Critical Thinking/Problem Solving Resources

Overview of Critical Thinking and Bloom's Taxonomy

[teacher tap—http://eduscapes.com/tap/topic69.htm]
This site gives an overview of critical thinking as it relates to Bloom's taxonomy, and lists numerous useful online resources on the subject.

Critical Thinking Lesson Plans - University of North Carolina

[http://www.learnnc.org/lessons/search?phrase=critical+thinking]
Lesson plans in the UNC Chapel Hill School of Education database relating to critical thinking.

Integrating Critical Thinking Skills Into the Classroom

[http://www.accessexcellence.org/LC/TL/buchanan/]
How to article on incorporating these skills into classroom teaching.

The Critical Thinking Community: Resources for Socratic Questioning, Higher Order Thinking, Critical Thinking conferences books and academic resources

[http://www.criticalthinking.org/]

WannaLearn.com - Critical Thinking

[http://www.wannalearn.com/Academic_Subjects/Critical_Thinking/]
Index of resources, books and online tutorials and courses related to critical thinking.

Search Strategies: Search with Peripheral Vision

[http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/Strategies.html]
Finding Information on the Internet - free problem solving tutorial

Web 2.0 Teaching Tools Developing Critical Thinking Skills Vital to Students' Future Success

[http://www.web2teachingtools.com/developing-critical-thinking-skills.html]

By Dr. Richard Paul and Dr. Linda Elder

[http://think.hanover.edu/Resources/MiniGuidetoCT.pdf]

The Teaching Channel: Problem Solving Tools Grades 9-12/Math/Strategies

[https://www.teachingchannel.org/videos/math-problem-solving-strategies]

Antioch University- Teacher Tools for the Critical Skills Classroom

[http://www.antiochne.edu/acsr/teachertools/]

Future Problem Solving Program International (FPSPI)

[http://www.fpspi.org/]

Source:
Adapted from :Partnership for 21st Century Skills
1. Identify need or problem
2. Research criteria / constraints
3. Brainstorm possible solutions
4. Select best solution
5. Construct prototype
6. Test
7. Present solution
8. Redesign

Engineering Design Process
STEM Resources

STEM Book List—Reading Council of Southern New Jersey

STEM Reading List—Outstanding Science Trade Books for Students K-12

NSTA—National Science Teachers Association
http://www.nsta.org/publications/ostb/

Amazon STEM Books for Elementary
http://www.amazon.com/STEM-Books-for-Elementary-Schools/lm/R8FFLJKAUVOWA

2014 Cook Prize Finalist
http://bankstreet.edu/center-childrens-literature/cook-prize/finalists/

2013 Cook Prize Winners
http://bankstreet.edu/center-childrens-literature/cook-prize/list-past-winners/

Reading Rockets—Literacy in the Sciences
http://www.readingrockets.org/extras/stem_series

RIF-2012-2013 STEAM Multicultural Booklist (Grades Pre-K-5)
http://www.rif.org/us/literacy-resources/multicultural/2012-multicultural-booklist.htm

The Show Me Librarian—All Things STEAM
http://showmelibrarian.blogspot.com/p/all-things-steam.html

Other Helpful Cool Stuff:
Common Sense Media- STEM: Apps, TV, and More for Science, Tech, Engineering, and Math
About the titles

These books were selected by YALSA’s 2013 selected book and book award committees. Each of the titles was honored either by placement on a specific list of recommended reading or by receiving a literary award, which is indicated by an abbreviation at the end of each title description in this pamphlet. They are:

- **Alex**: Alex Awards
- **BFYA**: Best Fiction for Young Adults
- **GGN**: Great Graphic Novels for Teens
- **Nonfiction**: Nonfiction Award for Excellence in Young Adult Literature
- **QPYA**: Quick Picks for Reluctant Young Adult Readers
- **TTT**: Teens’ Top Ten

While these books were selected for teens ages 12—18, the titles on this list span a broad range of reading and maturity levels. We encourage adults to take an active role in helping individual teens choose those books that are the best fit for them and their families.

For more information about YALSA’s lists of recommended reading and awards for young adult literature, visit www.ala.org/yalsa/booklists.

For additional recommended reading
- ask your librarian
- visit www.ala.org/yalsa/reads4teens
- Download YALSA’s free Teen Book Finder app

The Young Adult Library Services Association is a national association of librarians, library workers and advocates whose mission is to expand and strengthen library services for teens, aged 12-18. Through its member-driven advocacy, research, and professional development initiatives, YALSA builds the capacity of libraries and librarians to engage, serve and empower teens. YALSA is a division of the American Library Association, a 501(c)3 charitable organization.

50 E. Huron St.
Chicago, IL 60611
Phone: 800.545.2433 x4390
E-mail: yalsa@ala.org
www.ala.org/yalsa
Across the Universe, by Beth Revis
Cryogenically frozen centuries ago, Amy and her parents are on their way to a new planet aboard the spaceship, Godspeed. TTT

Alien Investigation: Searching for the Truth About UFOs and Aliens, by Kelly Milner Halls
Are they out there? QPYA

Angry Birds Space: A Furious Flight into the Final Frontier, Amy Briggs
Angry Birds meet NASA. QPYA

Bomb: The Race to Build - and Steal- the World’s Most Dangerous Weapon, by Steve Sheinkin
In this true-life spy thriller that combines science and history, Sheinkin masterfully exposes the international race to develop an atomic weapon and end World War II. Nonfiction

Brain on Fire: My month of madness, by Susannah Cahalan
The medical mystery of 24-year-old Cahalan, whose neurological symptoms left her doctors baffled until a real-life Dr. House steps in. Alex

BZRK, by Michael Grant
A war is raging in the nano…where biots and nanobots battle in the brain for control of the human race. For the soldiers of BZRK and AFCG it’s victory or madness. BFYA

Catch & Release, by Blythe Woolston
Body parts are among the things one-time pretty girl, Polly, and football star, Odd, lost when they were struck by flesh eating disease. Can a road trip heal them? BFYA

Cinder, by Marissa Meyer
Cyborg Cinder, a mechanic in the chaotic street market of New Beijing, threatened by disease and aliens, meets Prince Kai when he brings a beloved robot in for repair. BFYA

Don’t Turn Around, by Michelle Gagnon
Computer hackers Peter and Noa stumble across a conspiracy targeting runaway teens. BFYA

Endangered, by Eliot Schrefer
A book of friendship that endures through hardship. A book of human cruelty and human compassion. A book that crosses cultures and species, to connect us with one another. BFYA

Eve & Adam, by Michael Grant & Katherine Applegate
What if you could design the perfect boy? Eve is given the chance, but what are the consequences of playing god? BFYA

An A-Z guide to the HALO universe. BFYA

Insignia, by S.J. Kincaid
Tom is great at one thing: gaming. He’s given the chance to make something of himself in the military and he jumps at it. Can he beat the best the enemy has? BFYA

Invincible Microbe: Tuberculosis and the Never-Ending Search for a Cure, Jim Murphy & Alison Blank
Starting in prehistoric times and continuing to today this book traces the history and biology of tuberculosis. Nonfiction

The Mighty Mars Rovers: The Incredible Adventures of Spirit and Opportunity, by Elizabeth Rusch
Steven Squyres set out to convince NASA to send a robotic geologist to Mars. Nonfiction

Mr. Penumbra’s 24-Hour Bookstore, by Robin Sloan
Clay loses his web-designer job and begins working the night shift in a bookstore with only a few customers. Mystery, adventure, and romance combine for a literary and technological tale. Alex

Planesrunner, by Ian McDonald
Convinced his Dad was kidnapped, Everett uses his computer expertise, soccer skills and math knowledge to try to go after him—even as far as into another universe. BFYA

The Science of Soldiers, by Lucia Raatma
Weapons, soldiers, and technology. QPYA

Seeing Red: The True Story of Blood, by Tanya Lloyd Kyi
Everything there is to know about blood. QPYA

Steve Jobs: The Man Who Thought Different, by Karen Blumenthal
Equally reviled and revered--often by the same people--Jobs, was an extraordinary "tweaker" who transcended the visionary to transform the world as we know it. Nonfiction

In this well-written and readable biography, readers are given special insight into the insular and unique world of Dr. Temple Grandin. Nonfiction

Their Skeletons Speak: Kennewick Man and the Paleoamerican World, by Sally M. Walker
Walker presents the scientific research process and discoveries since 1996 when the 9,000 year-old remains of what is now known as the Kennewick Man were uncovered. Nonfiction

Trinity: A Graphic History of the First Atomic Bomb, by Jonathan Fetter-Vorm
A look at one of the most controversial decisions in American history. GGN

Xombi, by John Rozum and Fraser Irvin
David uses the nanotechnology infecting his body to halt a dangerous, supernatural threat. GGN
YOUNG ADULT FICTION WITH TIES TO STEM


Bacigalupi, Paolo. *Ship Breaker.* Winner of the 2011 Printz Award, 2011 Top Ten Best Fiction for Young Adults


Card, Orson Scott. *Ender’s Game.*

Chibbaro, Julie. *Deadly.*

Collins, Suzanne. *Hunger Games.* 2009 Teen's Top Ten Winner, 2009 Quick Picks for Reluctant Young Adult Readers, 2009 Top Ten Best Books for Young Adults

Dashner, James. *The Maze Runner.* 2011 Quick Picks for Reluctant Young Adult Readers, 2011 Best Fiction for Young Adults, 2011 Popular Paperbacks for Young Adults

Fisher, Catherine. *Incarceron.* 2011 Best Fiction for Young Adults, 2011 Amazing Audiobooks for Young Adults, 2012 Popular Paperbacks for Young Adults

Green, John. *An Abundance of Katherines.* 2007 Printz Honor Book, 2008 Selected Audiobooks for Young Adults, 2007 Best Books for Young Adults, 2009 Popular Paperbacks for Young Adults

Hardinge, Frances. *Twilight Robbery.*

Hautman, Pete. *The Obsidian Blade.*


McDonald, Ian. *Planesrunner.*


Patterson, James. *The Angel Experiment.* 2005 Teen's Top Ten, 2006 Quick Picks for Reluctant Young Adult Readers

Pearsall, Shelley. *All of the Above.*
Pratchett, Terry. *The Long Earth*.

Reeve, Philip. *Mortal Engines*. Best Books for Young Adults 2004

Reeve, Philip. *Fever Crumb*. 2012 Amazing Audiobooks for Young Adults Top Ten, 2011 Best Fiction for Young Adults, 2012 Popular Paperbacks for Young Adults

Revis, Beth. *Across the Universe*.

Slonczewski, Joan. *The Highest Frontier*.

Strahan, Jonathan (ed.). *Life on Mars: Tales from the New Frontier*.

van Eekhout, Greg. *The Boy at the End of the World*.

Wasserman, Robin. *Skinned*. 2010 Popular Paperbacks for Young Adults


Westerfeld, Scott. *Leviathan*. 2011 Top Ten Popular Paperbacks for Young Adults, 2010 Best Books for Young Adults, 2011 Amazing Audiobooks for Young Adults

Westerfeld, Scott. *Uglies*. Popular Paperbacks for Young Adults 2006, 2006 Best Books for Young Adults

Citations:

- Young Adult Library Service Organization (YALSA)