These resources were compiled to support ongoing statewide initiatives to promote advanced science, technology, engineering and math (STEM) coursework to Minnesota students 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. For additional resources to use with students, refer to the STEM Student Resources list.

Classroom Activities

Public Astronomy Viewings (University of Minnesota Dept of Astronomy)
Schedule of weekly public sky viewings during the University's Fall and Spring semesters.
www.astro.umn.edu/outreach/pubnight

University in the Park (University of Minnesota Dept of Astronomy)
Held in area state parks each summer, presentations cover a variety of astronomical topics.
www.astro.umn.edu/outreach/uitp

GetSTEM (MDE/MHTA)
Connect Minnesota K-12 STEM teachers with support from industry and higher education, including guest speakers, job shadowing opportunities, hands-on activities and equipment.
www.getstem.org (Coming soon!)

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

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

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

School Programs (Science Museum of Minnesota)
Field Trips, Camp-Ins, Programs at Your School, Professional Development, Science house: A Resource for Educators, Warner Nature Center, and Principal of the Year.
www.smm.org/schools
Science Matters booklet (Medtronic)
Free download of booklet for teachers and parents geared toward encouraging science exploration in K-6 grade students.

Minnesota Math Counts
State math enrichment, coaching and competition program that promotes math achievement by 6th, 7th, and 8th grade students.
www.mnspe.org/mathcounts

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

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

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

Lesson Plans

Curriculum and Lesson Plans (Southeast Minnesota Inquiry-Based Science Project)
List of science-related lesson plans for K-12.
www.ssc.coop/science/lessons.html

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

Lesson Plans (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

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

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
Lesson Plans & Classroom Activities

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

**Minnesota Learning Loop** (TIES)
Click on "science" for games, lesson plans, tutorials, multimedia and other resources categorized by grade level, standards and technology used.
[www.mnlearnloop.informns.k12.mn.us](http://www.mnlearnloop.informns.k12.mn.us)

**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.

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

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

**Science Lab Teacher's Lab** (U.S. Department 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](http://www.osti.gov/sciencelab/teachers.html)

Other Resources

**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](http://scimathmn.org/technology.htm)

**K-8 Science Programs** (Southeast Minnesota Inquiry-Based Science Project)
List of science-related school initiatives sponsored by IBM, Mayo Clinic and Winona State University.
[www.ssc.coop/science/partners.html](http://www.ssc.coop/science/partners.html)
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

K-12 STEM Initiatives (Minnesota High Tech Association)
Information on the latest STEM activities and programs in the state.
www.mhta.org/k12_stem.php

STEM Educator Resources (Minnesota Dept. of Education)
Click the brain (Resources and Links) for educator resources that link to state STEM-related associations.
www.mn-stem.com

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

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

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

STEM Occupations (U.S. Dept. Of Labor)
Article from the Spring 2007 Occupational Outlook Quarterly highlights the wages and skills needed for STEM occupations.

DreamIt DoIt Information for Educators (National Association of Manufacturers)
Information about careers in manufacturing and the industries affect on the economy.
www.dreamit-doit.com/content/for/educators.php

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

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

**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

**K-12 Programs (University of Minnesota Institute of Technology)**
Programs for students, professional development programs for teachers and other activities.
www.it.umn.edu/outreach/k12.html

**North Star STEM Alliance (State of Minnesota Louis Stokes Alliance for Minority Participation)**
Stem-related grants for teachers and schools.
www.mhta.org/resources/LSAMPNorthSTARSTEMAlliance.ppt

**STEM Resources (Minnesota High Tech Association)**
Collection of articles related to the challenges facing STEM education in Minnesota.
www.mhta.org/stem_resources.php

**Minnesota Science Teacher's Association**
Events and conference calendar, the latest classroom and professional development resources.
www.mnsta.org

**Minnesota Technical Education Association**
Standards implementation, competitions, leadership and other resources.
www.mtea.net

**Grant & Continuous Improvement Resources (Southeast Minnesota Inquiry-Based Science Project)**
Links to grant documentation and assessment tools, science education standards, strategies for continuous improvement and related articles.
www.ssc.coop/science/quality.html

**3M TWIST (Teachers Working in Science and Technology)**
Program allows middle and high school math, science, and technology teachers to spend six weeks during the summer working closely with a 3M host on an actual 3M research project.

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

Creating Minnesota's Plan for Development in STEM (MN Dept. of Ed)
PDF outlines the final report from the 2006 Governor's Roundtable and Call to Action Meetings.

8th Grade Algebra Standard (Minnesota Council of Teachers of Mathematics)
District resources from the 2008 MCTM conference
www.mctm.org/algebra.php

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