

Science & Technology Integration

Presented by Jim Dolan

Jim Dolan

Montgomery Township Schools, NJ jdolan@mtsd.us

Presentation materials available at:

www.mtsd.k12.nj.us/science

Science & Technology Integration

Things you can use now

Things you can use later

Things to consider for the future

Teacher Productivity

Student Productivity

Many of the practices can be used across disciplines

Simple

Mystanting

Evaluation



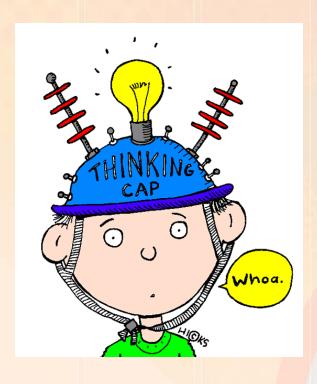
Jim Dolan



Rod Blagojevich

Think before we jump into Technology

Consider Why? Consider our Students





Pressing Need Ame ents oin-grau r than their SCC CC E in Japan, ada, and, a ussian

Why Integrate Science and Technology?

- Technology tools enhance science learning
- Science and technology integration address 21st century skills
- Science and technology integration are powerful partners in meeting standards

21st Century Skills

- Personal and social responsibility
- Planning, critical thinking, reasoning, and creativity
- Strong communication skills
- Cross-cultural understanding
- Visualization and decision-making
- Knowing how and when to use technology

Our students have changed radically

Students are no longer the people our educational system was designed to teach







They have spent their entire lives surrounded by and using

- Computers
- Videogames
- Digital music players
- Web cams
- Cell phones
- And all the other toys of the digital age



College grads have spent less than 5,000 hours reading

But over 10,000 hours playing video games (not to mention 20,000 hours watching TV).

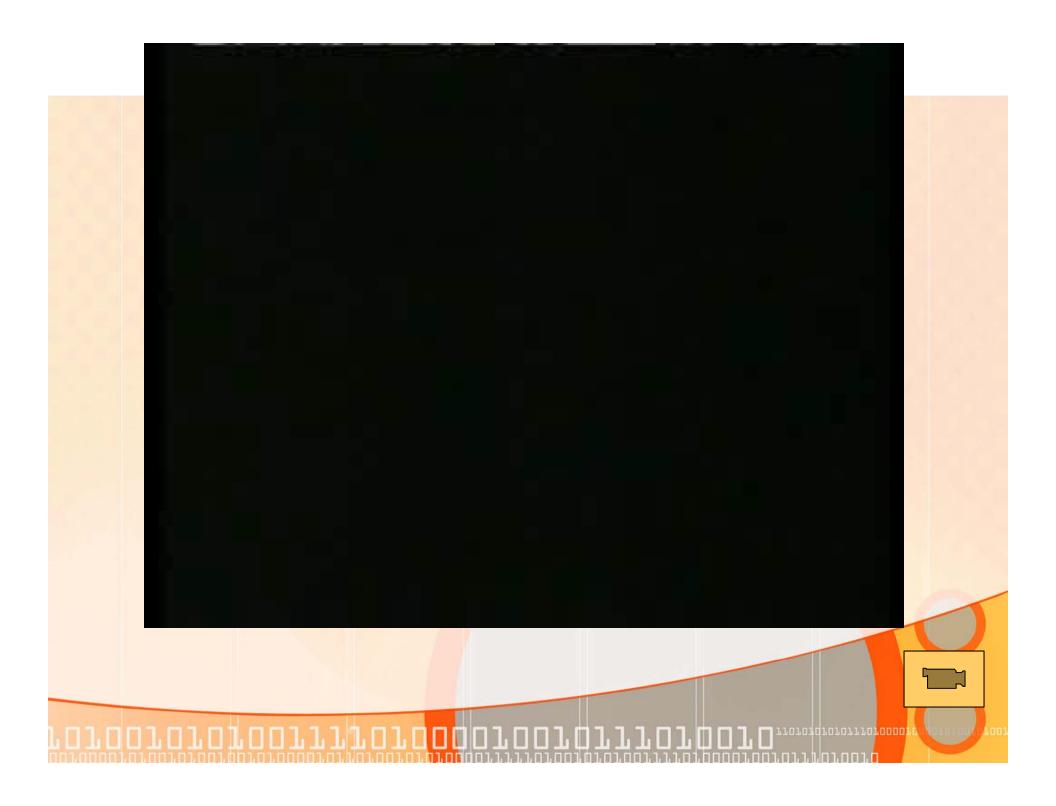
Computer games, email, the Internet, cell phones and instant messaging are integral parts of their lives.





As a result, students think and process information much differently





Teachers Have Important Jobs



ELEPHANTS

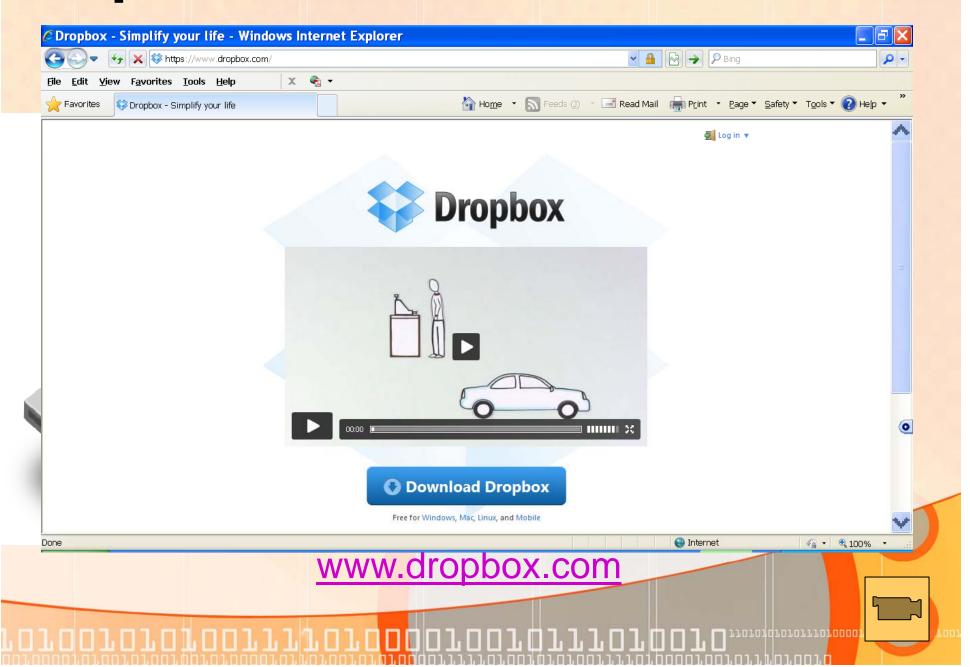
Larger than the moon



Science Integration

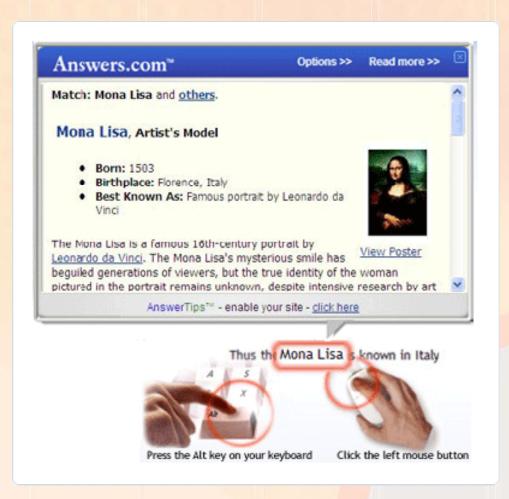
- Dropbox.com
- Answers.com
- Pre & Post assessment -Wordle
- Observe, Document, Assess-
 - Digital Cameras- Video
- Interactive Web Sites
- Google Earth
- Collaborate
- Virtual Fieldtrips

Dropbox



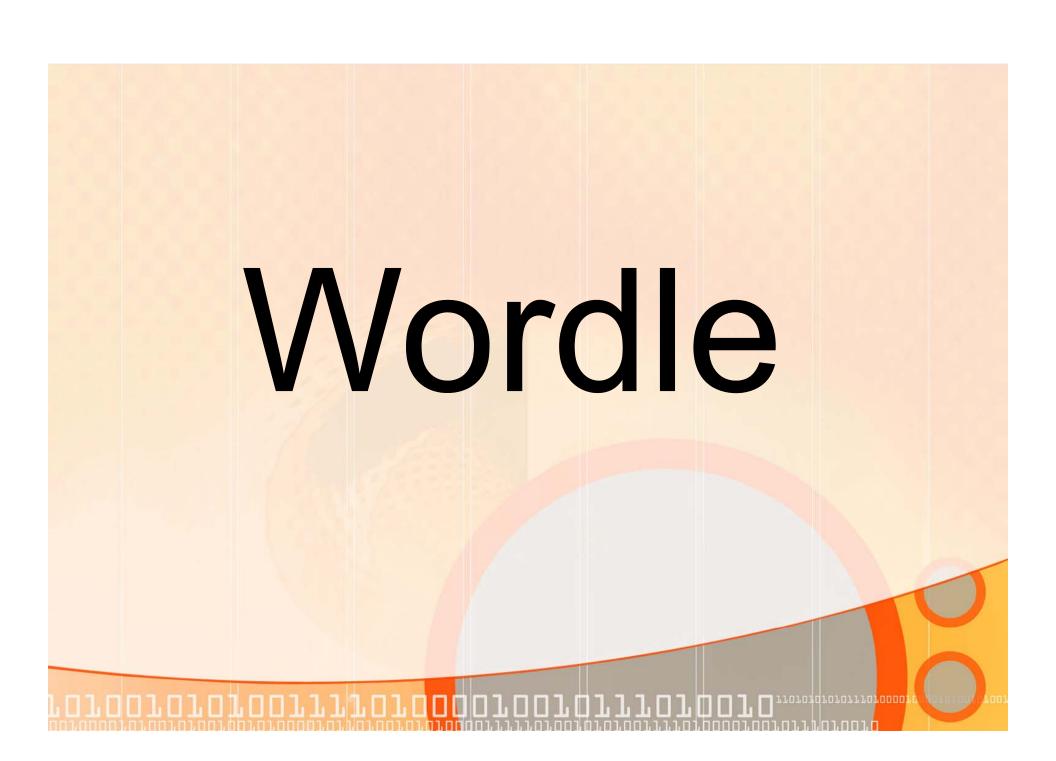
Answers.com

http://www.answers.com/main/download_answers_win.jsp



Answers.com[®]

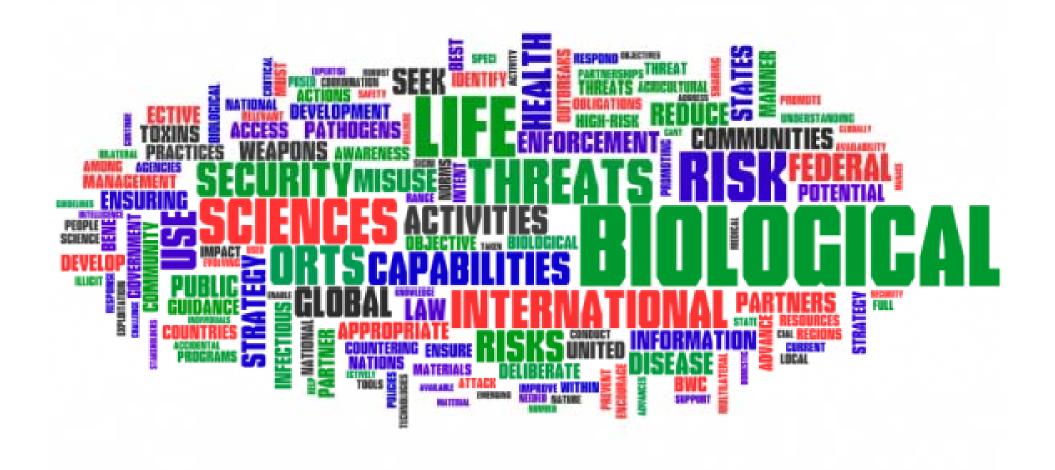
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Wordle (Word Clouds)

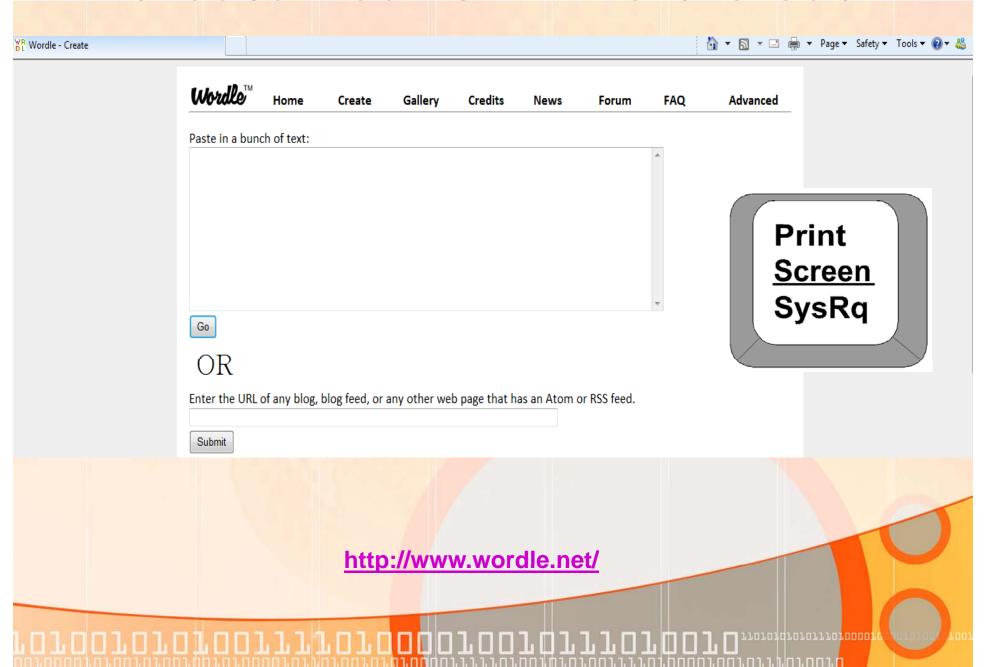
- A tool for generating "word clouds" from text that you provide
- The clouds give greater prominence to words that appear more frequently in the source text
- You can tweak your clouds with different fonts, layouts, and color schemes
- The images you create with Wordle are yours to use
- You can print them out, or save them to the Wordle gallery to share with your friends

http://www.wordle.net/



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Create Your Own Word Cloud

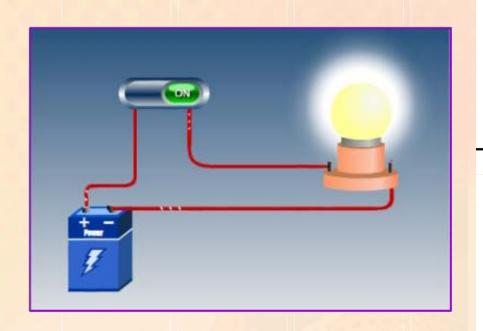


Edit and Present

Edit Language Font Layout Color

POPCAST GOOGLE CONCEPT ACCOUNTS POOCS SOFTWARPING SOFTWARE EMAIL

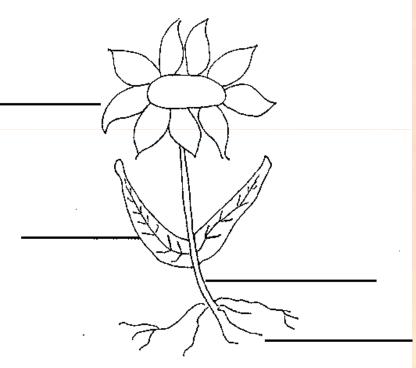
Picture Prompt



Plant Parts

Can you fill in the blanks with the correct words?

stem flower leaf roots



Name:

Picture Prompt



Additional Word Cloud Web Sites

www.wordle.net/

www.tagxedo.com

www.tagcrowd.com

www.worditout.com

www.tocloud.com

We choose to go to the Moon! (Paste Text)

http://www.mtsd.k12.nj.us/Page/7096





SAY CHEESE!



- •Kids love gadgets, so why not use them in the classroom?
- Used to gather evidence in scientific experiments
- Project include collecting insects/plants/rocks, documenting seasons, recording group progress, or describing stages of cycles
- Helps with scientific methods and improving familiarity with technology



Digital Cameras



ALTOC

- Display Pictures using PowerPoint
- Used in conjunction with an LCD projector
- Search for Images (Internet/Clipart)
- Copy, Paste, Save







Document Science

• Print, Post, Share, Discuss, Document



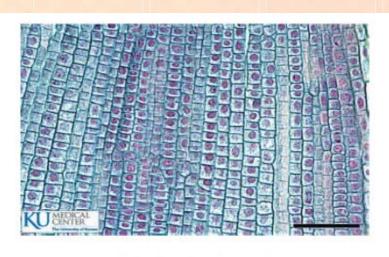




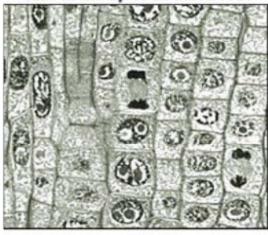
Document Cameras



Display Images



Cells in the tip of an onion root



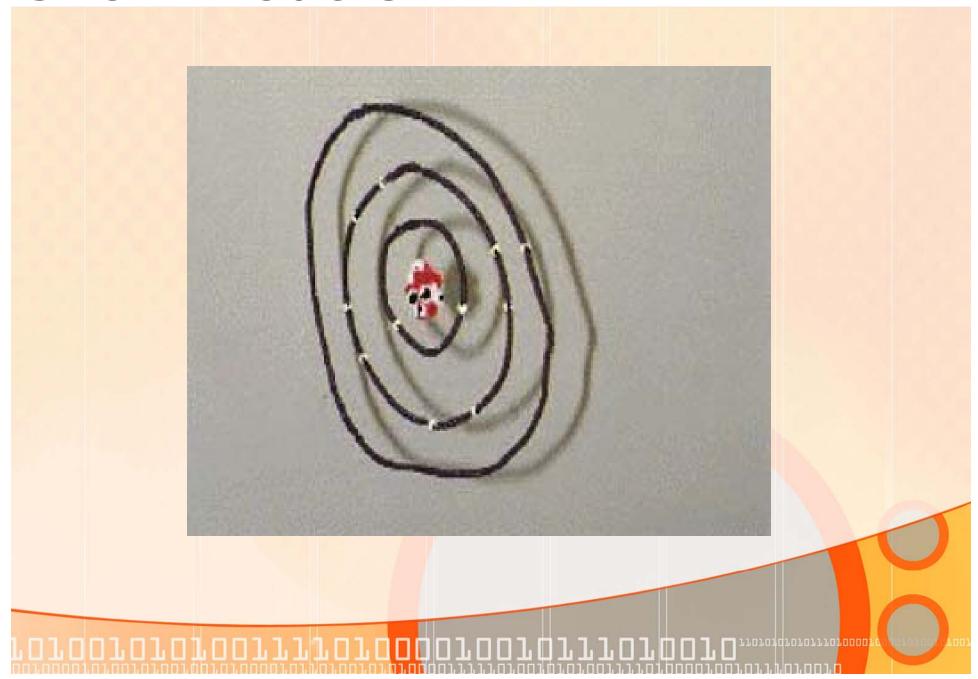


Dissection

- Some document cameras allow you to record the dissection to save, share, & publish
- Works well when there are not enough for the entire class



Show Models



Plant Parts and Growth

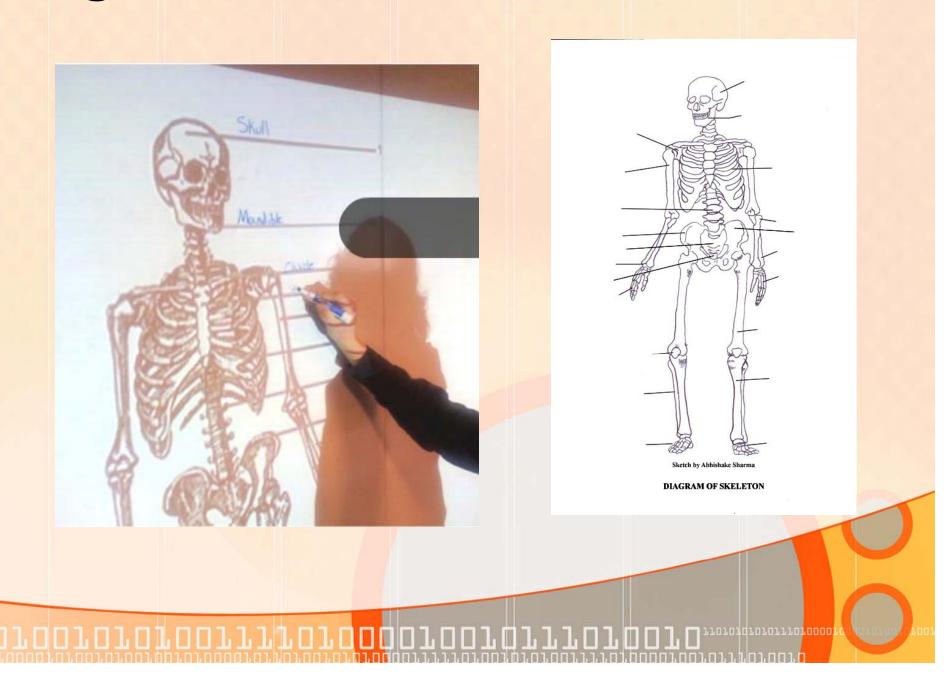
- Students can view and identify plant parts
- They can also label a diagram at their desks



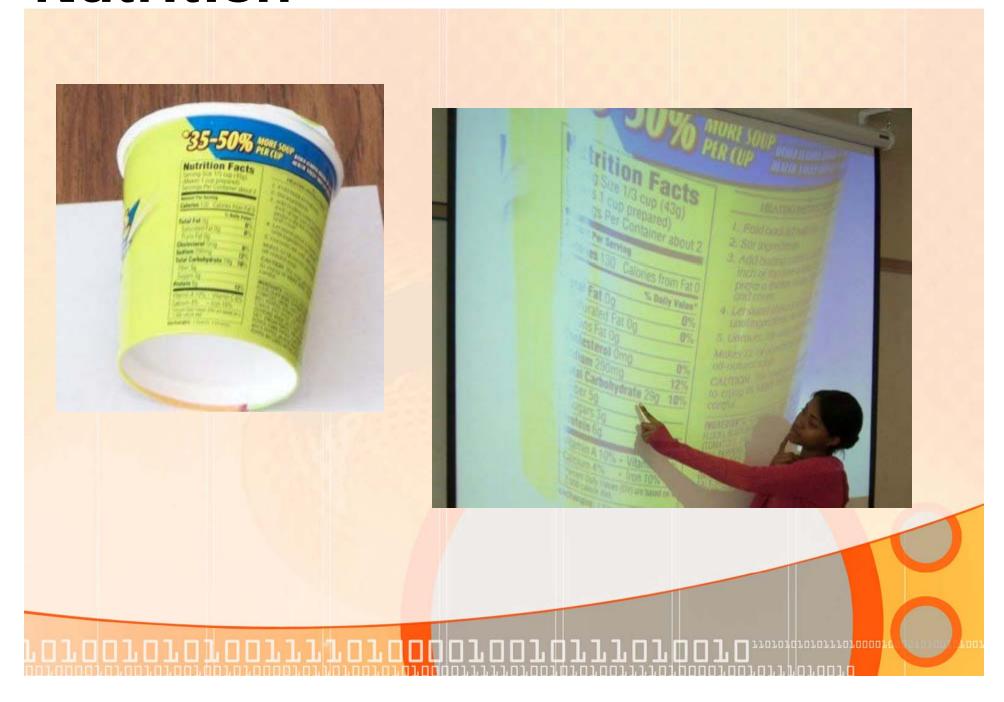
Fill in Maps/Diagrams (Geology)



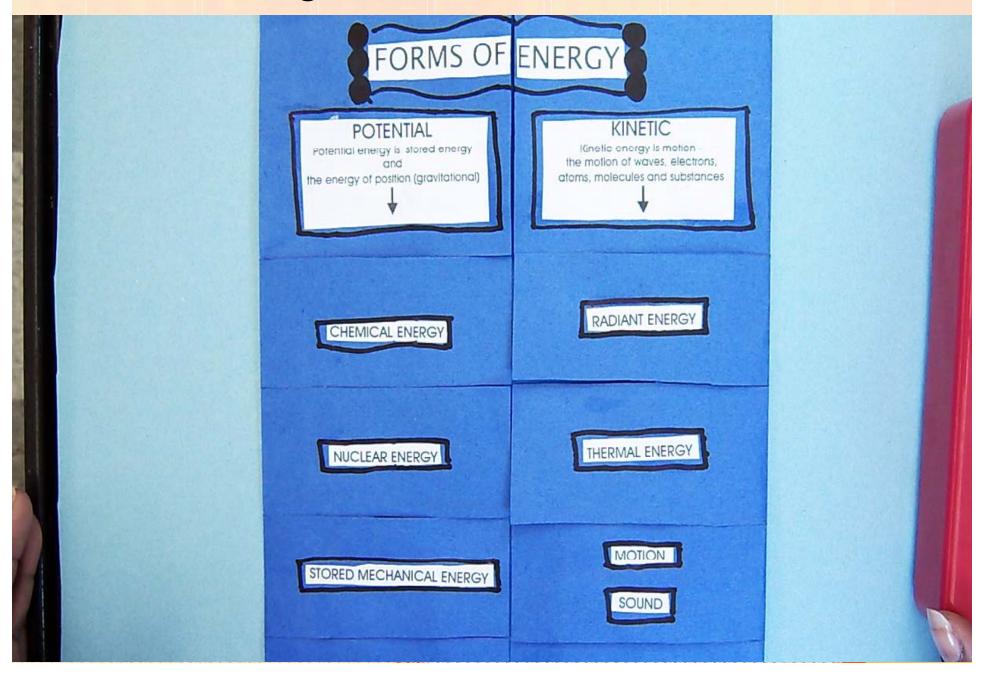
Diagram

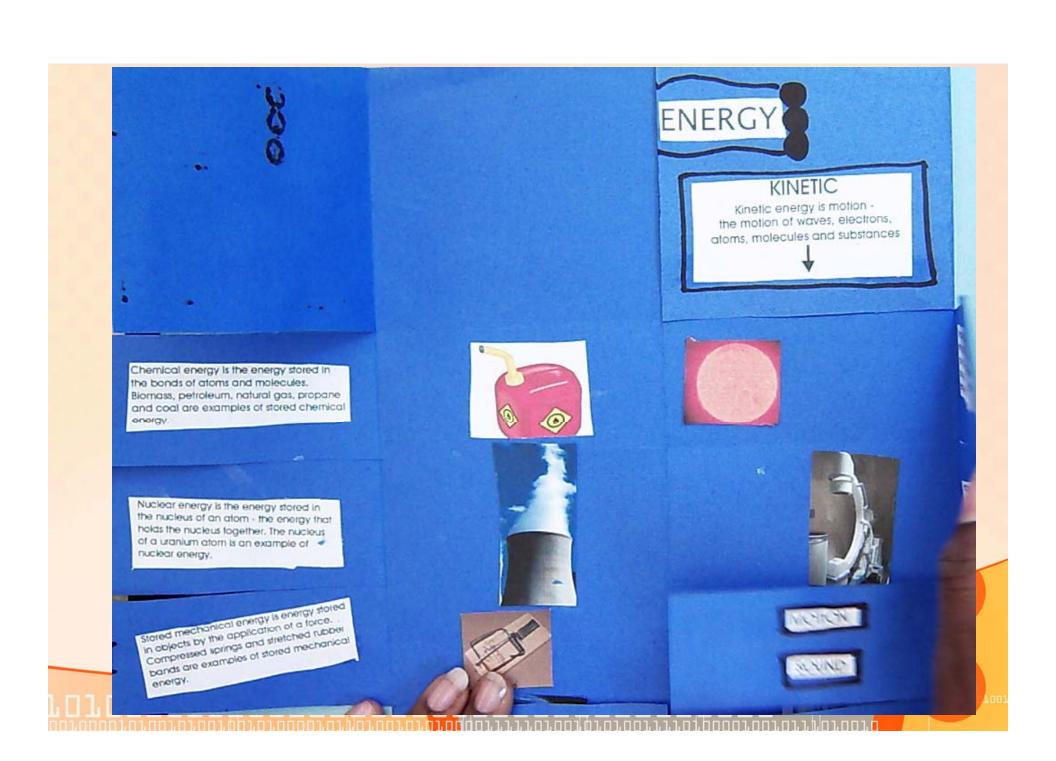


Nutrition



Share Projects





Videos

Video Sites (Free)

•Sites where teachers can post videos designed for students to view in order to learn a concept or skill









Video Web Sites

http://www.youtube.com

http://www.teachertube.com

http://www.schooltube.com

http://www.vimeo.com/

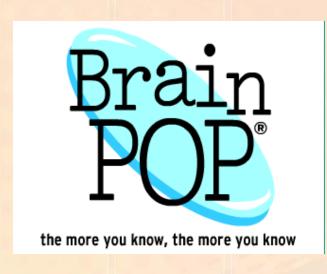
http://video.search.yahoo.com/

http://video.google.com/

http://www.stevespanglerscience.com/video



Video Sites (Fee)







www.brainpop.com http://streaming.discoveryeducation.com/ Download Videos (Realplayer)



http://www.real.com/realplayer/

http://www.stevespanglerscience.com/video

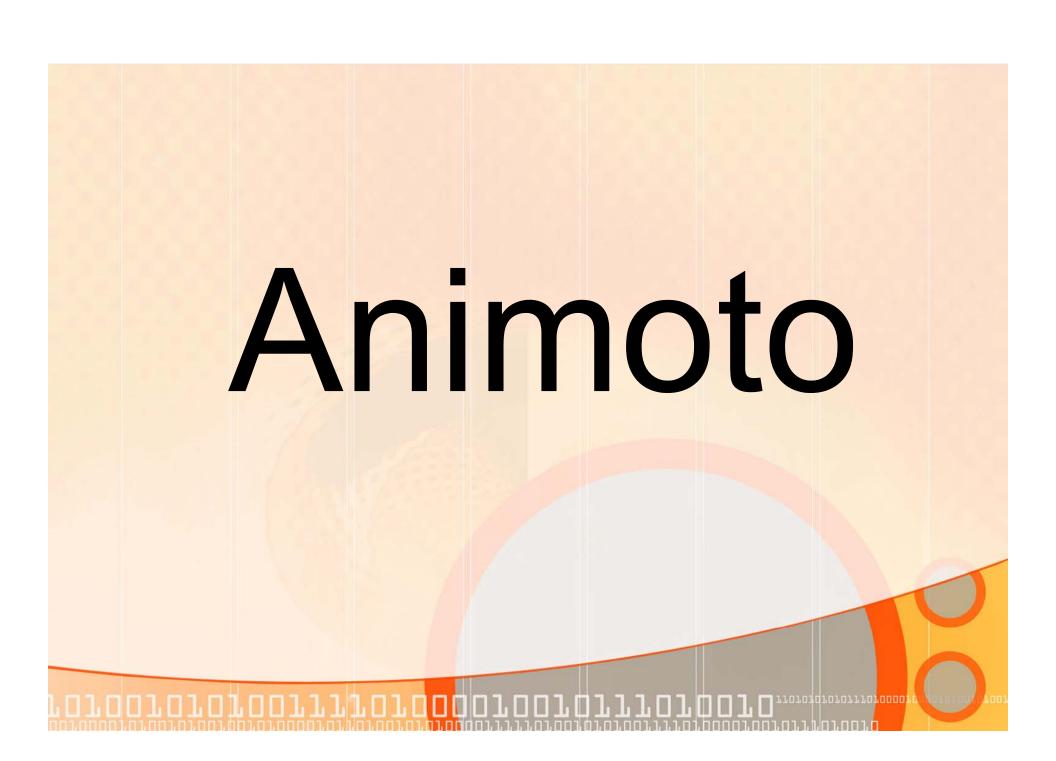
http://www.mtsd.k12.nj.us/Page/7092

Shoot your own video (Tornado)

(Museum of Science and Industry)







Animoto (Tell a Digital Story)

- •Select photos, video clips, text, and music, and Animoto will produce a short video
- Can upload the video to YouTube, Facebook, and other sites
- Making 30-second videos is free!
- Teachers can apply for a free Animoto Plus account, giving them access to more features

www.animoto.com

Animoto (Example)



Take a Virtual Field Trip

Google Earth



Shoot your own video

(Museum of Science and Industry)

Google Earth lets you fly anywhere on Earth to view satellite imagery, maps, terrain, 3D buildings and even explore galaxies in the Sky. You can explore rich geographical content, save your toured places and share with others.

http://earth.google.com/

Don't have time to install Google earth or can't-Use the web site version below.

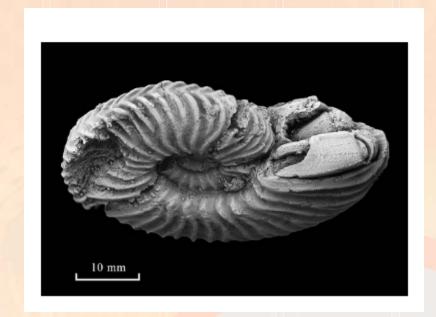
http://www.google.com/earth/explore/products/earthview.html

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Fossil Dig (Virtual)





Fossil Dig

- Travel to our location via Google Earth
- Calculate distance
- Examine fossil samples using a microscope
- Link to the web site

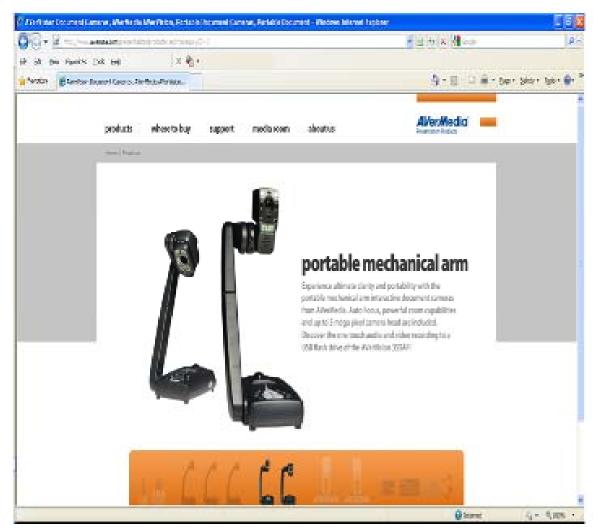


http://poricypark.org/

http://en.wikipedia.org/wiki/Poricy_Park#Fossils







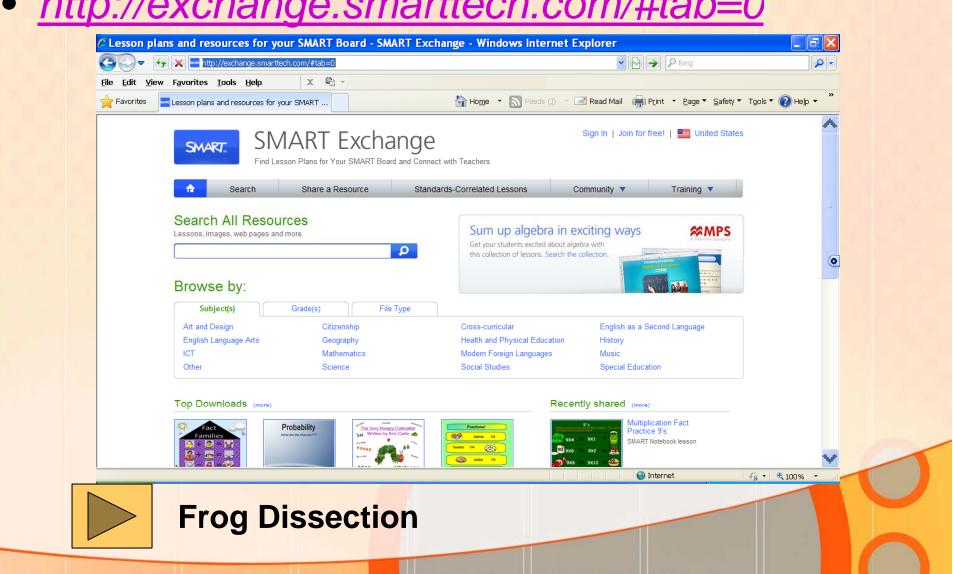


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http://paleobiology.si.edu/dinosaurs/interactives/dig/dinodig.htm

Smartboard Activities

http://exchange.smarttech.com/#tab=0



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Elementary Web Sites

Fact Monster

http://www.factmonster.com/

Yahoo Kids

http://kids.yahoo.com/

Ask Kids

http://www.askkids.com/

Dib Dab Doo

http://www.dibdabdoo.com/

Tek Mom

http://www.tekmom.com/search/index.html

Eduscapes

http://eduscapes.com/sessions/experience/first.html

Early Elementary Web Sites

Science Learning Games

http://www.learninggamesforkids.com/weather_games.html

Enchanted Learning

http://www.enchantedlearning.com/categories/science/

Eduscapes

http://eduscapes.com/sessions/experience/first.html



Science Interactive Web Sites

Cells Alive

http://www.cellsalive.com/toc_cellbio.htm

Molecular Biology

http://www.sumanasinc.com/webcontent/animations/molecularbiology.html

Element Concentration

http://education.jlab.org/elementconcentration/index.html

Hubble Nebula Videos

http://hubblesource.stsci.edu/sources/video/clips/details/orion.php

Periodic Table

http://www.webelements.com/

Water and More

http://www.johnkyrk.com/H2O.html

Create a Graph

http://nces.ed.gov/nceskids/createagraph/default.aspx

Dinosaur Dig

http://paleobiology.si.edu/dinosaurs/interactives/dig/dinodig.html



Science Images, Video, Sound

Teacher's Domain for Science:

http://www.teachersdomain.org/collection/k12/sci/

Science Photo Library:

www.sciencephoto.com

Library of Congress Science Reference Services:

http://amser.org/index.php?P=AMSER--

ResourceFrame&resourceId=6115

NASA eClips:

http://www.nasa.gov/audience/foreducators/nasaeclips/index.html



More Multimedia Resources

Copyright Clarity, Renee Hobbs:

http://mediaeducationlab.com/copyright

Endless Web 2.0 Links for Digital Storytelling:

http://cogdogroo.wikispaces.com/StoryIdeas

Royalty Free Resources:

http://digitalstorytelling.coe.uh.edu/public_domain.html

WCS Summer Technology University:

http://wcssummertechnologyuniversity.blogspot.com/

More Resources!

Making Science Fun:

http://www.stevespangler.com/

Succeeding with Science:

http://www.succeedingwithscience.com/

11 Science Resources:

http://www.freetech4teachers.com/2011/01/1

1-science-resources-to-try-in-2011.html

Collaboration



Web 2.0



Collaboration

Collaborate

Merriam-Webster defines collaboration as: to work jointly with others or together especially in an intellectual endeavor



Collaborate with Other Schools

Teachers and students can develop working relationships with other schools around the country or world on various topics/subjects





Collaborating

- All grade levels
- All curriculum areas
- Local, National, Global Projects

Global Schoolhouse

http://www.gsh.org/

Stevens Institute of Technology

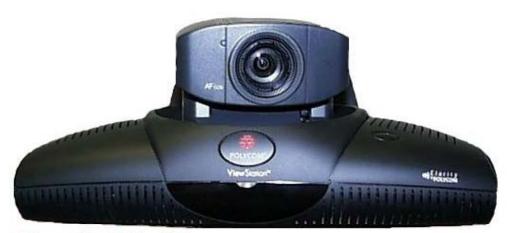
http://www.k12science.org/currichome.html

International Education And Resource Network

http://www.iearn.org/

http://media.iearn.org/projects

Videoconferencing (Polycom)



Polycom ViewStation Unit



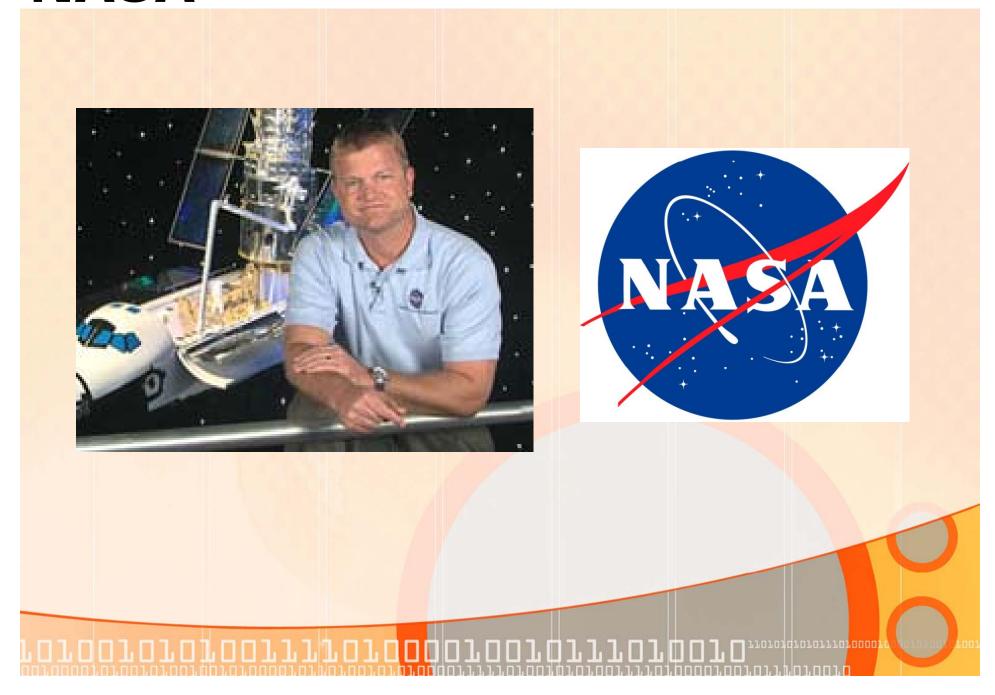




Rutgers U. Videoconference

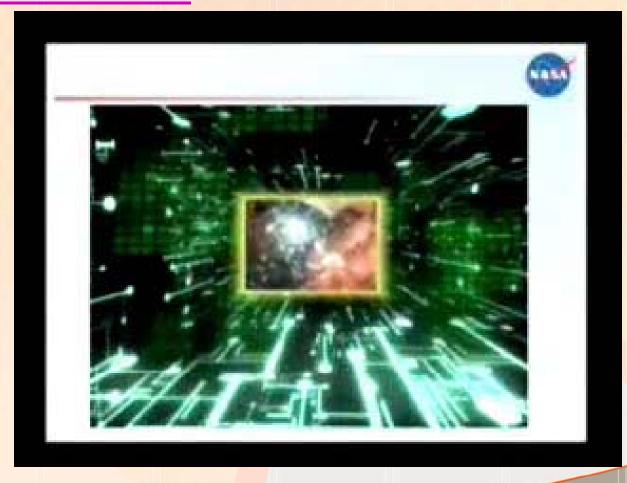


NASA



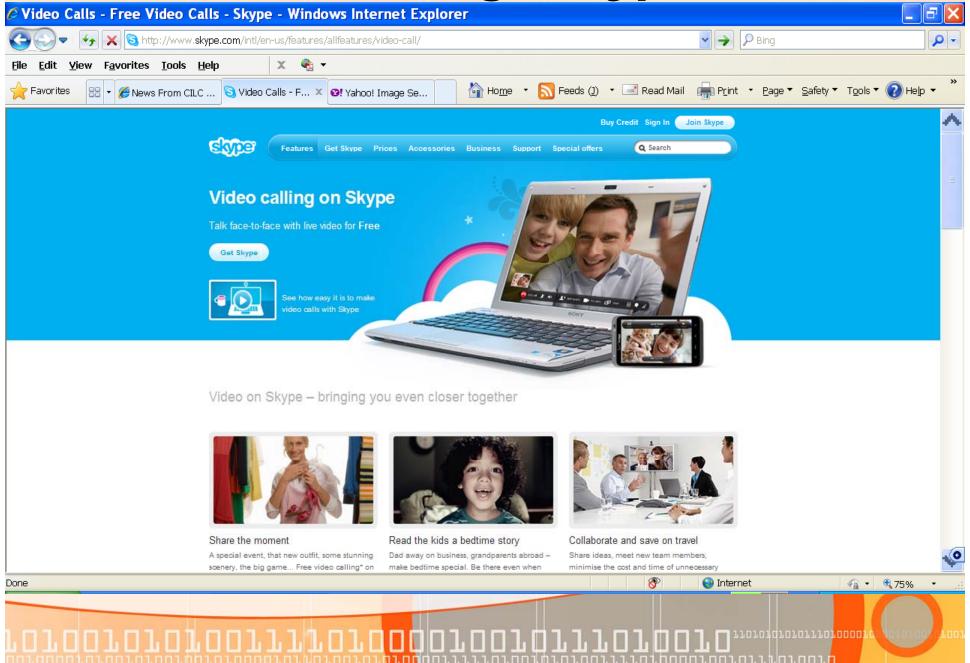
NASA's Distance Learning Network

http://www.nasa.gov/offices/education/programs/national/dln/index.html



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Videoconferencing (Skype)







Skype Education



Rubrics

Rubistar

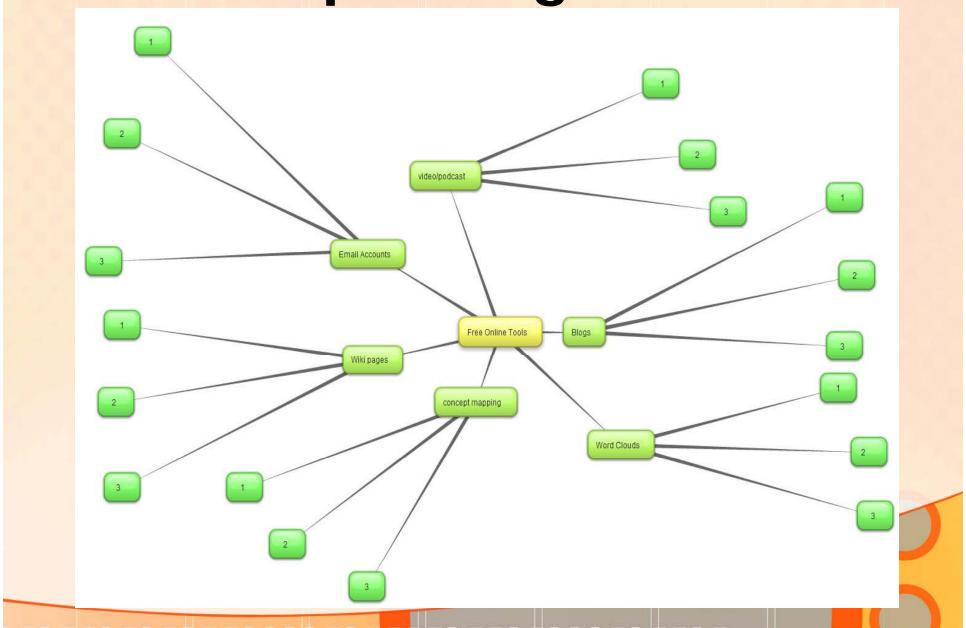
Create a rubric with just few clicks of the mouse

http://rubistar.4teachers.org/index.php



Graphic Organizers

Graphic Organizer



Graphic Organizer Web Sites

www.bubbl.us www.spinscape.com

Software for Concept Mapping Inspiration 9
Inspiration - www.inspiration.com

Flash Cards

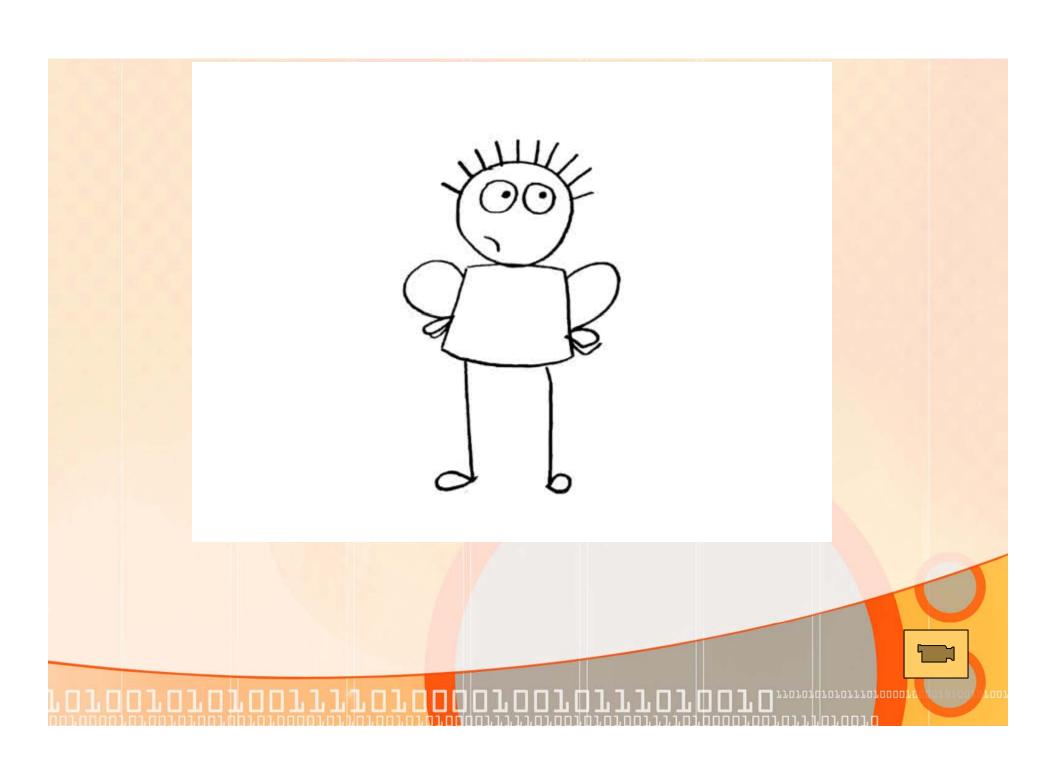
Flash Cards

 Quizlet is a free website that alows users to view, create and share flash card sets online

 Users can create their own cards or study with one of the thousands of existing sets of flashcards

http://quizlet.com/

http://quizlet.com/features/



Web 2.0

Term describing the World Wide Web and web sites that aim to enhance creativity, information sharing and collaboration

Blogs
Video Sharing
Social Media
Wikis....

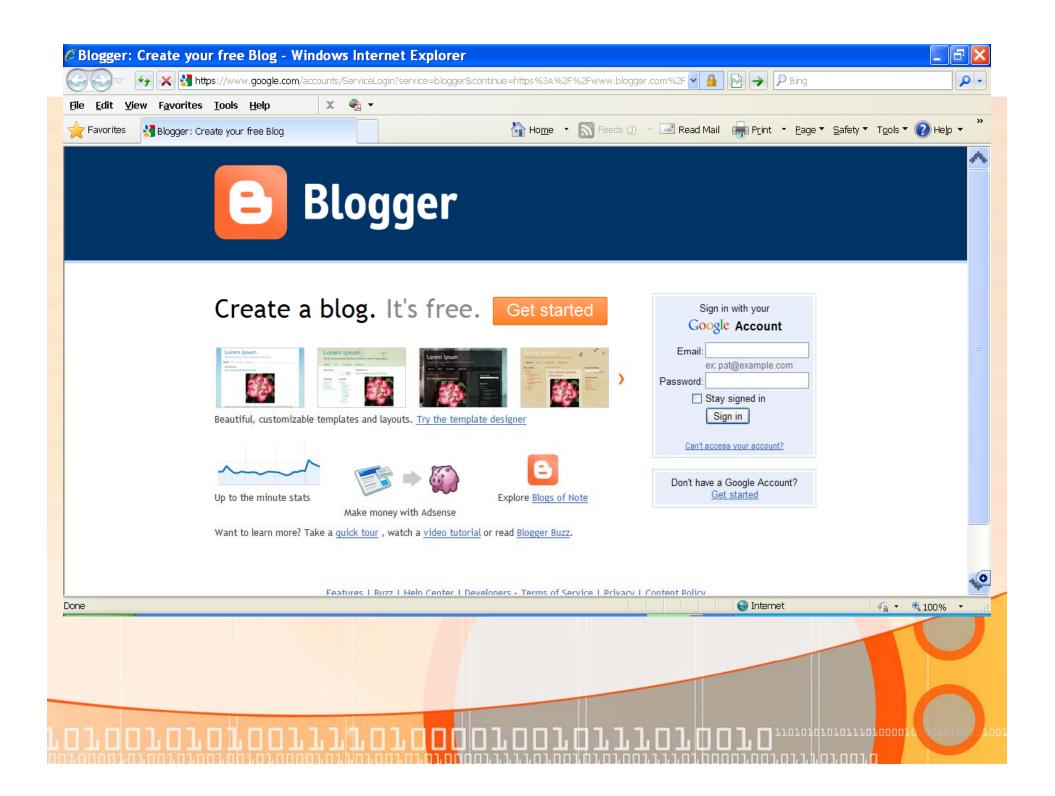
Blogs

Blogs

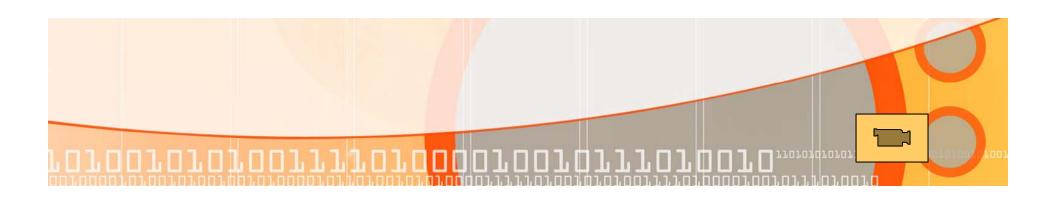
- The term blog is short for web log.
- A shared on-line journal where people can post entries about personal experiences, hobbies or respond to posted statements
- Postings on a blog are usually in chronological order

www.blogger.com

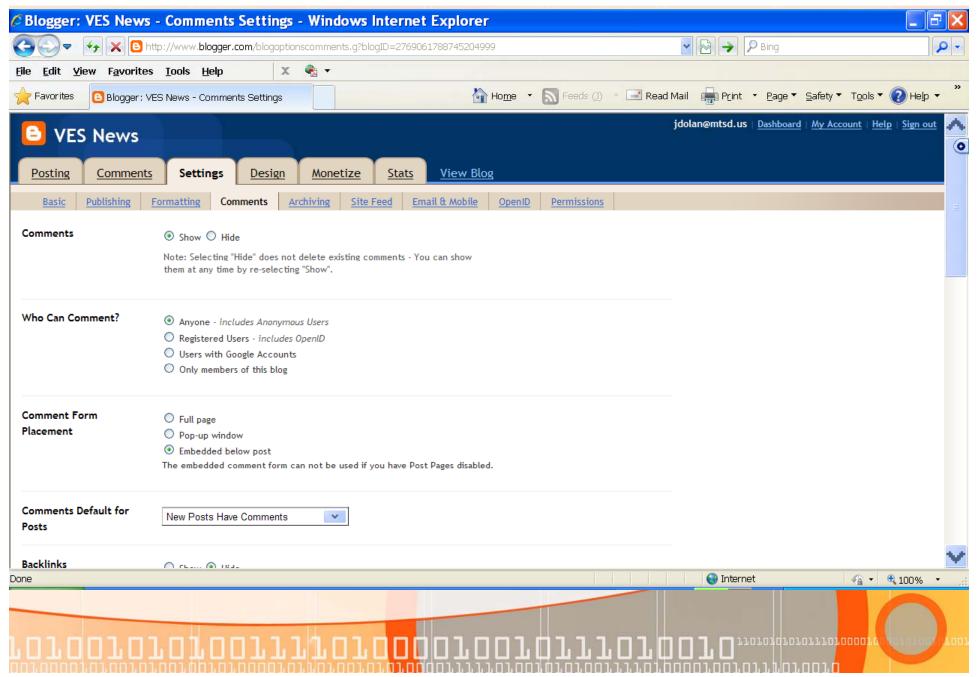




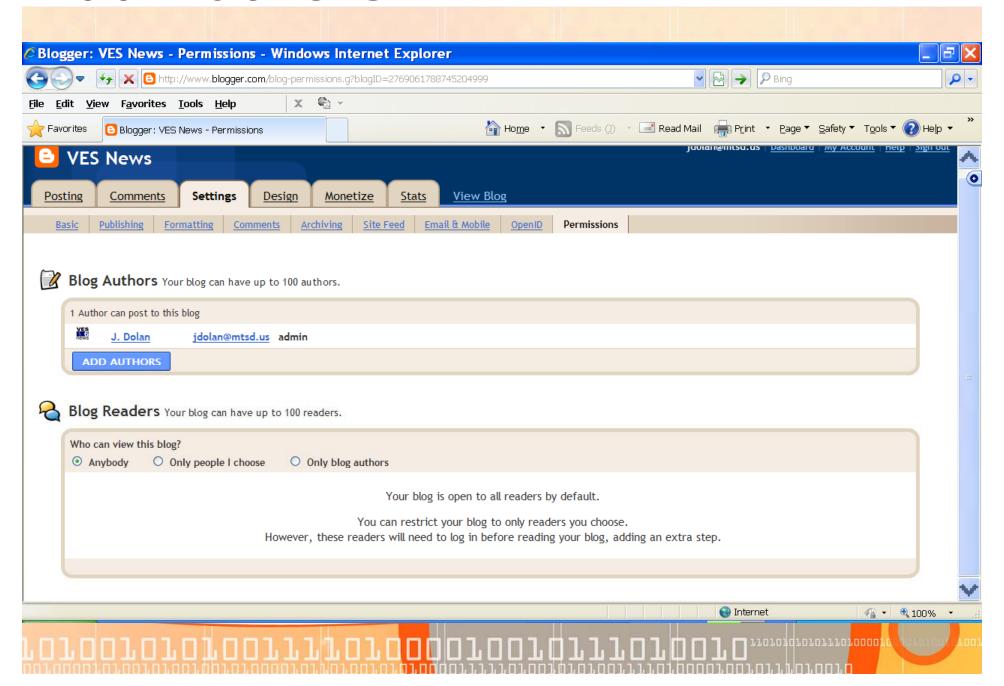
How to Create a Blog



Control Who Leaves Comments

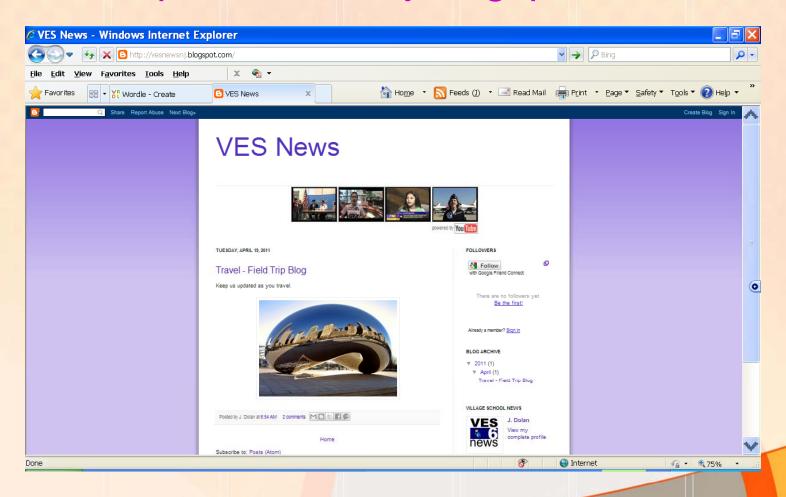


Add Authors



My Sample Blog

http://vesnewsnj.blogspot.com/



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More Blogging Web Sites

- www.blogger.com
- http://edublogs.org/
 - Compare http://edublogs.org/guide/
- www.classblogneister.com
- www.wordpress.com
- www.teachersfirst.com
- www.livejournal.com
- www.blogspot.com
- www.weebly.com







Wikis

Allows users to collaboratively create, edit, link, and organize the content of a web site

Usually for reference material

Teachers regularly use wikis for group projects

Is it reliable?



Wiki vs. Blog

- A Wiki is similar to a blog
- The difference is the ability for students to interact with information
- Blogs tend to be one way communication between the teacher and students
- Wikis are designed to be collaborative
- Places for students to share and work in cooperative groups

More About Wikis...

- Students can complete projects and assignments in groups or individually
- Student can contribute as long as they have Internet access
- Individual assignments or projects can be added to Wiki space

More About Wikis...

- Wikis are more than a place for writing
 - Ideal for lessons, images, videos, etc.
- Allows teachers and students or students and students to collaborate in a dynamic process
- Teachers can collaborate with other teachers in thematic units, class projects, research, curriculum....

Wikis in Plain English



Wikis Ideas

- Problem Solving students can write about and provide images of where they applied math to solve a problem
- Students work in groups to solve challenging word problems
- Solve problems of the week

Wikis Have Controlled Access for Safety

Security and safety is not an issue, because teachers can control access

Viewing – teachers can open their Wiki to the public or limit to members only

Membership – teachers decide who can join; students, parents, invited guests, or the public

Wikis Have Controlled Access for Safety

Protection – because of the collaborative nature of Wikis, teachers can lock specific sections so other members cannot modify

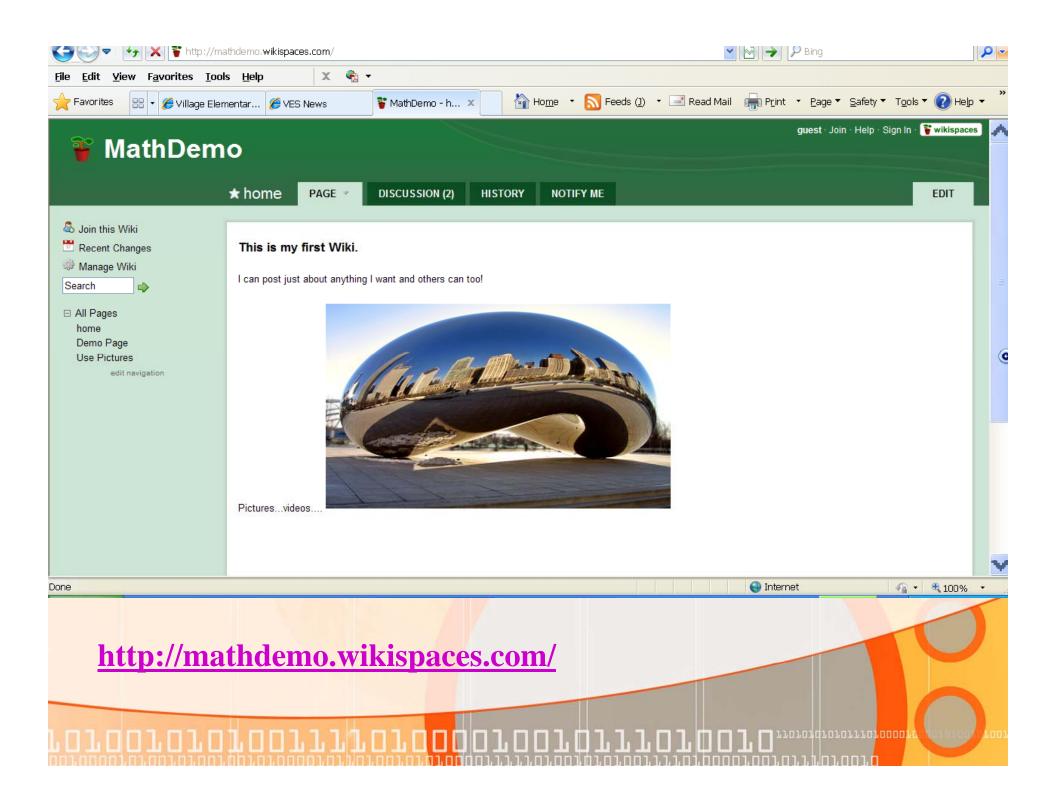
Moderation – teachers can moderate all aspects of their Wiki for appropriateness

Notification – teachers can set up instant notification when a member makes a post or changes any aspect of the Wiki

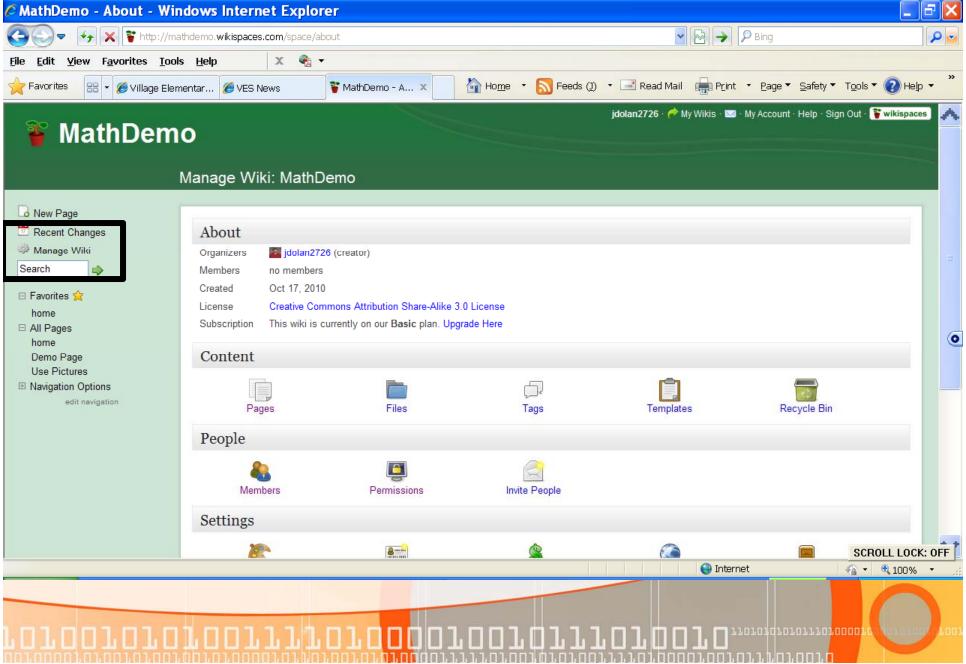
Wikispaces Getting Started



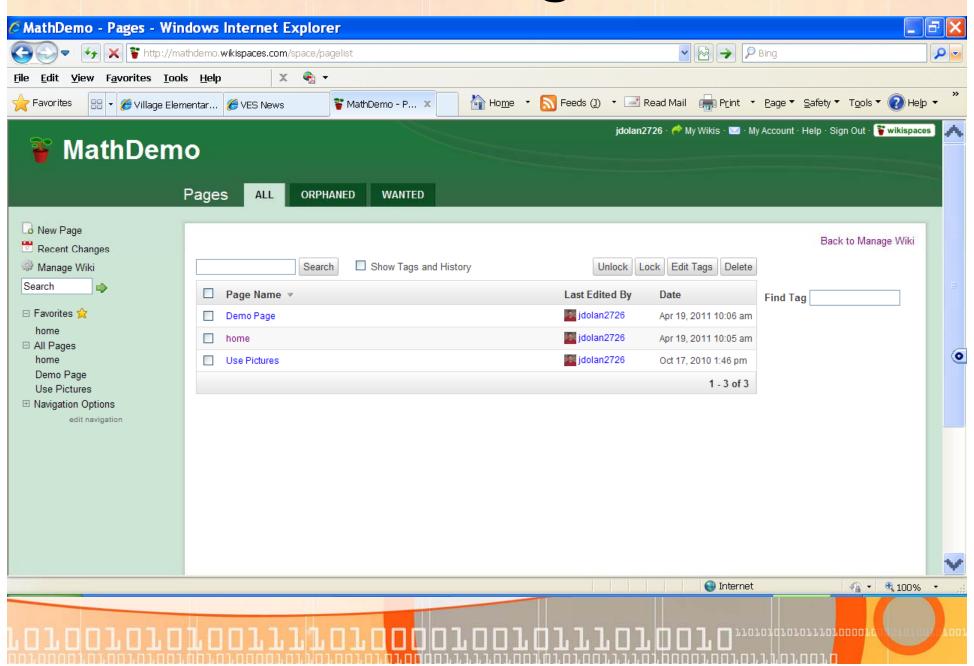
120101010101011101<mark>0000</mark>



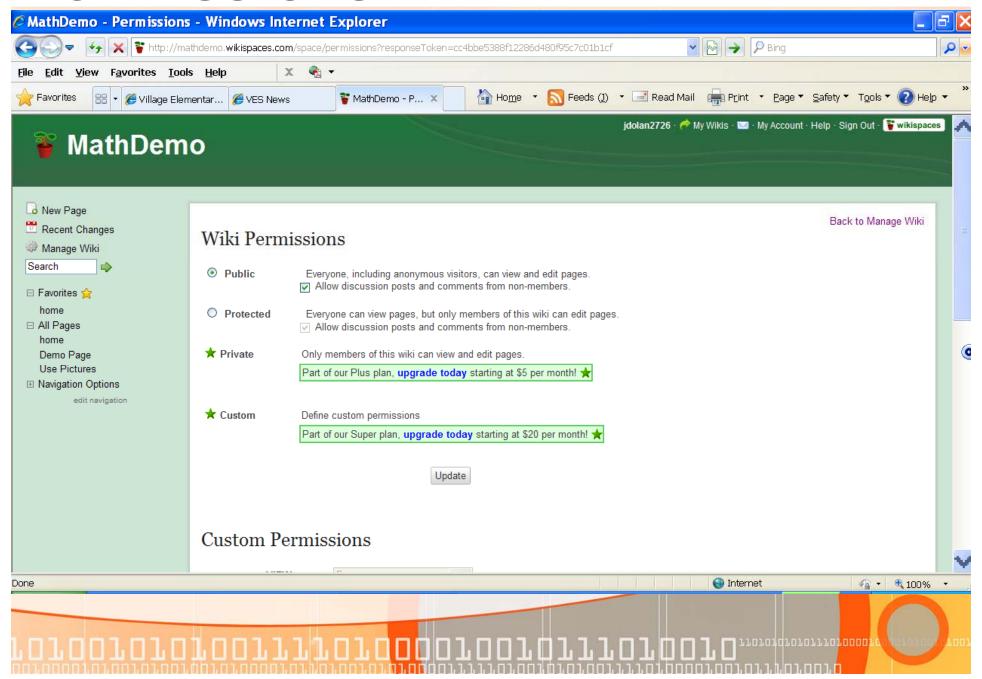
Manage Your Wiki



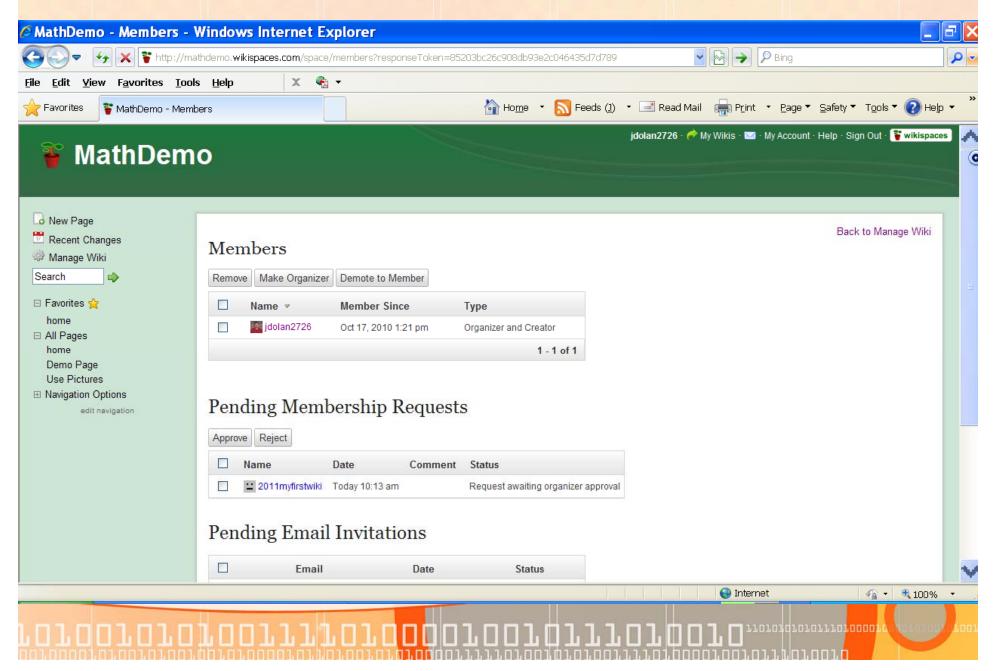
Lock & Unlock Pages



Permissions



Security- Members & Approval



Free sites for Wiki

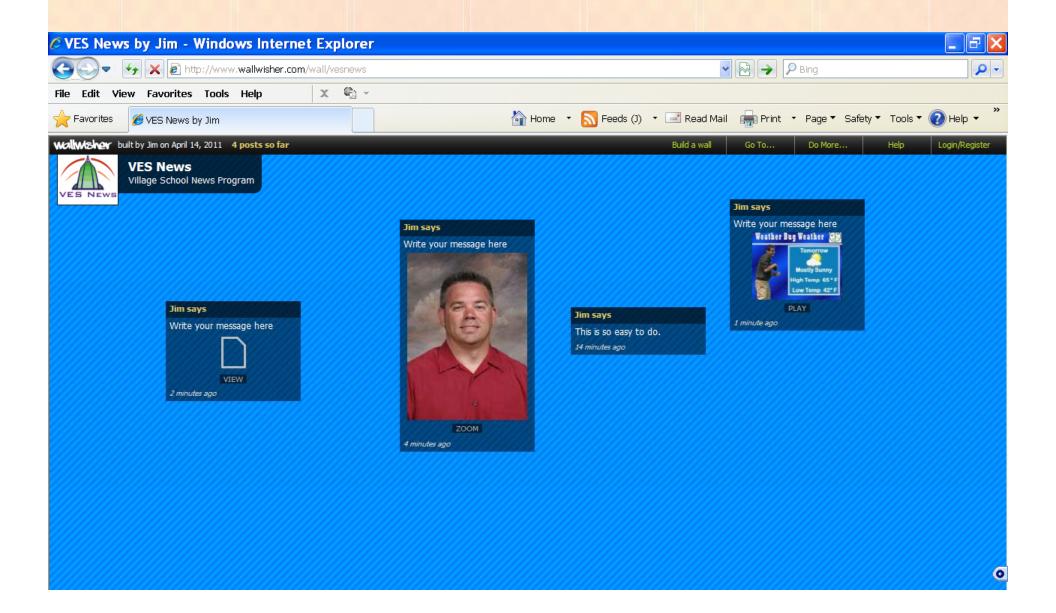
- www.wikispaces.com
- www.wetpaint.com
- www.pbworks.com
- www.wiki-site.com
- www.sites.google.com
- Wiki Matrix (Compare)
 - http://www.wikimatrix.org/

www.mtsd.k12.nj.us/integration

Wallwisher

Wallwisher

http://www.wallwisher.com/wall/vesnews



Wallwisher

- Build a "Wall" and others can add their own short messages – resemble POST-It Notes
 - Notes, Images, Videos
- Display assignments
- Generate discussions
- Review facts
- Share links

WALLWISHER.COM

Glogster

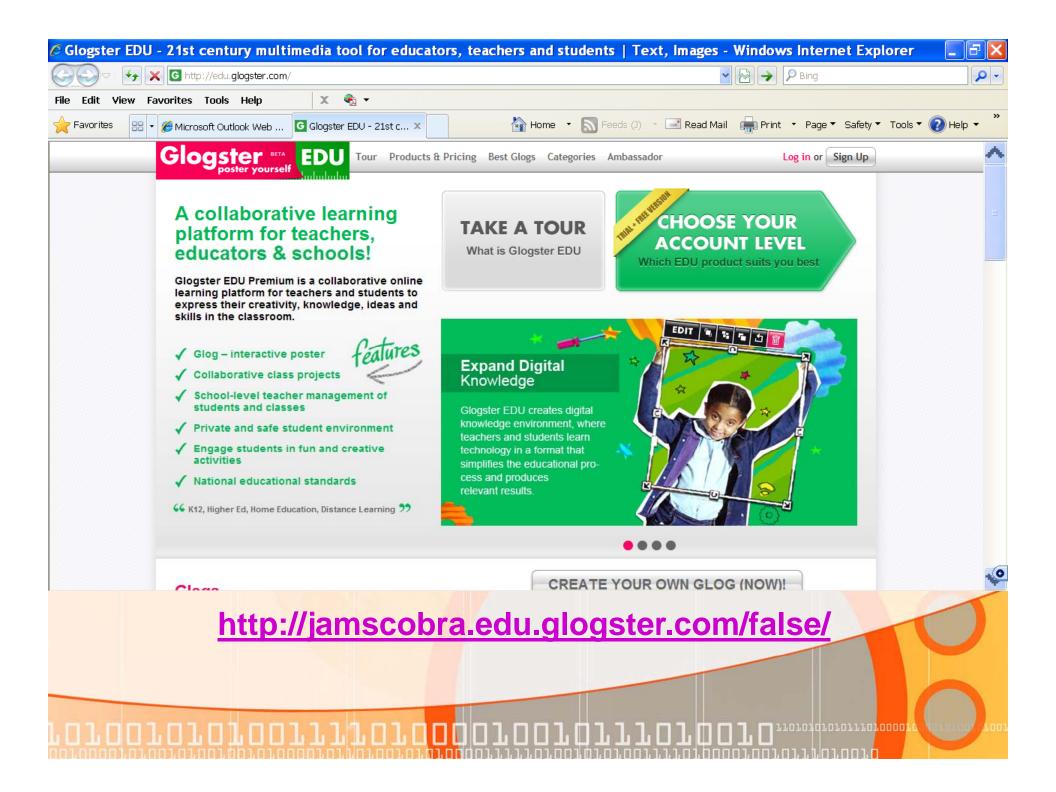
Glogster

 Make interactive posters and collages that combine text, audio, video, animation & data



- Allows students to collaborate on projects
- The basic teacher account, with limited features, is free

edu.glogster.com



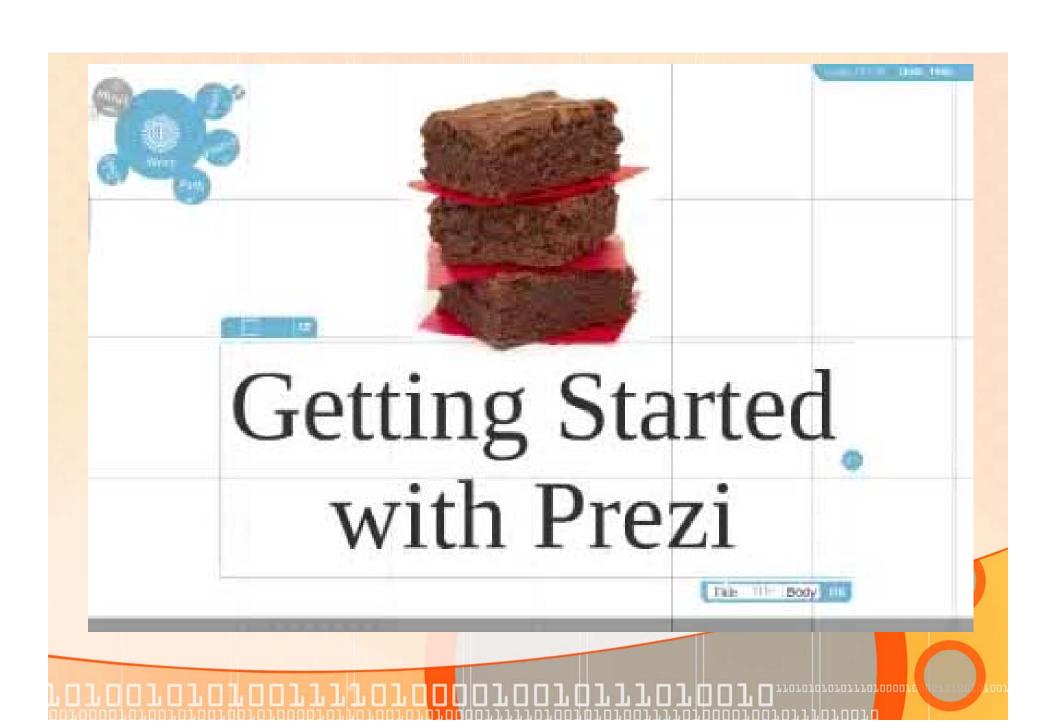
Prezi



Create astonishing presentations live and on the web

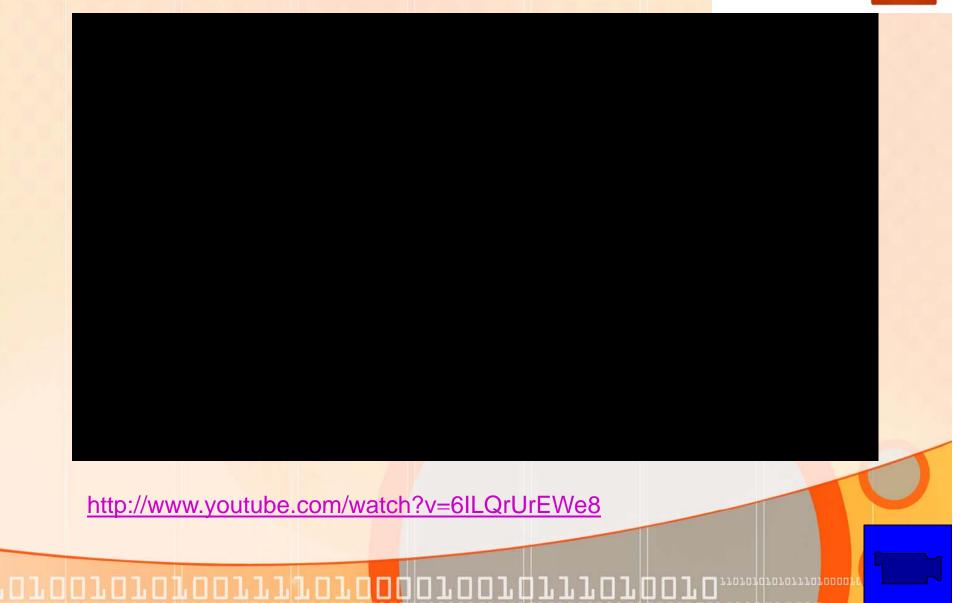
http://prezi.com/





Did You Know 4.0





Vision of K-12 Students Today





http://www.youtube.com/watch?v=_A-ZVCjfWf8