

Higher Order Thinking Through Technology

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WHY A TECHTORIAL?

What will I learn today?

You will learn easy ways in which you can use technology to facilitate higher order thinking in students.

What hardware and/or software does the techtorial apply to?

This techtorial applies to any computer that has word processing and spreadsheet programs, and Internet access.

Which National Educational Technology Standards for Teachers does the techtorial address?

The techtorial will help teachers accomplish standard IIIc in particular.

The International Society for Technology in Education (ISTE) has developed a set of National Educational Technology Standards for Teachers. Standards or Performance Indicators are included for each techtorial to help teachers and administrators improve technology proficiency. For a complete description of the standards indicated, go to [NETS for Teachers](#), click Standards in the menu bar on the left, and then click the arrow to the right of Standards and Performance Indicators for Teachers.

COMPUTERS ON; BRAINS OFF

Educators ideally want to move students beyond mere memorization of information and simple understanding of concepts covered. The educator's goal is to help students use what they learn to create something new or to arrange information in a new way.

Often, however, technology lessons focus on hardware and software and surfing, rather than on lesson content. Students end up with lists of Web sites or nicely formatted PowerPoint presentations, without any ability to understand, connect, or use what they learned.

So, what's a teacher to do to keep brains engaged during digital lessons?

A BLOOM'N REVIEW

Almost 50 years ago, Benjamin Bloom created a list that differentiated six different levels of learning.

Those levels of learning are:

Knowledge: What do you know?

Comprehension: What do you understand about what you know?

Application: How can you use what you know?

Analysis: What similarities, problems, parts, trends, do you see in what your know?

Synthesis: Can you combine what you know to develop a new idea?

Evaluation: How can you evaluate what you know?

Most often, technology lessons involve only knowledge (information) and comprehension (understanding). Technology, however, lends itself to all six levels of thinking and learning. This techtorial offers tips for successfully incorporating those six levels into your technology lessons.

KNOWLEDGE: KNOW IT

Make sure facts are correct and relevant for the age and grade of the students and for the scope of the unit.

Instead of using a more general search engine, try the [Internet Public Library](#) or [KidsClick](#) for more focused and grade-appropriate searches.

Don't allow students to print entire Web pages; instead have them rewrite facts in their own words.

COMPREHENSION: GET IT!

Assess primary students' understanding of a topic by encouraging them to use flashcards or to play matching games at [FunBrain](#) or [Quia](#).

Have K-8 students read books and then answer questions about those books at [BookAdventure](#)!

APPLICATION: USE IT

Ask students to "voice their choice" by answering a poll at the Time For Kids [PollZone](#).

Invite students to go on a [Web Adventure](#), collect facts about a topic (such as the opposing political sides of the American Revolution, for example), and then choose a position.

Have students collect data on a simple topic, such as "How many pets do you have?" Then have them create charts of the data using the NCES [Create a Graph](#) page.

ANALYSIS: TAKE IT APART

Students identify a topic, trend, or theme in history. They read and listen to eyewitness accounts of a particular historical era at [EyeWitness History](#) or look at cultural artifacts of that era at [American Memory](#) to find the specified topic, trend, or theme. (For example, students might look for xenophobia in the literature and art of the 1920s.)

[ThinkTank](#) can help students analyze and subdivide research topics for major projects.

SYNTHESIS: PUT IT TOGETHER

Have students in grades 4-12 use [Backflip](#) to create folders containing all the Web sites they have found on a given topic.

Students can research three to four people from the same occupation at [Biography Channel](#). Then have them use some of the characteristics identified in the biographies to write a "fake" biography about a fictitious person engaged in the same occupation.

EVALUATION: EXAMINE IT!

Have students review novels and submit their reviews to [KidsBookshelf](#).

Students in grades 7-12 students can create free surveys at [Zoomerang](#), invite their peers to answer the surveys, and evaluate the results.

Encourage students in grades 5-12 to gather research on current controversial science topics, evaluate each side of the debate, and add their voices to the debate by participating in [WISE](#) at the University of California at Berkeley.

Get students involved in the learning process by having them help you create [checklists](#) for evaluating problem-based learning activities in the classroom.

TELL ME MORE!

Where can I find more information?

For more information about Bloom's Taxonomy, go to [The University of Victoria's Counseling Services' Bloom Taxonomy](#) page. Also check out [Infosearcher](#), a librarian-created Web site that contains many tips using computers to meet differing learning strategies. Be sure to click the Curriculum-Technology Integration Chart at Infosearcher for even more tips!