

## PLANTING THE SEEDS OF CHANGE

INFUSING INFORMATION LITERACY SKILLS

BY KATHY SCHROCK

### Web page

Planting the Seeds of Change  
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### Objectives

- Student computer use
- Basics of information literacy
- Standards and information literacy
- Lessons for curriculum infusion
- Practical suggestions

### Student computer use

- *Connected to the Future: A Report on Children's Internet Use.* CPB, 2003.
- Telephone and online surveys of parents and kids in 2002
- Also known as the Grunwald report  
 – [cpb.org/ed/resources/connected/](http://cpb.org/ed/resources/connected/)

### Some statistics

#### BY AGE\*

Age Group	2000 (%)	2002 (%)
AGES 2-5	6%	35%
AGES 6-8	27%	68%
AGES 9-12	48%	77%
AGES 13-17	77%	83%

\*Excludes children

#### BY LOCATION (AGES 2-17)

Location	2000 (%)	2002 (%)
ALL LOCATIONS	41%	65%
HOME	28%	47%
SCHOOL	23%	39%
LIBRARY	2%	15%

Source: Erunwald Associates

### Some statistics

#### CHILDREN'S WEEKLY ONLINE ACTIVITIES

Percent of children in 17 states at least once a week

- RECREATION: Games, surfing, watching, reading about movies, music, sports
- EDUCATION: Homework, research, projects
- MULTIMEDIA: Music, video downloads and exchanges
- COMMUNICATIONS: Email, chat, IM
- SOCIAL: Instant messaging
- E-COMMERCE: Learning about or buying things online

## Information Literacy Research

Eisenberg, Michael with Carrie Lowe and Kathleen Spitzer. *Information literacy: Essential skills for the information age*. 2d ed. CT: Libraries Unlimited, 2004. (ISBN 1591581435)



## Information literacy...

...is the set of skills and knowledge that not only allows us to find, evaluate, and use the information we need, but, perhaps more importantly, *allows us to filter out the information we don't need.*

(Spitzer, p. 71)



## Information competence...

...is the fusing or integration of library literacy, computer literacy, media literacy, technological literacy, ethics, critical thinking, and communication skills.

Work Group on Information Competence, Commission on Learning Resources and Instructional Technology Task 6.1. *Information competence in the CSU: A report*. (December 1995).



## The research...

- Varied on whether information literacy is a process or a content skill
- Combination of practiced skills and internalized skills
- Research overview on the Planting page



## Information Literacy Models



Milam, Peggy. "Destination information: a road map for the journey." *Library Media Connection*. April/May 2004, p. 20.

## Basics of Information Literacy



## Cultivating the Garden

- Locating the garden plot
- Selecting the crops
- Buying the seeds
- Turning the soil
- Planting the seeds
- Fertilizing the soil
- Weeding and cultivating
- Harvesting
- Putting the garden to bed



## Cultivating Information Literacy

- Pre-assessing the skills
- Choosing the information literacy skill
- Gathering the resources
- Creating the lessons/units
- Introducing the topic
- Mentoring the skill
- Coaching/guiding
- Project presentation/assessment
- Evaluation of the unit



## Locating the garden plot... ...Pre-assessing the skills

- Pretend you are going on a trip to \_\_\_\_\_
- You have a good map of the city.
- Besides the map, what are three other important things that you would want to know? How would you go about finding it?

Ercegovic, Zorana. Information Literacy: Search Strategies, Tools, and Resources for High School Students. Linworth, 2001. ( p.47)



## Selecting the crops... ...Choosing the info literacy skill

- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>• Formulation of good questions</li><li>• Choosing keywords</li><li>• Selecting the correct type of material</li><li>• Using print indices</li><li>• Advanced searching</li><li>• Critical evaluation</li></ul> | <ul style="list-style-type: none"><li>• Selection of information based on nature of task</li><li>• Ethical use of information</li><li>• Clear organization of information</li></ul> |
|---|---|



## Buying the seeds... ...Gathering the resources

- Research organizer
  - *PowerTools*, Valenza
  - *Writing & Research on the Computer*, Schrock
- Rubric for assessment
  - *Information Skills Toolkit*, Logan
- Citation standards
- Links to credible, bogus sites
- Critical evaluation forms



## Turning the soil... ...Creating the lessons/units

- Information Literacy Skills by Grade Level
  - [www.kn.pacbell.com/wired/21stcent/gradelevel.html](http://www.kn.pacbell.com/wired/21stcent/gradelevel.html)
- Take some time to browse around the Web
  - “information literacy lessons” phrase search
- Think about what can easily be infused into something you already do
- Plan a collaborative lesson with a library media specialist



## Information Literacy Skills by Grade

Information Literacy Lesson	Grade Level	K-2	3-5	6-8	9-12
Developing Different Types of Questions		*	*	*	*
Brainstorming Research Questions		*	*	*	*
Categorizing Research Questions		*	*	*	*
Selecting the Right Source		*	*	*	*
Identifying Keywords, Synonyms, Key Phrases		*	*	*	*
Creating an Effective Search Statement			*	*	*
Boolean Operators			*	*	*
General Web Search Tools: An Introduction			*	*	*
Evaluating General Web Search Tools			*	*	*
Online Search Techniques			*	*	*
Understanding URLs			*	*	*
Choosing the Best Hit/Favorite			*	*	*
Searching Specialized Databases			*	*	*
Determining Relevance		*	*	*	*
Determining Authority and Accuracy		*	*	*	*
Determining Point of View		*	*	*	*
Determining Currency		*	*	*	*
Flow of Information		*	*	*	*
Skimming		*	*	*	*
Highlighting		*	*	*	*
Note Taking		*	*	*	*

## “Brainstorming Research Questions”

### Materials for this **Offline** lesson:

- White butcher paper to cover the chalkboard
- Black thick tipped markers (2-3)
- Sentence strips (50-100)
- Scissors
- Medium tipped back markers (one for every student)

Time allotment: 45 - 50 minutes

Grade Level: Grade 2 - 12

[Information Literacy Standard](#)

9. The student who contributes positively to the learning community and to society is information literate and participates effectively in groups to pursue and generate information.

### Learning Outcomes

Students will be able to brainstorm questions on a topic for future research. Students will be able to brainstorm different types of questions ([Recall](#), [Comprehension](#), and [Synthesis questions](#)) for future research.

### Set-up

Have students in cooperative groups to facilitate copying over questions onto [sentence strips](#).

### Suggested Procedure

## Planting the seeds... ...Introducing the topic

- Relate the importance of the skill to the task at hand
- Talk about the information explosion
- Talk about the new technologies
- Start with a single aspect and teach the process skills



## Fertilizing the soil... ...Mentoring the skill

- Put bibliographic citations on everything
- Talk through the steps in questioning
- Use advanced search strategies
- Explain why you used a specific resource over another
- Present information in unique ways



## Weeding and cultivating... ...Coaching and guiding

- Go over process skills again
- Coach and guide students
- Create a rubric of what effective information literacy skills “look like”
- Have students mentor these skills
- Have students summarize topics



## Sample information literacy rubric

	1	2	3	4
<b>Prepare for Research</b>	• Uses a few resources to gain an overview	• Uses a variety of resources to gain an overview	• Explores a wide range of resources to build a knowledge base	• Explores a wide range of resources and perspectives as well as connections to prior learning to build a knowledge base
<b>Access Resources</b>	• Defines a need which results in first gathering	• Defines a need which produces meaningful	• Defines a need which stimulates a quest for personal meaning	• Defines a need which evokes original thought and innovation
<b>Access Resources</b>	• Locates resources related to the topic	• Selects a variety of relevant resources	• Uses search strategies to select a variety of relevant resources	• Uses search strategies and evaluation criteria to select a variety of the best resources to meet defined need
<b>Process Information</b>	• Needs assistance to use search tools	• Uses tables of contents, indexes and bookmarked resources to find information	• Uses key words and appropriate search engines to seek required information	• Understands how information is organized and readily finds information needed to work past and overcome for next, utilizing appropriate search tools
<b>Process Information</b>	• Lists data	• Organizes and makes data	• Classifies data and makes comparisons	• Experiments with integrated or conceptualized data
<b>Transfer Learning</b>	• Restates information	• Summarizes information to respond to defined need	• Regroups information, draws conclusions, and forms opinions	• Regroups information, creates original objectives and new ideas based on analysis
<b>Transfer Learning</b>	• Shares limited information	• Presents unique insights/information in the nation	• Communicates personal learning affectively	• Facilitates new learning for others
<b>Transfer Learning</b>	• Identifies new learning	• Identifies new learning and reflects on own	• Relates new learning to personal experience and information	• Uses knowledge in new situations
<b>Information Technology</b>	• Uses technology to access information	• Uses technology to access and record information	• Selects appropriate technology to access, record, and present information	• Integrates technologies, when appropriate, to manage and communicate
<b>Legal and Ethical Use of Information</b>	• Is aware of copyright ©	• Acknowledges the work of others	• Understands copyright © and references sources appropriately	• Respects and follows copyright © and acquires permission, where necessary

## Harvesting... ...Presentation/assessment

- Appropriate resources included
- Citations included
- Adhered to fair-use guidelines
- Effective use of the medium
- Material appropriate for audience
- Part of the larger rubric



## Putting the garden to bed... ...Evaluation of the lesson/unit

- Additional technical knowledge needed?
- Resources adequate?
- Enhance the learning process?
- Same skill in a different context?
- Understanding of multi-disciplinary aspect?
- Next information literacy skill to teach?



## The Standards and Info Literacy



## Standards: ISTE NETS\*S

### 5. Technology research tools

- Students use technology to locate, evaluate, and collect information from a variety of sources.
- Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.

(<http://cnets.iste.org/>)



## Standards: ALA Information Power

The student who is information literate...  
...accesses information efficiently and effectively.  
...evaluates information critically and competently.  
...uses information accurately and creatively.

([http://www.ala.org/aasl/ip\\_nine.html](http://www.ala.org/aasl/ip_nine.html))



## National Ed Technology Goals

• **By 2005, every HS student is TECHNOLOGICALLY LITERATE**

Every learner and educator knows how to:

- locate info
- determine its relevance
- determine its accuracy
- integrate various sources of info.

- By 2005, every high school student is technologically literate.
- Every learner and educator knows how to locate info, determine its relevance, determine its accuracy, and integrate various sources of info

(<http://www.air.org/forum/forum.htm>)

## National Content Area Standards and Information Literacy



## Mathematics



## National Council of Teachers of Math

- Problem-solving
- Formulating questions
- Using thinking strategies
- Choosing the right tool
- Assessment involves use of information in meaningful ways

(Eisenberg, 75)



## Math Lesson Idea

### *Roller Coaster Math*

- Anticipatory set of questions
- Searching
- Navigating sites
- Data mining
- Create-a-Graph
  - [nces.ed.gov/nceskids/Graphing/](http://nces.ed.gov/nceskids/Graphing/)

(Logan, 190)



## Social Studies



## National Council for Social Studies

- Essential Skills for Social Studies
  - Skills related to acquiring information
  - Skills related to organizing information
  - Skills related to using information

(Eisenberg, 76)



## Social Studies Lesson Idea

### *Westward Expansion: The Oregon Trail*

- Means of Oregon Trail travel
- List means of transportation
- Brainstorm list of dangers
- Review locating information skills
- Visit provisioned sites and report back
- Citation sheet available

(<http://www.pgcps.org/~media1/tlcfilligash.pdf>)



## Science



## National Science Education Standards

- Science as Inquiry
  - Scientific reasoning
  - Analyze results
- Science and Technology
  - Identify a problem
  - Gather resources
  - Generate solutions and test
  - Communicate the results

(Eisenberg, 76)



## Science Lesson Idea

### *Believe it or not?*

- Critical evaluation of Web material
- Handout and critical evaluation tool
- Bogus sites
  - Feline Reactions to Bearded Men
  - Ban Dihydrogen Monoxide
  - Clones-R-Us



## Ban Dihydrogen Monoxide!

### The Invisible Killer

Dihydrogen monoxide is colorless, odorless, tasteless, and kills uncounted thousands of people every year. Most of these deaths are caused by accidental inhalation of DHMO, but the dangers of dihydrogen monoxide do not end there. Prolonged exposure to its solid form causes severe tissue damage. Symptoms of DHMO ingestion can include excessive sweating and urination, and possibly a bloated feeling, nausea, vomiting and body electrolyte imbalance. For those who have become dependent, DHMO withdrawal means certain death.

### Dihydrogen monoxide:

- is also known as hydroxyl acid, and is the major component of acid rain.
- contributes to the "greenhouse effect."
- may cause severe burns.
- contributes to the erosion of our natural landscape.
- accelerates corrosion and rusting of many metals.
- may cause electrical failures and decreased effectiveness of automobile brakes.
- has been found in excised tumors of terminal cancer patients.

(<http://ddescy.lme.mnsu.edu/descy/webcred/webcred/dhmo.html>)

## *Feline Reactions to Bearded Men*

### Abstract

Cats were exposed to photographs of bearded men. The beards were of various sizes, shapes, and styles. The cats' responses were recorded and analyzed.

### Findings of Prior Investigators

Boone (1958) found inconclusive results in studying feline reactions to clean-shaven men. O'Connor and Brynner (1990) found inconclusive results in studying feline reactions to shaven heads. Quant (1965) found inconclusive results in studying feline reactions to bangs. Seuss (1955) found inconclusive results in studying feline reactions to hats. Ciccone (1986) found inconclusive results in studying feline reactions to hairy legs. Other related studies (Smith/Brothers 1972, Conroy 1987, Schwartzenegger 1983) have since been retracted because the investigators were not able to reproduce their results.

(<http://www.improb.com/airchives/classical/cat/cat.html>)

## Foreign Language



## National Standards in Foreign Language

- Communication strategies
- Learning strategies
- Critical thinking skills
- Skills in technology

(Eisenberg, 77)



## Foreign Language Lesson Ideas

### *News from Around the World*

- Read the same news story on CNN, MSNBC, and the BBC
- Read the same news story from a French, Spanish, and German news source
- Talk about point of view and the cultural influence



## English/Language Arts



## Standards for the English/Language Arts

- Conduct research or pose a problem
  - Generating ideas and questions
  - Gather, evaluate, and synthesize data
  - Communicate based on purpose/audience
- Use a variety of technological and informational resources to gather and synthesize information

(Eisenberg, 78)



## English/LA Lesson Ideas

### *Communication and Audience*

- Switch papers and create hypermedia presentation or Web page
- Re-do their own report for a student in a younger grade
- Create a book for students in an earlier grade



## Health



## National Health Standards

- Critical thinker and problem-solver
- A responsible, productive citizen
- A self-directed learner
- An effective communicator
- Utilize a variety of resources to make sound, health-related decisions

(Eisenberg, 81)



## Health Lesson Idea

### *You Gotta Have a Gimmick*

- Marketing techniques in snack food ads
- Talk about their experiences
- Premiums, sweepstakes, kids clubs
- Critical evaluation of advertising techniques
- Creation of group commercial
  - Audience analysis
  - Advertising methods used to appeal
  - Why methods have been selected

([http://www.media-awareness.ca/english/resources/educational/lessons/elementary/advertising\\_marketing/gotta\\_have\\_a\\_gimmick.htm](http://www.media-awareness.ca/english/resources/educational/lessons/elementary/advertising_marketing/gotta_have_a_gimmick.htm))



## The Arts



## National Arts Education Standards

- Communicate proficiently in at least one art discipline
- Define and solve artistic problems with insight, reason, and technical proficiency
  - Knowledge and understanding of the topic
  - Analyze and evaluate information

(Eisenberg, 82)



## The Arts Lesson Idea

### Digital Portfolio of Work

- Adding music and clipart
- Fair use guidelines
  - Two year use permission for two copies
  - Motion: 10% or 3 minutes
  - Music and lyrics: up to 10% or no more than 30 seconds
  - Images: no more than 5 images from one artist or photographer
  - Clip art collections: <= 10% or 15 images

(<http://www.umuc.edu/library/copy.html#guide>)



## Visual Literacy



## Definition and goals

- The basic “reading” (interpreting) and “writing” (producing/ using) of visually imbued communications
- Students will:
  - interpret, understand, and appreciate the meaning of images
  - communicate more effectively by applying the basic principles and concepts of visual design

(Burmark, 2002 & Christopherson, 1996)



## Photographs in the Classroom

- Photographs are valuable primary resources which document the past
- Analytical and narrative skills can be targeted
- Petri, Gail. *American Memory Collection: Primary Resource Activities across the Curriculum*. Linworth, 2003.



## Photographs in the Classroom

- Examine a Civil War-era calling card album and research the subjects
- *The North American Indian* ABC-book and Omaha Indian music collection
- Photographs to illustrate historical fiction books
  - Baseball
  - California Gold Rush
  - Prairie life
  - Women’s suffrage
  - Japanese internment



## Photographs in the Classroom

- What did people do? (*America’s First Look into the Camera*)
- View a political cartoon (*Pat Oliphant’s Editorial Cartoons*)
- You are there! Motion pictures and short documentaries



## Pics4Learning (pics4learning.com)

A screenshot of the Pics4Learning website. The page features a navigation bar with 'Browse | Advanced Search | 100 Most Popular Images | Lesson Plans | Contribute'. Below this, there is a 'Browse by Topic' section with a list of categories such as American Sign Language, Baseball, and Art. The main content area displays a lesson plan titled 'Creating Color Poems' by Carolyn Keene, suitable for Grades 1-5. The objective is for students to learn about similes, metaphors, and analogies by writing and illustrating their own color poems. Materials needed include pictures from the website, PDFs of color poems, paper and pencil, and a word processing program.

## Identify the picture and location



## Practical Suggestions for You

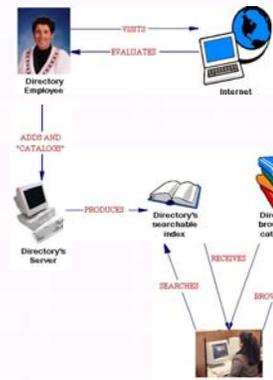


## Professional Development

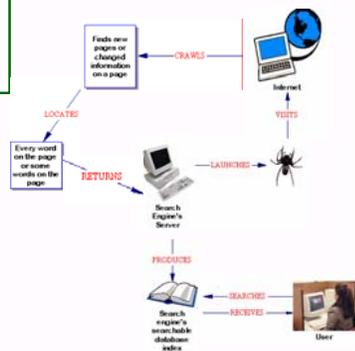
- Search engines vs. directories
- Advanced search strategies
- Critical evaluation of information
- Citation of information
- Fair use guidelines



## Subject Directory



## Search Engine



## Advanced Search Strategies



## Advanced Search Strategies

Google Advanced Search

Find results: with all of the words, with the exact phrase, with at least one of the words, without the words

Language: Return pages written in [any language]

File Format: Only [any format]

Date: Return web pages updated in the [anytime]

Occurrences: Return results where my terms occur [anywhere in the page]

Domain: Only [return results from the site or domain e.g. google.com, my.liceo.edu]

SafeSearch: No filtering | Filter using [SafeSearch](#)

## The Future of Search



## The Future of Search



## The Future of Search



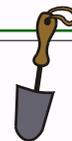
## The Future of Search



## Which tool to use?

### Subject directory

- Need an overview
- Don't have specific words in mind
- Want to control the search



### Search engine

- Have specific terms
- Knowledgeable about advanced searching
- Want to search through lots of information

## Critical Evaluation of Web Sites

Who wrote the pages and are they an expert?

What is the stated purpose of the site?

When was the site created and last updated?

Where does the information come from?

Why is this information useful for my purpose?

## Citation Collecting

([http://landmark-project.com/citation\\_machine/cm\\_book.php3](http://landmark-project.com/citation_machine/cm_book.php3))

## Citation Maker

(<http://osis.k12.or.us/>)

## Citation Maker- Tips

A **Works Cited** page in a report gives credit to the authors or creators who originally researched and published the information. Please do not use their information or pictures as your own. You are committing **plagiarism** when you use information that you have found in your research without giving credit.

As you are gathering information for a research project, write down the **author, title, city, publisher, and copyright date** of the sources you use. Look at the sample title page to learn where to find this information in a book: [Title Page \(PDF\)](#)

Print this citation worksheet to use as you gather information: [Worksheet \(PDF\)](#)

Look at the examples to see the correct formats: [Example Citations \(PDF\)](#)

(<http://osis.k12.or.us/elementary/howto/cited/>)

## Copyright, Ethics and Fair Use

### COPYRIGHT AND FAIR USE GUIDELINES FOR MULTIMEDIA

#### MOTION MEDIA

Up to 10 percent of the total or three minutes, whichever is less



#### TEXT MATERIAL

Up to 10 percent of the total or 1,000 words, whichever is less

An entire poem of less than 250 words may be used, but no more than three poems by one poet or five poems by different authors in an anthology. For poems exceeding 250 words, 250 words should be used, but no more than three excerpts from one poet or five excerpts from different poets in the same work.

#### MUSIC, LYRICS, AND MUSIC VIDEO

Up to 10 percent of the work but no more than 30 seconds of the music or lyrics from an individual musical work.

#### ILLUSTRATIONS OR PHOTOGRAPHS

No more than five images from one artist or photographer no more than 10% or 15 images, whichever is less, from a collection.



#### NUMERICAL DATA SETS

Up to 10 percent or 2,500 fields or cell entries, whichever is less, from a copyrighted database or data table.

#### COPYING OF A MULTIMEDIA PROJECT

No more than two copies may be made of a project.



Adapted from Copyright and Fair Use in the Classroom, in the Internet, and the World Wide Web, 6/20/2002 (<http://www.copyright.com/copyright/copying.html>)

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Work Group on Information Competence, Commission on Learning Resources and Instructional Technology Task 6.1. *Information competence in the CSU: A report.* (December 1995).



The End

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