



A CoSN LEADERSHIP INITIATIVE  
[www.k12opentech.org](http://www.k12opentech.org)

# CoSN- K-12 Open Technology Initiative (OTI) Open Technology Resource Guide

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### Introduction

This K-12 Open Technologies Initiative (OTI) resource list is the first project of the new CoSN leadership initiative. The initiative is funded by a donation from IBM and the Hewlett Foundation to support the adoption and utilization of open technology in K-12 education. The nature of this grass roots open technology community is freeform, ever changing, and rapidly growing. As such, there is a daunting assortment of applications, platforms, collections, organizations, and projects that drive this open technology engine. CoSN intends to use this list and the CoSN OTI website to assist educators and technologists as they weave their way through the planning, evaluation, decision-making, and implementation process associated with Open Technologies in K-12.

This document is just the starting point in compiling a list of K-12 Open Technology resources. This printed document will become a rich, searchable resource after the CoSN OTI site goes live in June 2006. In the spirit of open source, we invite suggestions for additional links, revisions, updates, and corrections associated with open technologies that are being used in K-12 education throughout the world. Please send this information by e-mail to: [K12OpenTech@cosn.org](mailto:K12OpenTech@cosn.org)



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## **General Open Technology Resources for Education**

This category includes other organizations and sites dedicated to promoting open technologies. Some deal with advocacy or guidance, or sponsor special programs. Many provide additional lists of useful Open Technologies links.

### **CoSN OTI**

Website for the CoSN Open Technology Initiative.  
<http://www.k12opentech.org> (coming June 2006)

### **Free Software Foundation(FSF)**

The Free Software Foundation (FSF) is dedicated to promoting computer users' rights to use, study, copy, modify, and redistribute computer programs. The FSF promotes the development and use of free software, particularly the GNU operating system, used widely in its GNU/Linux variant.

<http://www.fsf.org/>

### **Free/Libre/Open Source Software: Worldwide impact study**

FLOSS World is an EU funded project designed to strengthen Europe's leadership in international research in Free/Libre/Open Source Software (FLOSS) and open standards, and to exploit research and policy complementarities to improve international cooperation, by building a global constituency of policy-makers and researchers.

<http://www.flossworld.org/>

### **International Open Source Network**

The International Open Source Network (IOSN) is a Center of Excellence for Free/Open Source Software (FOSS) technologies and applications in the Asia-Pacific Region. IOSN facilitates and networks FOSS advocates and human resources in the region. They also offer a useful primer and case studies on FOSS for education.

<http://www.iosn.net/>

### **Open Options**

This website from the Northwest Regional Educational Laboratory provides a useful open technology orientation and decision making guide.

<http://www.netc.org/openoptions/index.html>

### **Open Source Education Foundation**

The Open Source Education Foundation exists to enhance K-12 educational opportunities through the use open source and free software. Research and development of hardware and software solutions for use in educational settings is the organization's primary focus. Currently, OSEF projects include GOVIA (Ostensible Video, Imagery and Audio), a

repository for freely distributable media, and K12Labs, an effort to design and integrate hardware specifically for education.

<http://www.osef.org/>

### **Schoolforge.net**

This group promotes open source tools for education. They maintain an informative library of case studies of K-12 implementations of Linux worldwide.

Opensourceschools.org is the schoolforge.net news journal.

<http://opensourceschools.org/>

[www.schoolforge.net](http://www.schoolforge.net)

### **SchoolNetAfrica**

The African Education Knowledge Warehouse (AEKW) is a pan-African education portal that services African SchoolNet practitioners, policymakers, and school-based communities on ICTs in education across Africa. They offer a comparison of free/open source and proprietary software in an African context.

<http://www.schoolnetafrika.net/index.php>

### **SIGOSSEE**

The SIG Open-Source Software for Education in Europe website provides information, advice, guidance, and research on the use of open source software in education. It serves the education community, policy makers and planners, and educational software developers.

<http://www.ossite.org/>

### **The Shuttleworth Foundation**

The Shuttleworth Foundation's main goal is to improve the quality of education in South Africa. They invest in projects that offer unique and innovative, albeit high-risk, solutions to educational challenges in an African society, focusing on the areas of Science, Technology, Entrepreneurship, and Maths (STEM) in education and open source software.

<http://www.tsf.org.za/>

## **Open Source Core Technology**

This category includes organizations and specific open source applications that provide the technical underpinnings for other open source systems. This section lists resources that are relevant to developers or network administrators. Interoperability standards, provide a way for all applications to work together.

### **HORDE**

The Horde Framework is a set of coding standards, common code, and inter-application communication methods. The shared code provides common ways of handling things like preferences, permissions, browser detection, and user help. There is a library of open source

applications built on this platform. Horde applications are written in PHP, an open source scripting language explicitly designed to be embedded in web pages.

<http://www.horde.org/>

### **IMS Specifications**

IMS Global Consortium Inc, develops and promotes the adoption of open technical specifications for interoperable learning technology. Several IMS specifications have become worldwide standards for delivering learning products and services. IMS specifications and related publications are made available to the public at no charge.

<http://www.imslobal.org/>

### **K-12 Linux**

K-12 Linux provides support for educational users of the linux operating system. The site includes news, links, resources, and discussion to help promote the use of open source software in schools.

<http://k12linux.org/contents.html>

<http://k12os.org/>

### **Linux Devices**

A collection of open technology devices using the Linux operating system

<http://www.linuxdevices.com/>

### **MySQL**

The MySQL® database is an open source database intended for new applications built on the LAMP stack (Linux, Apache, MySQL, PHP / Perl / Python). MySQL runs on more than 20 platforms, including Linux, Windows, OS/X, HP-UX, AIX, and Netware.

<http://www.mysql.com/>

### **Open Source Initiative**

Open Source Initiative (OSI) is the non-profit corporation that administers the OSI Certified Open Source Software certification mark and program. Their website lists successful software products that have these properties and describes the certification process.

<http://opensource.org/index.php>

### **PostgreSQL**

PostgreSQL is an open source relational database system. It runs on all major operating systems, including Linux, UNIX (AIX, BSD, HP-UX, SGI IRIX, Mac OS X, Solaris, Tru64), and Windows.

<http://www.postgresql.org/>

### **SCORM Specifications**

The Advanced Distributed Learning initiative maintains the Sharable Content Object Reference Model – SCORM. This is a collection of standards and specifications adapted from multiple sources to provide a comprehensive suite of e-

learning capabilities that enable interoperability, accessibility and reusability of web-based learning content.

<http://www.adlnet.org/>

### **SIF Specifications**

Schools Interoperability Framework Association (SIFA) is a non-profit membership organization comprised of software vendors, school districts, state departments of education, and other organizations active in K-12 markets. They maintain the Schools Interoperability Framework (SIF) specification, a set of rules and data definitions to enable software programs from different companies to share information. They work with an external, independent organization to certify applications.

<http://www.sifinfo.org/>

### **Squid**

Squid is a full-featured open-source web proxy cache. This software is installed on a school server and improves Internet bandwidth by automatically caching frequently accessed Internet resources to the local network. Squid runs on any Unix-like operating system and on Windows servers using Cygwin.

<http://www.squid-cache.org/>

### **The Linux Terminal Server Project**

The Linux Terminal Server simplifies the administering of multiple networked desktop computers by storing the system configuration and desktop applications on a central server. Student workstations have a small “thin client” that enables access to the terminal server, allowing inexpensive computers without a disk drive to be used as workstations.

<http://www.ltsp.org>

## ***e-Learning***

This category includes applications for delivering distance learning and instructional management systems. Many e-learning environments also provide for portal creation, content management, and open content libraries using each system. This section lists systems that deliver instruction.

### **.LRN**

.LRN is an enterprise class open source software for supporting learning and research communities in higher education, K-12, and executive education. The .LRN Consortium certifies components as .LRN-compliant, coordinates software development plans, and maintains ties with OpenACS, the open source toolkit that forms the basis for .LRN.

<http://dotlrn.org/>

### **ATutor**

ATutor is an open source Web-based learning content management system (LCMS) designed with accessibility and adaptability in mind. Administrators can install or update ATutor and create themes to give ATutor a custom look and feel. Educators can assemble, package, and redistribute Web-based instructional materials, retrieve and import prepackaged content, and conduct their courses online. Students learn in an adaptive learning environment.  
<http://www.atutor.ca/>

### **Centre /SIS**

Centre/SIS is a free student information system for public and non-public schools. Centre is a web-based, open source, student management product with features that include student demographic info, scheduling, grade book, attendance, report cards, eligibility, and transcripts.  
<http://www.miller-group.net/>

### **Claroline**

Claroline is a free application that allows teachers or education organizations to create and administrate courses through the web. It supports course documents, assignments, forums, chats, and wiki. Claroline is translated into 32 languages and used by institutions around the world.  
<http://www.claroline.net/>

### **Dokeos**

Dokeos is an open source e-learning and course management web application translated in 34 languages. It is used by more than 1000 organizations worldwide to manage learning and collaboration activities.  
<http://www.dokeos.com/>

### **Interact**

Interact is an online learning and collaboration platform developed by the Christchurch College of Education, New Zealand. It is an open source learning management system designed to make it easy for students and lecturers to interact online, based around constructivist and Vygotskian views of teaching and learning.  
[www.interactlms.org](http://www.interactlms.org)

### **Moodle**

Moodle is a PHP based course management system – a software package designed to help educators create quality online courses. One of the main features of Moodle is a strong grounding in social constructionist pedagogy.  
<http://www.moodle.org->

### **MyClassroom**

MyClassroom is a learning space where educators and students come together in personalized online classrooms.

MyClassroom features customized learning modules and scheduling, communication, and assessment tools. For the student, MyClassroom features course readings and information, calendars, and note tools. It is funded by VisionLearning through a grant from NSF.

<http://www.visionlearning.com/library/myclassrooms.php>

### **Open Admin for Schools**

Open Admin is a secure, web-based school administration program. It handles demographics, attendance, discipline records, report cards, grade books, online daybook plans, and special needs.

<http://richtech.ca/openadmin/index.html>

### **Sakai**

The Sakai Project is a community source software development effort to design, build and deploy a new Collaboration and Learning Environment (CLE) for higher education. Sakai provides an application framework and associated tools and components that are designed to work together. These components are for course management, collaboration, assessment, scheduling, and communication.

[www.sakaiproject.org](http://www.sakaiproject.org)

### **WCET's EduTools**

WCET's EduTools provides independent reviews, comparisons, and consulting services to assist decision-making in the e-learning community. The site allows you to compare features of open source and non-free course management systems side by side.

<http://www.edutools.info/index.jsp?pj=1>

## **Portal & Content Management Systems**

This broad category includes both systems for creating school websites or portals and more elaborate content management systems (CMS). Portals facilitate communication between school, community, parents, and students. Content management systems are useful for the school institution to store content, curriculum information, and instructional resources for teacher access.

### **CMS Matrix**

The CMSmatrix site allows users to discuss, rate, and compare free and non-free content management systems. It provides an extensive list of CMSs and allows users to search for systems and compare features side by side in a matrix.

<http://www.cmsmatrix.org/matrix/cms-matrix>

**Drupal**

Drupal is an advanced portal with collaborative book, search engines, URLs, online help, roles, full content search, site watching, threaded comments, version control, blogging, and news aggregator. A special group, "Drupaled," focuses on educational applications.

<http://drupal.org/>

<http://www.drupaled.org/>

**Geeklog**

Geeklog is a PHP/MySQL based application for managing dynamic web content. It is a blog engine and content management system with support for comments, trackbacks, multiple syndication formats, and spam protection.

<http://www.geeklog.net>

**Joomla!**

Joomla! is an open source content management system. It can be used for simple websites or complex corporate applications.

<http://www.joomla.org/>

**Mamboserver**

Mamboserver is a content management system that features inline WYSIWYG content editors, news feeds, syndicated news, banners, mailing users, links manager, statistics, content archiving, date based content, 20 languages, modules and components.

<http://mamboserver.com/>

**OpensourceCMS**

The OpensourceCMS site gives you the opportunity to "try out" some php/mysql based free and open source software systems. The administrator username and password are given for every system. A comment section for each featured system gives users feedback from other users.

<http://www.opensourcecms.com/>

**Typo3**

TYPO3 is a free open source content management system for use on the web and in intranets. It features a set of ready-made interfaces, functions, and modules.

<http://www.typo3.com/>

**WordPress**

WordPress is a personal publishing tool with focus on aesthetics. It features a cross-blog tool, password protected posts, importing, typographical aids, multiple authors, and bookmarklets.

<http://wordpress.org/>

**Student Desktop Applications**

This list includes standalone open source applications for the student desktop. Most of the applications are available for Windows, Mac, and Linux operating systems.

**Mozilla Firefox**

Firefox is an open source browser that provides many innovative features such as tabbing and support of extensions – additional programs that work within the browser. In addition, it protects your computer from most viruses, spyware and pop-ups. The program is easy to install and enables the importing of bookmarks from IE.

<http://www.mozilla.com/firefox/>

**GNU Image Manipulation Program: GIMP**

GIMP is the GNU Image Manipulation Program. It is open source software for photo retouching, image composition, and image authoring. It works on many operating systems and in many languages.

<http://www.gimp.org/>

**The KDE Edutainment Project**

The KDE Edutainment Project develops educational software for the graphical K Desktop Environment for Linux and Unix workstations. Its primary focus is on the specialized user interface needs of K-12 students. The site has numerous games, utilities, and learning tools. It also offers lesson planning tools for teachers.

<http://edu.kde.org/>

**The OpenCD**

TheOpenCD is a collection of high quality free and open source software. The programs run in Windows and cover the most common tasks such as word processing, presentations, e-mail, web browsing, web design, and image manipulation.

<http://theopencd.org/>

**OpenOffice Suite**

OpenOffice.org is an open source multi-platform and multilingual office suite. It includes a word processor, spreadsheet, multimedia presentation tool, drawing program and database. It can run on Microsoft Windows, Macintosh OS, GNU/Linux, Sun Solaris and other platforms

<http://www.openoffice.org/>

**NeoOffice**

Macintosh OS X specific version of an office suite of common productivity tools

<http://www.macupdate.com/info.php/id/15797>

### **Nvu**

Nvu is a web page creation and editing application. It supports advanced features such as CSS and provides easy to use toolbars for common functions.

<http://www.nvu.com/>

### **Seul/Edu -Educational Application Index**

Simple End User Linux Organization provides a discussion group for all users of Linux by teachers, parents, and students. It also has a compendium of links to more than 600 desktop Linux applications.

<http://www.seul.org/edu/>

### **Tux Paint**

Tux Paint is a free drawing program designed for young children (kids ages 3 and up). It has a simple, easy-to-use interface, fun sound effects, and an encouraging cartoon mascot who helps guide children as they use the program. It provides a blank canvas and a variety of drawing tools to help your child be creative.

<http://www.newbreedsoftware.com/tuxpaint/>

### **UNIX and Open Source for Mac OS X**

A collection of open source applications built specifically on the Mac OS X foundation

[http://www.apple.com/downloads/macosx/unix\\_open\\_source/](http://www.apple.com/downloads/macosx/unix_open_source/)

## **Open Content & Digital Libraries**

This list includes open content collections such as digital libraries, courseware collections, and open data archives. The post-secondary community is ahead of K-12 in the production of open courseware. Some of the college level courses referenced here may be useful for high school or advanced placement.

### **Carnegie Mellon Open Learning Initiative**

Carnegie Mellon's Open Learning Initiative is a collection of "cognitively informed," openly available and free online courses and course materials in an online format. The courses are evaluated and improved continuously.

<http://www.cmu.edu/oli/>

### **Connexions**

Connexions is a collection of free scholarly materials and software tools to help authors publish and collaborate and to help instructors build and share custom courses. Their Content Commons contains small "knowledge chunks" called modules that connect into courses. The Creative Commons open license allows anyone to take their materials, adapt them to meet their needs, and contribute them back to the Commons.

<http://cnx.rice.edu/>

### **Creative Commons**

The Creative Commons is a non-profit organization that provides licenses with a flexible range of protections and freedoms for authors, artists, and educators. They have built upon the "all rights reserved" concept of traditional copyright to offer a voluntary "some rights reserved" approach.

<http://creativecommons.org/>

### **Digital Library for Earth Science Education (DLESE) -**

Digital Library for Earth Science Education is a distributed community effort involving educators, students, and scientists working together to improve the quality, quantity, and efficiency of teaching and learning about the Earth system at all levels. DLESE provides educational resources and access to Earth data sets and imagery, including the tools and interfaces needed for educational use. It provides support services to help educators and students create, use, and share resources, and it runs communication networks to facilitate interactions and collaborations.

<http://www.dlese.org/dds/index.jsp>

### **Educational Commons for OpenCourseWare**

The mission of K12EdCom.org is to promote and publish OpenCourseWare for K12 schools. OpenCourseWare is curriculum and learning material published under the Creative Commons License. The site provide links, textbooks, courses, blogs, and forums.

<http://k12edcom.org/>

### **Greenstone Digital Library Software**

Greenstone is a suite of software for building and distributing digital library collections. It provides a new way of organizing information and publishing it on the Internet or on CD-ROM. Greenstone is produced by the New Zealand Digital Library Project at the University of Waikato, and developed and distributed in cooperation with UNESCO and the Human Info NGO. It is open source, multilingual software, issued under the terms of the GNU General Public License.

<http://www.greenstone.org/cgi-bin/library>

### **MAA Mathematical Sciences Digital Library**

MathDL is an online resource published by the Mathematical Association of America. The site provides online resources for both teachers and students of mathematics.

<http://mathdl.maa.org/>

### **MIT OpenCourseware**

MIT OpenCourseware is a free and open educational resource for faculty, students, and self-learners. OCW supports MIT's mission to advance knowledge and education, and serve the world in the 21st century.

<http://ocw.mit.edu/index.html>

### **National Science Digital Library NSDL**

The National Science Digital Library (NSDL) was created by the National Science Foundation to provide organized access to resources and tools that support innovations in teaching and learning at all levels of science, technology, engineering, and mathematics education. NSDL has resources and information organized especially to fit the interests of teachers, media specialists, and others working with K-12 students.

<http://nsdl.org>

### **New York Public Library Digital Gallery**

NYPL Digital Gallery provides access to over 415,000 images digitized from primary sources and printed rarities in the collections of The New York Public Library, including illuminated manuscripts, historical maps, vintage posters, rare prints and photographs, illustrated books, printed ephemera, and more.

<http://digitalgallery.nypl.org/nypldigital/index.cfm>

### **Open Content Alliance**

The Open Content Alliance (OCA) represents the collaborative efforts of a group of cultural, technology, nonprofit, and governmental organizations from around the world that will help build a permanent archive of multilingual digitized text and multimedia content. The OCA will encourage the greatest possible degree of access to and reuse of collections in the archive, while respecting the content owners and contributors.

<http://www.opencontentalliance.org/>

### **Open Educational Resources**

Open Educational Resources (OERs) are digitized materials offered freely and openly for educators, students and self-learners to use and re-use for teaching, learning and research. This site serves as a freely accessible venue for the aggregation and dissemination of OERs worldwide.

<http://topics.developmentgateway.org/openeducation>

### **The Open Video Project**

An open content digital video collection

<http://www.open-video.org/>

### **OpenCourse**

OpenCourse is a collaboration of teachers, researchers, and students to develop open, reusable learning assets (e.g., animations, simulations, models, case studies, etc.). Subject focused collaboratories provide links to many reusable learning objects. Participants use the OpenCourse portal system to list learning materials.

<http://www.opencourse.org>

### **OPSOUND**

Opsound is an experiment in applying the model of free software to music. Musicians and sound artists are invited to add their work to the Opsound pool using a copyleft license developed by Creative Commons. Listeners are invited to download, share, remix, and reimagine.

<http://opsound.org/>

### **Sophia Sharing of Free Intellectual Assets**

The Sofia Project is an open content initiative launched by the Foothill-De Anza Community College District with funding support from The William and Flora Hewlett Foundation. Sofia promotes faculty and institutional sharing of online content. Modeled after MIT's OpenCourseWare Initiative, Sofia encourages the free exchange of community college-level materials on the web. They hope that Sofia will lead to the exploration of ways of supporting instruction and student learning using web-based resources.

<http://sofia.fhda.edu/>

### **UTopia**

UTOPIA is an ambitious new initiative providing a digital knowledge gateway into the treasures of libraries, museums, galleries, and laboratories of The University of Texas at Austin. It is designed to open to the public the knowledge, research, and information and share these resources free of charge.

<http://utopia.utexas.edu/>

### **Wikipedia**

Wikipedia is a standard web-based reference tool that has been built and vetted by its users. The depth of articles is a model example showing how an open content collection can be constructed and vetted by a large community.

<http://en.wikipedia.org/>

### **Wikimedia Foundation**

A collection of eight open content reference resources

<http://www.wikimedia.org/>



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