About the

Biological Sciences Pathway
Goals of the NSDL Biological Sciences Pathway

The BiosciEdNet (BEN) Collaborative is working with the CI and other NSDL Pathways to expand its stewardship role for biological sciences professional societies and coalitions that provide resources, tools, and professional development for educators at the high school and undergraduate levels, including community colleges.
BiosciEdNet (BEN) Objectives

BEN serves as a catalyst for professional societies or coalitions that seek to:

- Build biological sciences education-focused digital libraries.
- Contribute resources to the BEN portal.
- Collaborate in terms of pedagogy, authentic assessment, and development of multidisciplinary biological sciences resources.
The NSF NSDL Pathways funding will allow us, over the next 4 years, to increase the number of:

- Collaborators that we aggregate resources from 13 to 22.
- Digital libraries developed by members of the BEN Collaborative from 6 to 13.
- Cataloged resources from 3,700 to 27,000.
BEN/NSDL
Faculty Campus Representative Program

By the end of the 4 year grant period, 45 college and university faculty members, geographically dispersed around the US, will be prepared to provide campus and community-based workshops and technical assistance in selected areas for prospective contributors/user to both BEN and the NSDL.
Collaborators

- **AAAS**-American Association for the Advancement of Science*
- **ABLE**-Association of Biology Lab Educators
- **AIBS**-American Institute of Biological Sciences*
- **APS**-American Physiological Society*
- **APS**-American Phytopathological Society*
- **ASBMB**-American Society for Biochemistry and Molecular Biology*
- **ASM**-American Society for Microbiology*
- **BCC**-BioQUEST Curriculum Consortium
- **Bio-Link**-the NSF Advanced Technological Education Center for Biotechnology
- **BSA**-Botanical Society of America
- **ESA**-Ecological Society of America*
- **EntDL**-Entomology Digital Library
- **FUN**-Faculty for Undergraduate Neuroscience
- **HAPS**-Human Anatomy and Physiology Society
- **NABT**-National Association of Biology Teachers*
- **NAHSEP**-National Association of Health Science Education Partnerships
- **NBII**-National Biological Information Infrastructure*
- **NLM-AE**-National Library of Medicine-Access Excellence*
- **SDB**-Society for Developmental Biology
- **SICB**-Society for Integrative and Comparative Biology
- **STKE** - *Science’s Signal Transduction Knowledge Environment*
- **SOT**-Society for Toxicology*

*Founding Collaborators
Collaborators Building New Digital Libraries

- **AIBS** - American Institute for Biological Sciences
- **BCC** - BioQUEST Curriculum Consortium
- **BSA** - Botanical Society of America
- **DNALC** - Dolan DNA Learning Center
- **EntDL** - Entomology Digital Library
- **SDB** - Society for Developmental Biology
- **VIDA** - Video and Image Data Access (VIDA)/Cal State Fullerton
Welcome to the BEN portal, which provides access to resources from BEN Collaborative project organizations and is managed by the American Association for the Advancement of Science (AAAS). Over 3,300 reviewed resources covering 76 biological sciences topics are now available. Go to "Use BEN", to find out more about the types of resources available, tips for locating resources, and the structure of the BEN catalog.

Registration is required to use our search, advanced search, and browse services.
The American Journal of Botany Cover Images Index

Welcome to the Botanical Society of America's online image collection. We hope you enjoy a browse through our members contributions. Please note that each image acts as a link to a page containing more information and a larger version of the picture.

2005 - Volume 92

January  February  March
Welcome Guest!

Welcome to MicrobeLibrary, a permanent collection of over 1,400 original peer-reviewed resources for teaching undergraduate microbiology.

Subscriptions required for full-text from:

Free access to Visual Collection – this includes all Images, Animations and Videos

139 New Images linked to commonly used protocols including Blood Agar Plate, Gram Stain, MacConkey Agar Plate, Serial Dilution, and Triple Sugar Iron Agar.
What's New

Issue 276: 22 March 2005

Teaching Resources
Structure of G Protein–Coupled Receptors and G Proteins
Ravi Iyengar [Abstract][Full Text][PDF][Slides and Movie]

Connections Map Overviews
Ethylene Signaling Pathway
Anna N. Stepanova and Jose M. Alonso [Abstract][Full Text][PDF][Pathway]

Arabidopsis Ethylene Signaling Pathway
Anna N. Stepanova and Jose M. Alonso [Abstract][Full Text][PDF][Pathway]

This Week in Signal Transduction
Issue 276 22 March 2005

Editor's Choice (Free)
Bcl-2, an Intrinsic Factor for Neuronal Regeneration

Full List of This Week’s Summaries
**FEATURE**

**Plant Yourself in a Summer Opportunity**

We are offering several National Science Foundation (NSF)-funded educational opportunities in modern plant biology for teaching faculty.

**Summer Faculty Fellowships**

Two faculty/student teams will develop educational resources in plant genetics during a three-week fellowship at Cold Spring Harbor Laboratory.

**Workshops for High School & 2-Year College Faculty**

Learn to integrate Plant Molecular Genetics and Genomics in your teaching. These three-day workshops are held at sites in Utah and Texas and mix theoretical with laboratory and computer work.

**Workshops for College Faculty**

Catch up with the growing field of plant genetics, genomics and bioinformatics at a five-day workshop held in California, New York, or Virginia. These workshops provide 2- and 4-year college faculty with laboratory- and computer-based instruction.

**Investing in DNA**

Held each fall, the Annual Fund provides key support for the Dolan DNA Learning Center and its programs. Join others in supporting this mission.
agriculture & aquaculture, anatomy, anthropology & archaeology, bacteriology, behavioral science, biochemistry, biocomplexity, biodiversity, bioengineering, bioethics, bioinformatics, biophysics, biostatistics, biotechnology, botany & plant science, cardiology, cell biology, conservation biology, cryobiology, developmental biology, ecology, education, endocrinology, entomology, environmental sciences, epidemiology, evolutionary biology, exercise & kinesiology, exobiology, forestry, gastroenterology, genetics & heredity, genomics, geography, glycobiology, hematology, histology, human biology, hydrology & water resources, immunology, invertebrate biology, marine biology, metabolism, microbiology, molecular biology, mycology, neurobiology, nutrition & food sciences, oceanography, paleontology, parasitology, pathology, pharmacology, phylogeny, physiology, population biology, proteomics, psychology, public health, range science, reproductive biology, respiratory biology, sociobiology, soil biology, structural biology, systematics, taxonomy & classification, theoretical biology, toxicology, vertebrate biology, virology, wildlife science, zoology
<table>
<thead>
<tr>
<th>Learning Resources Types</th>
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<td><strong>Animation</strong></td>
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<td>Digital Presentation</td>
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<td>Simulation</td>
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<td>Journal Article</td>
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<td>Non-journal Article</td>
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<td>Bibliography</td>
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<td>Discussion Archive</td>
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<td>Assessment: Exam</td>
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<tr>
<td>Course Syllabus</td>
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<tr>
<td>Lecture/Lecture Outline</td>
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Users Services

- Basic Keyword Search
- Advanced Search
- Browse by Subject
- Browse by Resource Type
- Announcements
- Calendar of Events
Administrative and Collection Management Services

- Login Password
- User Registration Profile
- Resource Cataloging
- Metadata Harvesting
- Metadata Review System
- Web Trend Reporting (Hits and Visitors)
- User Registration Profile Summary Reports
- User Surveys
Aerobic & Anaerobic Respiration

Interactive animated tutorial in Macromedia Flash provides a very accessible introduction to the mechanics of aerobic and anaerobic respiration for students of microbiology.

Author:
Publisher:
Collection: American Society for Microbiology
Record Last Updated: 2002-03-25

Keywords: Bacteria, Environmental, Metabolism
Learning Resource Type(s): Animation, Image
Context:
Format: text/html
Size: Unavailable
BEN Inventory of Resources (4,111)

- AAAS (220 lesson plans and multimedia resources)
- ABLE (66 Lab Exercises and Manuals; 2 Teaching Strategies)
- AIBS (184 teaching and learning resources)
- APS (501 teaching and learning resources)
- APSNet (57 Plant Disease Lessons and articles)
- ASBMB (39 articles and interactive resources)
- ASM (1141 teaching and learning resources)
- BSA (948 annotated images)
- ESA (192 teaching and learning resources)
- FUN (20 journal articles)
- HAPS (266 journal and newsletter articles)
- NHM-Access Excellence (206 teaching and learning resources)
- STKE (317 reviews, perspectives, and multimedia resources)
- SOT (9 teaching and learning resources)

Note: Statistics as of 1-31-2006
Who Is Visiting BEN and Why?

- 5,955 Registered Users
- 5,433 teach (91%)
- 3,700 teach undergraduate, graduate, professional, or continuing education (62%)
- 1,144 high school educators (19%)

September 2004 User Survey (550 Responses)
- 56% Downloaded Resources
- 67% Use Resources for Lectures
What are Visitors Seeking?

- Visual Resources 30%
  - Images
  - Videos
  - Animations

- Curriculum Resources 5%
  - Classroom
  - Laboratory

- Articles 35%
  - Focus on Microbiology Newsletter
  - Microbiology Education Journal
  - ASM News Features

- Reviews 30%
  - Textbooks, Books,
  - Videos, CD-ROMS, Software
  - Websites

Note: From ASM ML
Publications/Documentation

Available at http://www.biosciednet.org/project_site/

- BEN Metadata Specification Version 1.0 (based on IEEE LOM)
- Metadata Harvester Software Specifications using the OAI Protocol
- BEN Metadata Repository Database Specification
- XML specification and schema for transferring BEN LOM Metadata
- Cataloging Software Specifications
- Search Engine Specifications
- White paper on approaches to federated login
- BEN Portal Site Standard Operating Procedures
- User Survey Report
A Catalyst for …

- Social and cultural changes in the teaching of the biological sciences in higher education.

- Individual biology educators to improve their teaching through access to quality resources, collaboration, and network building.

- Participating societies and coalitions to build collaborations in terms of pedagogy, authentic assessment, multidisciplinary resources, and development of their individual digital library collections.
Value

- Seamless access to quality, credible, and authoritative resources.
- Shared digital resources across sub-disciplines.
- Serve the diverse community of biology educators not currently served by any single group.
Challenges

- Understanding integration of digital resources into the postsecondary biology curriculum
- Community/Partnership Development
- Contributor/User Development
- Contributor Incentives
- Content Gaps
- Sustainability
Preparing your next course, lesson, or lecture?

Discover a wealth of biological sciences education resources located at the Biosci Education Network (BEN) portal www.biosciednet.org. The BEN portal provides access to online educational resources from professional societies, educational organizations, and educators like you. With BEN learning resources — incorporate images into your lecture, use reviews to decide on reading materials, assign digital library articles for class discussions and journal clubs, and simulate lab experiences in preparation for hands-on live labs.

Visit www.biosciednet today!

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Pathways Grant Reporting Requirements

- Schedule for progress reports:
  - Year 1: March 30, June 30, and September 30, 2006
  - Years 2, 3, & 4: December 30, March 30, June 30, and September 30

- Progress reports contents:
  - Monthly and Annualized User and Usage Data
  - Web data on hits, unique visitors, page views, and referrals
  - Membership totals, number of registered users, and number of subscribers
  - Number and types of institutions represented by registered users or subscriptions
  - Registered users or subscribers by audience level.
  - Resources catalogued or contributed to a catalog by resource type (for example: 12 lesson plans, 16 images, and 14 teaching strategies.)
  - Outreach activities including conferences, presentations, and workshops
  - NSDL committees, workshops, task forces, and working group participation
  - List of publications and articles