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# Best Practices

NSF ITEST - MLML

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# Real Science

- Real question:
  - Tracking invasive species
- Scientific method
- Biotechnology
- Bioinformatics
- Novel data





# Information in Small Bits

- Kernel Objects
  - Usable by many audiences
  - Usable in tutorials
  - Breaks content into chunks
  - Teachers can adapt for their classrooms

# Emerging Technologies

- Change yearly
- Voice-over-internet-protocol (VOIP)
  - Skype, Breeze (Adobe)
- E-Quizzes
- E-surveys
  - Survey Monkey, Zoomerang
- Websites
- Digital cameras and camcorders
- Pod-casts



# STEM Careers

- STEM career activities
- Integrated into lesson plans
- Field trips
  - Biotech Company
  - Marine Lab
- Virtual field trip and visits to classrooms



# Templates

- For:
  - Lesson plans
  - Handouts
  - Website
  - Activities
    - PowerPoint presentations
    - Webquests
    - Posters



# Communications

- Website
- Email list
- Academic year meetings
- Experts in classroom
- Skype and Breeze
- Virtual field trips or visits





# Japanese Lesson Study

- Team teaching
  - Mentoring and coaching in content and pedagogy
- Evaluation
  - Reflective practices
  - Student feedback
  - Research-based - data for updating
- Constructivist teaching
  - Project-based learning & Webquests

# Distributed Education

- Intensive experience in summer
- Academic year follow up
- Telecommunications - monthly



# Paperless Environment

- CDs
- ftp server
- Electronic archives
- E-surveys and quizzes



# Publications

- Gene sequences
- Conferences
- Open-access publications on Web
- Showcase
- Professional organizations



# Learning Community

- Mentoring
  - Scientist - teacher
  - Teacher - grad student TAs
  - Teacher - teacher
- Teaching
  - Scientist - teacher
  - Teacher - student
- Networking
  - All
- Sharing
  - All



# Resources

- CEOSE (2004). Broadening Participation in America's Science and Engineering Workforce. Committee on Equal Opportunities in Science and Engineering. Washington, DC.
- ITEST Learning Resource Center (2004). Active Learning in the Information Age. Washington, DC.
- National Science Board (2006). America's Pressing Challenge - Building a Stronger Foundation. National Science Foundation. Washington, DC.

