(1) Evaluating Internet Resources: Most of what is posted on the Internet has never been subjected to the rigors of peer review common with many traditional publications. Students must learn to evaluate the reliability of information of the websites they visit.

- Select two websites that provide information about a topic related to your curriculum. Cite the URLs and names of both sites and explain which is more reliable using evaluation criteria.

DAVES SHORT TRIG COURSE  http://aleph0.clarku.edu/~djoyce/java/trig/

TRIGONOMETRY  http://fergusmurray.members.beeb.net/trig.htm

Both of these sites have are practical online courses in trigonometry. Dave’s short trig course was done by David Joyce who is a professor at Clark University. He gives links to his university website where it shows what courses he teaches as well as links to other mathematical topics. This professor looks well rounded in mathematics and seems reliable. The document has been copyrighted but doesn’t seem to have peer review on it. This document was published on the Clark University website so it must have had some sort of overseers besides just professor Joyce but it isn’t clear if there was or not. None the less the site looks well done and at the very least could be used as a good resource. This document was not published for financial benefit. It is clearly intended to instruct students and for outlining trigonometry in logical steps. There are interactive functions on the website which means this page could be used in the classroom for teaching or investigation purposes. The article was originally written in 1996 but has been revised in 1997 and 2002 so it’s a fairly recent document and could be a credible reference.

The other web page, TRIGONOMETRY was written by Fergus Ray-Murray. There is a clear link to his webpage at the top of the document. He states his references from the bottom of the page. The document is very in depth and has a wide range of hyperlinks throughout. Not all of these links are math related which made me question the integrity of the document. So I decided to check out the authors website. From his website you can find out that he is a computer programmer, writer, web designer, photographer, animator, singer-songwriter, tutor, and sculptor. He had links to math t-shirts as well as different sculptures and creations he has made. So this Trigonometry website is not as reliable as the one that was written by the University professor. It did not have imbedded graphics that could be manipulated and was overall confusing to someone with no basic trig knowledge. The page was written in 1995 and doesn’t look like it has been updated and over half of his links were expired.

I conclude that DAVES SHORT TRIG COURSE  is a much more reliable site for all the reasons listed above and overall simplicity and organization of the site.
(2) Research with Electronic References: Since we live in the Information Age, it is particularly important that teachers are able to access and evaluate information to prepare accurate, up-to-date lessons, and to teach their students the principles of electronic research. In this activity you will examine a variety of electronic references in your quest to acquire information for lessons or other professional activities.

- Identify two topics to research using electronic references (broadcast news, almanacs, quotations, etc.). Research the first topic using at least one resource from each of five categories of electronic resources. Repeat the process with the second topic, using references from five additional categories. Include the URL, name of the resource, key information acquired, and a screen capture from each resource. (See examples of research ideas).
- Identify the special features (e.g. hypertext linking of terms, Boolean search capabilities, archival search, knowledge tree, downloadable movies, online audio transcripts, animations, translations, reference lists, printer-friendly output, multimedia links, PDA or bookreader download, visible directory structure, etc.) of each of the reference tools you have used.
- Compare and contrast electronic references with their traditional paper counterparts. Discuss at least ten tasks or features that are possible with electronic resources that are not possible with traditional paper resources.
- Develop a lesson plan that incorporates electronic references. Your lesson plan should require students to use two or more electronic references to address a specific curricular objective.

1. Fibonacci numbers

from Los Angeles Public Library I found a book that relates Fibonacci numbers to strategies for trading. http://search3.webfeat.org/cgi-
From Time magazine there is an article where the Fibonacci numbers show up in all sorts of real life events. [http://www.time.com/time/archive/preview/0,10987,840019,00.html](http://www.time.com/time/archive/preview/0,10987,840019,00.html)
From encyclopedia Encarta.com I found information on Fibonacci and what it says about his series of numbers.
http://encarta.msn.com/encyclopedia_761579463/Fibonacci_Leonardo.html#p1

On Amazon.com I found a book that shows where Fibonacci numbers exist in nature.
In Merriam-Webster Online Dictionary it had the definition for the number.

2. The mathematics of Gambling

**Gambling Chronicle**

**By NEIL GENZLINGER**

Published: January 9, 2006

As the United States completes its transition to an all-gambling economy, perhaps you're wondering what your place is likely to be in it. Depends. If the sentence "Another good scenario for a stack is a flush that's made on the river" means something to you, you have a shot at membership in the new socioeconomic elite. If not, you can plan on washing that elite's cars or watering its lawns.

In the all-gambling economy, poker will be the dominant industry (sucker games like slots and lotteries are just diversion for the masses), and, as is clear from a recent batch of books on the subject, poker speaks a language all its own. So much slang is slung across card tables that it's common for poker books to have glossaries, and several of those discussed here do. Muck: to discard a hand. Spur: to mark cards with your fingernails. Village People: four queens.

It's shamefully snobbish, all this poker jargon. So by way of retaliation, it seems only fair to invent a few phrases of poker-book-reviewing jargon for the task at hand. Read 'em and weep.

From the Los Angeles Times there were several articles on using mathematics for gambling purposes.  
http://www.nytimes.com/2006/01/08/books/review/08genzingler.html?ex=1146196800&en=99e6c4b045fa2b9e&ei=5070  

Time magazine show us that it’s important to know your odds when the stakes are high.  
http://www.time.com/time/archive/preview/0,10987,994713,00.html  

Electronic references are a lot better than traditional paper resources. With Electronic references you can search an entire document for a phrase or word, you can do a Boolean search, you can copy only what you need instead of the entire resource, it’s easy to
bookmark for reference at a later date, you can search archives at a time, it’s way quicker, there may be movies or audio files attached, you can print right away, there is no charge to make copies, and overall it’s super easy and anyone can do it just by typing in a few words. There is no excuse to not be able to research anymore.

Lesson Plan
Algebra 1 or 2
Origins of the quadratic formula

Concept: Students will be able to use internet resources available to discover for themselves the origin of the quadratic formula. Students will continue to search for real life applications of the parabola and places where the parabola exists in nature.

18.0 Students determine whether a relation defined by a graph, a set of ordered pairs, or a symbolic expression is a function and justify the conclusion.

Outline of lesson plan
Warm up
Students begin a set of 3 quadratic problems two of which need the quadratic formula to solve.
Into: Since we have been working with quadratic functions and know them inside and out we need to ask ourselves, why do they exist and what is their purpose? Also ask, where do they come from and why do they appear?
Class discussion and lecture: We will visit a few sites together and then I will let you look for your own sites to get research from. The first site is http://www.purplemath.com/modules/quadform.htm Run through the examples with students. Then we will look at real life applications of the parabola from http://mtl.math.uiuc.edu/projects/2/Sallee/M1Sallee_parabola_lesson.html

What other things make parabolas? (As students call out answers, display pictures from the net: suspension bridge, rocket in flight, baseball fly, etc.

Beyond:
Homework- Write a two page essay on the origin of the quadratic formula and applications of the parabola in nature. Be sure to use your online research in your paper. Include two pictures in your essay and make sure to site your references.

(3) Educational Research: Teachers should be familiar with research related to the teaching of their discipline. The Educational Research Database (ERIC) provides access to abstracts from numerous educational publications, and is the best place to start when conducting educational research.

- Find two or more abstracts of recent, relevant articles related to the use of technology in the teaching of your subject. Summarize implications for the teaching of your subject. Cite the articles using APA format., and include the text
Title:
Assembling the Pieces Together: What Are the Most Influential Components in Mathematics Preservice Teachers' Development of Technology Pedagogical Content Knowledge (TPCK)?

abstract:
The integration of knowledge of technology, content, and pedagogy is a model to prepare preservice teachers to integrate technology in teaching mathematics, known as Technology Pedagogical Content Knowledge (TPCK) (Pierson, 1999; Niess, 2005). The question in the study is "What components in program that integrate technology throughout the program are related to the development of preservice teachers' TPCK?" Technology coursework, micro teaching, work sample are combined to help preservice teachers develop their TPCK. Journal, questionnaires, and observations from eight mathematics preservice teachers participated in the study reported that coursework was valued as main source of knowledge of technology, content, and pedagogy followed by the work sample, and micro teaching. Cooperating teacher was considered as important source of knowledge of pedagogy and content. While faculty was considered as main source of technology, university supervisor was as source of knowledge of pedagogy. The implication for future research would be preparing a better course work that consider the need of knowledge and skills of technology integration in mathematics classroom since the course work is the most influential factor that help preservice teachers to develop their TPCK. (Contains 2 tables.)
[This paper was also presented by the first author at the Oregon State University Conference (April 13, 2005).]

This article shows the ways to use computers in the classroom to help a teachers’ pedagogy skills. It was a study on 8 teachers who have just began their teaching careers and how technology can be used to advance them.


Title:
Designing Technology-Based Mathematics Lessons: A Pedagogical Framework

Abstract:
To integrate technology into mathematics teaching and learning effectively, teachers could create a technology-based learning environment that provides students with opportunities to experience the process of mathematical investigation. These opportunities range from exploring using mathematical ideas to making and testing conjectures, as well as extending their conjectures to a general form, if possible. Additionally, the learning environment should support students in ways that encourage them to articulate not only what they know about the mathematical ideas in their
exploration, but also how they arrive at their conjectures and how they
generalise the ideas. This article offers a framework that encompasses the
processes of exploring, conjecturing, verifying, and generalising to help
mathematics teachers plan and design effective technology-based lessons to
create an environment that engages students in meaningful learning in the
mathematics classroom. An interactive spreadsheet template, based on a
popular mathematics problem commonly found under the topic of calculus
and involving finding the maximum area of a rectangular enclosure given a
fixed perimeter, was designed to illustrate the framework. (Contains 5
figures.)

This Article is showing how the use of technology for mathematics teaching can aid in students
ability to investigate mathematical topics. Technology will allow students to enhance their
mathematical knowledge and make their own conclusions based on their findings.

Chua, Boon-Liang and Wu, Yingkang. “Designing Technology-Based Mathematics Lessons: A
Pedagogical Framework,” Association for the Advancement of Computing in Education.
Chesapeake, Va.
<http://www.eric.ed.gov/ERICDocs/data/ericdocs2/content_storage_01/0000000b/80/31/be/3a.pdf>
(accessed April 15, 2006).

**4) Online Academic Journals:** A growing number of academic journals are available
online, some of which are free, and others of which require a subscription.

- Find an electronic journal related to your subject and include a screen capture of a
relevant article. Briefly summarize the article.

- Administrators should be familiar with the legal code as it pertains to education.
Research a legal case relevant to education in secondary schools and include a
screen capture from this case. Briefly summarize the case. *PTP-tip The PTP
requires that "Candidates for a Teaching Credential understand and honor legal
and professional obligations to protect the privacy, health, and safety of students,
families, and other school professionals. They are aware of and act in accordance
with ethical considerations and they model ethical behaviors for students.
Candidates understand and honor all laws relating to professional misconduct and
moral fitness." You may wish to cite relevant laws or cases as an aspect of an
artifact for TPE 12.

The article below was taken from www.jstor.org.

100%: The Timing of High School Algebra as Related to Success in College Algebra
J. Bruce Coleman
Stable URL: http://links.jstor.org/sici?sici=1539-557X%281932%296%3A4%3C7%3ATNLSA%3E2.0.CO%3A
Article Information | Page of First Match | Print | Download | Save Citation
THE TIMING OF HIGH SCHOOL ALGEBRA AS RELATED TO SUCCESS IN COLLEGE ALGEBRA

By J. BRUCE COLEMAN
University of South Carolina

A canvass of the Freshman class at the University of South Carolina shows the following results for 1931:

Group I contains 183 students who have taken either a regular, or a review, course in algebra during the last year of high school.

Group II contains 136 students who did not take any algebra during the last year of high school. (Most of this group had algebra in the 8th and 9th grades.)

Percentage of group with indicated mid-semester grade in Freshman Algebra.

<table>
<thead>
<tr>
<th>Group</th>
<th>A-B-C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>59</td>
<td>24</td>
<td>17</td>
</tr>
<tr>
<td>II</td>
<td>34</td>
<td>31</td>
<td>35</td>
</tr>
</tbody>
</table>

(E indicates a total failure. D might be considered an unsatisfactory pass. A, B and C show generally satisfactory work.)

The canvass of 1930 showed 19% of group I as having a grade of E, while 48% of group II had a grade of E.

This article shows how its important to take math in your junior and senior year of high school, even if its not required, because it will ensure better success in college. Mathematics builds upon itself and so by taking a year off of studying it, you will lose some of what you knew before.

The article below was taken from Lexis-Nexis and is very relevant, recent, and local to secondary education in public schools. January 19 2006 it was written and by a writer at UCLA. The article talks about the many court cases as of late involving intelligent design being taught in science classes. Some say intelligent design is just another way of bringing God into schools, much like creationism in the past. There is an argument over the separation of church and state and what should be done about it.
A California public high school agreed this week not to teach intelligent design, the latest in several California legal cases addressing the place of intelligent design in public schools.

Intelligent design, which holds that living beings are so complex they must have been created by a highly intelligent being, has raised questions about the role religion, secularism and academic freedom play in the public school curriculum.

Un Tuesday, a California high school agreed to stop the teaching of an philosophy course called “philosophy of design” in response to a lawsuit brought against the school by 11 parents represented by Americans United for the Separation of Church and State.

Parents were concerned that the class at Trader Mountain High School in Kern County was being taught in order to promote certain religious beliefs, specifically the belief that a higher being created life, in contrast to the widely accepted theory of evolution.

“It was a flawed course to begin with,” said Jeremey Lasina, spokesmen for Americans United for the Separation of Church and State.

“Religion is typically taught separately from philosophy classes. The only thing being taught was one religious belief,” he said of the course.

Sharon Lemong, the teacher of the controversial class, said in an e-mail that it was “a discussion and critical analysis of the different theories and beliefs that our society holds concerning the origin of life,” and not in any way a means of teaching religion.

This lawsuit came shortly after a Pennsylvania federal judge ruled that the introduction of intelligent design to a ninth-grade biology class in Pennsylvania was unconstitutional.

Rob Boston, another spokesmen for the group that brought the lawsuit, said the judge’s ruling in the Pennsylvania case was a “slam dunk” for those who oppose the instruction of intelligent design in public schools.

“It sends a strong signal to other schools that might be tempted to introduce intelligent design into the curriculum,” he said.

The University of California was brought into the controversy twice last year.

In August, the Association of Christian Schools International sued the UC for allegedly discriminating against students who attend high schools that teach Christian viewpoints such as creationism in their science classes.

Last November, the operators of a UC Berkeley evolution Web site, created as a resource for elementary school teachers, were sued by a California couple.

The couple believed separation of church and state was violated by the site’s reference to religion and links to Web sites that showed how religion can fit in with Darwin’s theory of evolution.

(5) Locating multimedia teaching resources: At many libraries, teachers can obtain cards which give them special privileges as educators, including the ability to check out cards and keep them longer. Teachers can check out books, CDs, DVDs and videos.

- Find a video related to the teaching of your course in the Los Angeles Public Library System (or other public library system), CSUN main library, or the CSUN Teacher Curriculum Center. Describe the video resource and its call number, and if possible, find a teacher study guide for the video by performing an Internet search.

Title: Applications of Trigonometry in Geometry
Call Number: VID 513 A6525
This video is part of a series of videos on Geometry by James A. Noggle and TMW Media Group

It shows different was that Geometry can be used in real life. Students will hopefully see how mathematics and trigonometry has a use in their lives.