Free Classroom Resources for Engineering and Technology

Autodesk Home Design Software – Fast free home design! Drag-and-drop ease, brand name products, and rich 3D make
Autodesk® Homestyler™ the best place to start your next design project.
http://www.homestyler.com/

No Boundaries - Welcome to the "No Boundaries" project, developed by NASA and USA TODAY Education. No Boundaries helps students explore careers in science, technology, engineering and math (STEM), while learning about NASA — the National Aeronautics and Space Administration.
http://www.usatodayeducate.com/nasa/

Virtual Skies - Explore the exciting worlds of aviation technology and air traffic management.

http://virtualskies.arc.nasa.gov/

NASA Education - http://www.nasa.gov/audience/foreducators/index.html

Science is Fun –

Kids of all ages can use the links below to discover the fun and excitement of science in everyday activities and special projects.
http://science.house.gov/resources/science_fun.shtml

Explore Engineering - TryEngineering Today! provides readers with relevant information on engineers, inventions, and engineering news from around the world. It also provides a wide range of excellent lesson plans and engineering games!
http://www.tryengineering.org/explore.php

How Stuff Works – Information on a variety of engineering topics and includes free lesson plans!
http://www.howstuffworks.com/

Design Squad –
http://pbskids.org/designsquad/

Engineer Girl –
Turn imagination into reality
http://www.engineergirl.org/

Discover Engineering –
Engineering is not science. Engineers generally don't "do" science. Science is about discovering the natural. Engineering is creating the artificial.

http://www.discoverengineering.org/

Basic Robot Tutorials-
Mechanisms, statics, dynamics, energy, gears, sprockets, and chains
http://www.societyofrobots.com/mechanicsbasics.shtml

Save Your Factory –
Case studies and tools
http://www.saveyourfactory.com/

Maker Shed – This site offers a large number of low cost kit items especially for electronics and manufacturing classes. Although many of the kits are at cost, when you look at the details of the items and click the "How to" tab, most provide information on operation, a schematic, and list of materials so you can build your own or modify the design for a new design!
http://www.makershed.com/default.asp

Printed Circuit Board Maker-
Software Site
http://babbage.cs.qc.edu/courses/cs343/Circuit_Maker/

Freebyte's Guide to…Free Assembler programming
http://www.freebyte.com/programming/assembler/

COMSOL News 2010 is a collection of case studies on industrial multiphysics applications. Inside, you will find several examples of how your peers have cut costs, improved efficiency, and learned to better understand the processes they simulate.

http://www.comsol.com/comsolnews2010/

Instructables – This site provides short lessons/projects especially electronic oriented materials. A free membership allows access and small paid membership allows the download of .pdf activity sheets.

http://www.instructables.com

3D/Parametric Design Software

Pro Engineer
The PTC Education Program enables educators to obtain a site license of Pro/ENGINEER for their school. Students in the program will gain access to training materials and learning paths. Here at PTC/Academy you will find self-directed and self-paced tutorials to get you started using Pro/ENGINEER. Complete the tutorial and submit your models to apply for online certification today!
Website: http://www.ptcacademy.com/usa.html

Co Create Personal Edition
CoCreate Modeling PE puts the extraordinary power of explicit modeling into the hands of any engineer, designer, or student. Even casual users and hobbyists can use it for their home projects, especially with the help of our Quickstart projects, online help, and user forums.
Website: http://www.ptc.com/offers/tryout/pe3.htm

Sweet Home 3D
A free interior design application that helps you place your furniture on a house 2D plan, with a 3D preview.
Website: http://www.sweethome3d.com/index.jsp

Create a Free Flash Website!
Drag and Drop. No Programming Needed. Free Hosting.
Website: http://www.wix.com

PBworks
PBworks hosts over 300,000 educational workspaces, and has helped transform teaching and learning for millions of students, parents and teachers. Encourage student-centered learning. Even young students can build web pages, embed images & video, and post documents.
Website:
http://pbworks.com/content/edu+overview?utm_campaign=nav-tracking&utm_source=Top%20navigation

Google SketchUp
We believe powerful software can also be a pleasure to use – the secret is intuitive tools that work the way you think they should. Apparently, millions of people agree.
Website:
http://sketchup.google.com/#utm_campaign=en&utm_source=en-ha-na-us-google&utm_medium=ha&utm_term=google%20SketchUp

Tutorials for SketchUp:
http://sketchup.google.com/intl/en/training/videos.html

Free Gaming Software

Unity
A multiplatform game development tool, designed from the start to ease creation. A fully integrated professional application, Unity just happens to contain the most powerful engine this side of a million dollars.
Website: http://unity3d.com/unity/download/

Blender
Blender is the open source, cross platform suite of tools for 3D creation.
Website: www.blender.org/

Tutorials: **http://gryllus.net/Blender/3D.html**

http://tutlinks.tripod.com/novice.html

Game Maker
Using easy to learn drag-and-drop actions, you can create professional looking games within very little time. You can make games with backgrounds, animated graphics, music and sound effects, and even 3D games! And when you've become more experienced, there is a built-in programming language, which gives you the full flexibility of creating games with Game Maker. What is best, is the fact that Game Maker can be used free of charge.
Website: http://www.yoyogames.com/gamemaker/

Maya Personal Learning Edition
Autodesk must be selling enough of those high-priced programs to feel good about giving away free copies of Maya Personal Learning Edition. It doesn't include all the goodies found in the high end programs. It lacks the speed with which the other programs render their complicated images and the newest innovations, including the latest shaders and skin editors. But you get the rigging and animation technology that let characters move with both soft and rigid body dynamics, Maya paint effects, a complete particle system, toon shading, and four renderers. There is no tech support, but there oodles of documentation, demonstrations, and online discussion groups.
Website: http://www.pcworld.com/downloads/file/fid,70240-order,1-page,1/description.html

Free Simulators

Algoodoo
Algodoo is the perfect game for your computer. Use it at home for fun and as a visual aid for learning real physics. Design your own invention, create amazing scenes and make your own games. The synergy of science and art makes Algodoo as entertaining as it is educational.
http://www.algodoo.com/wiki/Fun

My Physics Lab
http://www.myphysicslab.com/

Virtual Caliper
http://www.members.shaw.ca/ron.blond/Micrometer.APPLET/

Virtual Micrometer

http://www.members.shaw.ca/ron.blond/Micrometer.APPLET/index.html

Free NASA Software
http://www.grc.nasa.gov/WWW/K-12/freesoftware_page.htm

Rocket Research 101
http://exploration.grc.nasa.gov/education/rocket/BottleRocket/journey101.htm

Simple Machines
http://sunshine.chpc.utah.edu/javalabs/java12/machine/index.htm

Audacity
http://audacity.sourceforge.net/

Teacher Tools

Teacher Resources Site – Good Information! This site offers many links to Web 2.0 resources!
http://www.nova.edu/~fouts

Critical Thinking Skills - The Center for Independent Thought shares my commitment to providing teachers with the best possible program to foster critical thinking skills. This non-profit makes it possible for teachers to receive **FREE** DVD copies of **STOSSEL IN THE CLASSROOM**'s videos.
http://stosselintheclassroom.org/index.php?p=stossel_message.html&l=1

The **Real World Design Challenge (RWDC)** is an annual high school competition run by a public-private partnership with the goal of sustainably increasing the Science, Technology, Engineering, and Mathematics (STEM) workforce. Every teacher that participates in the RWDC gets $1 million in professional engineering software along with training, curriculum materials, and access to mentors.

www.realworlddesignchallenge.org

WINK
Wink is a Tutorial and Presentation creation software, primarily aimed at creating tutorials on how to use software (like a tutor for MS-Word/Excel etc). Using Wink you can capture screenshots, add explanations boxes, buttons, titles etc and generate a highly effective tutorial for your users.
http://www.debugmode.com/wink/

EDU 2.0
Free learning management system similar to blackboard and moodle – NO
DOWNLOADS REQUIRED
www.edu20.org

CAM STUDIO
CamStudio is able to record all screen and audio activity on your computer and
create industry-standard AVI video files and using its built-in SWF Producer can
turn those AVIs into lean, mean, bandwidth-friendly Streaming Flash videos
(SWFs)
http://camstudio.org/

Teacher Resources for Engineering and Tech

James Dyson Foundation
http://www.jamesdysonfoundation.com/education/default.asp

Teachers Domain
www.teachersdomain.org

PBS Design Squad
http://pbskids.org/designsquad/parentseducators/workshop/welcome.html

The World Without Engineers Posters
http://www.home.agilent.com/agilent/editorial.jspx?ckey=897963&id=897963&lc=fre&cc=FR

United Streaming
**NOTE: School must have an account/subscription. Most schools
should.**
www.unitedstreaming.com

Try Engineering
http://www.tryengineering.org/