

# Educational Digital Libraries for Science, Technology, Engineering and Mathematics



**CONNECTING**  
Science  
Mathematics  
Engineering  
Technology  
Education



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# Outline

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- **SMETE Open Federation**
- **BioSci Ed Net**
  - Linda Akli, AAAS
- **Gender and Science Digital Library**
  - Sarita Nair, Education Development Center
- **The Learning Matrix**
  - Judy Ridgway, Eisenhower National Clearinghouse
- **ComPADRE/Physical Sciences Resource Center**
  - Bruce Mason, AAPT and Univ. of Oklahoma
- **Q&A**

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## *A Digital Learning Community*

- **The SMETE Open Federation is an e-learning partnership that:**
  - Offers a comprehensive collection of STEM education content and services to learners educators and academic policy-makers
  - Serves as the integrative organization and distribution mechanism for pedagogical material through a tightly coupled federation of digital libraries
  - Promotes educational reform through participatory communities of learners

# The SMETE Open Federation...



- **Believes the NSDL should...**
  - Cover science, mathematics, engineering and technology
    - We should emphasize the interdisciplinary and interconnectedness of learning materials
  - Focus on teaching and learning at the undergraduate and K-12 levels
    - We should recognize the materials needed by faculty to support teaching and learning with these resources
  - Focus on the social aspects of building the NSDL as a community
    - We must elevate community and social aspects to the same level as technical ones
  - Have tightly federated/integrated collections and services to allow users the best possible experience

# Reach of the Open Federation



- Identifiable audience of **9.25 million** users
- About **250,000** directly accessible community members
- Collectively has **42,000** high-quality, web-accessible digital learning resources
  - 28% Math
  - 17% Physical Sciences (physics, chemistry)
  - 19% Life Sciences
  - 4% Engineering
  - 3% Computer Science
  - 29% Non-STEM (History, World languages, etc.)
- K-12/Higher Education
  - Higher education resources 65%
  - K-12 education resources 35%

## SMETE Open Federation

## Industry

Access Excellence & National  
Assoc. Biology Teachers  
([www.accessexcellence.org](http://www.accessexcellence.org)  
and [www.nabt.org](http://www.nabt.org))

American Association for the  
Advancement of Science  
([www.aaas.org](http://www.aaas.org))

Association of Women in  
Science ([www.awis.org](http://www.awis.org))

BioQUEST Curriculum  
Consortium  
([www.bioquest.org](http://www.bioquest.org))

Biosci Ed Net  
([www.benproject.org](http://www.benproject.org))

Coalition for Networked  
Information ([www.cni.org](http://www.cni.org))

CITIDEL ([www.citidel.org](http://www.citidel.org))

ComPADRE/Physical  
Sciences Resource Center  
([www.psrc-online.org](http://www.psrc-online.org))

Computer Science Teaching  
Center ([www.cstc.org](http://www.cstc.org))

Digital Library for Earth  
Systems Education  
([www.dlese.org](http://www.dlese.org))

Education Development  
Center ([www.edc.org](http://www.edc.org))

Eisenhower National  
Clearinghouse ([www.enc.org](http://www.enc.org))

Gender and Science Digital  
Library ([www.gsdl.org](http://www.gsdl.org))

iLumina  
([www.ilumina-project.org](http://www.ilumina-project.org))

Instructional Architect  
([ia.usu.edu](http://ia.usu.edu))

Interactive University  
([iu.berkeley.edu](http://iu.berkeley.edu))

Internet Scout Project  
([scout.cs.wisc.edu](http://scout.cs.wisc.edu))

Learning Matrix  
([thelearningmatrix.enc.org](http://thelearningmatrix.enc.org))

Learning*Online* Network with  
CAPA ([www.lon-capa.org](http://www.lon-capa.org))

Mathematics Association of  
America ([www.maa.org](http://www.maa.org))

MathDL ([www.mathdl.org](http://www.mathdl.org))

Math Forum  
([www.mathforum.com](http://www.mathforum.com))

MERIT Network & Michigan  
Teacher Network  
([www.merit.edu](http://www.merit.edu))

MERLOT  
([www.merlot.org](http://www.merlot.org))

National Center for  
Supercomputer Applications  
([www.ncsa.org](http://www.ncsa.org))

NEEDS—A Digital Library for  
Engineering Education\*  
([www.needs.org](http://www.needs.org))

Project Kaleidoscope  
([www.pkal.org](http://www.pkal.org))

University of California  
Teaching and Learning with  
Technology Center  
([www.uctltc.org](http://www.uctltc.org))

Autodesk\*  
([www.autodesk.com](http://www.autodesk.com))

Cisco Systems  
([www.cisco.com](http://www.cisco.com))

John Wiley & Sons\*  
([www.wiley.com](http://www.wiley.com))

Collegis  
([www.collegis.com](http://www.collegis.com))

MathWorks\*  
([www.mathworks.com](http://www.mathworks.com))

Microsoft Research\*  
([research.microsoft.com](http://research.microsoft.com))

Sun Microsystems  
([www.sun.com](http://www.sun.com))

\*Support NEEDS

SMETE Open Federation collaborations are undertaken to enable collections and service providers to better serve their constituencies

- **Access content from “federated” collections**
  - MERLOT<->Google, MERLOT<->SMETE.ORG, SMETE.ORG<->ENC
- **Evaluate the quality of learning resources**
  - Using “user” reviews and “expert” reviews
- **Expanding communities of practitioners**
  - Through partner collections and activities (such as MIC)
- **Get “personalized” recommendations**