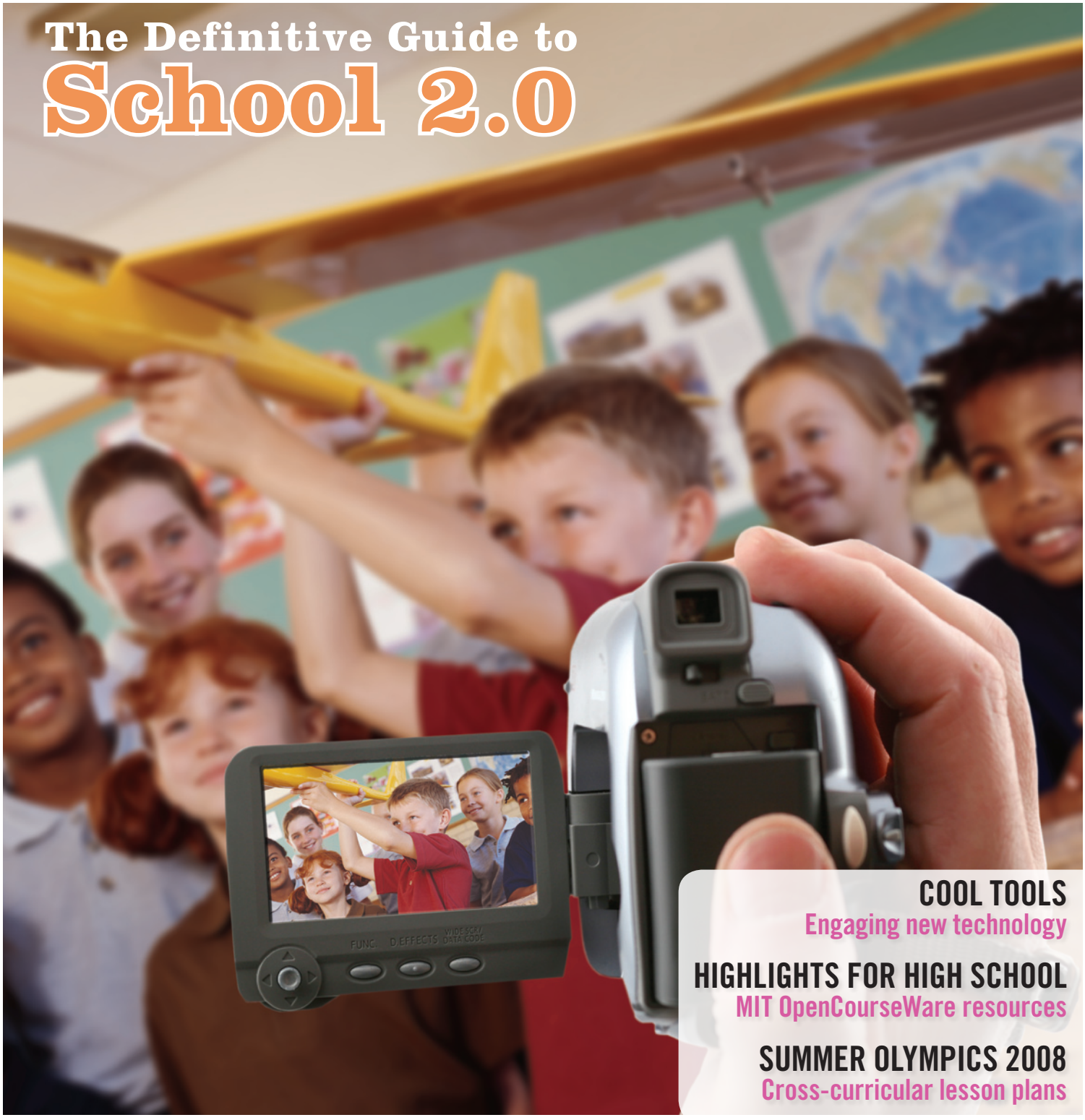
May 2008 | Volume 14, No. 8

Classroom Connect®
Connected Newsletter™
The K-12 Guide to Technology & Data

The Definitive Guide to School 2.0

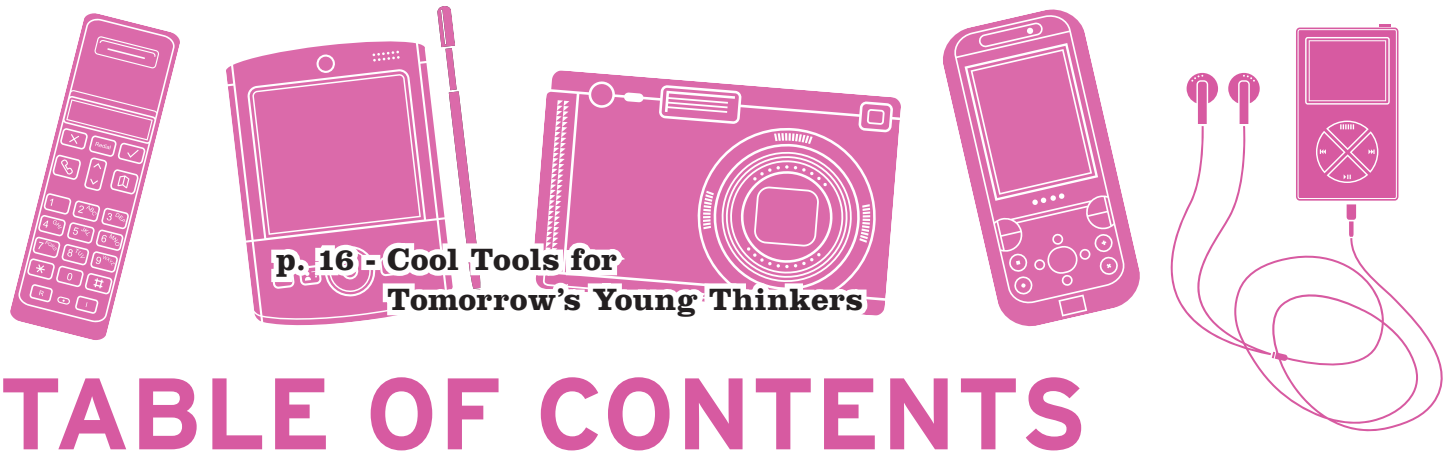


COOL TOOLS
Engaging new technology

HIGHLIGHTS FOR HIGH SCHOOL
MIT OpenCourseWare resources

SUMMER OLYMPICS 2008
Cross-curricular lesson plans

Harcourt Connected Learning



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How to Connect with Us

- To obtain sample issues of the *Connected Newsletter* for personal use or staff training, call **(800) 638-1639** or email **help@classroom.com**.
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Connected Newsletter
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Before going to press, we do our utmost to check the safety and validity of the websites in this issue. But due to the ever-changing nature of the Internet, we cannot be responsible for address changes or inappropriate content on these sites.

CAUTION This icon indicates a site that contains excellent information but may link to content that is unsuitable for students.

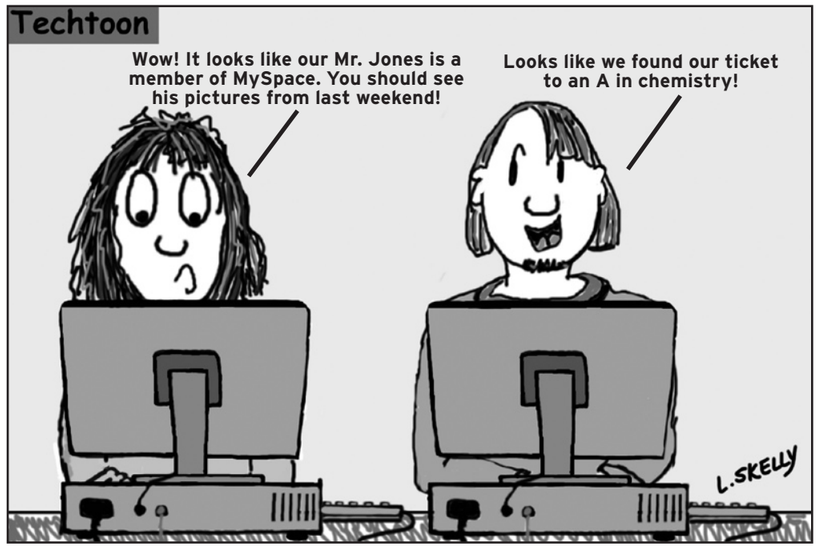
Relevant Lessons for K-12 Students

Spring is a perfect time to reflect on the most effective lessons that have improved instruction in your classroom. Chances are you've tried some of the methods discussed in our cover story, *The Definitive Guide to School 2.0*. Be sure to keep Mark Pullen's article in mind as you develop strategies to make your curriculum more meaningful. Also, Donald Hawkins offers some cool tech tools that are sure to become student favorites.

Next month, the *Connected Newsletter* Summer issue presents essential techniques for differentiating instruction. Authors Grace Bliss Smith and Stephanie Throne stress that individualizing curriculum plays an important role in how your students learn. And, as standardized testing takes center stage, you'll find useful tools in *Communicating Assessment Results to Parents and the Community*.

Best Regards,

Sharon Wheeler
Managing Editor
sharon.wheeler@harcourt.com



Handley High School Math Lesson Plans

Grades 9–12

Access a collection of over 100 lesson plans from Handley High School in Winchester, Virginia. Activities cover skills in algebra, geometry, trigonometry, statistics, and calculus. In the algebra section, read comic strips about the numbers zero and one in *The Trouble with Otis* and *The Triumph of Eunice*. There's also a square root review, and facts about circles, platonic solids, and tessellations. In Trigonometry, complete the magic square and fill in the blanks in *The Story of Joe Sine*. Click the Handley Math Home Page for math facts, math humor, puzzles, quotes, and a problem of the week.
141.104.22.210/Div/Winchester/jhhs/math/lessons/lesson.html

Newberry Library Lessons

Grades K–12

Located in Chicago, Illinois, this independent research library focuses primarily on the humanities. The Newberry also houses the Hermon Dunlap Smith Center for the History of Cartography. In 2003, the Smith Center received funds from the National Endowment for the Humanities to run an institute titled Everyday Maps: Teaching and Historical Perspectives. As part of the program, teachers developed unique mapping units. The high school lesson, Developing a Gateway to the West: A Chicago Success Story, uses railroad and military maps from the 1860s to help illustrate the city's development. For elementary grades, a wonderful lesson uses L. Frank Baum's *The Marvelous Land of Oz* and culminates with students creating their own fantasy maps. For middle school, examine Colonization and Its Impact on Nation-State Building: Case Study of the African Continent.
www.newberry.org/smith/k-12index.html

Mock Election Lesson Plans

Grades K–12

Built around the National Standards for Civics and Government, these fabulous resources from New Hampshire Public Television tell how to conduct a mock election day. The materials were designed specifically for New Hampshire students, but they can easily be adapted for other states. Students learn about the electoral process, the Bill of Rights, and the Constitution. Download voter registration cards and ballots. Use the lesson plans to analyze political cartoons, campaign ads, and the accuracy of polls. Finally, submit a class vote on the most important issue facing our country.
www.nhptv.org/mockelection/mockclass.htm

Live Links
If you would like a PDF containing all of the live URLs from this Newsletter, send an email to
links@classroom.com

Shedd Aquarium Educational Adventures

Grades K–12

Located in Chicago, Shedd is one of the world's great aquariums. The detailed lesson plans can be browsed by topic: reefs, shellfish, sharks, animal care, fish, geography, and survival. You can also browse by concept: ecology, biodiversity, environment, biology, geography, ecosystems, survival, and defense mechanisms. In addition to lesson plans, there are interactive investigations that use field observations, interviews, and library research. Click the Explorer's Guide for English and Spanish fact sheets on plants and animals, people and culture, and land and sea.
www.sheddaquarium.org/sea/

Teachable Moment

Grades K–12

From the Morningside Center for Teaching Social Responsibility, this project provides introductory articles and activities on current events, conflict resolution, and intercultural understanding. For elementary students, try Energy and the Environment or Presidential Candidates. Four 45-minute lessons ask students to consider what qualities they might look for in a political candidate and how to get information about candidates. Middle school students can check out Feelings Charade or construct Cultural Banners. The numerous high school activities are organized thematically. Go to Current Domestic Issues for a terrific election lesson on politics and religion.
www.teachablemoment.org/index.html

Gardening with Children

Grades K–2

This BBC site helps kids learn the joys of gardening. The activities build vocabulary skills and increase students' awareness of the environment. Click Indoors and Out for directions on how to conduct a bug study, grow a tree, make compost, or watch worms at work. Children can become seed and leaf collectors or find the magic in caterpillars. Indoor activities include planting a cactus garden, cooking a bird banquet, and counting points on oak leaves. Go to Did You Know to explore photosynthesis, count the seeds in an orchid, and learn about pollination. Finally, Discovering Plants describes how to create a butterfly garden or grow plants that tantalize the five senses.
www.bbc.co.uk/gardening/gardening_with_children/

by Emily Beck
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The Definitive Guide to School 2.0

Foster meaningful learning

Over the past few years, the term *Web 2.0* has often been used to describe the Internet's shift from primarily static pages to more dynamic, interactive, and collaborative websites. The results of this change have been rapid and striking.

Changing Times

We used to read encyclopedias that were created by unknown authors who we assumed were authorities on every subject. Now, we simply create and edit encyclopedia articles ourselves on Wikipedia. We used to read books and listen to music that a select group of famous people had written. Now, anyone can publish their independently written book or self-recorded music track on **Lulu** (lulu.com). We used to listen to radio stations that sent out signals near where we lived and now we can use the Internet to listen to virtually any radio station in the world. Even better, we can simply create our very own online station.

Web 2.0 technology allows us to create our own stores through **CafePress.com**, communicate on **Twitter** (twitter.com), and post messages about our favorite sports teams on **Rivals.com**.

Remember the big self-esteem push of the late 1990s and early 2000s? Well, it worked. Today's youth feel completely qualified to be authors, musicians, and Web designers, which feeds into the ascendance of Web 2.0 sites. This generation's new motto seems to be: "Experts? I can do it better myself."

Traditional Schooling

Now contrast that can-do attitude with traditional schooling, which I'll call School 1.0. Students read materials written by an outside expert and there was no interaction. They wrote essays often designed to prove solely that they are capable of writing. They independently solved out-of-context math problems with numbers to which no meaning was given. They viewed history as a bunch of names, dates, and places that needed to be memorized for a test. Students were forced to complete tasks with no practical purpose.

Students aren't putting up with this anymore and I don't blame them. Outside of school, where those students turn into consumers, they've been in a 2.0-mode for years. Whether we like it or not, those experiences don't just fade away during the school day. Today's K–12 students expect to be able to interact with and at least partially control their own learning. They demand that the content they are learning be immediately relevant. Students expect their assigned work to be genuinely meaningful and intended for a real purpose and audience.

We can complain about these facts, or we can accept them and use them to our advantage. This article is designed for teachers who are ready to change their classrooms from a School 1.0 model to a more interactive and personally relevant version that I'll call School 2.0.

Moving Toward School 2.0

School 2.0 encompasses more than just technology. It also involves modifying our attitudes and beliefs about how schools should operate. As a result, here are two lists of suggestions on how to upgrade your classroom to version 2.0.

First, here are some modifications that *don't* specifically involve technology:

1. **Go faster.** Many teachers talk too much, repeat themselves, and teach things far too slowly. Today's children are used to watching fast-twitch image sequences on television (or YouTube), and they're more engaged when things move along quickly. If students don't seem to listen well, you might be inclined to slow down even further and repeat yourself even more. Instead, although it may seem counterintuitive, try speeding things up. Caution: Note that going faster doesn't always mean moving to more difficult material more quickly. It might mean shortening your lecture about the Civil War by 75 percent and using the time you have saved to do something more interactive on that same topic.

2. **Make the subject matter meaningful.** You must show students why the topic you are teaching matters. If the curriculum that students are supposed to learn doesn't seem essential, dig deeper to find out why it is important. Even the most ill-advised standard can be taught in an interactive and relevant manner, and our job as educators is to find a way to make that happen. The prevailing attitude of School 1.0 was that the facts and skills that were being presented in class would not have any immediate relevance to students, but would someday be of use in those students' adult lives. The teacher in a School 2.0 classroom strives to foster learning that is *immediately* meaningful to students.

This generation's new motto seems to be: "Experts? I can do it better myself."

3. **Design every assignment around a real purpose and a specific audience.** Once you've made the subject matter meaningful, it's only logical to have related assignments that are also crafted toward a real purpose and audience. For example, if your grade level standards require you to teach students how to write a persuasive essay and you have already chosen a locally relevant topic (e.g. Should taxes be raised to cover the city's upcoming budget shortfall?), it makes sense to send those letters to the editor of a local newspaper for possible publication. Whether you are asking students to write an essay, solve a challenging math problem, or discuss a scientific hypothesis, you'll get more high-quality responses when those tasks complement real-life situations.

4. **Differentiate as much as you possibly can.** You can differentiate the actual content that you are teaching, the process (or pacing) you are using when teaching it, or the product that the students will be expected to create to demonstrate their mastery of that topic. Making these types of modifications will allow you to adjust for students' ability levels and learning styles, and it will also give them the choices they need to feel like they meaningfully control their own learning.

5. **Build a caring classroom community.** Before you can expect students to participate successfully in collaborative and interactive Web 2.0 technologies, you must first ensure that your classroom is a safe place where students are able to take the risks inherent in learning new things. You'll need to set ground rules for conversation and debate. Depending on the age of your students, you may also wish to use class meetings, sharing times, or team-building games to enhance the climate of your classroom before going any further.

"Today's K–12 students expect to be able to interact with and at least partially control their own learning."

Once you've accomplished those five things, you will be ready to fully utilize the benefits of Web 2.0 technology in your classroom.

Web-based Resources

Here are some specific Web-based resources to try.

1. **Create a classroom blog.** Creating a classroom blog gives students an instant, perpetual audience! There are many good sites to choose from. Large blogging sites such as **Blogger** (blogger.com) and **WordPress.com** offer the most stability, but specific educator-friendly sites such as **21Classes** (21classes.com) and **Gaggle.net** offer some nice security features for schools. Although students can blog about anything, I suggest using the blog for pieces that lend themselves to interactive discussions, so that students will be motivated to respond to their classmates' posts in meaningful and thought-provoking ways.

   My favorite School 2.0 story about blogging comes from my own classroom. My students were blogging about the great books they had recently read in an attempt to help each other find some new genres and authors. One girl wrote a gushing review of a not-very-well-known book. The next day *the author herself* commented, thanking my student for her kind post and shedding some light on certain mysterious portions of the book. Isn't that a whole lot more fun than the School 1.0 model of writing essays just to prove you can write?

2. **Publish student writing.** Upload your students' best written work to Lulu, and for a few dollars you can bind an entire class set of essays or stories into a book of any size or style you wish. When that book is delivered to your classroom, students will be thrilled at being "real" authors! Since you can publish anything at lulu.com (no one gets a rejection notice), it's a great place to start. Truly exceptional work can also be submitted to other online or offline publishers such as **Write Source** (thewritesource.com), **Merlyn's Pen** (www.merlynspen.org), or the magazine **Stone Soup** (www.stonesoup.com).

3. **Start a classroom store.** Go to **Cafepress.com** to allow students to turn their art projects into real items. Use the proceeds to purchase student-selected items for your classroom or donate to a charity that students have researched.

4. **Use existing online video clips to enhance your teaching.** Video clips that are brief and practical are a great way to speed up your teaching and to differentiate (since students can access videos connected to content of their own choosing). **BrainPOP** (brainpop.com) offers a fantastic

continued➔

collection of mini-videos on a wide variety of topics and **Discovery Education** (streaming.discoveryeducation.com/index.cfm) provides a large collection of video resources for students and teachers.

5. **Create your own videos and let students do the same.** Once you are comfortable incorporating existing video clips into your teaching, create some videos of your own. First, record that incredible science experiment, intense discussion, and other key moments in your classroom. Next, put these video clips online so students can access them at any time as a remediation tool or as an enrichment opportunity. This is also a great way to help absent students catch up. Once you've completed the clips for an entire school year, future students can access the videos at their own pace, allowing you to differentiate even further based on student ability and interest.

   Student-created podcasts (including both audio and video feeds) are potentially even more useful. Allowing students the opportunity to create their own podcasts gives them a meaningful audience while simultaneously expanding their technological prowess. You can intentionally work to build an even more targeted audience by contacting some local experts and asking them to respond to students' completed work. For example, if students have created a video about environmental issues in their neighborhood, locate a local scientist who can comment on the validity of the students' conclusions (and who can challenge students to think about the issues more deeply). Be sure that students respond to each other's video and audio creations as well.

6. **Meet students from around the world.** Another compelling way to give students a genuine audience is to get them involved with pen pals from other countries. Go to sites such as **Students of the World** (www.studentsoftheworld.info) or **ePals Global Community** (www.epals.com) and make your geography and cultural studies topics feel a lot more real to students. This will also give them another great reason to write. Many teachers in elementary grades have their students write about themselves and their experiences. It makes a lot of sense to reframe those types of assignments as pen pal letters to genuinely interested peers.

7. **Compete with students from around the world.** Another great way to make learning exciting for students is to engage them in the thrill of competition. Have students compete in a fun, challenging series of online math, science, and/or social studies contests at **Academic Leagues** (www.academicleagues.com). This site allows students' scores to be immediately posted online after a contest is completed, letting family members and friends go online and admire each student's efforts. Privacy options are also offered for students who wish to participate without having their names displayed online. In addition to the excitement and motivation these contests provide, they also build camaraderie as your top students' individual scores are added together to form a team score, meaning that everyone in your class will be rooting for each other to do well.

"...students will want to be able to set their own pace..."

Teaching with School 2.0

This fall, students will want you to teach in a School 2.0 manner. Will you be willing and ready to do so? Beyond this article, there are many other routes you might choose to take. Regardless of which of the items mentioned you choose to implement, know that students are going to want to interact with and take control of their own learning (especially since they have control as consumers throughout the summer). They will want to learn things that they see are immediately relevant to their lives. Finally, students will want to be able to set their own pace, decide what they're interested in learning, and produce authentic finished products to demonstrate their knowledge to interested audiences.

As you mull over these teaching methods, you may want to read what other educators are saying about the concept of School 2.0. To contribute your thoughts to that conversation, please visit **School 2.0 Wiki** (school20.wikispaces.com).

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MAY 2008

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Visit us online for this month's live link calendar—perfect for a computer lab, classroom, or media center activity! **www.classroom.com/community/connection/calendar.jhtml**			**1** **Freedom Riders** Who trained these Civil Rights workers in nonviolence? freedomriders foundation.org/brief.history.html	**2** **Rarities Vault** What does this exhibit display? www.postalmuseum.si.edu/exhibits/2f1_rarities.html
5 ***Robert's Rules of Order*** What prompted Henry Robert to write this guide? www.robertsrules.com/history.html	**6** **Nellie Bly** How did this reporter earn a job with the *New York World*? www.pbs.org/wgbh/amex/world/peopleevents/pande01.html	**7** **Project Aces Day** What do children do during this event? www.lensaunders.com/aces/index.html	**8** **Mount Pelée** What are *volcano spines*? volcano.und.edu/vwdocs/volc_images/img_mt_pelee2.html	**9** **Harry S. Truman** What is the *Truman Doctrine*? www.whitehouse.gov/history/presidents/ht33.html
12 **Washington State** What is the *Lady Washington*? www1.leg.wa.gov/Legislature/StateSymbols/	**13** ***Endeavor*** How did this NASA orbiter get its name? science.ksc.nasa.gov/shuttle/resources/orbiters/endeavour.html	**14** **Carlsbad Caverns** What evening event entertains visitors at this park? www.nps.gov/cave/planyourvisit/bat_flight_program.htm	**15** **Bob Riley** What businesses has this governor run? www.governor.state.al.us/bio_governor.aspx	**16** **Pigs** How do these animals use their snouts? www.hsus.org/farm/resources/animals/pigs/pigs.html
19 **Turkmenistan** What desert covers more than 80% of this country? www.stantours.com/tm_rg_ahal_kd.html	**20** **Fish** Which is the largest of all fishes? www.amonline.net.au/fishes/faq/bigfish.htm	**21** **Mary Pope Osborne** What was this writer's first young adult novel? www.marypopeosborne.com/bio.htm	**22** **Jazz** What is *scat* singing? pbskids.org/jazz/nowthen/louis.html	**23** **Margaret Wise Brown** Why did this children's author sometimes use difficult words? www.margaretwisebrown.com/shortbio.htm
26 **Marco Polo** In what city did this explorer grow up? www.silk-road.com/artl/marcopolo.shtml	**27** **The *Hunley*** What happened to this vessel? www.hunley.org/	**28** **First-Aid Kit** What should be in a well-stocked kit? www.kidshealth.org/parent/firstaid_safe/home/firstaid_kit.html	**29** **Trinidad** What does Pitch Lake contain? www.richard-seaman.com/Travel/TrinidadAndTobago/Trinidad/PitchLake/	**30** **Dinosaurs** Why were these reptiles so big? paleobiology.si.edu/dinosaurs/info/faq/main.html

This Month: The Olympics

The Olympic Charter identifies the Olympic Movement as "a philosophy of life, exalting and combining in a balanced whole the qualities of body, will and mind." Blending sport with culture and education, Olympism seeks to "create a way of life based on the joy found in effort, the educational value of good example and respect for universal fundamental ethical principles." Every second year (alternating between the summer and winter sports) athletes gather to share the Olympic experience. This summer, they meet in the People's Republic of China. Use these sites to help your students explore the Olympics and the games of the 29th Summer Olympiad and the 2008 Paralympics.

The Summer Olympics

This is the official website of the 2008 Olympic Games in Beijing, China, and the best place to begin exploring the 2008 summer games. Students can use the Fun Page link to find games, sporting information, screensavers, and interactive games. Then they can check out the Olympic Spirit link to learn more about the official symbols, emblem, slogan, mascots, medals, and torch unique to the Beijing Olympics. For virtual tours of the various facilities, use the Sports and Venues link. Visit the Olympic Culture link for information on the opening and closing ceremonies and the many cultural activities associated with the games. Keep up with the latest development in your favorite sport by using the Competitions list. This site will expand as the games approach and the competitions finish.
en.beijing2008.cn/

The Olympic Movement

According to the body that oversees the Olympic movement, the games have "always brought people together in peace to respect universal moral principles." This site is an archive of the modern Olympic movement, which began in Athens, Greece, in 1896. Each of the past summer and winter games cover topics such as the opening ceremonies, event highlights, and photos. Other links open pages on past Olympic emblems, medal designs, mascots, torches, medal results by country, and participating athletes who distinguished themselves during the two weeks of competition. Information on the ancient games, future games, and the Paralympics are also available.
www.olympic.org/uk/games/index_uk.asp

Fact Monster: Summer Olympics 2008

Young children will find this site on the 2008 Beijing Olympics easier to use than the two previous official Olympic Web pages. The Fact Monster site covers both the ancient and modern games and opens with a list of topics that interest children: previous medal winners, Olympic symbols, Olympic trivia and fun facts, and the Paralympics. Farther down the page students can read about memorable Olympic moments such as Jessie Owens's four gold medals in track in Berlin in 1936 or Nadia Comaneci's perfect 10 on the uneven bars in Montreal in 1976. After reading, they can complete the interactive quizzes and crosswords.
www.factmonster.com/sports/olympics/2008

Gateway to the Summer Games

This site is designed for teachers who want to study the Olympic movement with their students. The first link contains cross-curricular Olympic-themed lesson plans. The second half of the page focuses on healthy living and the importance of exercise. Also worth visiting are Spotlight Sport (brief descriptions on Olympic sports), Olympic Facts (trivia on the ancient and modern games), Parade of Nations (vignettes on countries that have hosted summer and winter games), and Paralympics (a history of the games for athletes with disabilities). The embedded links throughout this gateway feature Olympic-related sites of interest to teachers.
www.edgate.com/summergames/

USA Olympics

This USA Olympic Committee website opens with five cartoon characters, each one offering information and activities on some aspect of the Olympic games. The first option, introduced by a raccoon, shows three cartoons highlighting the importance of persistence, teamwork, and discipline. Next, a worm guides visitors through the rules of various sports; a bear provides a list of printable activities; the skunk presents a series of online games related to U.S. athletes; and the moose provides access to Adobe PDF formatted lessons plans and activities.
www.usoc.org

Olympic-Related Lesson Plan Sites

A to Z Teacher
www.atozteacherstuff.com/Themes/Olympics/

HotChalk Lesson Plans Page
www.lessonplanspage.com/Olympics.htm

TeAchnology Olympics Lesson Plans
www.teach-nology.com/teachers/lesson_plans/physical_ed/olympic/

The Teachers Corner
www.theteacherscorner.net/thematicunits/olympics.htm

The 2008 Beijing Olympic Games: One World, One Dream

"Citius, Altius, Fortius" ("Swifter, Higher, Stronger"). From August 8–24, 2008, the Olympic Games will bring athletes from countries around the world to meet in China and unite in the Olympic spirit. For each of the athletes, the Olympics is the fulfillment of a personal dream: to represent their country in sport. Help your students prepare for the Olympic experience by visiting the sites in this month's Destinations.

1 Olympic History

FOCUS
What is the history of the ancient and modern Olympics?

OBJECTIVES
- Discover the roots of the Olympic games.
- Learn how the Olympic movement has grown since ancient times.
- Name the ancient sports that are still part of the modern games.

History of the Olympics
www.nostos.com/olympics/

Ancient Olympics
www.perseus.tufts.edu/Olympics/

The Real Story of the Olympic Games
www.museum.upenn.edu/new/olympics/olympicintro.shtml

2 Beijing, China

FOCUS
Where in the world is Beijing, China?

OBJECTIVES
- Locate China on a world map.
- Profile the people and history of China.
- Discover the uniqueness of China's landscape.

Profile of China
www.factmonster.com/ipka/A0107411.html

History for Kids: Ancient China
www.historyforkids.org/learn/china/index.htm

Chinese New Year
www.first-school.ws/theme/h_chinese-new-year.htm

China in Brief
www.china.org.cn/e-china/index.htm

3 Olympic Venues

FOCUS
What venues were built for the 29th Olympiad?

OBJECTIVES
- Learn how China was awarded the 29th Olympic Games.
- Locate and describe some of the main sports venues.

Wikipedia: The 2008 Summer Olympic Games
en.wikipedia.org/wiki/2008_Summer_Olympics

Chinese Tools: Beijing 2008
www.chinese-tools.com/beijing2008

Beijing Games
www.olympic.org/uk/games/beijing/index_uk.asp

China.org: Beijing Games
www.china.org.cn/english/olympic/114380.htm

4 Olympic Sports

FOCUS
What sports are part of the modern Olympics?

OBJECTIVES
- Identify the sports of the modern Olympic movement.
- Describe five Olympic sports.
- Name some of the events associated with Olympic sports.

Sports of the Modern Olympics
www.olympic.org/uk/sports/index_uk.asp

Google: Summer Olympic Events
www.google.com/Top/Sports/Events/Olympics/Summer_Games/

Infoplease: Modern Olympic Games
www.infoplease.com/ipsa/A0114336.html

5 Olympic Symbols

FOCUS
What are the official symbols of the Olympics?

OBJECTIVES
- Recognize the importance of symbols in the Olympics.
- Name and describe the symbolism of the Olympic movement.
- Identify the symbols unique to the 2008 Beijing Games.

Olympic Symbols
www.en.wikipedia.org/wiki/Olympic_symbols

Olympics Rings
www.janecky.com/olympics/rings.html

Construct Your Own Olympic Rings
www.geocities.com/SoHo/Museum/4140/olympic.htm

Mascots of the Summer 2008 Olympic Games
en.beijing2008.cn/80/05/article211990580.shtml

by Jim Cornish · Fifth Grade Teacher, Gander Academy, Newfoundland, Canada · jim.cornish@warp.nfld.net

Kidspiration Lesson: Properties of Objects Concept Map

Grades 2–3

Introduction

Students examine a collection of objects and use their senses to identify the objects' properties and the materials from which the objects are made. Students explore a website about different types of materials. They use the facts they have learned to create a concept map using Kidspiration software.

Objectives

- Identify the materials from which objects are made.
- Describe the properties of different materials.
- Use online resources to learn about materials and their properties.
- Create a concept map using Kidspiration.

Time Estimate

Two to three 45-minute class periods

Procedure

1. Display a collection of objects and ask students to sort these objects into living and nonliving categories. *How would you describe these objects? What do they all have in common? What are some things that are different?*

2. Encourage students to use their senses to describe the objects. As they do so, ask students what materials the objects are made of and where they think these materials came from. Ask about the properties of the materials. *How does the surface of a penny look? Is it shiny or dull? Is it smooth or rough? Does it have any smell? Do you know what a penny is made of? What are some of the properties of metal?*

3. Visit this website with the class. Discuss and demonstrate the properties of metals and nonmetals.
   Metals and Nonmetals
   www.bbc.co.uk/schools/ks3bitesize/science/chemistry/m_m_physical_props_intro.shtml

4. Explain that a *concept map* is a way to organize information and show what you know. A *concept* can be a person, place, thing, or idea. View these examples.
   Kidspiration Science Diagrams
   www.inspiration.com/productinfo/kidspiration/using_kids/index.cfm?fuseaction=science

   Make a concept map in the center of the board. Write *pencil* in an oval. Ask students to tell you what they know about the object. Write their ideas in ovals around the word *pencil*.

5. As a group, describe the relationship between the topic and each concept (e.g., *is made of, has, is used to write on,* etc.). Draw connecting lines from the topic to each concept and use linking words as you join concepts together. Add an arrow to show the correct direction to read the link. *Would you say that wood is made of a pencil, or that a pencil is made of wood?* Complete the concept map with the class.

6. Open the template and model how to use Kidspiration to create a concept map. Show students how to click the ovals to add words and symbols (pictures). Model how to use lines to connect ideas. The lines have arrows at the end that can be used to read the linking words and concepts. Demonstrate how to click the line and type linking words.

Assessment

Conclude with a brief discussion. *Is Kidspiration a good way to make a concept map? Do you understand properties of objects better because of the concept map? Why or why not?*

Extensions

Students can try the activity and take the quiz on this website.
Characteristics of Materials
www.bbc.co.uk/schools/ks2bitesize/science/revision_bites/materials1.shtml

Helpful Tips for Using Kidspiration

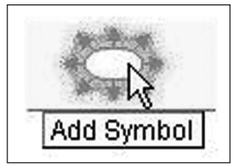
Share these guidelines with students to help them organize information.

Add a Symbol

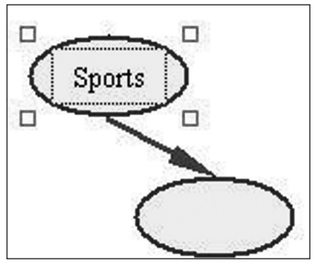
You can create new symbols for each new idea you add to your diagram.

1. Click on a symbol.

2. Click the Add Symbol button.



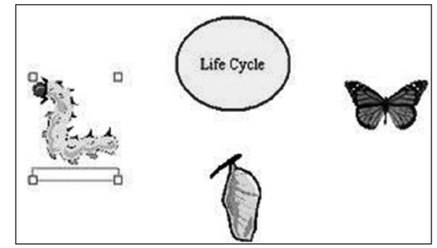
3. This will add a new linked symbol. Click on the new symbol. Type text you want to add.



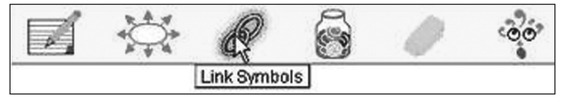
Link Symbols

You can connect the symbols in your diagram using the Link tool.

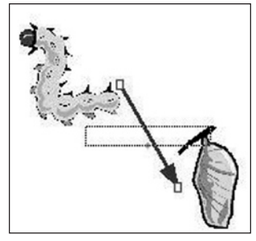
1. Click the symbol where you want the link to start.



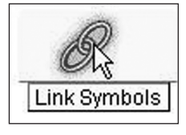
2. Click on the Link Symbols button on the toolbar.



3. Click the symbol where you want the link to end. A link will connect the ideas.



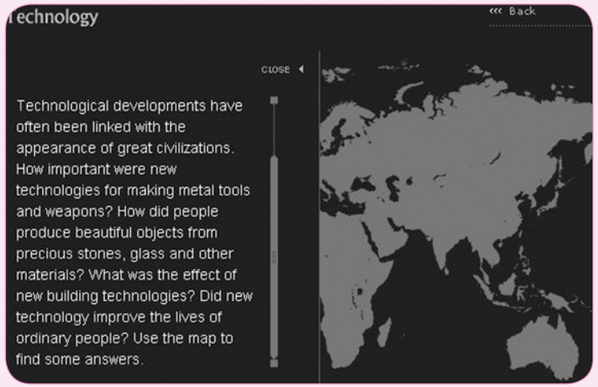
4. To turn off the Link Symbols tool, click on the Link Symbols button again.



The software applications lesson and helpful tips are excerpts from Connected Tech, a Web-based instructional program from Harcourt Connected Learning that enables K–8 teachers to integrate critical technology skills. For a free trial, or to learn more about Connected Tech, visit **www.harcourtcl.com** *or call (800) 638-1639.*

A+ WEB GALLERY
Sites That Get Our Highest Recommendation

Site of the Month!



Ancient Civilizations
Grades 4–12

This fantastic tour of the past is courtesy of the British Museum. Highly interactive, the extraordinary graphics draw on the museum's expansive collection and the expertise of its curators. Explore the buildings, cities, religion, technology, trade, and writing of the ancient world. Travel to an ancient Chinese tomb, a Mesopotamian ziggurat, or an Aztec temple. Go to ancient Egypt and discover the work of scribes or explore the Great Pyramid. In China, study ceramics production, learn more about how bronze objects were cast, or visit a jade workshop.
www.ancientcivilizations.co.uk/home_set.html

The Biology Project
Grades 6–12

Created by the Department of Biochemistry and Molecular Biophysics at the University of Arizona, this award-winning interactive biology resource was initially designed for college students. Subsequent additions include general biology lesson plans and activities by middle and high school teachers, and a young explorers section for grades K–8. Try an interesting activity involving onion root tips and the phases of cell life, or learn about tobacco smoke and lung development. Use the site map to help you navigate the investigative Problem Sets and Tutorials.
www.biology.arizona.edu/

Brainbashers
Grades K–12

Created by high school math teacher Kevin Stone, this 10-year-old site contains an impressive collection of math and word puzzles, games, illusions, and logic games. For example, Illusions lets users explore stereograms, fractal images, and distortions. Check out the Chamber Drop game, Kakuro numerical crossword, or Anagram Alley. Or try the intriguing monthly contests such as Penmen, Eureka Cartoon, and Rare Number. Daily activities and new items are highlighted at the top of each section.
www.brainbashers.com/

Calculator.com
Grades 2–12

Calculator.com offers the most popular calculators for fractions, percents, graphing currency, temperature, and time. Or, browse all 28 categories including agriculture, cooking, engineering, distance, photography, health, finance, and sports. Easily convert all kinds of interesting information.
CAUTION This site has pop-up advertisements.
www.calculator.com/

EurekAlert for Kids
Grades 5–8

The American Association for the Advancement of Science is probably best known for their flagship journal *Science*. EurekAlert is their free online newsletter that covers science, medicine, and technology. Learn about the mystery of the shining fish, or find out what's sleeping in the Lost City. Articles are easily accessible on the site, or kids can subscribe and receive emails. In addition, Links for Kids features new sites, science fair experiments, and fun games.
www.eurekalert.org/kidsnews/

FactCheck.org
Grades 9–12

The award-winning FactCheck.org is a nonprofit, nonpartisan organization that monitors the factual accuracy of statements made by major political figures in the United States. A service for voters, FactCheck is a project of the Annenberg Public Policy Center at the University of Pennsylvania. It's headed by Brooks Jackson, a political journalist with almost 35 years of experience with the Associated Press, *The Wall Street Journal*, and CNN. Browse recent postings, subscribe to the email list, watch videos, submit a question, or, for the diehard political junkie, have updates sent directly to your cell phone. An outstanding resource for an election year, learn which candidates tell the truth.
www.factcheck.org/

Galaxy Evolution Explorer
Grades 5–12

The Galaxy Evolution Explorer, or GALEX, is an orbiting space telescope mapping the history of star formation. "Making observations in the ultraviolet, GALEX will look at millions of galaxies, both nearby and distant. These observations may also detect thousands of quasars, those enormous beacons of energy at the edge of time." Launched in 2003, scientists at the Jet Propulsion Laboratory and the California Institute of Technology (in partnership with NASA's Explorer's Program) are monitoring GALEX during its years in space. This is a perfect destination for astronomy lovers who are interested in viewing amazing images from the mission.
www.galex.caltech.edu/

Grammar Resources on the Web
Grades 7–12

The writing program at the University of Chicago presents the best grammar resources on the Web. Rather than presenting a list of links, the resources are integrated into a helpful narrative about grammar and good writing. Materials include grammar books and essays, English for non-native speakers, science and technical writing, thesauruses and dictionaries, gender-neutral language, and classic style guides.
writing-program.uchicago.edu/resources/grammar.htm

The Wilderness Society
Grades 9–12

This Washington-based nonprofit agency has worked to protect the American wilderness since 1935. For teachers, the most interesting and useful section is the library. Locate an online newsletter, scientific reports, policy briefs, maps, fact sheets, legal documents, guides, quotes, and a bibliography. Read about the 10-year anniversary of the U.S. Forest Service's Roadless Area Conservation Rule, study the effects of global warming, review timber-cutting threats, and learn how to get involved in local conservation projects.
www.wilderness.org/

World Images
Grades K–12

World Images, a service of the California State IMAGE Project, contains 60,000 images organized into more than 600 different portfolios with topics such as: cities, art and architecture, music, drama, literature, religion, myth, science, technology, and mathematics. There's an excellent collection of tools and tutorials to help users make the most of the resources. Teachers can also check out the California Educational Standards for suggestions on how to use the materials.
worldart.sjsu.edu/

Zoom Games
Grades K–12

Spring is here and we're all longing to spend more time outside. If you don't remember all the rules for Snake in the Grass, Steal the Bacon, or Stuck in the Mud, this site offers a great selection of games from the popular PBS show *Zoom*. There are more than 100 varieties organized into chase games, mind games, physical challenges, relay races, sports games, and word games. For a featured game, click Daily Highlight and the print button will produce a recess-friendly copy. Help students stay in shape and use these worthwhile alternatives to computers or television for entertainment.
pbskids.org/zoom/activities/games/

Live Links
If you would like a PDF containing all of the live URLs from this Newsletter, send an email to
links@classroom.com

by Emily Beck
Preschool Music and Middle School Math Teacher
ebeck512@gmail.com

To: Harcourt Connected Learning
From: Daniel Carchidi, Ph.D., Massachusetts Institute of Technology
Re: Highlights for High School
Date: May 2008

Q: How did Highlights for High School begin?
We started looking into this about two years ago, when the dean of engineering and the executive director of OpenCourseWare (OCW) thought there might be an opportunity to apply the OpenCourseWare model to secondary school materials. We conducted interviews and focus groups with more than 150 people, including policy experts, teachers, and students.

We came up with a big plan ($50 to $100 million) to develop math, science, and engineering curricula online for this age group. We planned potential certificate programs, annual recognition events, and more. We presented this to the president and provost, who liked the vision but had concerns about the price tag.

So we decided to look at the 1700 published courses from MIT OCW and extract from those the content that would be most valuable for high school students and teachers. We realized that the AP framework might be something that people recognize, so we evaluated our current AP calculus, physics, and biology courseware. We looked at chemistry as well, but it seemed less of a fit.

Q: What resources do you have for your online biology, calculus, and physics courses?
In calculus we have over 500 different resources. In biology we have over 600 resources and in physics over 1650. Physics is very robust. We have lecture notes, video clips, homework problems, tests, and java applets for some of the simulations. All are aligned to particular AP subtopics.

We also wanted to make this very inspiring. At MIT, there are over 40 programs on campus that reach out to K–12 students. In our research, we came across the Educational Studies Program, where MIT students have been teaching interesting and varied high school courses for over 50 years. So we took five of those courses and put them online. Titles include Combinatorics: The Fine Art of Counting, Guitar Building, and Audio and Speaker Electronics. We thought those could be considered quirky and fun and might appeal to students and teachers. So we published them on the Highlights for High School site.

Q: Are there answers to the homework questions and tests?
For many of them there are answers. We operate under a Creative Commons license that's not for commercial use. If teachers want to use or modify a problem, they just need to cite the source and then make their modified materials available under the same license to others.

Q: What kinds of feedback have you received?
The email we receive is incredible. Teachers have written to thank us and ask us if they can help. And we've gotten over 100 emails since we launched the site at the end of November. Some of the feedback has been pretty inspiring:

- *"Your AP Physics videos are wonderful. I find them very helpful and enlightening."* – Harshal, high school student
- *"I am a principal in a private school in a small town in northeast Nebraska. We are facing a population decline as the trend toward urbanization increases in most of our small towns. Your program gives us a way to continue to provide both private and public quality education as we see our budgets decline due to population decline."* – Joe, principal
- *"How can I thank you for doing all this? Other universities have retreated behind firewalls and you have made your materials available to all of us."* – Jeff, high school physics teacher

Q: Any negative feedback?
We're going to be surveying and doing some focus groups to look for things to improve. Sometimes people have difficulty downloading the videos and our technical team walks them through the process. But the positives vastly outweigh the few negatives.

Q: What does MIT get out of putting course materials online for free? Does it help recruit students?
I suppose it does. Our surveys indicate that 25 percent of entering students at MIT say OCW influenced their choice significantly. But it wasn't intended as that. The whole OCW concept started with a faculty committee getting together and asking what MIT should be doing with distance learning.

The committee came back with a thick binder that said OCW essentially had missed this wave. So the committee members simply asked why we didn't give it away. It was such a powerful idea that then-president Charles Vest got behind it. He received some funding from the Mellon Foundation and the Hewlett Foundation and we started OCW. It is intellectual philanthropy. Positive things must follow from such a concept.

Highlights for High School
ocw.mit.edu/OcwWeb/hs/home/home/index.htm

MIT OpenCourseWare: Privacy and Terms of Use
ocw.mit.edu/OcwWeb/web/terms/terms/index.htm

Daniel Carchidi <carchidi@MIT.EDU> *is Senior Publication Manager and Project Manager for MIT's OpenCourseWare Secondary Education project.*

by Mary Cupito
Assistant Professor of Journalism
Northern Kentucky University
cupito@fuse.net

News Flash Five
Grades 4–8

If you incorporate current events into your lessons but worry about the impact of adult news programs on children, go to News Flash Five from PBS. Each Wednesday, an animated news broadcast delivers appropriate headlines to students. A diverse group of simulated reporters share top stories in world and national news, sports, arts and technology, and science. As part of the Get the Scoop game, kids learn how to track down a story and ask effective questions. They can also read news articles written by real kids and even dabble in writing their own stories to submit. For teachers, a current events primer and lesson plans are hot off the press!
pbskids.org/newsflashfive/

Major League Baseball Kids' Dugout
Grades 3–8

Motivate young baseball fans to get their heads into the game. Do your students know what pitchers do to warm up before a game? Are they familiar with the teams in the league? Do they know how to score? Go to Baseball Basics for the answers. Inside Scoop offers interviews by kid reporters who got to talk with the best players in the major league. Kids can play online games, check out programs that promote real baseball skills, send letters to favorite players, or try Mascot Fever. The MLB Kids' Dugout is a home run!
mlb.mlb.com/mlb/kids/index.jsp

Ready Kids
Grades 4–5

Students and their families can prepare for natural disasters and fire emergencies with information from this site provided by the U.S. Department of Homeland Security. Designed with the sensitivity required for a young audience, this guide teaches kids how to create an emergency supply kit for their homes and how to establish a just-in-case family emergency plan. With comic strips, interactive games, posters, stickers, and a printable activity book, the site uses fun to overcome fear. Additional materials are located in the section for parents and teachers.
www.ready.gov/kids/home.html

Live Links
If you would like a PDF containing all of the live URLs from this Newsletter, send an email to
links@classroom.com

Ni Hao, Kai-Lan
Grades PreK–2

Ni hao means "hi" in Chinese. Say hello to Kai-lan Chow, a six-year-old animated star of a new preschool program on Nick Jr. This fictional Chinese-American girl enjoys making new friends. Her many pals (Tolee the koala, Hoho the monkey, Rintoo the tiger, and Grandfather Ye Ye) introduce children to Chinese customs and traditions. The site complements the TV program, with directions on how to design a paper lantern, create a Chinese dragon table topper, make paper bag puppets of the characters, and more. In addition, children will adore the interactive dragon-boat rowing race and fun puddle-hopping game.
www.nickjr.com/shows/ni-hao-kai-lan/index.jhtml

EIA Energy Kids Page
Grades K–8

Energy Ant shares the history and uses of non-renewable energy: oil, coal, natural gas, and uranium. Renewable energy covers wind, solar, geothermal, biomass, hydro, and ocean. The Energy Information Administration's insect spokesman discusses the science behind energy and how it can be conserved. Learn about hydrogen use in vehicles or check out an energy calculator. Take a quiz, look up terms in the energy glossary, or try the riddles and word games. Complete an activity book, a scavenger hunt, or an online field trip that doesn't require the use of gasoline. Teachers can also find an impressive group of lesson plans.
www.eia.doe.gov/kids/index.html

Cooking with Kids
Grades 3–6

Childhood obesity, anorexia, diabetes, and low bone density have become national issues. This companion site to the *Cooking with Kids* TV program shows how easy it is for children to prepare snacks and meals that are good for them. Using the five food groups as a platform for proper nutrition, two-minute videos demonstrate how to make fresh vegetable burritos, sunshine lemon smoothies, peanut butter banana breakfast shakes, and more. The recipes may also be downloaded, and they include nutrition tips and bonus questions.
www.cookingwithkids.org/

by Cara Bafile
Educational Writer & Former
Kindergarten Teacher
carabafile91@hotmail.com

Cool Tools for Tomorrow's Young Thinkers

Engage Students with Exciting New Technology

What we learn with pleasure we hardly ever forget.
— Alfred Mercier

The cartoons of my childhood offered vivid images of life in the future. One of my favorite cartoon students of the future was Elroy Jetson. While the character was obviously fictitious, Elroy epitomized an advanced learner, labeled gifted and talented. Elroy Jetson fits a classic profile of being wildly imaginative, an inventor of amazing gadgets like the time machine that whisked the Jetsons into the Flintstones' living room. What was important for a student like Elroy was a classroom setting that supported his special character traits. In our 21st century, teachers encounter gifted students like Elroy all the time. Fortunately, exciting new technology is quietly emerging for advanced learners and teachers driven to push them to their limits.

Classrooms of the very near future will find growing numbers of mobile, virtual, and digitally intelligent tools that encourage students to engage their abilities to the greatest extent possible. They will be taking risks and building knowledge and skills in what they perceive as safe, flexible environments. Although new technologies can sometimes be considered disruptive and are therefore ignored, these innovations have the potential to drastically change the course whereby students connect, engage, and relate to the world.

The Future of Informal Learning Will Be Mobile and Social

Cell phones have great potential as data collection tools: text input, audio recorders, digital cameras, and digital camcorders. Handheld devices have been a small part of elementary and secondary classrooms for at least ten years. Palm and Pocket PC equipment are well documented online with tons of primary and secondary resources. However, it is the cell phone that has found its way into the pockets of the common student. Yet the cell phone has been ignored for potential learning experiences. Corporations have relied on mobile technology to manage their businesses for years. The idea grew from the need to accomplish small tasks in short periods between meetings and at the airport. So now the future will see cell phone technology that rivals the computing power of laptop and desktop machines.

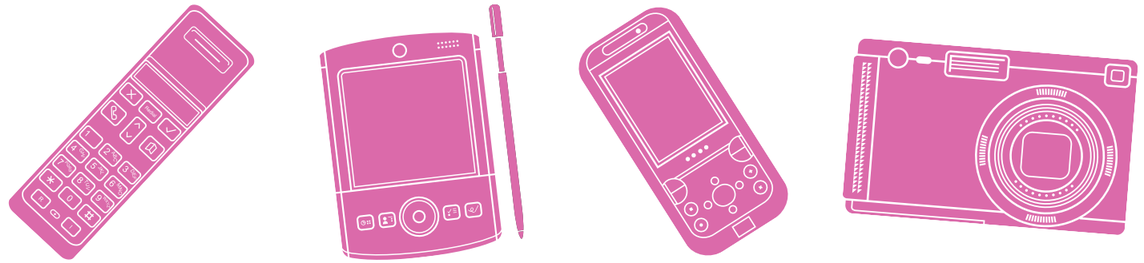
Today it's easy to find inexpensive cell devices that offer access to audio and video cameras as well as live rich-text information. Learning in the future will increasingly become more informal, mobile, and on-demand, which means that learning can interface with the context around you. Then communication and information access become independent of location in time or space. A surprising number of cell devices are beginning to include Wi-Fi (wireless Internet technology), avoiding the need for expensive charges for Internet access through mobile providers. The future will see open source cell phone devices that act more like desktop computers, enabling free access to a wide array of mobile learning and communication solutions.

Open Source is a movement to decentralize technologies so that anyone can use them. Open source software is usually developed as a public collaboration and made available for free. But Microsoft operating systems have been standard tools for the majority of personal computers to date, which has made it difficult for open source operating systems to attain household popularity, even though they are free. However, there is a new open source revolution that involves computing devices even closer to our fingertips. Google has announced partnerships with many major cell phone and mobile hardware and software manufacturers to develop a free, open source, mobile platform capable of high-speed Internet connectivity and other powerful computing access that was typically limited to desktop computers.

Google's new project named **Android** (code.google.com/android) will be able to replace the existing cell phone interface with one that enables free tools for communication, mapping, and rich visuals. While Apple's iPhone brings a rich user interface to those willing to pay, Google intends to bring open tools to the masses. Future generations of Internet-savvy students will push expectations for relevant, open learning opportunities for learning content when it's convenient.

Learners can take advantage of "just in time" mobile access to key learning materials for literacy and new language learners. Cell phone technology can be used as a management tool to compact curriculum. The following available cell phone resources can provide useful tools to accomplish curriculum concepts quickly and build on what students already know.

The PBS Kids Ready-to-Learn Cell Phone Study (www.pbs.org/readytolearn/research/cellphones.html) is a 2006 evaluation of the educational effectiveness of cell phone video streaming technology. In the study, parents reported an increase in their children's knowledge of the alphabet and in their own initiation of literacy-related activities with their children, which suggests that cell phones are promising new tools to increase early literacy skills.



Mobiode (www.mobiode.com/) supports simple "fill-in-the-blank" questions, multiple choice questions, and polls that can be used to collect data from users via their mobile phones.

Wattpad (www.wattpad.com/) is a free alternative to ebook readers, allowing anyone to read and share stories on your mobile phone.

Jott.com (www.jott.com/) lets you jot down what you need with the one tool that's always by your side. Call the toll free number, record your message, and your words are transcribed into your Google blog or calendar.

To find more useful cell phone educational tools, check out **Cell Phones for Learning** (cellphonesinlearning.wikispaces.com/). Find out how this mobile device can be used for research and organization.

Virtual Worlds Blend Social Learning

Virtual learning is becoming cheaper and easier for creating environments that enable collaborative work. Universities around the world are taking part in traditional discussions within virtual environments. In the future, primary and secondary classes will have greater access to virtual spaces designed to allow teachers to infuse curriculum goals.

With huge companies like Sony, Microsoft, Google, and others preparing to launch their own twists on virtual environments, access will soon become as common as MySpace or Facebook meet-ups, at low or no cost to users. Virtual worlds hold significant potential for student leadership to blossom through participation, exploration, and knowledge development. Students have the ability to travel, communicate, and create items in the virtual world, putting educational goals into action. A great example of this is the emerging open source project **Sloodle** (www.sloodle.org/), with its virtual reality, and **Moodle** (moodle.org), with its course management system. While early in its development, this approach hints at new options for enabling learning in social, immersive, and interactive ways. Students initiate and direct their own learning by freely making decisions, interacting with others, and discovering new skills.

Working with students to develop virtual business ventures in open digital worlds can facilitate groups that create and manage together. The use of virtual worlds can support flexible grouping strategies that allow students to work with a variety of their peers, both near and far. Engage entrepreneurial spirits by incorporating virtual businesses and cooperative projects to refine problem-solving, decision-making, and collaborative skills. The following available websites offer useful tools to extend collaborative skill sets beyond the walls of the classroom.

Exploratree (www.exploratree.org.uk) facilitates collaboration in virtual environments that are not restricted to navigating three-dimensional locations. On the contrary, virtual learning can occur in collaborative textual environments as well as shared graphic interfaces. Using 2D graphics and sketches, students can brainstorm in collaborative online, interactive whiteboards.

SceneCaster (www.scenecaster.com/) is a 3D Web community allowing anyone anywhere to easily create, share, and interact with 3D scenes on a common Web browser. It's an excellent blend of easy to use creation tools and private spaces controlled by the instructor. With it a teacher can create a 3D Web experience or modify others in order to create contained virtual spaces for students. This innovative Web application is a great way to introduce students to virtual Web-based communities that are gaining a stronghold in the Internet culture.

Edusim (www.edusim3d.com/) is a free open source 3D virtual world specifically for your classroom interactive whiteboard. It's a powerful way to engage your students with direct touch manipulation of 3D virtual learning objects on the interactive whiteboard surface. Edusim is also extendable and allows multiple classrooms to connect their interactive whiteboards for collaborative learning sessions.

Toy Planets for Everyone

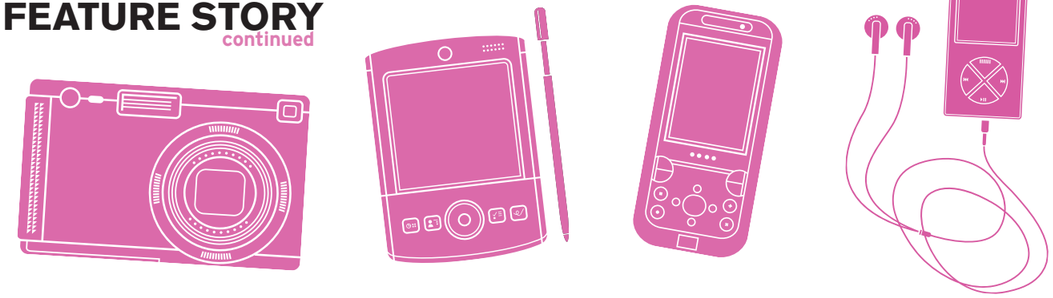
Ant farms, fish tanks, and reptile species are common inhabitants in elementary and middle school classrooms. Observing colonization habits is a natural way to reflect upon human society and prompts discussion for deeper analysis. Now digital simulations provide animated, interactive, and game-like environments in which students can learn through observation and exploration.

Artificial intelligence will drive simulated environments to deepen the engagement of curriculum and foster abstract questioning. Classrooms of the future will get up close and personal in dynamic, simulated planets in a box. Military units around the world are using simulated environments to train everyone from pilots to infantry. The technology used to recreate hazardous and complex locales has grown so that soldiers can mentally prepare for a mission before they get there. Although classrooms do not have a big budget for high-tech, room-size simulators, emerging inexpensive software can deliver small, focused experiences that students can use to gain valuable knowledge and skills.

Game designers have created life and society simulators to allow players to build and take control of entire cities. Will Wright is the acclaimed creator of popular games such as SimCity and The Sims. His most anticipated release comes under the simple title Spore, which will be a simulation of designing life from single-cell organisms to galaxies. Players will be able to spend as much time as they prefer in each stage of development, without being forced to move to the next stage. This will allow teachers to manipulate how each stage of game-play can best align with their curriculum. The scope of interactivity exceeds anything previously attempted in a game or simulation.

One of the most impressive features of Spore will allow students to experiment with planetary physics, helping them develop an advanced sense of long-term thinking while compressing the experience into short bursts of fun. It can be difficult for students to think and converse 30 to 50 years ahead

continued➔



in time about complex or abstract concepts. In Spore they will have the opportunity to view what is happening now and what it could be like in the future. Spore will be unique in its ability to provide this type of perspective in just a few minutes, allowing a class to integrate these simulated experiments with existing traditional forms of learning. While access to these experiences will not be free, the price will be similar to other consumer games on the market. In addition, portions of Spore gameplay are anticipated to be accessible from cell phones as well as personal computers and next-generation game consoles.

It is important that students develop questioning strategies that allow them to collectively create and answer complex concepts while fostering long-term thinking. The following sites offer intelligent environments and simulations students can use to safely explore social or environmental scenarios.

Ant Farm Simulation (www.forgefx.com/casestudies/prenticehall/ph/ants/ants.htm) allows players to participate in ant behavior. Students not only observe but also influence ant swarm behavior.

CostofLife.org is an online strategy game in which players solve community problems such as homelessness in cities across the United States. Players learn the ins and outs of the nonprofit world as they apply for grants, receive donations, and manage their budget efficiently.

Interactive Physics Simulations (phet.colorado.edu/new/index.php) is an amazing set of fun, interactive, research-based simulations of physical phenomena from the Physics Education Technology project at the University of Colorado. The extensive suite of simulations for teaching and learning physics and chemistry makes these resources both freely accessible and easy to incorporate into classrooms.

BBC Climate Challenge (www.bbc.co.uk/sn/hottopics/climatechange/climate_challenge/) places players as presidents of the European nations. Playable for free on the BBC website, the sandbox-style strategy game is based on real climate change data, where the player can try out different approaches, learn about the issues, and have fun at the same time.

Create New Knowledge

Exciting new tools have the potential to broaden the abilities of advanced learners to collect, collaborate, and create new knowledge and skills. Mobile, virtual, and artificially intelligent learning tools will someday be common tools for teachers to drive home the point.

"Our children can't wait. The future is now. We need to be preparing them for a future that few of us can even visualize."

— Dr. Mark Edwards,
Former Superintendent Henrico County,
Virginia, Public Schools

by Donald Hawkins
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PARADOXES, FALLACIES, and SURPRISES

The *American Heritage Dictionary* defines a paradox as a seemingly contradictory statement that may nonetheless be true. For millennia, mathematicians and scientists have been fascinated by paradoxes because these surprising results force them to re-evaluate what they believe to be true. Likewise, students enjoy learning about paradoxes because they instantly add an element of mystery and wonder to the curriculum.

The following resources introduce students to some famous and not-so-famous puzzlers. Each of the paradoxes has a natural place in the mathematics classroom, prompting students to view everything from probability to area to algebra in a new light.

The Birthday Paradox

The Birthday Paradox is surely one of the most surprising results in all of mathematics. The problem may be stated in various ways, but the essential idea is that a room only needs to contain 23 people in order for there to be a greater than 50% probability that two of them share a birthday. This is a truly startling result, given that there are 365 possible dates to choose from. To introduce students to the paradox, you may want to first ask for their guesses as to how many people must be in the room so that the probability passes 50%. Then have students experiment with some of the hands-on tools listed below. The NCTM site includes a program for the TI-83 calculator.

Random Birthday Applet
www-stat.stanford.edu/~susan/surprise/Birthday.html
Birthday Problem
webspace.ship.edu/deensley/mathdl/stats/Birthday.html
Birthday Problem: A Short Lesson in Probability
www.mste.uiuc.edu/reese/birthday/
NCTM Illuminations: Birthday Paradox
illuminations.nctm.org/LessonDetail.aspx?ID=L299/

Zeno's Paradox

Zeno's Paradox, which dates to approximately 450 BCE, presents the classic dilemma of a race between a tortoise and a hare. The hare, being a much faster runner, gives the tortoise a head start. Assuming both animals run at a constant speed, it will take some finite amount of time for the hare to reach the tortoise's starting position. But by this time, the tortoise will have moved ahead to some new position. If you imagine this process continuing, you are faced with the paradox that the hare can never catch the tortoise. Yet this seems to contradict what we know about motion. The Interactivate site is an excellent way for students to explore the paradox. The site features an applet that allows students to step through the race and zoom in on the runners, while the Learner section includes questions that educators can use to initiate a classroom discussion. The Mathematical Mysteries site contains background on the paradox that will be useful for both students and teachers alike.

Interactivate: Tortoise
www.shodor.org/interactivate/activities/tortoise/
Mathematical Mysteries: Zeno's Paradoxes
plus.maths.org/issue17/xfile/index.html

The Vanishing Area Paradox

Imagine cutting a triangle into a few pieces, rearranging the pieces, and forming a new triangle that has a different area from the first one. Common sense and everyday logic tell us that this should not be possible. And yet this is exactly what seems to happen in the Vanishing Area Paradox, which was first proposed by Martin Gardner of *Scientific American* magazine. Once students are familiar with the Vanishing Area Paradox, have them unravel the mysteries in A Faulty Dissection. As a final stop, Archimedes' Laboratory contains additional area paradoxes that can serve as extra-credit projects.

Vanishing Area Paradox
www.sandlotscience.com/Games/Vanishing_Area_Paradox.htm
A Faulty Dissection
www.cut-the-knot.org/Curriculum/Fallacies/FibonacciCheat.shtml
Archimedes' Laboratory
www.archimedes-lab.org/page3b.html

Visualizing Volumes

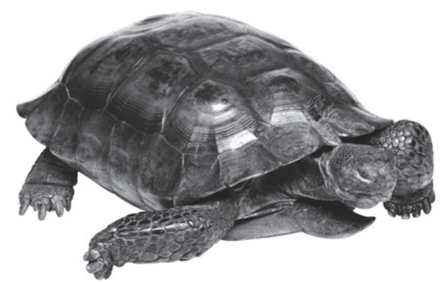
Although the concept of volume is familiar, students may be surprised at how difficult it can be to visualize the result of pouring water from one container to another. This virtual manipulative turns the paradox into a challenging guessing game. Encourage students to check the underlying mathematics by calculating the volumes of solids.

Virtual Manipulative: How High?
nlvm.usu.edu/en/nav/frames_asid_275_g_3_t_3.html

A Proof that 1 = 2

Students often tune out when presented with algebraic proofs. Demonstrating that 1 = 2 is a good way to jolt them to attention! There are many versions of this fallacious proof, but the one that is presented below is especially interesting because students are challenged to click on the step of the proof that is incorrect. Try it yourself. Are you able to identify the false move? For more advanced students, Classic Fallacies offers some rather subtle brain twisters.

1 = 2: A Proof Using Beginning Algebra
www.math.utoronto.ca/mathnet/falseProofs/first1eq2.html
Classic Fallacies
www.math.toronto.edu/mathnet/falseProofs/fallacies.html



by Joe Todaro
Curriculum Developer & Consultant
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Awesome Software & Applications

The secret of success is not necessarily working harder, but working smarter. These suggested free software and applications will improve the technology experience for you and your students.

GMX: Global Mail X-Change

GMX is a completely free, robust Web mail service that is used by 10 million people worldwide. Here are its advantages:

- Large selection of names: your choice is most likely available.
- Maximum virus protection guaranteed from McAfee and Symantec.
- Seven anti-spam modules eliminate 98 percent of unwanted emails.
- Allows access to your existing email address with the GMX Mail Collector.
- Manage all third-party email accounts and receive all your email in one mailbox.
- State-of-the-art secure servers with guaranteed availability.
- 5 GB storage space, with up to 50 MB attachments per email.
- Interface is clean without any pop-ups or advertisements.
- 1 GB storage space is available for all file types with the option to share folders.

GMX definitely surpasses all the well-known free online email services. Be sure to view the video tour on the home page.
gmx.com

MailStore: Backing Up Your Email

Email is a crucial part of an educator's daily life in school or at home. What if something were to happen to one of your accounts? Please don't assume that your school system has the perfect backup system, especially if you use an Outlook account.

MailStore is a freeware program that will back up all your email from multiple accounts, including attachments, into one safe archive on your computer. It supports Microsoft Outlook, Microsoft Outlook Express, Windows Mail, Thunderbird, Gmail, Yahoo! Mail, plus many others. Once your email is backed up, it can be searched and organized with the option to burn a Backup CD.
www.mailstore.com

For specific directions on using MailStore, read the article *How to Back Up Your Email with MailStore Home* by Jordan Running.
tucows.com/article/1954

Giveaway of the Day

As educators, we are always looking for free materials, including free software. Giveaway of the Day offers free licensed software by the best software authors from all over the world.
giveawayoftheday.com

The software is announced on a daily basis and is only available for download for 24 hours. This legal, registered software is for noncommercial use and updates and technical support are not given. You will not want everything that is offered, but I usually find one great software product per week.

Click Subscribe by Email to get a daily notice of the free software for the day. You can also subscribe to the RSS feed. It is important to note that spam has never been an issue since I've been a subscriber; I only receive one notification email per day.

Zamzar

Zamzar is a free and convenient way to convert your songs, videos, images, and documents into different files. It takes only four easy steps to convert a file without purchasing a costly software download.
zamzar.com

When a file conversion is completed, you will receive an email with a link to the converted file. You must download the file within 24 hours, after which it is deleted. There is no limit to the number of conversion files, but you can only convert five within one session. There is no registration required and the service is free for up to 100 MB files. There is a fee for larger files with additional enhancements. While this site is sponsored by lots of advertising, the functionality of this website's free conversion tools is worth the hassle.

What are some typical educational uses of this site?

- Download and convert videos from YouTube, Google Video, and MySpace.
- Convert PDFs to docs and vice-versa.
- Convert Mac to Windows extensions.

Be sure to download the Zamzar Web browser button on the tools page that will make your file conversion even easier. Use the Convert It! button to convert and save the video you are watching. To see a demonstration of the various uses of this button, click the video link at the bottom of the Web page.
zamzar.com/tools

Senduit

Sending large attachments via email is always a problem. For example, Gmail supports 10 MB, GMX allows 50 MB (the largest allowed for email attachments), and most school accounts permit up to 4 MB. Try Senduit, a Web-based file distribution utility that supports up to a 100 MB limit. There are only two steps to the process. Step one: upload your file (no registration required) and choose your expiration date. Once the file is uploaded, proceed to step two: copy and paste the email link provided or click Email this link.
senduit.com

by Domenic A. Grignano
Pioneer, Innovator, and Educational Technology Consultant for K–12,
Adjunct Professor at Fairfield University
grignano@optonline.net

Make Beliefs Comix

Online research

Your students can improve their language and reading skills by creating comic strips at this fun and interactive site. Using a simple, easy-to-learn interface, kids simply paste in the art provided, arrange it accordingly, and then type in their own dialogue. Story ideas are provided for those who need more direction.

Subject Areas: English, Art, Social Studies
www.makebeliefscomix.com/

How Much Is One Million?

Online correspondence, online research

People throw around phrases like "a million" all the time, but just what does a million of anything look like? The Liberty Middle School in West Orange, New Jersey, is trying to find out by collecting soda tabs. Once they have a million tabs, the funds from the recycled aluminum will be donated to their local Ronald McDonald House.

Subject Areas: Science, Math
szaccaro@woboe.org
sodatabs.szaccaro63.com/

TownConnect

Online correspondence

Designed to keep local communities, families, and schools in contact with each other within a private, secure setting, TownConnect lets its members set up websites where they can share projects, photos, news, schedules, and other materials. Registration is free.

Subject Areas: Multidisciplinary
www.townconnect.com/login

A Cultural/Environmental Odyssey Into Our World

Online correspondence, online research

Using Homer's *Odyssey* as a starting point, this project involves students researching different countries around the globe for the purpose of creating a virtual field trip. Participants will document their travels in a series of online journals. Environmental issues such as global warming will also be examined. Schools from outside the United States are encouraged to participate.

Subject Areas: English, Social Studies
www.glg4523@yahoo.com
www.grizzlyodyssey.com/

by Christopher Mautner
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¡Feliz Cinco de Mayo!
Grades 2–6

On May 5, 1862, the Mexican army defeated the French in the city of Puebla. Although they hadn't yet won the war, the battle was significant. Students can use the Internet to research this historical victory and learn the traditional ways to celebrate Cinco de Mayo.

Learning Goals
- Locate Mexico on a map.
- Create a timeline in Spanish or English.
- Make a class cookbook.
- Learn a Mexican folk song.
- Make a sombrero or a piñata.

Activities
Provide students with a map of North America. Have them name the states that share a border with Mexico. Compare the size of Mexico to the size of the United States. What is the distance in miles or kilometers from your community to the Mexican city of Puebla or to the country's capital city, Ciudad de Mexico?

Map of North America
www.worldatlas.com/webimage/countrys/na.htm
Map of North America: Continent
encarta.msn.com/map_701515164/North_America.html
North America: Political
www.eduplace.com/ss/maps/pdf/n_america_pol.pdf

Are students learning a second language? Encourage your bilingual students to research the May 5th battle in both languages. Assign partners to create a timeline of events surrounding this victory. List each event in both Spanish and English. Have them present their timelines in their non-native language.

Cinco de Mayo: A Celebration of Mexican Heritage
www.worldbookonline.com/wb/Students?content_spotlight/cinco
Cinco de Mayo
www.nacnet.org/assunta/spa5may.htm
Cinco de Mayo
latino.sscnet.ucla.edu/demo/cinco.html
Cinco de Mayo History and Celebration
www.mexonline.com/cinco-de-mayo.htm

Translate the text from English to Spanish using these Web tools:

AltaVista: Babel Fish
babelfish.altavista.com/
Language Tools
www.google.com/language_tools?hl=en

Celebrate Hispanic culture by making a class cookbook. Locate recipes online or share family favorites. Have students practice their typing or handwriting skills and copy the recipes. Illustrated recipes can be photocopied and given to each student to cover and bind. Bring in supplies to make a few of the recipes. Take photos while students prepare the food and include them in the cookbooks.

The Holiday Zone
www.theholidayzone.com/cinco/cinco-de-mayo-recipes.html
Cinco de Mayo Recipes
www.kraftfoods.com/kf/Entertaining/HolidaysEvents/CincoDeMayoRecipes.htm

As with other holidays, Cinco de Mayo is a time for food, fun, and music. While cooking and crafting, learn a few Mexican rhymes and folk songs. Ask a language or music teacher to help students learn Spanish lyrics. Upload a recording to the school website.

El Dia de los Niños: Songs, Rhymes, Fingerplays, Games
www.tsl.state.tx.us/ld/projects/ninos/songsrhymes.html
Mexican Music: Three Fun Songs for Children
cnx.org/content/m12599/latest/

Plan a Cinco de Mayo fiesta! Decorate your classroom, prepare the food, and invite other classes. Make sombreros from craft foam, ribbons, and pom poms. Invite students to wear colorful serapes. Fill student-made piñatas with treats. Play music and sing Mexican folk songs.

Wearable Sombrero
crafts.kaboose.com/wearable-sombrero.html
How to Make a Piñata
www.wikihow.com/Make-a-Piñata
Make a Piñata
www.bry-backmanor.org/holidayfun/pinata.html

Assessment
- Could students locate Mexico on a map?
- Did they create a timeline in Spanish or English?
- Did they make a class cookbook?
- Did students learn a Mexican folk song?
- Did they make a sombrero or a piñata?

Live Links
If you would like a PDF containing all of the live URLs from this Newsletter, send an email to **links@classroom.com**

South America
Grades 6–12

Deserts, mountains, highlands, plains, and tropical rainforests can all be found on the continent of South America. Connected to the Central American country of Panama by a 140-mile border, South America is surrounded by the Pacific and Atlantic Oceans and the Caribbean Sea. Take a virtual tour and learn more about this fascinating continent.

Learning Goals
- Play an online geography game.
- Identify a country's geographical attributes.
- Write a persuasive article.
- Design an informational brochure.
- Use organizing software to classify animals.

Activities

As the fourth largest continent in the world, South America has 13 countries. Distribute copies of the outline map and have students label each country. Then they can test their geography skills.

South America Outline Map
www.enchantedlearning.com/geography/samer/outlinemap/
Test Your Geography Knowledge: South America
www.lizardpoint.com/fun/geoquiz/samericaquiz.html

To help students notice details about the location of each country in South America, give them a list of questions such as:
- Which South American country is farthest south?
- Which two countries are landlocked?
- Which country has the longest shoreline?
- Which country is the smallest?
- Which is the largest?
- Which country owns the Galapagos Islands?
- Which owns Easter Island?
- Which country shares a border with a Central American country?

South America
www.unb.ca/transpo/mynet/map_south-america.jpg
Map of South America
www.map-of-south-america.us/

Ask each student to choose a South American country and write an article to persuade their classmates to visit the country. Allow time for research, rough drafts, and typing. After students have read each persuasive article, they can vote for their top three destination choices. The winning country earns the writer a reward!

CAUTION Travel guides are commercial sites and most contain banner ads. Preview the sites prior to using them.

South American Travel and Tourism Destinations
www.map-of-south-america.us/travel.htm
South American Travel Guides
www.iexplore.com/dmap/Central+and+South+America/Link
South American Experience
www.southamericanexperience.co.uk/

Learn what the health hazards are in South America. Immunizations can protect against the most common diseases, but there could be other dangers. Have students use the Web to research precautions they should take before visiting South America. Then they can design a brochure for travelers.

Tropical South America: Centers for Disease Control and Prevention
wwwn.cdc.gov/travel/regionTropicalSouthAmerica.aspx
Travel Health: The Green Guide
www.thegreenguide.com/doc/120/travel

Have students ever seen Andean Condors or Giant Anteaters? These are just two of the interesting creatures that inhabit the South American continent. Send students on an online expedition to discover the native species of South America. Searching for photos online is often difficult due to some school's filtering software. Download South American animal photos from these sites. Have students import 10 of the photos into a program such as Inspiration and classify them according to habitat, food, size, or other physical characteristics.

San Diego Zoo's Animal Bytes: South America
www.sandiegozoo.org/animalbytes/g-south_america.html
Our South American Animals: Utah's Hogle Zoo
www.hoglezoo.org/animals/region.php?region=2
The Nature Conservancy: Rainforests
www.nature.org/rainforests/explore/photos.html
AnimalsPix: Daily Animal Pictures
www.animalspix.com/
South American Animals
www.enchantedlearning.com/coloring/southamer.shtml

Assessment
- Did students play an online geography game?
- Can they identify a country's geographical attributes?
- Did they write a persuasive article?
- Did students design an informational brochure?
- Were students able to use organizing software to classify animals?

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A-Z SITE INDEX