Northern Oregon/
Southwest Washington
Science, Technology, Engineering and Mathematics
Resource Listings

A STEM resource list for career exploration, program and classroom activities, and other related efforts

April 2009

STEM Career Exploration Resources

General Resources

The National Science Digital Library
NSDL is the most outstanding library collection of STEM content on the web! Download the NSDL-On-a-Toolbar to provide a convenient way to access to NSDL content by resource type, subject, and grade level/audience type
http://www.bcps.org/offices/lis/STEM/stem_tl.htm

For Students

These resources were compiled to assist students explore STEM careers and industries. The majority of these Web resources are designed to assist 7-12 grade students.

Career Cornerstone
The Sloan Career Cornerstone website provides some career information, profiles, video clips and advice on educational pathways to specific STEM careers.
http://careercornerstone.org/forstudents.htm

Discover Engineering (National Engineers Week Foundation)
Multimedia website using video activities to show what engineering careers, trends in the industry and other related information. www.discoverengineering.org

Dream It Do It (Manufacturing Institute)
Career toolkit and videos related to high-tech manufacturing jobs. www.dreamit-doit.com

Engineering K12 Center (American Society for Engineering Education)
Find out how to become an engineer, college information and spotlights of people working in the field. www.engineeringk12.org/students/default.php

Engineer Girl (National Academy of Engineering)
Online resources to educate and encourage girls to pursue engineering careers. Website also provides essay contest rules. www.engineergirl.com

Gotta Have IT (National Center for Women & Information Technology)
NCWIT has multiple outreach campaigns and career information including *Gotta Have IT* is an all-in-one computing resource kit designed with educators' needs in mind. A select set of high-quality posters, computing and IT careers information, digital media and more, the resource kit builds awareness and inspires interest in computing. *Gotta Have IT* is for all students, but is especially inclusive of girls. http://ncwit.org/work.campaigns.gotta.html

I-SEEK Careers: Science, Technology, Engineering and Mathematics
List of occupation profiles including overviews, skills needed, salary, education requirements and videos showing different STEM careers.
www.iseek.org/sv/Careers?id=12000:15

LifeWorks
An interactive career exploration web site for middle and high school students sponsored by the National Institutes of Health with information on more than 100 medical science and health careers by title, education required, interest area, or median salary. Alternatively, the "Career

Finder" can be used to generate a customized list of careers especially suited for users' skills and interests. http://science.education.nih.gov/LifeWorks.nsf/feature/index.htm

STEM (Minnesota Dept. of Education)
Interactive Web site with featured careers, resources and fun activities to help explore STEM education and careers. www.mn-stem.com

The Fun Works (Education Development Center)
Site explores interesting science and math-related careers that are often overlooked.
www.thefunworks.org

Women Tech World
Information about various technical careers and FAQs for females interested in pursuing STEM careers. http://www.womentechworld.org/

For Parents

Career Cornerstone
The Sloan foundation's website on STEM careers also includes a section dedicated to parents
http://careercornerstone.org/forparents.htm

Info for Parents (Science Museum of Minnesota)
Tips on how to encourage children and teens' interest in math and science and other resources.
http://scimathmn.org/parents.htm

Science Matters Booklet for Parents (Medtronic)
Free 24-page booklet for parents and educators to help K-6 students unlock the world of science and discovery at home and school.
www.medtronic.com/foundation/community-ed-science-matters.html

New Oregon Diploma Requirements (Oregon Department of Education)
www.getreadyoregon.org

Career Counseling for Parents and Children (Oregon Department of Education)
www.mychildsfuture.org
Parent to child career counseling starting at elementary school

For Counselors, Teachers & Adult Job Seekers

While there are many career sites for specific STEM occupations or industries (many listed in the student section above), however, sites with comprehensive information on a majority of STEM careers can be found through the following sites:

Career Cornerstone
The Sloan Foundation's comprehensive career exploration site. The site has extensive information for teachers and counselors including career descriptions, career planning tools, PowerPoint presentations, STEM career posters and more.
http://careercornerstone.org/forcoun.htm

GetReal!
An Oregon based website for high school students with career information, educational resources, etc. for occupations related to engineering, technology and computer sciences.
http://getreal.ous.edu

GetTech
Dynamic Web site with information to test tech levels and readiness for careers related to math and science.
www.gettech.org

I-SEEK Careers: Science, Technology, Engineering and Mathematics
List of occupation profiles including overviews, skills needed, salary, education requirements and videos showing different STEM careers.
www.iseek.org/sv/Careers?id=12000:15

Within I-Seek, additional information is found under **Ways to Prepare for STEM Careers** including high school classes to take, extracurricular activities and work-based learning options. www.iseek.org/mncareers/need_know/stemprep.htm

InDemand Magazine — STEM (U.S. Dept. of Labor)
Download or read this online magazine that highlights critical skills, post-secondary degrees and in-demand STEM careers.
www.careervoyages.gov/indemandmagazine-stem.cfm

Pathways to Technology,
A multimedia project highlighting technology degree programs at community colleges. The *Pathways to Technology* Web site, video series, recruitment toolkit, and outreach initiative are designed for prospective students, returning students, parents, guidance counselors, and community college educators.
http://www.pathwaystotechnology.org/

STEM (Minnesota Dept. of Education)
Interactive Web site with featured careers, resources and fun activities to help explore STEM education and careers.
www.mn-stem.com

STEM Career Awareness and Choices
Sponsored by the Baltimore County School District, this comprehensive site lists over 100 organizations and websites for all types of STEM careers. ,
http://www.bcps.org/offices/lis/STEM/stem_career.htm

STEM Occupations (U.S. Dept. Of Labor)
Article from the *Spring 2007 Occupational Outlook Quarterly* highlights the wages and skills needed for STEM occupations.
www.bls.gov/opub/ooq/2007/spring/art04.pdf

Women Tech World
Information about various technical careers and FAQs for females interested in pursuing STEM careers. http://www.womentechworld.org/

STEM Teacher & Program Resources

These resources were compiled to support ongoing statewide initiatives to promote advanced science, technology, engineering and math (STEM) coursework and to encourage the exploration of STEM careers and industries. The majority of these Web resources are designed to assist teachers working with 7-12 grade students.

Comprehensive Resources

Oregon Pre-Engineering and Applied Sciences (OPAS)
OPAS is the primary portal For STEM resources in Oregon. With examples of education and out of school programs, listings of conferences and events, and other materials, it is a who's who of Oregon STEM. General website http://opas.ous.edu Materials found at http://opas.ous.edu/materials.htm.

The National Science Digital Library
NSDL is the most outstanding library collection of STEM content on the web! Download the NSDL-On-a-Toolbar to provide a convenient way to access to NSDL content by resource type, subject, and grade level/audience type
http://www.bcps.org/offices/lis/STEM/stem_tl.htm

Techno Science Supersite
The source for information on K-12 camps, competitions, classes, internships, scholarships and clubs in the greater Portland metro region for K-12 students interested in science, technology, and math. http://www.technosciencesupersite.org/index.html

Classroom Activities & Lesson Plans

General STEM

Agriculture Teacher Resources (MN Dept. of Agriculture)
Materials can be integrated into existing subject areas such as social studies, science, environmental education, math and language arts.
www.mda.state.mn.us/kids/maitc/teachresources.htm

DragonflyTV Education Guides (PBS/National Science Teacher's Association)
Activities for topics related to Body and Brain, Earth and Space, Living Things, Matter and Motion, and Technology and Invention.
http://pbskids.org/dragonflytv/parentsteachers/index.html

The Fun Works Teachers & Instructors Section (Education Development Center)
STEM-related lesson plans, activities, career information and other resources.
www.thefunworks.org (free login required for teacher section)

NOVA Teacher's Guides by Subject (PBS)
Classroom activities, viewing ideas and interactive resources.
www.pbs.org/wgbh/nova/teachers/resources/subject.html

OMSI's Science Education Resource Center (SERC) is filled with books, activities, videos and other resources for educators to plan science lessons.

Video Conferences: OMSI has been in the forefront of statewide distance learning technology for a number of years. They've recently upgraded capabilities with the installation of a new, state-of-the-art video conference system as part of the STARS (Science, Technology, and Rural Students) program. For more information about the STARS program, and upcoming video conferences for rural Oregon communities, please see the STARS website. http://www.omsi.org/teachers/STARS

Online Resources: OMSI has created a large number of teacher lesson plans on a variety of science and technology topics which can be downloaded for free. http://www.omsi.org/teachers/resources/curriculum.cfm Titles include:

- Inventions and Technology activities which complement the Vernier Technology Lab.
- Chemistry for the K-8 Classroom is a hands-on, no-hassle messy science with a WOW curriculum, which can be done with ordinary household supplies.
- Air Travelers is a set of activities about ballooning and other ways to fly.
- Water Works explores fountains and other public waterways.
- Our Engineer It exhibit, exploring building things and making them move, has some activities to enhance a visit.
- Explore how different animals change as they grow old, in Amazing Feats of Aging.
- Teach about the skeleton with the Bone Up on Bones Teacher Guide.
- Dangerous Decibels project can teach about hearing loss in many exciting ways.
- Every Body Eats is about nutrition and how to form healthy habits.
- The Eyes on Earth Teacher Guide shows how satellites help us study Earth.

Engineering & Technology

Fields of Energy (MN Dept. of Agriculture)
Renewable energy DVD and Teacher Guide (grades 7-10), free downloads.
www.mda.state.mn.us/kids/maitc/fieldsofenergy.htm

GetTech Teachers Section (National Association of Manufacturers)
New roles for teachers, continuing education and classroom resources.
www.gettech.org/category2.asp?cat=1

K-12 Educators Section (Engineering K-12 Center)
Lesson plans, outreach programs for pre-college students and other engineering education resources. www.engineeringk12.org/educators/default.php

Pre-College Teacher Resources (ASME)
Science and engineering lesson plans and other resources for K-12.
www.asme.org/Education/PreCollege/TeacherResources

Try Engineering
Lesson plans that align with education standards to allow teachers and students to apply engineering principles in the classroom. http://www.tryengineering.org/lesson.php

TeachEngineering digital library provides teacher-tested, standards-based engineering content for K-12 teachers to use in science and math classrooms. www.teachengineering.org

Mathematics

Math Challenges/Problems/Puzzles (Minnesota Council of Teachers of Mathematics)
Links to online math problems for middle and high schoolers.
www.mctm.org/challenges.php

Math Resources (Minnesota Council of Teachers of Mathematics)
Comprehensive math forum, math archive, college-level mathematics information servers, and other resources. www.mctm.org/compsites.php

Math and Science Gateway (Cornell University)
Topic-specific education resources for grades 9-12.
www.tc.cornell.edu/Services/Education/Gateways/Math_and_Science

Sciences

Educator Features and Articles (NASA)
Teaching materials and classroom aides for instructors of grades K-4, 5-8, 9-12 and higher education.
www.nasa.gov/audience/foreducators/index.html

Education Section (National Geographic)
Classroom lessons and activities, news and multimedia resources.
www.nationalgeographic.com/education

Kinetic City
An interactive kid's website sponsored by the American Association for the Advancement of Science (AAAS) **http://www.kineticcity.com/**

Mad Sci Network
FAQs for common science fair topics, Web resources and answers from Ask-a-Scientist.
www.madsci.org

National Geographic Kids
Find animal facts, videos, games, blogs and other geography activities.
http://kids.nationalgeographic.com

NASA for Students
The space administration has interactive games, podcasts, information about upcoming events and programs, research tools for school assignments, and images from deep space.
www.nasa.gov/audience/forstudents/index.html

Newton's Apple Teacher Guides (PBS)
Science-related class activities listed by topic.
www.newtonsapple.tv/TeacherGuides_alphabet.php

Resources for Teaching and Learning Biology (American Institute of Biological Sciences)
Support for teaching General Biology, Nature of Science, Evolution and Science Inquiry for grades K-4, 5-8 and 9-12.
www.aibs.org/education/teaching_resources.html

Science Lab Teacher's Lab (U.S. Dept. of Energy, Office of Scientific & Technical Information)
Classroom and science fair resources, lesson plans, continuing education, career development and grants and funding information.
www.osti.gov/sciencelab/teachers.html

ScienceLab Students (U.S. Department of Energy Office of Science)
Information for elementary, middle and high school students, including homework help, experiments and science fair ideas.
www.osti.gov/sciencelab

Science NetLink
A website of classroom lessons, interactive classroom tools and teaching resources. Sponsored by the American Association for the Advancement of Science (AAAS)
http://www.sciencenetlinks.com/

Science Matters booklet (Medtronic)
Free download of booklet for teachers and parents geared toward encouraging science exploration in K-6 grade students.
www.medtronic.com/foundation/community-ed-science-matters.html

USGS Education (U.S. Geological Survey)
Online resources include lessons, data, maps and more, to support K-12 education and university-level inquiry and research.
http://education.usgs.gov/

Other Resources

Educator Section (SciMath)
Ongoing learning for educators, professional development experiences, collegial learning communities and exploration of resources impact interactions with students in STEM classrooms.
http://scimathmn.org/educators.htm

Project Lead the Way
National, not-for-profit educational program that gives middle and high school students a rigorous, hands-on curriculum in science and engineering. www.pltw.org/index.cfm

STEM (National High School Alliance)
Links to current national, minority-focused and state initiatives, and school-based programs and curricula. www.hsalliance.org/stem

TAP Junior (The Ada Project)
Links to programs and resources that support girls exploring STEM disciplines.
http://women.cs.cmu.edu/ada/Resources/TAPJunior/

Teacher's Corner (NASA)
Standard's, educator workshops and links to teacher-created Web sites.
www.grc.nasa.gov/WWW/K-12/teacher.htm

What is Technology Literacy? (SciMath)
Exploration of the range of factors involved in developing systems that solve problems and extend human capabilities. http://scimathmn.org/technology.htm