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## The President Speaks

J. Alan Baumgarten

We live in a fascinating age. Technology is changing the game in so many ways that it is virtually impossible to keep up. This month we had a genuine earthquake of a game change, and the epicenter was right here in our schools. President Barack Obama addressed the nation's students via the Internet. Some of them, anyway.

When I was a kid in elementary school – this was back before Nixon and the age of political skepticism – we were all fiercely patriotic. We respected the office of the Presidency. We were told that we could become president. We waved flags sang songs about purple mountains majesty and all that. If there was some way for president of the United States to speak to every student in America, we would all have been tuned in listening.

Or perhaps it is only in my mind. Perhaps I only think this way because the president was not able to do something like that back then. Not that technology has made it possible; we have to start asking some very difficult political questions. Should the president have to power to address every student in America? Is school a proper forum for a presidential address? If Education is governed at the state level, would a speech by the president constitute a federal incursion? What if parents disagree with what the president wants to say? (And then the political wariness starts to creep into the debate). Is this an attempt to indoctrinate children in the ways of liberal democratic thinking? Is this a subversive attempt by the president to rally support for his political agenda by getting children to encourage their parents to support it?

All of these issues and more were raised in the days prior to the president's address. I even read of a few rather bizarre objections that were raised by teachers. One reasoned, "If it's not part of the lesson plan for that day, I would rather record the speech and have students listen when it is relevant." (Perhaps during the unit on persuasive writing and speaking.)

A small number of school districts side-stepped the controversy and simply chose not to air the president's remarks live. Others implemented an opt-in policy where students could, with a parent's note, be released to hear the speech. And more than a few (according to reports) couldn't figure out the technology. In one Cleveland area school district of 26,000, only 400 students viewed the speech.

In the end, the speech went according to plan. It was an excellent, non-political message of encouragement for our nation's students.

But the questions remain.

## Mapping the Tree of Life

Lisa Kerscher

Born from a simplified system of organizing plants and animals, modern taxonomy bloomed into a complex web that helps map evolutionary relationships. Today's life scientists, conservationists, and medical professionals rely heavily on accurate taxonomy and phylogeny, but understanding how these work is as easy as tracing a tree branch to its roots.

Students may be surprised to learn that the father of modern taxonomy, Carl Linnaeus, was accused of being a "pornographer". Well, "botanical pornographer", that is. Focusing on the sexual parts of plants, Linnaeus developed a two-part Latin system that revolutionized life science, publishing his first text, known as *Systema Naturae*, in 1735. His timing was excellent, since world exploration and species-collecting were booming activities. During his career, Linnaeus distinguished and named around 7,700 plants and 4,400 animals. Naming species became increasingly complicated, however, as Charles Darwin toured tropical regions on the *Beagle*. Along his journey, he discovered a wealth of species, like finches, which showed tremendous similarities. Yet notable differences, like beak shapes.

Over the years, species classification has continued to evolve—with continuously improving methods for species comparisons, such as genome mapping. This trend has helped scientists to more accurately distinguish species relationships and refine our "tree of life", with about 1.8 million species classified so far. In some cases, including a third (or fourth) name to the binomial system has helped distinguish between closely related subspecies.

### NS9-12.3 Life Science Biological evolution

#### TEKS

#### §112.43. Biology

(8) Science concepts. The student knows that taxonomy is a branching classification based on the shared characteristics of organisms and can change as new discoveries are made. The student is expected to:  
(A) define taxonomy and recognize the importance of a standardized taxonomic system to the scientific community;  
(B) categorize organisms using a hierarchical classification system based on similarities and differences shared among groups; and  
(C) compare characteristics of taxonomic groups, including archaea, bacteria, protists, fungi, plants, and animals.



No matter where your budding biologists grow and go, a good understanding of taxonomy will serve them well throughout their lifetimes—from grasping the impacts and implications of everyday news events to careers in biology research, medicine, or environmental conservation.

We will discover a collection of web sites that offer an easy way for students to find, map, and compare species on the Tree of Life.

## Warm-up to Taxonomy

Warm up students by using some common critters. At the Smithsonian’s National Museum of Natural History, visit the [North American Mammals](#) guide with the class. Choose the option to [Search the Family Tree](#), which provides a valuable, interactive diagram. Click through the tree, starting with the Order Carnivore, then to the Family of either the Canidae or Felidae. As you trace the lineage, consider the path of the branches. There are three genus for Canidae and four genus for Felidae. Explore the species listed for each genus, and discuss with students the apparent similarities and differences of each species within a genus and between them.



Perform a similar search in the [Skulls](#) collection. Select the Order Carnivores or the Family Canidae or Felidae. Make sure to click the “Visual Search” button. Again, examine similarities and differences between skulls, noting the family, order, genus, and species for each.

Lead a discussion and ask the following question: “What is taxonomy?” Post this question on your wall or board, leaving enough room so that sheets of paper can be posted around it. Then, introduce students to [Taxonomy and Systematics](#) at the British Natural History Museum. Alone or in pairs, assign students to read through the sections titled, “[What is taxonomy?](#)” and “[What’s in a name? The history of taxonomy](#)”. As they read, ask



students to write down at three to five answers to the question. When students have finished reading through this section, go around the room and ask each student to contribute one answer to the question. Discuss the answer as a class, and have the student write the answer legibly on a blank sheet of letter-sized paper to post near the question. The answer text should be written boldly and fill the paper's area, so it can be read easily. Keep the question and answers posted throughout this topic exploration, or longer, as an ongoing reminder.

## Branching into Evolution

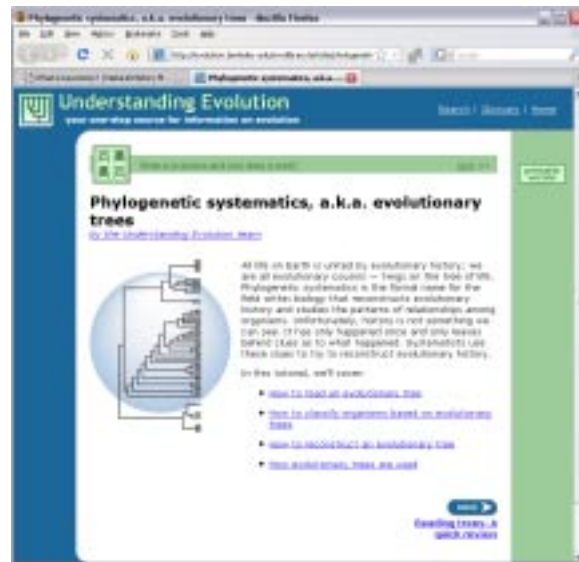
While the Linnaean system of taxonomy is key to keeping the Tree of Life organized, students should understand how this is different from phylogenetic classification and make the connection of how it reflects the [History of Life through Time](#). With the help of UC Berkeley's Museum of Paleontology, introduce the bigger picture of organizing species phylogenetically by reviewing the three domains, [Bacteria](#), [Archaea](#), and the most familiar group, [Eukaryota](#).

Post a new question on the wall or board: "What is phylogeny?" In teams of two or three, ask students to [Learn more about phylogeny and cladistics](#) and come up with three to five answers to the question. In this tutorial, students will learn [How to read an evolutionary tree](#), [How to classify organisms based on evolutionary trees](#), [How to reconstruct an evolutionary tree](#), and [How evolutionary trees are used](#).

When students have completed their phylogeny research at this Web site, ask each team for an answer to the question and post the answers as they did for the taxonomy question. Discuss the similarities and differences between the Linnaean taxonomy system and phylogeny classification. Lastly, ask each team or student to write an analysis describing the pros and cons of each classification system—taxonomy and phylogeny. Allow them to review the [phylogeny and cladistics](#) pages, as needed.

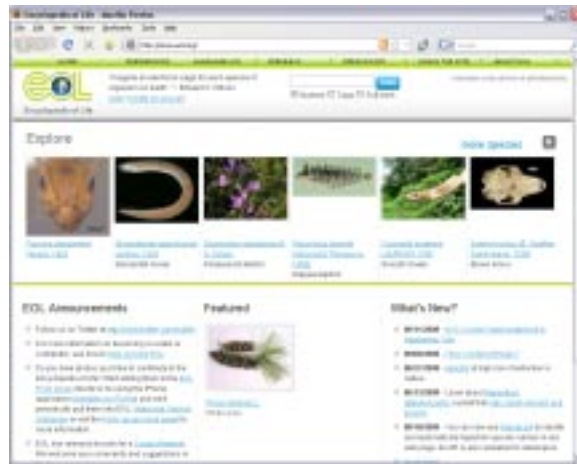
## Grow a Tree

As an ongoing class project, apply the Linnaean taxonomy system to setup the roots and primary branches (animals, plants,



and fungi) of a Tree of Life in the classroom using the largest wall, strands of yarn, and strips of index cards as labels.

Introduce students to the [Encyclopedia of Life](#) where they can research species, particularly plants and animals. Get students started by finding one animal from your textbook, from current news, or use *Canis lupus* as a species to research together. Plug in the animal name in the search box at the top of the page and demonstrate how to search for a species.



Find that animal (or one similar to it) and one other species that shares the same genus. Also, find one species with a different genus but within the same family, which you can easily do by using the classification tree on the right side of the page and clicking the family name. It is a good idea to practice a search in advance of your classroom demonstration.

Model how to create an exemplar “species card” for those three animals, based on your research. Your exemplar should include the basics you want to highlight across species—such as morphology, physiological characteristics, behavior, habitat, or biogeography—depending on other topics you expect to emphasize in your class. You may or may not also wish to encourage students to complete research using other sources. Ultimately, the goal is to go for quantity of collected species and documenting key characteristics versus gathering and analyzing a depth of information about a single species.

Post the species cards on your Tree of Life wall, using more yarn strands for new branches, as needed. Add appropriate and legible labels where branches fork to note shared ancestry.

Throughout the term or school year, assign each student to complete a set of species cards weekly or semi-weekly based on current news stories. Before posting to the collective Tree of Life, ask each student to explain where they “discovered” the specimen (that is, the news about it) and also highlight the similarities and differences between the species they picked. In addition, you may wish to modify the weekly species card assignment by asking students to include information related to current classroom instruction, tying the routine assignment to new content.

Together with your class, you may also wish to complete a similar exercise as you come across good taxonomy examples while instructing on other topics. As you build the tree, trace and

discuss the characteristics and relationships between species and broader groupings. By the end of the course, your students will be able to climb around the Tree of Life with ease and agility.

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**Reference:**

Smithsonian – North American Mammals

<http://www.mnh.si.edu/mna/>

Natural History Museum – Taxonomy and Systematics

<http://www.nhm.ac.uk/nature-online/science-of-natural-history/taxonomy-systematics/index.html>

University of California Museum of – History of Life Through Time

<http://www.ucmp.berkeley.edu/exhibits/historyoflife.php>

Encyclopedia of Life

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

## Transformations

Stephanie Tannenbaum

Transformational geometry: the rotations, reflections, and transfers of geometric figures all play integral roles in many real world projects from designing a shed for the back yard to planning a city grid with buildings, subways, and roads. The exploration of flips, slides, and turns with a variety of geometric figures offers an in-depth and fascinating math lesson that students can apply in many practical everyday realms.

Ask upper middle school students to raise and keep their hand up if they are interested in any of the following careers: orthodontist, graphics designer, sports arena architect, computer programmer, surgeon, auto/vehicle designer or mechanic, aerospace engineer. Ask students if they like to play golf, miniature golf, billiards, soccer, or even croquet. Chances are, most of the class will have their hands in the air. What do these careers and pastimes all have in common? They all incorporate concepts of transformational geometry.

Students explore geometric transformations through a set of interactive and highly engaging free Web programs.

### Types of Transformations

In general, the five main types of transformational topics include:

- **translation** – where there is a direct connection between each point of a figure and the repeated point so that the second image is in the same direction and the same distance from the point of origin

### NM-GEO.6-8.3

Apply transformations and use symmetry to analyze mathematical situations

- describe sizes, positions, and orientations of shapes under informal transformations such as flips, turns, slides, and scaling;
- examine the congruence, similarity, and line or rotational symmetry of objects using transformations.

### TEKS

#### §111.23. Mathematics, Grade 7.

(7) Geometry and spatial reasoning. The student uses coordinate geometry to describe location on a plane. (B) graph reflections across the horizontal or vertical axis and graph translations on a coordinate plane.



- **rotation** – where the repeated points of a copied figure are transformed at a different angle from the original position
- **reflection** – where the copied points of the second image exist as in a mirror image over an imaginary but definite line
- **dilation** – resizing of a copied image where each point is extended an equal distant from the original point to either enlarge or shrink the image proportionally.
- **combination transformations (glide reflection)** – where the points of the image and repeated image are the product of both a reflection and a slide that is parallel to that imaginary line of reflection.

While most of the Web programs combine lessons, explorations, and activities that cover all of the examples of transformations, it is very easy within any site to isolate and focus on just one or two types. Furthermore, through comparison and contrast, it is easier to grasp the differences between each. Therefore, we will explore the concepts as a whole rather than isolate them.

## Exploring Transformations

Begin with [Transformations](#) from Mathisfun. Present this page to the entire class on a projector. Alternately, students may work on this site individually or in pairs. Begin at the top and work your way down the page; stopping to click each link and explore each focus link and interactive applet. Give students time to explore the activity and then list a set of prompts on the board or screen.

- For rotation, ask students to try rotating the image around the origin (0,0), and vary the degrees of rotation. What happens to the object as the degree increases? Alter the Rotation point to (50,50). Click rotate. How does changing the rotation point affect the image?
- For reflection, try to reflect the three geometric figures across the six different mirror lines. What is the relationship between the distance of the object to the mirror line and the distance of the actual object with the reflected object? Make sure students review the entire page including the lessons below the activity.
- For translations, try to move the three figures around the board so that the translated figure touches each corner.
- For resizing, change the relative size to 2 (so the figure will double in size) and leave the resize point 0, 0. Now change

the resize points to (15,15). How does this change the resized object? Of these translations explored, which types create congruent figures and which creates similar figures?

Continue with Alphabet Geometry's set of [Transformations](#) lessons. This page covers three of the main transformations. Start at the top and work down the Web page. Print the [Transformation Notes and Practice](#) page for students to use as they work on the lessons. As students proceed, point out that they should watch each of the SmartBoard mini movies.

Students are ready to explore each of the transformations at a deeper level with MathsNet [Transformations](#). Click each of the five links: Rotation, Reflection, Translation, Enlargement, and Combinations for a complete set of lessons. For each, students work through an "observe" lesson, an "understand" tutorial, an "explore" activity, and finally a "construct" opportunity.

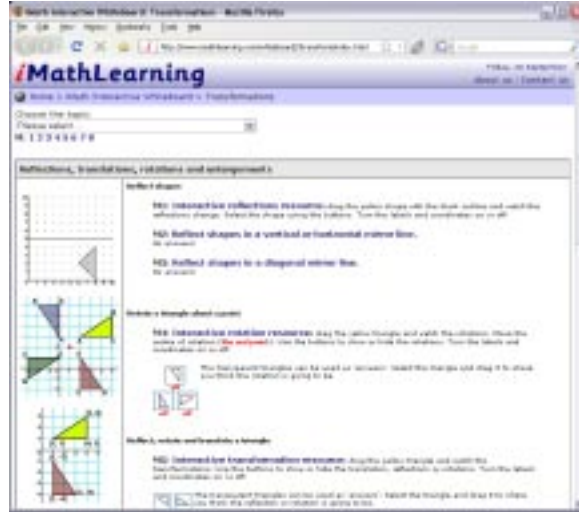
This next interactive set of lessons is ideal for paired student collaboration. It is also an excellent review site for students who need supplemental help or have missed class. [Transformations](#) from Bill Willis at Worsley School provides itemized lesson links each with an interactive mini applet where students progressively explore each concept. After each set of lessons, students may explore the "Fun" applets. Finally, take each of the quizzes. While you may have students submit their answers for emailed responses, but it would be best to simply provide the answers to the class or even ask students to print out their quizzes.

The eight engaging applets and lessons from iMath Learning Interactive Whiteboard's [Transformations](#) is a natural place to wrap up the set of lessons. Students have a solid grasp of the concepts and applications of transformation geometry by this point. This Web site provides an opportunity for students to apply what they have learned within each of the eight explorations. Encourage students to work on these together; challenging one



another to explore the many ways to transform the geometric shapes.

Finally, invite students to have some fun with the transformations that they have studied. There are five interactive exploration activities located in the [National Library of Virtual Manipulatives](#) from Utah State University. Scroll down to the Geometry section and then look for the first activity, "Transformations – Composition." Continue with "Dilation," "Reflection," "Rotation," and "Translation."



Studying the many ways in which to transform geometric figures provides an engaging opportunity to investigate mathematical properties. The nature of reflections, rotations, translations, dilations, and combinations provides for numerous opportunities for hands-on explorations. The various Web programs that offer insightful lessons and learning opportunities make this a fun unit to teach middle school students.

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## Reference:

MathisFun – Transformations

<http://www.mathisfun.com/geometry/transformations.html>

Alphabet Geometry – Transformations

<http://www.misterteacher.com/abc.html#definition>

MathsNet – Transformations

<http://www.mathsnet.net/transform/index.html>

Bill Willis – Worsley School Transformations

<http://www.worsleyschool.net/science/files/transform/mainpage.html>

iMath Learning Interactive Whiteboard – Transformations

<http://www.imathlearning.com/whiteboard/3transform/index.html>

Utah State University National Library of Virtual Manipulatives Grades 6 – 8

[http://nlvm.usu.edu/en/NAV/grade\\_g\\_3.html](http://nlvm.usu.edu/en/NAV/grade_g_3.html)

## Writing a Persuasive Essay

Rachel Cummings

Want to borrow your parents' car? Convince the school board to eliminate school uniforms? The art of persuasion is your answer. Let me show you how.

When the SAT test was revamped, it emerged with an essay-writing section. The majority of the prompts require students to take a stand and persuade their reader. For the college-bound, this high-stakes essay is reason enough to learn to write a persuasive essay. However, persuasive writing transcends one test. The ability to persuade can smooth life's troubles and resolve issues.irate letters to the editor, impassioned speeches to city council or the school board, plaintiff pleas to parents, closing arguments at a trial, advertisements to purchase something you must have or eat or do, political speeches, honeyed letters requesting refunds. Each represents a common form of persuasive writing. Persuasive writing is part of our every day life; mastering it makes life easier.

Join me on a tour of Web sites that will strengthen your students' persuasive writing skills.

### The Learning

To begin, it is important that students understand what it means 'to persuade,' why it is important, and what a solid persuasive argument contains. Consider a discussion on the definition, forms and functions, and elements of persuasion. Students might discuss the following questions:

- Define 'to persuade'? What does that mean? What does persuasive writing hope to do?
- Persuasion goes beyond academic assignments; it is used every day for professional and personal reasons.
- In your life, do you ever need to persuade someone? What professions regularly require persuasion? Explain.

#### NL-ENG.K-12.4

##### COMMUNICATION SKILLS

Students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.

#### TEKS

##### §110.33. English Language Arts and Reading, English III

(16) Writing/Persuasive Texts. Students write persuasive texts to influence the attitudes or actions of a specific audience on specific issues.

Students are expected to write an argumentative essay (e.g., evaluative essays, proposals) to the appropriate audience that includes:

- (A) a clear thesis or position based on logical reasons supported by precise and relevant evidence, including facts, expert opinions, quotations, and/or expressions of commonly accepted beliefs;
- (B) accurate and honest representation of divergent views (i.e., in the author's own words and not out of context);
- (C) an organizing structure appropriate to the purpose, audience, and context;
- (D) information on the complete range of relevant perspectives;
- (E) demonstrated consideration of the validity and reliability of all primary and secondary sources used; and
- (F) language attentively crafted to move a disinterested or opposed audience, using specific rhetorical devices to back up assertions (e.g., appeals to logic, emotions, ethical beliefs).

- What types of writing might be used to persuade?
- When you try to persuade someone, what are you sure to include?

If you would like to emphasize the pervasive nature of persuasion, ReadWriteThink provides a homework assignment titled "[Persuasion is All Around You.](#)"

Now that they are convinced that persuasive writing is valuable and ubiquitous, turn students' attention to the always helpful ReadWriteThink Web site. Their [Persuasive Strategy PowerPoint Presentation](#) introduces students to the concept of a claim (or argument) and to several strategies for supporting their stand, including ethos and pathos, research and logos. Being aware that these strategies may further strengthen their appreciation for the omnipresent nature of persuasion; every advertisement is saturated in these strategies.

Next, show students a simple method for building an essay, layer by layer. Jefferson County High School (Dandridge, TN) hosts two "canned" PowerPoint presentations. Each introduces a writing prompt (similar to those found on the SAT test) and demonstrates a step-by-step method to organize a response. The writing prompt for [Canned Lesson 1](#) is about the importance of teen voting; [Canned Lesson 2](#) is about whether minors should be required to wear helmets. The value of these presentations lies in the transparent, methodical layering of persuasive elements from clear claim to logical reasons to relevant examples. Each click of the mouse reveals the next piece of process. Students can follow the presentation at their own speed and when they are done—voila! a finished rough draft.

Other students will prefer ReadWriteThink's Persuasion Map to assist their writing. [The Persuasion Map](#) provides an interactive graphic organizer that prompts students to enter their position, three main reasons, and three examples or facts for each. To move within the graphic organizer, show students how to use the graphic icon in the top right corner. They may print their final product but must plan on their own how to transfer the contents of the Map into paragraphs.

Of course the SAT essay remains one of the most important persuasive



pieces of students' academic lives. It makes sense to become familiar with it early, the hope being that familiarity breeds comfort and proficiency. The College Board site provides an overview of [The Essay](#). The first tab ([Practice Essay Prompt](#)) covers the aims of the essay section, directions and hints, a sample question, and a link to the scoring guide, as well as nine sample scored essays. Do not neglect to click the tabs at the top for [Strategies](#), and [Effective Writing](#). The [Effective Writing](#) tab shares helpful descriptions and examples of writing problems, things to avoid for a higher score.



The sample scored essays offer a valuable resource for students interested in understanding what makes a strong persuasive piece. Print copies of the sample scored essays (cover the score explanation at the bottom) and direct pairs of students to analyze why it was scored this way. What was done well? What was not done well? What changes would improve this essay? Alternatively, cover the score explanation *and* the score. In pairs, ask students to read six essays, to score each, and to justify their score using the [scoring guide](#). Facilitate a class discussion in which each pair shares their conclusions.

Visual learners may especially appreciate the opportunity to see the SAT essay test beforehand. SparkNotes fills this need in their online book, "[Anatomy of the SAT](#)." Section One: "[What does the Essay Look Like?](#)" shares labeled images of the SAT pages so students can see firsthand a small version of the real thing. (You can also use it as guide to format practice essays that you generate.) Further chapters examine what is expected, how it is scored, and what the scores mean.

## The Doing

After discussing, organizing, and analyzing, comes time for doing. Assign students the now understandable and organized task of writing an original rough draft of a persuasive essay. Remind them of the two Web sites that help organize persuasive writing: the [Canned PowerPoint](#) graphic organizer, and the ReadWriteThink [Persuasion Map](#). Students may want to use one of those tools while they write their essay.

Several Web sites provide writing prompts that eliminate the common question student plea: What do I write? The publisher

Holt, Rinehart, and Winston's online learning site shares a collection of ten [Writing Prompts for High School](#). The prompts ask students to take a stand on a variety of contemporary issues, including social promotion, mandatory military service, and teen curfews. To access the prompts, scroll down to the High School Persuasive Prompts section.

Helena High School hosts persuasive prompts based on four classic texts: *Fools Crow*, *Lord of the Flies*, *Fahrenheit 451*, and *To Kill a Mockingbird*. To find these prompts (originally written for sophomores), scroll two thirds of the way down the [Persuasive Writing, Speaking, and Activities](#) page.

Finally, for a view of the four prompts featured on the [June 2009 SAT Essay](#), revisit the College Board site. As with any muscle we hope to strengthen, the writing muscle benefits from regular exercise. Over the course of the year, students may revisit these sites to respond to a variety of prompts, to plan their pieces, and to use the College Board [scoring guide](#) and [characteristics of effective writing](#) to evaluate each piece, as well as their progress.

The need to persuade surrounds us. Writing a persuasive essay may be an academic chore and an SAT hurdle, but it is a skill we each use everyday. Skilled users will be rewarded with resolved disagreements, willing collaborators, and a satisfying SAT score.

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## Reference:

College Board: The Essay

[http://www.collegeboard.com/student/testing/sat/prep\\_one/essay/pracStart.html](http://www.collegeboard.com/student/testing/sat/prep_one/essay/pracStart.html)

[http://www.collegeboard.com/student/testing/psat/psatextra/scoring\\_guide\\_popup.html](http://www.collegeboard.com/student/testing/psat/psatextra/scoring_guide_popup.html)

[http://www.collegeboard.com/student/testing/sat/after/essay\\_prompts.html](http://www.collegeboard.com/student/testing/sat/after/essay_prompts.html)

[http://www.collegeboard.com/student/testing/psat/psatextra/scoring\\_guide\\_popup.html](http://www.collegeboard.com/student/testing/psat/psatextra/scoring_guide_popup.html)

Helena High School: Persuasive Writing, Thinking and Activities

<http://www.hhs.helena.k12.mt.us/Teacherlinks/Oconnorj/persuasion.html#prompts>

Holt, Rinehart, and Winston: Persuasive Prompts for High School

<http://my.hrw.com/support/hos/hostpdf/hosthsprompts.pdf>

Jefferson County Schools: Canned Persuasive Essay PowerPoints

<http://jc-schools.net/writeaway/>

ReadWriteThink

[http://www.readwritethink.org/materials/persuasion\\_map/](http://www.readwritethink.org/materials/persuasion_map/)

[http://www.readwritethink.org/lesson\\_images/lesson56/homework1.pdf](http://www.readwritethink.org/lesson_images/lesson56/homework1.pdf)

[http://www.readwritethink.org/lesson\\_images/lesson56/persuasive\\_strategies.pps#256,1,Persuasive Strategies](http://www.readwritethink.org/lesson_images/lesson56/persuasive_strategies.pps#256,1,Persuasive%20Strategies)

SparkNotes: Anatomy of the SAT essay

<http://www.sparknotes.com/testprep/books/newsat/power tactics/essay/chapter1.html>

## Susan B. Anthony

Courtney Kincaid

Susan B. Anthony was a great early Social Entrepreneur, setting the stage for women obtaining the right to vote in the United States and bringing a strong voice to the struggle for women's rights that continues around the globe today.

Immense social change has taken place in the world since the nineteenth century, and it may be difficult for students to imagine a time when women in the United States were considered to be the property of their husbands. Studying the lives of reformers like Susan B. Anthony provides a framework for students to understand the social issues related to gender and equality facing countries in the twenty-first century.

Rich media opportunities abound on the World Wide Web that engage students in the struggles and accomplishments of social entrepreneur Susan B. Anthony through sight, sound, and primary source documents.

### Susan B. Anthony, Social Entrepreneur

What is a social entrepreneur? What do your students think this term means? Explain to the class that this is a fairly new term. Using a classroom computer with a projector, present [The New Heroes](#), a PBS site. Does the title provide some context clues for the term "social entrepreneur"? Read the introduction with the class, and then click the link [What is social entrepreneurship?](#) in the ribbon at the top of the page. Allow students to take turns reading the information and quotes on this page. Click the link [Meet social entrepreneurs of the past](#) in the box labeled "Slideshow" at the top right of the page. Using



#### NSS-C.9-12.3 Principles of Democracy

How Does the Government Established by the Constitution Embody the Purposes, Values, and Principles of American Democracy?

#### TEKS

##### §113.32.

(4) The student understands the effects of reform and third party movements on American society. The student is expected to:

(B) evaluate the impact of reform leaders such as Susan B. Anthony, W.E.B. DuBois, and Robert LaFollette on American society;

the boxes at the bottom of the page to navigate, move through the slideshow to read about Susan B. Anthony. Continue through the whole slideshow if you would like for your students to see more examples of early social entrepreneurs.

Lead a classroom discussion about voting rights in the United States. Point out that not all persons who vote today were allowed to vote in the early years of the country. Explain that as you explore social entrepreneurship, Susan B. Anthony's life and her struggle to achieve equality, including voting rights, for women in the United States will be your focal point.

## Susan B. Anthony's Story

Next visit the PBS site, [Not for Ourselves Alone](#), which relates the stories of Susan B. Anthony and Elizabeth Cady Stanton. Click the photograph of Susan B. Anthony on the right to watch a narrated slideshow with photographs from Susan B. Anthony's life. Click the page numbers at the bottom of the page or the arrows in the box at the right to move through the slideshow. This slideshow presents an excellent opportunity to engage your special needs and English language learner students. The slideshow presents some powerful ideas. At its conclusion, discuss with your students what they heard and saw. What was the most surprising thing your students learned?



Close the slideshow window and click the box labeled [Historic Documents](#) at the left of the page. Follow the link to explore the text of the [Declaration of Sentiments](#) from the Seneca Falls Convention.

## More About Susan B. Anthony

Would your class like to see where Susan B. Anthony lived? Take a virtual tour of the house where Susan B. Anthony grew up with her sister Mary at [Susan B. Anthony House](#). (Teacher's Note: You will need to install the Java Runtime Environment available when you follow the Virtual Tour link in the text on the home page.) After seeing a 360-degree view of each of the rooms, be sure to check out the links to the left of the page, where you will find a short [biography](#), a [timeline](#), and information about the Susan B. Anthony [Dollar Coin](#). For more information about Susan

B. Anthony, visit the History Places' Great Speeches Collection, where you will find [Susan B. Anthony's Speech - Women's Right to Vote](#). At the bottom of the page, follow a link to read the culmination of her struggle - the 19th Amendment to the U.S. Constitution.

Susan B. Anthony stirred up a dialogue that would resonate in the hearts of women and lead to sweeping social change. In this lesson, your students may have been confronted with some concepts from the past and present that were new to them. A reflection is a good way to wrap up a lesson with such powerful messages. Ask students to think about how much was accomplished through Susan B. Anthony's one strong voice, added to others, to affect change. Can your class come up with more examples of women struggling for equality in today's world? What other opportunities are there for social entrepreneurship today? End this lesson by allowing students to write their thoughts down in two to three paragraphs to share with the class.



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## Reference:

PBS – The New Heroes

<http://www.pbs.org/opb/thenewheroes/index.html>

PBS – Not for Ourselves Alone: The Stories of Elizabeth Cady Stanton and Susan B. Anthony

<http://www.pbs.org/stantonanthony/index.html>

The Official Susan B. Anthony House

<http://susanbanthonyhouse.org/>

The History Place – Great Speeches Collection: Women's Right to Vote

<http://www.historyplace.com/speeches/anthony.htm>

## Changes in Autumn

Alan Sills

Autumn – a time of change. Nature prepares for winter. Let's search for the best ways to share this with our students.

Summer is ending. Astronomically, summer always ends on or about the 21st day of September each year, but across much of the nation, evidence of Autumn's annual approach is evident as early as the last days of August. The first frost has already been observed in the upper Midwest and in parts of northern New England. What changes occur and why do these changes occur? This article explores some of the changes your students will notice over the coming weeks and months.

This article will provide links to online content that will facilitate the study of autumn and seasons in general. Many engaging and interactive visuals are provided to help bring this topic alive as you instruct your students on this most relevant topic.

### Nature Moves South

[Journey South](#), presented by Annenberg Media helps track the movement of many species as they migrate to their winter homes. Several species are tracked via cooperative observer reports. Students read about each species, its characteristics and observers reports. Maps provided for each species detail the migration of that species towards their winter homes. These maps are updated regularly, lending their use to a long term study of change as the Autumn season progresses. Specific species highlighted include whooping cranes, hummingbirds, and monarch butterflies. The [Mystery Class](#) section provides access to a good [sunlight and shadows activity](#). Consider conducting this activity with your students in your school yard.

To study an individual species, break the class into enough groups where each group becomes knowledgeable about one

#### NS.K-4.1 Science as Inquiry

– including the abilities necessary to do scientific inquiry and understanding about scientific inquiry. NS.K-4.3 Biology including adaptations.

#### TEKS

##### §112.5. Science, Grade 4.

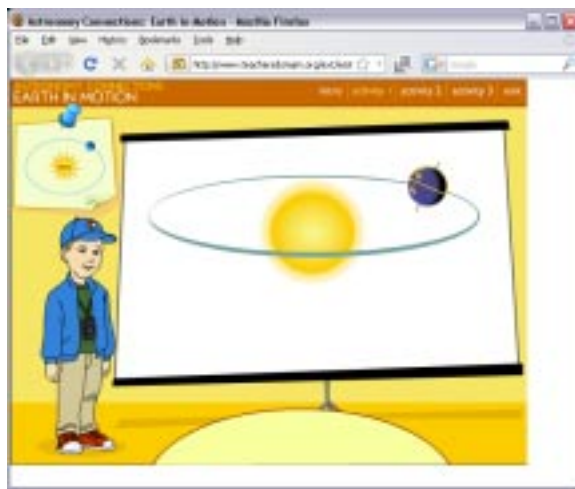
(9) The student knows that change can create recognizable patterns. The student can identify patterns in nature involving change over time.



species – and regularly reports on the movements of that species. Begin by clicking an individual species, for example the Whooping Cranes. Click “Fall 2009” and ask students to read the introductory information. Once familiar with the species and the issues, students create a timeline, read additional background, follow daily migration reports, record thoughts and observations in a journal, map the migration, and even predict future movements! Each species Web page is customized to the study of that species. Be sure that each student team is familiar with their species Web site and the tools available to them to carry out their study.

## Max takes a trip around the world

Teachers Domain has created an excellent interactive called [Earth in Motion](#). Watch the introduction, then click Activity 1. Activity 1 calls for them to “move” Earth in its orbit and position it so that Autumn is occurring in Connecticut. The interactive tool provides a help window where students view what each season looks like within the state of Connecticut. Part 2 of the activity asks the student to locate Earth in its orbit when Australia is experiencing winter. This provides an opportunity for you to discuss the fact that seasons are opposite in the Southern Hemisphere from those experienced in the Northern Hemisphere. Activity 3 will introduce students to the concept of sunlight and length of day at the South Pole. Use activities 2 and 3 at your discretion if they support your goals at this stage of your instruction. As students move Earth through its orbit, discuss Earth’s tilt on its axis and the hemisphere that is receiving the most direct sunlight at each point in Earth’s orbit.



The [Cosmic Map](#) is a [National Geographic](#) tool that continues the theme of identifying the season by Earth’s position in its orbit. The page is interactive and is supported with feedback and images.

## Nature changes from season to season

Scientists use satellites and artificial color images to study Earth and seasonal changes. [Global View of the Seasons](#), from [Teachers Domain](#) enables students to study these changes in a highly visual environment. To prepare students for this activity, ask them to bring in pictures of nature depicting each season. For example,

they may select photos of leaves changing in autumn; snow on the ground or bare trees in winter, etc. Prior to using this tool, ask students to study the images and determine when biological activity is at its greatest (and lowest) levels. Establish that less biological activity occurs (in the mid-latitudes and polar regions) in winter.

Begin this investigation by launching the tool and clicking the animation button. Study the color keys and be sure that students understand that dark green (on land) and dark red (in the ocean) indicate the greatest biotic activity. Hit the play animation button and watch the cycling of the seasons. Ask students to focus on the land first, then on the oceans and describe the changes as they observe them. For example, during part of the year, North America is green and during part of the year it is brown-white. Ask students which season they believe it is most green? Most brown/white? You may also choose to focus on changes in the oceans. If so, note that there is a weaker seasonal "signal" and much of the activity is seen in polar regions. Students can stop and start the animation to illustrate when summer is approaching (spring season) and when winter is approaching (autumn season). To confirm their analysis, click the Seasonal Views button and then the individual images illustrating each season.

## Leaf Colors

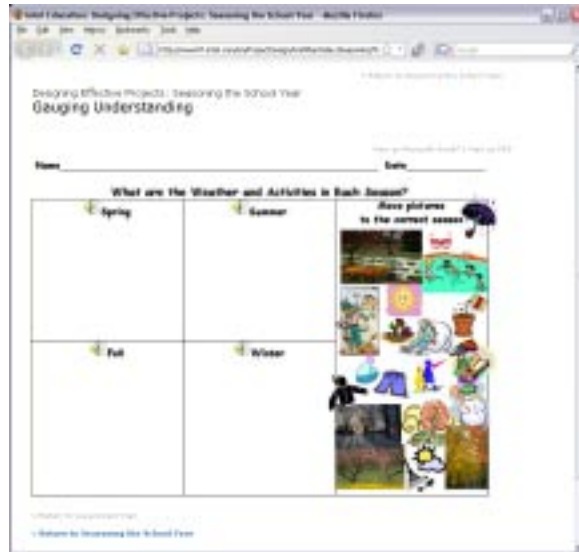
One of the most notable autumnal events throughout much of the nation is the annual color change that takes place. [Why do leaves change color](#), developed by Science Made Simple presents a series of diagrams that collectively tell a story. The first diagram illustrates the basics of photosynthesis. Be sure your students understand that photosynthesis is the process of the intake of energy from the Sun, water and carbon dioxide and the production of glucose and oxygen (not illustrated). Glucose is a usable source of energy for all non-photosynthetic organisms (including us!) Point out that the beautiful colors observed in the photograph below the photosynthesis diagram are a result in the withdrawal of chlorophyll from the leaves. Scroll down further and if time permits, try the word scramble. There are projects listed farther down on this page, you may consider conducting them with your students.



Wisconsin's Department of Natural Resources has developed their own [Why Do Leaves Change Color](#) Web site for young learners. There are additional diagrams and information to supplement your instruction on this topic. The Worsley School of Alberta, Canada has their own [Why Leaves Change Colour](#) Web page. Note in particular the photo of the forest in summer and autumn – it provides the opportunity to open the discussion and build the students sense of wonder to ask why this change occurs.

## Recognizing Seasons

[Seasoning the School Year](#) is a highly interactive contribution from Intel's education group for young learners. Seasons of the School Year presents a series of photographs and sketches and asks the learner to associate the image with the proper season. You can print the page for each student and ask them to clip the images and associate them with each season. Afterwards, hold a discussion; ask students why they associated each image with the season they selected. The complete project based unit, also called [Seasoning the School Year](#) is available and presents numerous ideas and resources for additional instruction on this topic. The unit presents you with everything from curriculum framing questions to assessment ideas.



Autumn is a time of change - sometimes gradual, sometimes quick. Across much of our nation, leaves change, the weather cools, and nature prepares for winter. This is harvest time and in general a great time to be outdoors. Take your students outside, if leaves change in your area, engage them in hands-on kinesthetic activities designed to help them ask questions and learn about their environment.

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### Reference:

Journey South  
<http://www.learner.org/jnorth/index.html>

Sunlight and Shadows Investigation  
[http://www.learner.org/jnorth/tm/mclass/Reasons1MC\\_Year.html](http://www.learner.org/jnorth/tm/mclass/Reasons1MC_Year.html)

Annenberg Media  
<http://www.learner.org/>

Astronomy Connections: Earth in Motion  
[http://www.teachersdomain.org/ext/ess05\\_int\\_seasonsgame/index.html](http://www.teachersdomain.org/ext/ess05_int_seasonsgame/index.html)

Cosmic Map  
<http://www.nationalgeographic.com/xpeditions/activities/07/popup/cosmic.html>

National Geographic  
<http://www.nationalgeographic.com>

Global View of the Seasons  
[http://www.teachersdomain.org/asset/ess05\\_int\\_seawifs/](http://www.teachersdomain.org/asset/ess05_int_seawifs/)

Teachers Domain  
<http://www.teachersdomain.org>

Autumn Leaf Color – Why do leaves change color in the Fall?  
<http://www.sciencemadesimple.com/leaves.html>

Science Made Simple  
<http://www.sciencemadesimple.com>

Why do leaves change color?  
<http://www.dnr.state.wi.us/org/caer/ce/eeek/veg/trees/treestruicolor.htm>

Wisconsin Department of Natural Resources  
<http://www.dnr.state.wi.us>

Why leaves change color  
<http://www.worsleyschool.net/science/files/deciduous/leaves.html>

The Worsley School  
<http://www.worsleyschool.net/>

Seasoning the School Year  
[http://www97.intel.com/en/ProjectDesign/UnitPlanIndex/SeasoningTheSchoolYear/season\\_picture.htm](http://www97.intel.com/en/ProjectDesign/UnitPlanIndex/SeasoningTheSchoolYear/season_picture.htm)

Seasoning the School Year – Learning Project  
<http://www97.intel.com/en/ProjectDesign/UnitPlanIndex/SeasoningTheSchoolYear/>

Intel  
<http://www.intel.com>

## Classroom Reading: Informational Text

Stephanie M. Hamilton

How many of us are trying to find time to finish that really good book we started? We get pulled away reading reports at work, the local newspaper, or the instructions for the new computer we bought. Informational text is all around us. How much time do we expose our students to reading about history, science, geography, or current news events?

Informational text engages the reader with the real world. The structure is different from most types of text students read in their regular reading instruction. It is organized by topic and supporting details, where much of the text we expose students to is organized by the structure of a story, poem, or drama. Critical to reading informational text is to understand academic vocabulary. This is the vocabulary that expresses the concepts of the content taught.

We will take a closer look at how to teach informational text, Web sites with articles for students to read, and methods to encourage student understanding of academic vocabulary.

## The Importance of Informational Text

In the article [“6 Reasons to Use Informational Text in Primary Grades”](#), adapted from *Reading & Writing Informational Text in the Primary Grades* by Nell K. Duke, Ed.D. and V. Susan Bennett-Armistead (Scholastic, 2003), we learn that the number one reason for using informational text in the classroom is to prepare students for success in reading in later years. Additionally, we aim to prepare

### NL-ENG.K-12.1 READING FOR PERSPECTIVE

Students read a wide range of print and non-print texts to build an understanding of texts, of themselves, and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace; and for personal fulfillment. Among these texts are fiction and nonfiction, classic and contemporary works.

### TEKS

#### §110.6. English Language Arts and Reading, Grade 4.

(8) Reading/variety of texts. The student reads widely for different purposes in varied sources.

(9) Reading/vocabulary development. The student acquires an extensive vocabulary through reading and systematic word study.



students to handle real life reading, build knowledge of the natural world, and boost vocabulary.

If teaching informational text seems challenging, watch the video of 3<sup>rd</sup> grade teacher Susan Dorner as she demonstrates [how to teach comprehension of informational text](#).

In this video, Ms. Dorner has focused on test taking strategies while reading expository or informational text. While this is presented as a whole group lesson, consider using these Web sites later in this article in a computer learning center. Bookmark (or add to a network sharing space – see this month's Technology Integration article) those sites that you want students to access. Allow small groups or individual students 15 – 20 minutes to read and respond to the articles they read or videos they watch. You may also want to assess your classroom library. Do you have a balance of fiction and non-fiction text available to students? Are your books organized for students to easily locate non-fiction or informational text?



## Resources for Student Learning

There are many Web sites that have content-area reading for students. Most contain activities or worksheets that accompany the reading. For your English language learners and struggling students, videos are available. Some of the best sites for students include the following:

- [Time for Kids](#): Choose articles, worksheets, quizzes and graphic organizers by grade level. The content focus is news and current events.
- [National Geographic Kids](#): Choose from several categories like animals, videos, games, stories, and activities. The content focus is Social Studies and Geography.
- [Science News for Kids](#): In addition to articles filled with photographs on Science subjects, you will find links for puzzles, games, and science fair projects.
- [America's Library](#): You will find several sections to choose from but most stories will be found in "Jump Back in Time" and "Meet Amazing Americans". The stories include

questions within the reading to build comprehension skills.  
The content focus is history.

In addition to these stories, games, and activities, there are additional sites for students to practice applying their comprehension skills. If you are studying animals, the [Animal Inquiry Graphic Organizer](#) provides an opportunity for students to show what they know about animal facts, babies, interactions, or habitats. Pair students or have them form small groups to complete the [3-2-1 Strategy Chart](#). Students discuss what they learned while also sharing a question they still might have.



While we have focused on content area reading, within the text students will find charts and graphs. It is important to help them understand that these figures help us to comprehend what we read and are used to display important information. After identifying and discussing charts and graphs within text, students can test their knowledge with the [Reading Charts and Graphs Quiz](#).

## Academic Vocabulary

Academic vocabulary is the vocabulary critical to understanding the concepts of the content taught in schools. Follow the same routine used in teaching any vocabulary words. Remember to begin by introducing the word and an explanation or definition of the word. Ask students to restate the definition in their own words. Provide opportunities for students to draw pictures or symbols representing the meaning of the words. In order to remember and be able to use a new vocabulary word, students need at least ten exposures to the word in a variety of ways.

For a [list of academic vocabulary](#), visit the Academic Vocabulary Games Web site. Words are organized by grade and subject level. In the left navigation bar, click [Power Point Games](#) for links to several game templates. Use these for academic vocabulary practice or for practicing any vocabulary words.



The activities are versions of popular television game shows like “Jeopardy,” “Who Wants to be a Millionaire,” and “\$25,000 Pyramid Game.” Students who might need more challenging work could be assigned to create the questions or clues for the games. Use the game in a learning center or show it first thing in the morning as students are preparing for the day.

The main purpose in reading is to learn and retain new information. It is important to remember to include informational text within your classroom curriculum. Allow students many opportunities to access and read content area text which will support their further success and progress in reading into adulthood.

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### Reference:

Article: 6 Reasons to Use Informational Text in Primary Grades  
<http://www2.scholastic.com/browse/article.jsp?id=4483>

Teaching with informational text  
<http://www.standardsplus.org/StandardsPlus/videos/ela.aspx>

Time for Kids  
<http://www.timeforkids.com/TFK>

National Geographic Kids  
<http://kids.nationalgeographic.com/>

Science News for Kids  
<http://www.sciencenewsforkids.org/>

America’s Library  
<http://www.americaslibrary.gov/cgi-bin/page.cgi>

Animal Inquiry Graphic Organizer  
<http://www.readwritethink.org/materials/animal-inquiry/>

3-2-1 Strategy Chart  
[http://www.readwritethink.org/lesson\\_images/lesson951/strategy.pdf](http://www.readwritethink.org/lesson_images/lesson951/strategy.pdf)

Reading Charts and Graphs Quiz  
[http://www.quia.com/quiz/760453.html?AP\\_rand=708495745](http://www.quia.com/quiz/760453.html?AP_rand=708495745)

Academic Vocabulary Word List  
<http://jc-schools.net/tutorials/vocab/>

Power Point Games to practice Vocabulary  
<http://jc-schools.net/tutorials/vocab/ppt-vocab.html>

## Titanic

Andrea Annas

On the fateful night of April 15, 1912, the ship once touted as unsinkable quickly sank into the frigid North Atlantic Ocean waters. Of the over 2200 passengers, only 705 survived.

The builders of the Titanic billed the ship as practically unsinkable. At 852 feet in length, the Titanic was one of the grandest ships of her time. Many prominent travelers like millionaire John Astor IV and his wife Madeline, Macy's owner Isidor Straus and his wife Ida, and White Star Line Director Bruce Ismay joined the Titanic for her maiden voyage from Southampton, England to New York City, New York. Four nights into Titanic's journey on Sunday, April 14, 1912, the ship scraped an iceberg. Crewmembers handed out lifejackets and passengers were loaded into lifeboats. However, ship officers launched many lifeboats unfilled. When the Titanic entered her watery grave during the early morning hours of April 15, 1912, most of the passengers remained with the boat and perished. The RMS Carpathia arrived four hours later and rescued the survivors.

Learn about the ill-fated Titanic by comparing Hollywood's version to reality, reading and listening to survivor accounts, and viewing actual footage from the wreckage.

### An Introduction to RMS Titanic

Many students' knowledge of the Titanic comes from the 1997 movie directed by James Cameron. As you launch a lesson on the ill-fated ship, it would be wise to correct some of the misconceptions portrayed in the Hollywood version of the disaster. ChasingtheFrog's site [Titanic Movie vs. Titanic History](#) helps to clear up some common questions like the fictional identities of the main



### NT.K-12.5 TECHNOLOGY RESEARCH TOOLS

Students use technology to locate, evaluate, and collect information from a variety of sources.

### TEKS

#### §113.7. Social Studies, Grade 5.

(5) History. The student understands important issues, events, and individuals of the 20th century in the United States. The student is expected to:

(A) analyze various issues and events of the 20th century such as urbanization, industrialization, increased use of oil and gas, world wars, and the Great Depression;

characters, Jack and Rose, as well as questions about other passengers and the ship itself. Once students have separated fact from fiction, point out the background information on the Titanic by visiting Encyclopedia Britannica's [Titanic exhibit](#). After reading a brief introduction, students [enter the exhibit](#) and view photographs of the Titanic before her voyage, her passengers, and items recovered from her wreckage.

## Passenger Accounts

One of the more interesting ways to learn about what happened aboard the Titanic is to delve into survivor accounts. For an interesting introduction, direct students to the Discovery Channel's [Onboard the Titanic](#). Students will choose to follow in the footsteps of one of five actual Titanic passengers. Some of these passengers survived and others did not. Students will only find out at the end of the presentation if their passenger lived or perished.

The Carpathia brought Titanic survivors to New York City and the city's newspapers covered numerous stories about the disaster and the survivors. In fact, students can perform their own [search](#) for newspaper articles about the Titanic in the New York Times archives. The advanced search option allows students to set the parameters of the search engine. For example, students might want to limit the search to articles from the month of April 1912. [Noted Men Lost on the Titanic](#) is about some of the prominent people aboard the Titanic and [Heard Death Chorus For Over an Hour](#) shares the account of three French survivors. Additionally, students might be interested in [How Colonel Astor Died to Let Women Live](#) where survivors tell of his heroism and [Facts About Those on the Titanic](#) an article highlighting some of Titanic's passengers.

Officials never identified many of the bodies pulled from the North Atlantic. Sailors buried some of those bodies at sea while officials brought others to Halifax, Nova Scotia for internment. In the PBS program [Secrets of the Dead](#), historian Alan Ruffman attempts to identify some of the victims. Students will learn about his [quest](#), [examine](#) the clues and evidence, and become a forensic scientist in the interactive [Titanic Forensics](#). Another interesting Titanic mystery involved the identity of two little boys handed to a woman in a lifeboat by their father, a M. Hoffman. Their father



perished. A New York Times article [May Learn Identity of Titanic Orphans](#) tells their story. Later it is determined that their father had kidnapped the two little boys and registered on the Titanic under an alias. Eventually, officials reunited Marcelle Navratil with her sons, Michel and Edmond.

In May 2009, the last remaining Titanic survivor, Millvina Dean, died. She was just an infant when the Titanic sank. Dean along with her mother and older brother survived, but her father, Bert Dean, drowned. [Watch](#) an excerpt of her final video interview.

## Finding Titanic

For decades, people could only speculate as to what specifically caused Titanic to sink. On September 1, 1985, during a secret reconnaissance mission for the United States Navy to find two sunken nuclear powered attack submarines, Robert Ballard and his deep sea underwater robo-craft, the Argo, discovered Titanic's debris field. Learn more by watching excerpts of the National Geographic videos [Titanic: The Final Secret](#) and [Return to Titanic](#). Ballard and his team returned to the undisclosed resting spot of the Titanic in July 1986 to examine and record the ship's condition. View Titanic's bow in the Discovery Channel video [Deep Inside the Titanic: Explore the Bow](#).



After Ballard's discovery, historians and scientists began to piece together the evidence and learn what really made the Titanic sink. Watch National Geographic's [Seconds From Disaster: Sinking of the Titanic](#) for an account of its collision with an iceberg and the subsequent damage. Then, watch Discovery Channel's [Titanic: Anatomy of a Disaster: The Wrecked Stern](#) to learn why unlike the bow, the stern was discovered completely destroyed.

The discovery of Titanic's resting place helps to answer many questions surrounding its sinking. However, controversies surrounding its artifacts continue to persist. In 1987, a salvage company began retrieving artifacts from the wreckage. RMS Titanic Incorporated bought the salvage company and in 1994, a United States District Court granted them sole salvage and ownership rights of any items recovered. RMS Titanic Incorporated has since recovered over six thousand artifacts including jewelry, silver, suitcases, and letters. RMS Titanic Incorporated displays most of

these recovered items in exhibits throughout the United States and world. Many feel this salvage operation disturbs a sacred site and is disrespectful to the fifteen hundred people who lost their lives when the Titanic sunk. Conclude the lesson with a class debate about controversy over the recovery and display of Titanic's artifacts.

Despite sinking almost one hundred years ago, the stories, the grandeur, and the tragedy of Titanic still resonates. Sadly, the last Titanic survivor has passed away, yet Titanic's legacy remains.

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**Reference:**

Titanic Movie vs. Titanic History

<http://www.chasingthefrog.com/reelfaces/titanic.php>

Titanic Exhibit

<http://www.britannica.com/titanic/>

The Discovery Channel

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

The New York Times

[www.nytimes.com](http://www.nytimes.com)

Belfast Telegraph

<http://www.belfasttelegraph.co.uk/tv/exclusive-titanic-survivor-millvina-dean-14341332.html>

PBS

[http://www.pbs.org/wnet/secrets/previous\\_seasons/case\\_titanic/](http://www.pbs.org/wnet/secrets/previous_seasons/case_titanic/)

National Geographic

<http://channel.nationalgeographic.com/>

## Coal

Natalie Clarkson

Name \_\_\_\_\_

Coal is referred to as a fossil fuel, a combustible organic material derived from the remains of former life. Like natural gas and oil, coal is also a non-renewable resource. It cannot be re-made or re-formed as fast as it is being used.

Coal is removed from the ground either by underground mining or surface mining. In the late 19th century, coal was the driving power of the Industrial Revolution. It heated the buildings and powered the steam engines used in locomotion and manufacturing. Today, coal is the fastest growing energy source.

In the United States, it would be difficult to find a single person not dependent on coal to some extent. Did you know that over half of all electricity in the United States is supplied by coal? Coal is consumed every time you switch on a light or plug in your iPod or cell phone to recharge. Think about all the electricity and appliances used routinely throughout the day!

In this month's Internet Challenge™, you will discover fascinating facts about coal. You already know how to use energy that is produced by coal, but do you know how coal is formed and how it is mined? Let's find out as we begin our online adventure.

To get started, our first Web site to visit is [Stoves Online](http://www.stovesonline.co.uk/how-coal-formed.html). Read about Coal Formation at <http://www.stovesonline.co.uk/how-coal-formed.html>.

Read closely through this short Web page and examine the graphic. Then answer the first set of questions.

1. How many years ago was coal formed?
2. Coal is a black or brownish black *combustible* mineral. Choose the word below that is **not** a synonym for *combustible*.
  - a. fireproof
  - b. explosive
  - c. flammable
  - d. ignitable
3. In your own words, describe how coal is formed.
4. List the four types of coal.
  - a.
  - b.
  - c.
  - d.
5. Based on the graphic, what can you conclude about the anthracite grade of coal?

**Great start!**

Now let's find out more about the [Ranks or Types of Coal](http://www.stovesonline.co.uk/coal-types.html) at [www.stovesonline.co.uk/coal-types.html](http://www.stovesonline.co.uk/coal-types.html).

6. What are the two advantages that anthracite coal has over the types of coal?
  - a. True
  - b. False
7. The more sparse and lighter the coal, the more energy can be burned from it.
  - a. True
  - b. False
8. On this Web page, anthracite is referred to as the cleanest type of coal. What can you gather about coal and its relationship with the environment?

**Good answers!**

Now, let's visit [Energy Kid's Page: Coal](http://www.eia.doe.gov/kids/energyfacts/sources/non-renewable/coal.html) found at <http://www.eia.doe.gov/kids/energyfacts/sources/non-renewable/coal.html>.

On this page, scroll down to the sections entitled "How We Get Coal" and "Transporting Coal." Read both sections and continue to answer the next set of questions.

9. Why is more coal extracted in the United States from the Earth by surface mining?

10. If you were a miner, which type of mining method would you prefer? Explain.

11. When coal is processed and cleaned, the *heating value* is increased. Which answer below best describes the term *heating value*?
  - a. price of coal
  - b. market rate
  - c. amount of energy the coal gives off
  - d. none of the above

12. Why is so much coal in the United States transported by train?

**Way to go!**

Now, let's move on to read [A Coal Mine Visit](http://www.eia.doe.gov/kids/energy_fungames/energy_ant_trips/coalvisit.html) at Energy Kid's Page. You can find it by going to [http://www.eia.doe.gov/kids/energy\\_fungames/energy\\_ant\\_trips/coalvisit.html](http://www.eia.doe.gov/kids/energy_fungames/energy_ant_trips/coalvisit.html).

Read this account of a recent visit to a coal mine in Pennsylvania and answer the remaining questions.

13. The Blacksville Number 2 Mine is unique at it operates in two states, Pennsylvania and West Virginia. Why do the mining laws of State of West Virginia govern the operation of this mine?

14. How do miners in this underground operation travel within the mine?
15. Briefly, explain the three parts of the long wall mining machinery.
16. The long wall mining system can cut the coal faster than it can be hauled out of the mine.
- a. True
- b. False

### Good work!

#### Extension Activity – Choose one or all of them!

Learning about the formation and extraction of coal is just the tip of iceberg. These extension activities will help you explore the role of coal in global warming, politics and the importance of alternative energy.

- As defined on Wikipedia, *global warming* refers to the increase in the average temperature of the Earth's near-surface air and oceans in recent decades and its projected continuation. The average temperature is increasing because greenhouse gases (such as carbon dioxide and methane released by the burning of coal) allow incoming solar radiation to pass through the Earth's atmosphere. The greenhouse gases also prevent most of the outgoing infra-red radiation from the Earth's surface and lower atmosphere

from escaping into outer space. Unfortunately, coal is responsible for almost half of America's carbon dioxide emissions. With a partner or individually, investigate coal's role in global warming. Begin at EcoBridge's [Causes of Global Warming](http://www.ecobridge.org/content/g_cse.htm) at [www.ecobridge.org/content/g\\_cse.htm](http://www.ecobridge.org/content/g_cse.htm), and Open Source's [Global Warming- Coal- It's Cheap and Dirty](http://www.radioopensource.org/global-warming-coal-its-cheap-and-dirty/) at [www.radioopensource.org/global-warming-coal-its-cheap-and-dirty/](http://www.radioopensource.org/global-warming-coal-its-cheap-and-dirty/). Also, review other online sources. After researching, create a one-page newsletter that makes people aware of coal's role in global warning. Keep in mind, as you are writing, that your neighborhood is the audience of the newsletter.

- You may question how the coal industry and politics cross paths. Read [A Money in Politics Backgrounder on the Energy Industry](http://www.opensecrets.org/pressreleases/energybriefing.htm) at Open Secrets.com <http://www.opensecrets.org/pressreleases/energybriefing.htm>. This short Web page will give you an introduction on how the energy (oil, natural gas and coal) industry can influence politics. On your own, explore on the Web why the energy industry typically contributes to Republican candidates. Conversely, why do alternative energy interests give to Democrats? In addition, as the Presidential election for 2008 heats up, are any of the candidates taking a stand on energy, in particular coal?
- How long can we rely on fossil fuels like oil, natural gas and coal for energy? According to the Oil and Gas Journal, *World Oil*, there are optimistic reserve estimates of 45 more years of oil, 72 more years of natural gas and a whopping 252 more years of coal. Obviously, gas and oil are more limited than coal, but with the increasing concern about global warming, it is probable that coal will not be a main source of energy in the future. So what will be the energy source of the future? Search online to find out what alternative energy sources are available now and what alternative energy sources are being tested. After your research and review, create a Power Point presentation informing others about alternative energy. Be prepared to share it with your teacher and classmates and talk about it!

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**Congratulations!** You have done an incredible job in completing this month's Internet Challenge™.

# Answers to October's Internet Challenge™

1. Coal was formed over 300 million years ago.
2. A
3. Over 300 million years ago, the earth was covered by swampy forests. Layer upon layer of these plants died and were compressed and then covered with soil. As the layers were successively covered, their access to the air was limited and this stopped the full decomposition process creating peat. Over the years heat and pressure worked to force out oxygen and hydrogen, leaving carbon-rich deposits, which is called coal.
4. The four types of coal are lignite, bituminous, sub-bituminous, and anthracite.
5. The anthracite grade of coal is the oldest.
6. The anthracite grade of coal has the highest carbon content and is the cleanest coal to burn.
7. True
8. Students' answers may vary. Basically, answers should include the idea that burning coal has environmental ramifications.
9. Surface mining is less expensive, therefore, making it more popular.
10. Students' answers will vary.
11. C
12. Transporting coal via train is the least expensive.
13. The coal physically exits the ground on the West Virginia side. As a result, West Virginia laws govern the mine.
14. The miners first take an elevator down into the mine, and then they use trolley cars to travel to the area where work is being done.
15. The long wall mining machinery has three main parts. The shearer is the actual act of cutting the coal from the coal face. The conveyor carries or transports the raw coal from the area to another set of conveyors that eventually transport the coal out of the mine. The armor plating provides the roof support so that the miners can have a relatively safe place in which to work under.
16. A

**Extension Activities** – students own answers.

## Inventing the Modern World

Lisa Kerscher

On Friday, September 11, 2009, Microsoft won an appeal against the order to pay \$358 million to Alcatel-Lucent. The case centered on the degree that Microsoft's email program, Outlook, uses as a date-picker that infringes on Alcatel-Lucent's patent on its pop-up tool. The appeal argues that the amount Microsoft was ordered to pay did not reflect the extent to which Outlook's program relies on the date-picker as a useful feature. Microsoft argued that the date-picker is a small fraction of what the Outlook program does, so it should pay less than what had been awarded. However, regardless of the award amount and the extent that Microsoft used this tool, the software giant did indeed infringe upon Alcatel-Lucent's patent and must pay the inventors for using it.

Cases like the one between Microsoft and Alcatel-Lucent are common, where an invention created by someone is used by another. Fortunately, patents have been used as legal protection to inventors since 1790. This has helped ensure that inventors are paid for their work when others want to use their inventions as-is or as part of a new product. Patents not only help protect the rights of the original inventors, but they also provide an evolving—and accessible—collection of ideas and useful innovations that give a big boost to modern technologies.

The U.S. Patent & Trademark Office receives thousands of applications for new patents every year. During this lesson you will

### TEKS

#### §123.92. Research, Design, and Development

(3) The student designs or improves a product using appropriate design processes and techniques. The student is expected to:

- (A) develop or improve a product or service that meets a specified need;
- (B) identify areas where quality, reliability, and safety can be designed into a product;
- (C) describe the functions and methodologies used in basic and applied research; and
- (D) develop a project portfolio that documents a research and development project.



learn more about the patent process and how patents have shaped modern society. You will also become a Patent Detective, so that you can investigate some of the patents built into things you use every day.

## The Evolution of Innovation

First, think about how invention builds upon invention, progressively building modern society. To do that, visit [Inventing Modern America: From the Microwave to the Mouse](#) to play some [Games](#).

Start with playing the [Invention Connection](#). Play at least three sets of the 10 connection games. Your goal in each round is to make the connection from invention A to invention B. Make sure to read about each invention you may connect to and that help forge the path. On paper, copy the path you completed in each game set, summarizing the invention at each point along the way. Talk about your connection paths with other classmates.



Next, play [Which Came First?](#) with at least one other classmate. For each of the five questions, debate between yourselves which invention you think came first and why before selecting your answer. Were you surprised by any of the answers?

Now take a closer look at a few inventors who can claim several original patents. For each of the five inventors you will meet, be prepared to summarize the following:

- **Inspiration**—What inspired or motivated each person to create and patent his or her invention?
- **Purpose**—What is the original purpose of each invention?
- **Application**—What are the practical applications?

Start with inventor [Doug Engelbart](#). Read his [Biography](#), review his [Patents](#), and watch the related [Videos](#). Continue your inventor introductions by reading about [Thomas Fogarty](#), [Ashok Gadgil](#), [Stephanie Kwolek](#), and [Paul MacCready](#). With classmates, discuss each inventor's inspiration and the purpose and application of each invention.

## The Patent Process

Your next step is to visit [Invent Now](#), hosted at the National Inventors Hall of Fame. As you browse around, take notes to help you answer the questions:

- What is the definition of a "patent"?
- What are the three patent classifications?
- Why are patents important?

Once in the door, head to the Workshop on [How to Patent](#) and read the overview. Begin by getting into the background and definitions of [Patents—Pathways to Progress](#). Next, find out, [What is patent protection?](#) What happens after the original patent expires? What are the [Classifications](#) of different types of patents? Write down each definition, including term length, for later reference. In what ways is a patent similar to other types of personal property? Also, discover the [Importance of Patents](#) and how patented inventions touch our lives every day. Using your notes, write a summary describing what patents are, listing at least one example for each classification, and explaining why the patent system is important.



Lastly at this site, review [Getting through the patent maze—The patent process in 5 steps](#). Create a diagram that illustrates each step in the process.

## Become a Patent Detective

Your next stop is the [U.S. Trademark & Patent Office](#). Here, you will learn how to be a [Patent Detective](#). Start with reviewing the [Junior Detective](#) method, using the patent number. To practice, find a product or two with patent numbers stamped on them and do a [Junior Detective Search](#) for each one. Write down the keywords of each patent description. What exactly does the patent cover regarding the product's purpose or composition? Share the findings about your product with classmates.

If you have time now or on another day, work your way up to [Master Detective](#) to search patents by an inventor's name. If you are really ambitious, continue to the [Super Detective](#) level.

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**Reference:**

Inventing Modern America: From the Microwave to the Mouse  
<http://www.mit.edu/afs/athena/org/i/invent/www/ima/index.html>

Invent Now  
<http://www.invent.org/>

U.S. Trademark & Patent Office  
<http://www.uspto.gov/web/offices/ac/ahrpa/opa/kids/index.html>

## Sharing Slide Shows Online: Beyond the Basics

J. Alan Baumgarten

In last month's issue of Learners Online you learned how to upload or create a digital slide show presentation on the Web and then share it with others. These are the basics. In this follow-up article you will learn some advanced techniques for online slide show sharing. Get ready to take it to the next level.

If you have ever used a slide presentation to teach, you know that it can be an effective tool for guiding students through lesson material, providing visual aids, in some cases acting as a springboard for launching Web sites and media files, and so on. Digital slide presentations also make fantastic student projects. You don't need to use the Internet to accomplish any of these goals, but the Internet does offer an effective bridge between home and school. In districts that maintain tight controls over school networks, software, and file sharing, the Internet may also give you options for working around some of these constraints.

In the Basics article last month, you learned how to use [Zoho Show](#) to create and share an online slide presentation. This month we will focus on SlideShare, which is the better and more powerful of the two online applications.

### Create a SlideShare Account

Start off by browsing to the SlideShare site and creating a user account. Accounts are free, no worries, but use a secure username and password that can't be easily guessed or cracked. You can [Signup](#) right from the link on the homepage.]

Once you create your account you will see the option to invite friends (skip this if you wish), and then you are prompted to browse and select the documents and slide show files you wish to upload. Follow the onscreen instructions for selecting and opening files. Add custom titles, tags, descriptions, and even categories if you wish. This is also the time to select the **Privacy** of your files. You can either leave them open for the public to view, or you can make them private so that only you or the people you invite may see them. The latter is a better choice if you plan to share

presentations with students. If students will be sharing their presentations with you or other students, you should require the Private option.

## My Slidespace

When you have one or two slide presentations uploaded, click [My Slidespace](#) in the top menu. You will see a list of your uploaded presentations and documents, and some information about them.

Below your shared presentations and documents is a section where your favorite presentations can be saved and opened later. You can look for presentations uploaded by other users by searching for names or keywords in the Search field at the top, or you can go to the Browse page and browse around by category on the right, or by popularity on the left.



When you find a presentation you like, open it and click the **Favorite** (red heart) tab above the slide show. You will see an option to add custom tags before saving; just type in a few words that seem to fit and click Save. When you return to your **My Slidespace** page, the slide show will be there.

## Groups

The Groups feature of SlideShare can be an excellent tool for making your presentations available to individual classes, for enabling students to work together remotely, and for students to turn in presentation assignments for peer review and final grading. Commenting on slide shows is a built-in feature, so peer reviews are a snap.

From the **My Slidespace** page, click Create a Group in the lower left menu. Name the group (e.g., the class name), select a category that seems appropriate, and enter a brief description. If you have a small photo to use as a group or class logo, upload it using the field provided. For Privacy, select the lower option to make the group private. Also, keep the selected option to let users join by invitation only. Finally, check the option to keep the group unlisted. Now save changes and return to **My Slidespace**.

Now that you have created a group, you can get back to it by clicking Groups in the top right menu. Click the group name to

get to the group home page, where there is a message wall similar to Facebook. Go ahead, type in an introduction and post it!

Add members (students) to this group by clicking **Invite Friends** in the lower left menu. The easiest way to proceed is to enter the email addresses of all students in the class, separated by a comma. Do this in the lower left field. Edit the invitation message on the right, and then click **Invite your friends**. When students receive the email, they will see a link to click that will make them members of the group.

## Slidecasting

One of the big disadvantages of sharing just a slide presentation is that the audience misses out on what is said during the live presentation. A good presenter uses a slide show to support the presentation rather than just reading from the slides. That becomes a problem when you want to share slide shows with students: you either need to add text to provide more details, or you need to add voice.

SlideShare lets you do the latter with a powerful feature called Slidecast (Slides + Podcast = Slidecast). It works in a somewhat roundabout series of steps that are not very intuitive, but these are the essential steps:

1. **Record your voice.** Use any sound recording software on your computer to record your voice as you give the presentation. Simply turn on the recorder, open the slide show, and talk away. Stop the recording when you are done and save it as an MP3 file.
2. **Create Slidecast.** From My Slidespace, open the slide show you want to work with and click **Edit Presentation** next to the title. Click the Create Slidecast tab along the top.
3. **Upload MP3 File.** Upload the MP3 file of your narration using the **Upload mp3 file** tool. Browse to the location of the file, select it, and click Open. The system will upload and process your recording.
4. **Synchronize the audio.** Using the Synchronization Tool, sync the audio to each slide by selecting the slide on the top and then dragging a section of audio in the wave visualization below. The darkened section represents the



portion of the sound file that will play while the selected slide is in view. Click the Play button to hear what you have selected.

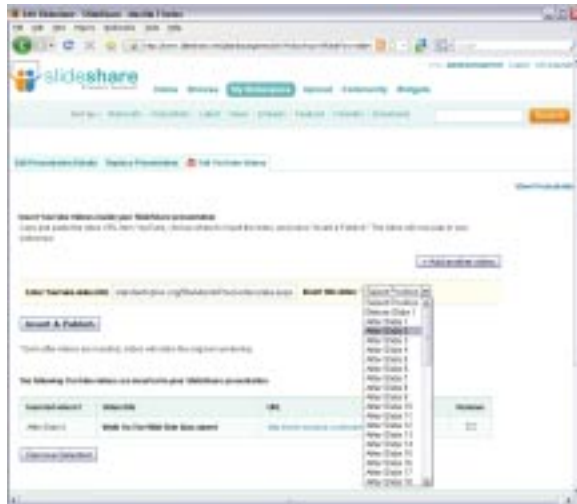
5. **Preview and Save.** Save your work often as you go, and preview your work to see how it is coming together.

SlideShare offers a demonstration Slidecast that teaches you how to create a Slidecast. Watch it before you get started:  
<http://www.slideshare.net/jboutelle/slidecasting-101>

## Add YouTube Video

If you really want to get crazy with your slide shows, try adding video. This is a great option for recording live demonstrations, such as science experiments, and combining the video with other presentation slides.

Start by recording a short video and uploading it to YouTube. Remember the URL. From the Edit Presentation screen, choose **Insert YouTube Videos**. In the dialog, enter the URL of the video you want to insert, and then choose the slide location where you want it to appear. You can put more than one video in a slide show. Click Insert and Publish when you are done. A list of inserted videos will appear in the section below, allowing you to remove the videos you decide you don't want. Now return to the presentation and watch it come alive.



There are many more opportunities here to explore, and more features will be added over time, so look around and return to the site often. This free online tool, more than any others on the Web, will earn you the label of Geekiest Teacher at School.

Wear it proudly.

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### Reference:

SlideShare  
<http://www.slideshare.net>

## Three-Ring Binders on the Web: Network Sharing Spaces

Stephanie Tannenbaum

Every year we ask students to buy portfolios: 3-ring binders, notebooks, portfolios, and backpacks to store everything. Why, in this age of technology when so much of our instruction is delivered using digital media, do we not have Internet-based binders and notebooks? By the end of the semester, let alone the year, students' binders are tattered and battered. Furthermore, it is a good bet that much of the information included in the binder at some point in time, is now swept under a locker or crumpled at the bottom of a backpack somewhere. Rather than printing out notes and Web sites, (which is, not to mention, a colossal waste of paper) why not keep everything digital?

Shared online spaces are individualized accounts where teachers and students (and even parents) create, maintain, and share files with one another. They are password protected and may be shared only by providing the specific URL or an access key. Teacher sharing spaces are ideal for distributing important resource files including documents, spreadsheets, images, and Web sites to students (and even parents). Student sharing spaces serve as individual portfolios, or binders. Students organize, review, and collaborate about various files with other students and their teacher. Each individual is responsible for grouping, classifying, organizing, and sharing all files. Various tools such as tabs and labels help the user to further organize files. Many teachers maintain professional blogs with other teachers. The shared spaces are easy to embed as a simple one-click link within the blog.

Teachers and students both benefit from the use of online sharing spaces.

In addition, online sharing spaces serve as common portals to store and direct others to specific links. This is particularly useful for at-home assignments and for students who miss school and need to keep up with class work. Consider how they may be used

for inter-class room use, intra-class room collaboration (maybe the 5<sup>th</sup> graders are working on an ecology project with the 1<sup>st</sup> graders), and for whole school (excellent for sharing sites that parents might find useful).

Teachers who periodically assign a “portfolio grade,” assessing students’ efforts in keeping and organizing their binders, will appreciate this less space-consuming and more streamlined method. Can you imagine trading out the mountain of toppling student binders for a single list of Web URLs? Simply clicking students’ links on your laptop provides direct access and ability to review their classification and organization efforts.

## Build a Binder Online

The best way to learn how to use and appreciate the significance of a shared network space for your class is to jump right in and build one. Visit [LiveBinders](#). First watch the brief introductory video. Then explore a few of the existing LiveBinders suggested below. The [3<sup>rd</sup>-5<sup>th</sup> Grade Summer Spelling LiveBinder](#) and the [Multiplication Worksheets LiveBinder](#) are excellent examples. Continue to browse through the [Education Featured Binders](#) set for more exciting ideas.



Basically, LiveBinder is incredibly easy to use. You must download the small file, but then an icon appears in your toolbar. Each time you discover a Web site that you would like to include in your online portfolio, simply click the icon and the Web URL is stored for immediate or later classification.

Return to the home page and click the Start a Binder button. Follow the [directions](#). Once you see the LiveBinder icon on your browser toolbar start building your own binder. Pick a topic. For example, I would like for my 6<sup>th</sup> grade Science students to view the [NASA Kids' Club](#) Web site as a resource for their homework. Simply click the LiveBinder icon in the browser bar and the LiveBinder page opens up. If you do not already have an account, quickly sign up for a new one. Create a title for a new binder and mark it as private. Include a brief description and select a category and then click “Add to Binder.” Now click to edit the binder and take a look at your online sharing space so far. Click “Back to Main Site” and click the Options button. Select “Share this LiveBinder.” Enter the information in the right panel. Create an

access key that students must enter in order to access this binder and send it!

Now let's create some tabs and sub tabs. I would like my students to visit the [National Oceanic and Atmospheric Administration NOAA](#) site. Add it to LiveBinder and select existing binder and select tab. Click to view the binder and there are now two tabs. Continue experimenting with the numerous ways to add and arrange Web sites within your binder.

There are currently a few other Web sharing spaces to visit and explore. Certainly each are unique and you will find many ways to incorporate an Internet binder into your curriculum and professional development based on your needs and schedule. Consider:

1) [4Shared](#), 2) [skrbl](#), and 3) [drop.io](#) as alternatives to LiveBinder.

Sharing Web sites with students for in-school assignments and out-of-school projects through the use of shared online spaces is an organized method for storing and classifying the vast wealth of usable and valuable sources of data. Students are already used to storing much of their social data online. They will enjoy and appreciate this digital medium for storing and organizing their files online as well.

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## Reference:

LiveBinders  
<http://www.livebinders.com/>

4Shared  
<http://www.4shared.com/>

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

drop.io  
<http://drop.io/>