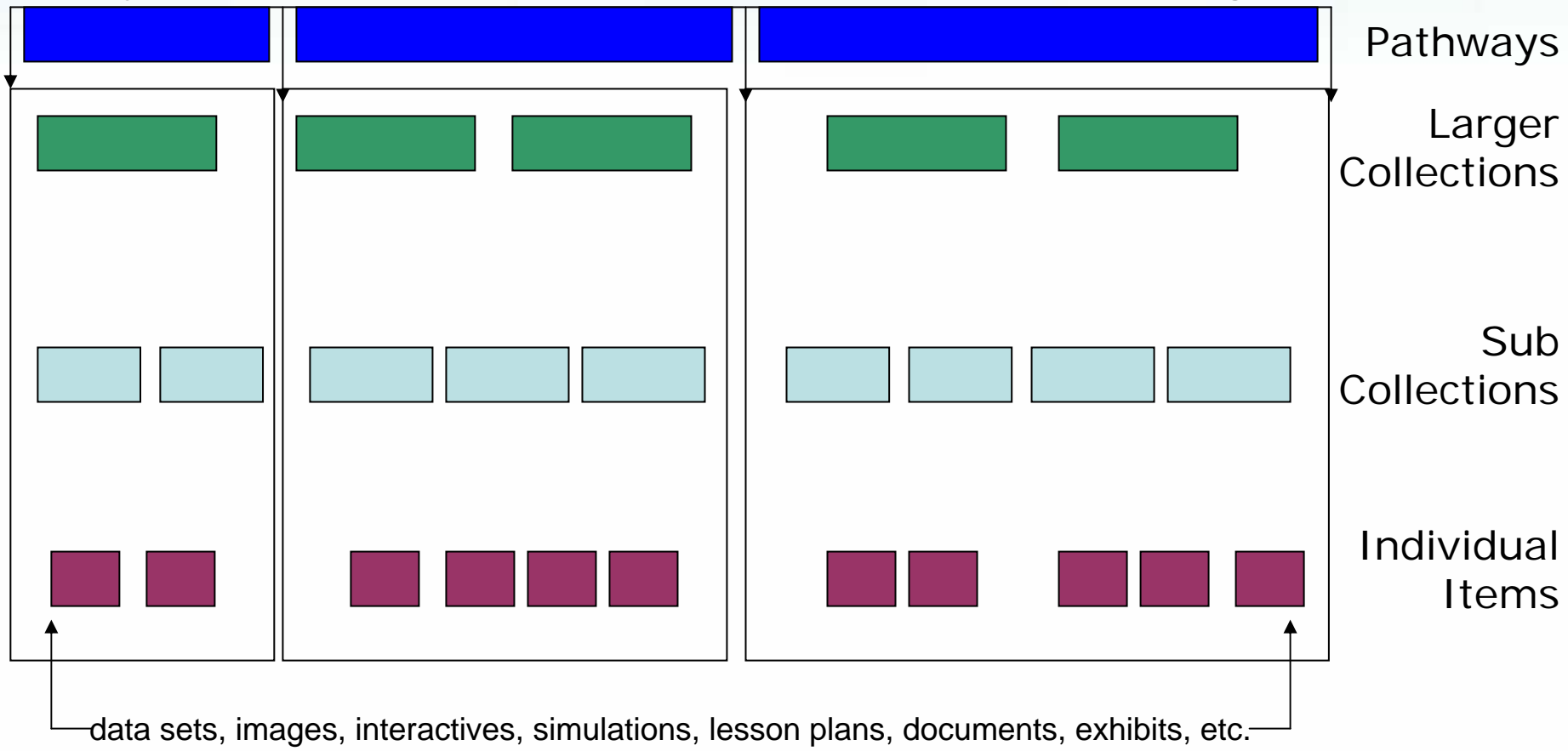
**NSDL  
Repository**

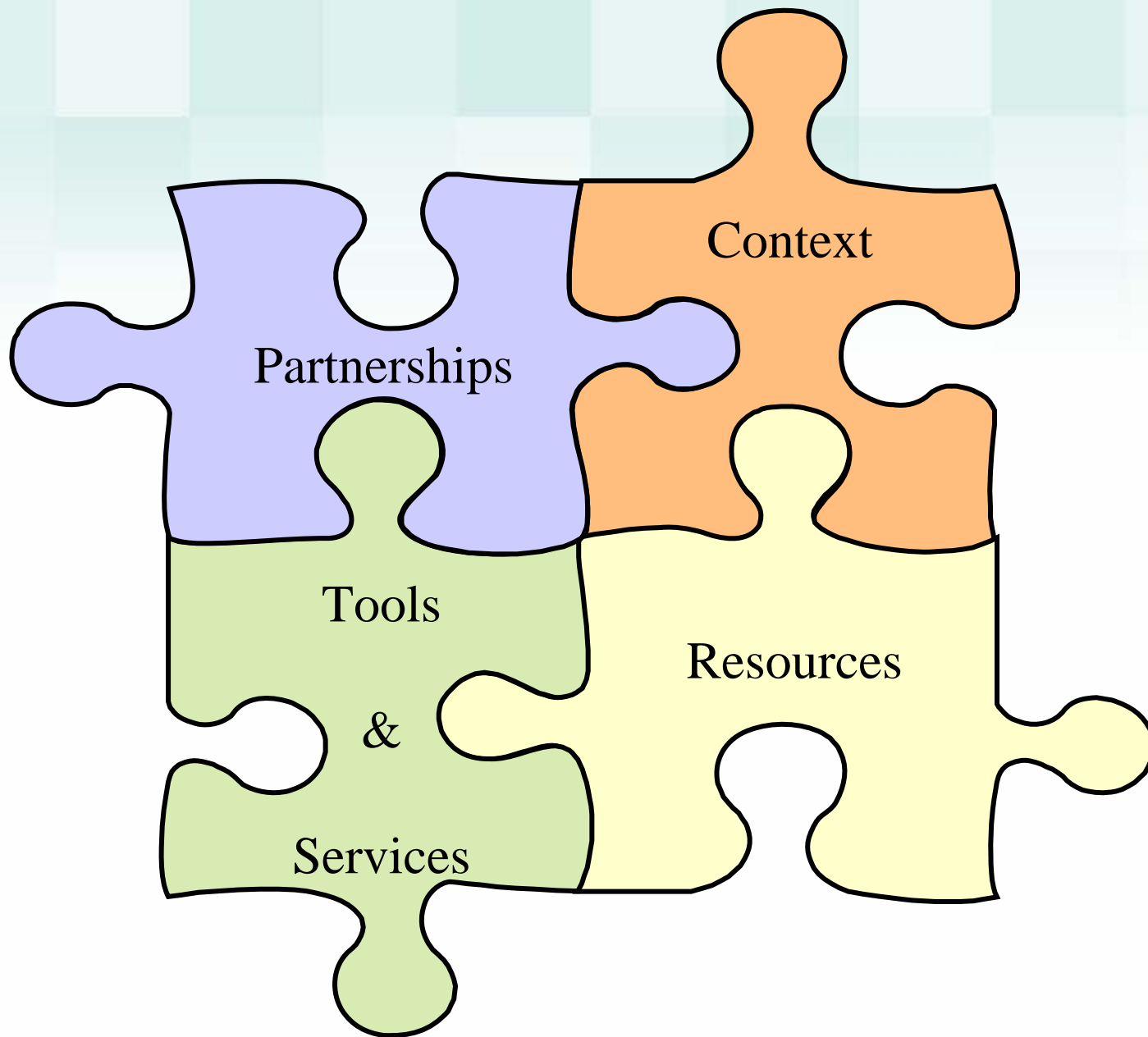


# What is in NSDL?



Pathways: Audience & Discipline Related Portal Views Through NSDL







**NSDL Middle School Portal** Search  for

Home Math Science Projects About Contact

## Mathematics Pathway

**Explore in Depth**  
We carefully comb the collection for the finest online resources to help you and your students thoroughly explore a teachable topic. [See more...](#)

**Browse by Subject**  
Information about Subject Lists

- Mathematics
  - Algebra
  - Calculus
  - Discrete mathematics
  - Geometry
  - Logic and foundations
  - Mathematics history
  - Measurement
  - Number and operations
  - Number theory
  - Probability
  - Trigonometry
  - Real world applications
  - Statistics
  - Topology
  - Transversity
  - Education Issues

**Quick Take on...**  
One pager that highlight three to four 'just-in-time' digital resources. [See more...](#)

**Factors Pythagoras and His Theorem Word Problems**




SUCCESS-DEAF CS Home [www.shodor.org/succeed/](http://www.shodor.org/succeed/)

Click the **ASL** to see the text signed

## DEAF CS Home

intro

By clicking on the **ASL**, you can see the text on the student pages signed in ASL.

DEAF CS is a collection of activities and lessons that use modeling and simulation technologies to help students and their teachers explore math and science concepts. As the deaf students read the material, they can access the concepts in their natural communication mode through **authentic ASL**, signed by deaf educators and students.

DEAF Interactivate is a collection of Java-based **interactivity**, computer applications. These tools are designed to teach students math and science concepts through hands-on **interactivity**.

teachersdomain Multimedia Resources for the Classroom and Professional Development

Home Science Physical Science Fundamental Theory Cosmology and Gravity Resource

Search  User: Text Drive User  Help Register

Search by grade, subject, or media type  My Folders My Groups My Courses My Profile Show me grades: [6-12]

Resources: Gravity and the Expanding Universe Recommended for: Grades 9-12

Media Type: QuickTime Video  
Length: 4m 05s  
Size: 1.6 MB

View

Albert Einstein once proposed that there was a force that opposed gravity and kept the universe from collapsing in on itself. But several years later, as a result of new information, Einstein dismissed his own idea as foolishness. This video segment, adapted from NOVA, explains why modern researchers investigating our expanding universe think Einstein may have been right after all.

Tasks Covered: Fundamental Theory  
Matter  
Motion and Forces

Sources: NOVA, "Babylon Universal"  
Produced for Teachers Domain by: [teachersdomain.org](#)

Content Not Developed for Teachers Domain by:

**SIGMA RB1** A comprehensive compilation of the most current information on Alzheimer's Disease

Science  SEARCH

Navigation News SIGMA Careers Multimedia Collections My SIGMA Feedback

Signal Transduction Knowledge Environment

Home Archive Literature Community Database of Cell Signaling My SIGMA About SIGMA

Home > SIGMA Home > Literature > Perspectives > Database - J. p424

Articles Views: 101 2792, 14 Nov 2002  
DOI: 10.1101/004.2002.132.p424

Full Text (HTML) Full Text (PDF)

**PERSPECTIVES**

**Amplification of Signaling Events in Bacteria**

Articles Views: 101 2792, 14 Nov 2002  
DOI: 10.1101/004.2002.132.p424

Full Text (HTML) Full Text (PDF)

Abstract/Summary

**Frederick W. Dahlquist**  
Knight Professor and Head, Department of Chemistry, Member, Institute of Molecular Biology, University of Oregon, Eugene, OR 97403, USA.

Summary: Bacteria respond to extremely shallow chemical gradients by modifying their motility in a process called chemotaxis. This characteristic response is characterized by high sensitivity to small concentration differences, which extends over a large range of concentrations. This combination of high signal gain and large dynamic range results from both a memory of past events and the ability to amplify small differences in signal between the memory and the current environment. Dahlquist describes the signaling mechanism used by bacteria to regulate the flagellar motor and the places in this pathway where signal amplification may occur.

Contact information: E-mail: [fred@chem.uoregon.edu](mailto:fred@chem.uoregon.edu)  
Classes: 111, 424, 524, Amplification of Signaling Events in Bacteria (Sci: STRE 2002, p424 (2002))

View Full Text

Related Content: [Read the Full Text](#)

More Information on Related Content

STAY PLUGGED IN! [Plant Personalization and More](#)

RECORDED LIVE on June 20, 2007

**TEACH Engineering Resources for K-12**

Home > Curriculum > Lessons > An Introduction to Inclined Planes

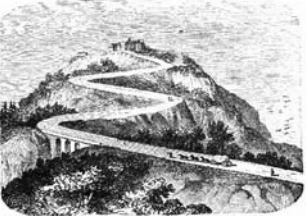
Search Curriculum Browse Curriculum At a Glance Subject Areas Curricular Units Lessons Activities

Browser EdL EdL EdL Living Labs Why K-12 Eng? Submit Curriculum About Us Policies

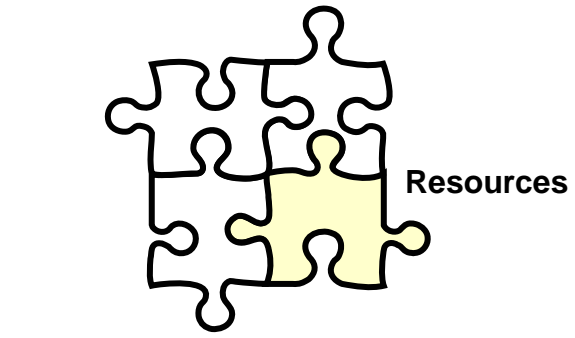
Grade Level: 2 (1-3) Lesson #: Not provided  
Time Required: 50 minutes Lesson Dependency: None

Keywords: inclined planes, simple machines, tools, work, forces

Summary: Students are introduced to the concept of simple tools and how they can make difficult or impossible tasks easier. They begin by investigating the properties of inclined planes and how implementing them can reduce the force necessary to lift objects off the ground.



A road is an example of inclined plane. Copyright © 1999, J. Dornan Books, Fourteen Weeks in Nature Philosophy, New York, A. S. Barnes, pp 33-34.

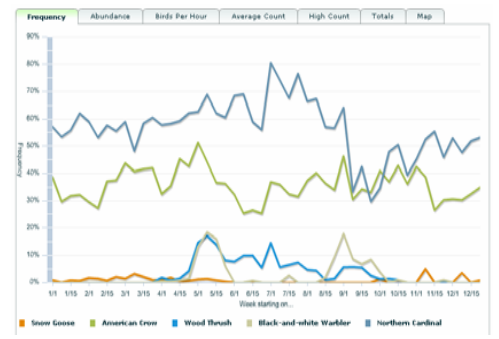


**CORNELL LAB OF ORNITHOLOGY**

About the Lab Lab Programs Publications Shop Online Membership

Research Citizen Science Conservation Education

- About the Lab
- What We Do
- Building and Sanctuary
- Virtual Tour
- How to Reach Us
- Job Opportunities
- Sponsors
- Sponsor Benefits

**Interactivate**

Fire!!

Shodor > Interactivate > Activities > Fire!!

Learner Activity Instructor

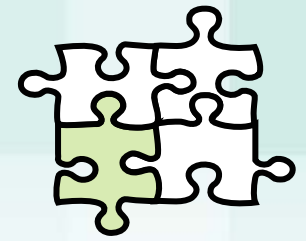
Priority:  (4) Problems:  2  
Or enter a decimal or a fraction:

Choose how the fire will spread:  
 Burn Unimpeded  
 Burn Step By Step

The fire has started!



# Concept Map Tool

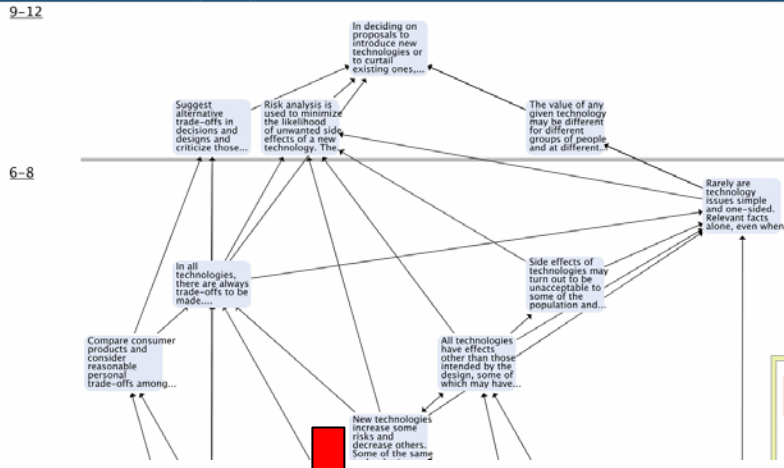


Tools & Services

**NSDL** Concept Maps for Science and Mathematics Education  
 Helping teachers connect concepts, standards and NSDL educational resources

Search for concept maps  Search or -- Select a Topic --

The Nature of Technology > Decisions about Using Technology Print



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Search for concept maps  Search or -- Select a Topic --

The Nature of Technology > Decisions about Using Technology

**Concept Details**

**AAAS Benchmark** All technologies have effects other than those intended by the design, some of which may have been predictable and some not. In either case, these side effects may turn out to be unacceptable to some of the population and therefore lead to conflict between groups.

Grade range: 6 - 8  
 Topic areas: risks and side-effects

**Resources**  
 results 1 - 5 out of 10 [text >>](#)

**University of Utah - Genetic Science Learning Center: Teacher Resources/Classroom Activities ...**  
<http://logic.genetics.utah.edu/teachers/index/>  
 From the University of Utah-Genetic Science Learning Center (reported on in the Scout Report for Science & Engineering on February 2, 2000) this website offers a plethora of educational activities for educators and students. Designed for multiple grade levels, examples of classroom activities include Transcribe and Translate a Gene, Build a DNA Molecule, What Makes a Firefly Glow?, What is a Mutation? ...

**South America: Relief, Resources, Respect**  
<http://the-traveler.com/education/usa.html>  
 In this three week unit, students in middle school explore places, people, and culture of South America. The four lessons help them "develop an understanding of their own culture, as it continues to reinforce their own sense of personal and social identity." The lessons include objectives, procedures, lists of needed materials, and recommended resources.

**How Things Work**  
<http://howthingswork.virginia.edu/>  
 The author urges his audience to "think of this site as a radio call-in program that's being held on the WWW instead of the radio." If you want to know how something works, send an email to the author and he will try to

**trade-offs**

9-12

6-8

**The NSTA Learning Center** BETA RELEASE

QUICK SEARCH ::

View Cart

nsa.org My Account Resources & Opportunities Advanced Search Browse by Subject Give Us Feedback Help

Learning Center Home > Resources > Web Seminars > Archives > NSDL

LOGIN ::  
 [ Click here to log in now ]

**NSTA WEB SEMINARS**  
 LIVE INTERACTIVE LEARNING @ YOUR DESKTOP

WEB SEMINARS ARCHIVES

- Spring, 2007
- Fall, 2006
- Spring, 2006
- Fall, 2005
- Spring, 2005

ABOUT WEB SEMINARS

- Features
- Frequently asked questions (FAQs)

WEB SEMINARS SOFTWARE

**NSDL/NSTA Web Seminars:**

**NSDL/NSTA Web Seminar Series**

The National Science Digital Library (NSDL) collaborated with NSTA to develop a series of web seminars focusing on a variety of topics including, "Teach Engineering" and "Chemistry Comes Alive!" The seminars included information and resources for educators available on the NSDL website. Presenters are well-respected, veteran educators from NSDL with diverse backgrounds and experience. Take a moment to download the PowerPoint presentations, and see available archived programs from the comfort of your own office or home!

Learn more about the [features](#) of the Web Seminar and read answers to [frequently asked questions](#) from participants.

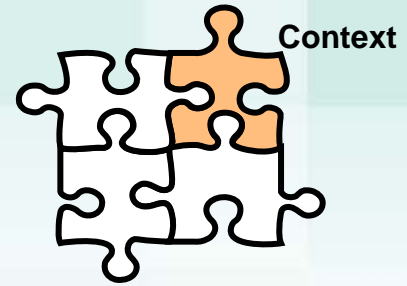
**Recent NSDL/NSTA Web Seminars:**

Read about the topics covered, download the PowerPoint presentations, and see available archived programs from the comfort of your own office or home!

**Plate Tectonics: The Revolution of the Earth Sciences**

## NSTA/NSDL Web Seminar Series

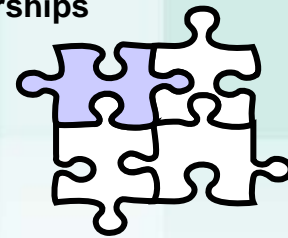




# Expert Voices: NSDL Blogosphere

The screenshot shows the NSDL Expert Voices blog interface. At the top left is the 'EV NSDL' logo with the tagline 'Expert Voices: Speaking of Something Interesting.' and a search bar. The breadcrumb trail reads 'NSDL.org > Expert Voices > Selecting and Using Digital Phenomena and Representations'. The main title of the post is 'Selecting and Using Digital Phenomena and Representations'. A text box notes that the blog accompanies the NSDL/NSTA Web Seminar on June 19th. Contributors listed are Chad Dorsey and Robert Payo. The featured post is 'An introductory post about PRISMS', dated Wednesday, June 20th, 2007, 12:02 am, by Chad Dorsey. The post text discusses the PRISMS project, its origins with the American Association for the Advancement of Science's Project 2061, and its focus on phenomena and representations in textbooks. A sidebar on the right contains links for Sign In, Information (About), Categories (General, Science, Technology), Bookmarks (NSDL website), Previous Posts (June 2007, May 2007), Expert Voices Help, Expert Voices User Feedback, Expert Voices Beta Version (Powered by WordPress MU), a Creative Commons BY-SA license icon, and a Syndicate link.





# Examples of Partnerships

## K-12

- Pathways Partners
- National Science Teachers Association
- Project Tomorrow / NetDay
- Textbook publishers

## Higher Education and Research

- Pathways Partners
- More than 20 journal and textbook publishers

## Informal Education

- American Museum of Natural History
- Exploratorium
- Education Development Center

## Educational Systems

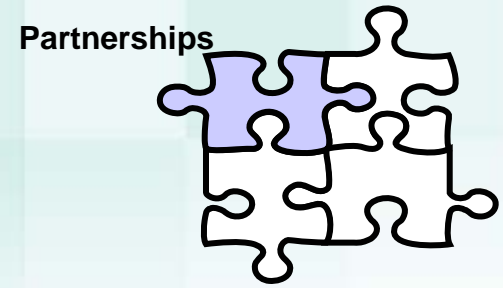
- Southern Regional Education Board

## Federally-Funded Networks

- NSF-funded Research Centers Education Network
- National Digital Information and Infrastructure Preservation Program (NDIIPP)
- Engaging People in Cyberinfrastructure (EPIC)

## Libraries and Digital Libraries

- Fedora Commons
- National Forum on Information Literacy



# NSDL Pathways

- Educational level and discipline specific views of NSDL
- Built by leading organizations who are trusted by their target audiences
- Provide resources, tools, services, and professional development
- A method for professional organizations to engage and serve their membership communities

# Pathway and Lead

# Ed Level

# Discipline

<p><b><i>Applied Math and Science Education Repository (AMSER)</i></b>  <a href="#">Univ of Wisconsin, Madison</a></p>	Community Colleges	Applied Mathematics & Science
<p><b><i>BioSciEdNet (BEN)</i></b>  <a href="#">AAAS, plus &gt;20 professional societies</a></p>	Undergraduate & High School	Biology
<p><b><i>ChemEd DLib</i></b>  <a href="#">ACS, JCE, ChemCollective</a></p>	High School & Above	Chemistry
<p><b><i>ComPADRE</i></b>  <a href="#">AAPT, APS, AIP/SPS &amp; AAS</a></p>	Undergraduate & High School	Physics & Astronomy
<p><b><i>Computational Science Education Reference Desk (CSERD)</i></b>  <a href="#">Shodor Education Foundation</a></p>	Undergraduate & High School	Computational Science
<p><b><i>Engineering Pathway</i></b>  <a href="#">UC Berkeley, Univ of CO</a></p>	Undergraduate & K-12	Engineering
<p><b><i>Materials Digital Library</i></b>  <a href="#">Kent State University</a></p>	Undergraduate & Above	Materials Science
<p><b><i>Math Gateway</i></b>  <a href="#">Mathematical Assoc of America</a></p>	Undergraduate	Mathematics
<p><b><i>Middle School Portal</i></b>  <a href="#">Ohio State University</a></p>	Middle Grades	Science, Mathematics, & Technology
<p><b><i>Teachers' Domain</i></b>  <a href="#">WGBH Public Television</a></p>	K-12	Life, Earth, Space, & Physical Sciences

# Thank You!



THE NATIONAL SCIENCE DIGITAL LIBRARY

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<http://nsdl.org>