



Thinking Skills in the Poudre School District

Thinking Skills Standards

State and Local Standards:

All state and local standards relate to thinking skills in some fashion. Some standards imply the use of thinking skills within the standard while others specifically address thinking skills. This list is by no means exhaustive, but offers some examples of standards that relate to thinking skills.

From Language Arts

STANDARD 4: THINKING AND VIEWING

Students apply thinking skills to their reading, writing, speaking, listening and viewing

- 4.1 THINKING AND ANALYTICAL SKILLS: Use thinking and analytical skills in writing, reading, speaking, listening and viewing
- 4.2 PROBLEM SOLVING: Use reading, writing, speaking, listening and viewing to define and solve problems
- 4.3 OPINIONS: Recognize, express and support opinions orally and in writing
- 4.4 AUTHOR'S POINT OF VIEW: Know the purpose, perspective and historical and cultural influences of a speaker, author or director
- 4.5 EVALUATION: Use a variety of criteria to evaluate information (e.g., reliability, accuracy, relevancy)

From Science

- STANDARD 1: Students apply the process of scientific investigation and design, conduct, communicate about and evaluate such investigations.
- STANDARD 5: Students understand that the nature of science involves a particular way of building knowledge and making meaning of the natural world.

From Math

- STANDARD 2: Patterns and Algebra – Students use algebraic methods to explore, model, and describe patterns and functions involving numbers, shapes, data, and graphs in problem-solving situations and communicate the reasoning used in solving these problems.
- STANDARD 3: Statistics and Probability – Students use data collection and analysis, statistics, and probability in problem-solving situations and communicate the reasoning used in solving these problems.

From Social Sciences

- GEOGRAPHY STANDARD 1: Students apply knowledge of people, places, and environments to understand the past and present and to plan for the future

State of Critical Thinking in PSD

Critical Thinking CASL training held fall 2007. Seven schools sent teams to the training.

Socratic Seminar CASL training held January 2008. Thirteen teachers attended the trainings in Longmont. There are plans to host another workshop this summer.

An on-line class, "Raising Thinking Skills," is available for teachers in PSD through the Javits Grant Program and the state of Colorado. The class will be repeated next school-year.

Future Problem Solving, an internationally renowned program for building problem solving and thinking skills, is available to students in PSD through Cindy Haskell at Beattie Elementary. Currently, there is no systematic program in place across all schools in PSD to teach Thinking Skills. However, many disciplines and practices do meet this component in PSD. For example, Springboard incorporates thinking skills, as does the IB program and many science courses where the nature of science is taught as part of the standards. There are Language Arts standards that directly address various thinking skills, but implementation is dependent on teachers and there has not been a district-wide system adopted to help them in their efforts.

Why Critical Thinking?

"Everyone thinks; it is our nature to do so. But much of our thinking, left to itself, is biased, distorted, partial, uninformed or down-right prejudiced. Yet the quality of our life and that of what we produce, make, or build depends precisely on the quality of our thought. Shoddy thinking is costly, both in money and quality of life. Excellence in thought, however, must be systematically cultivated."

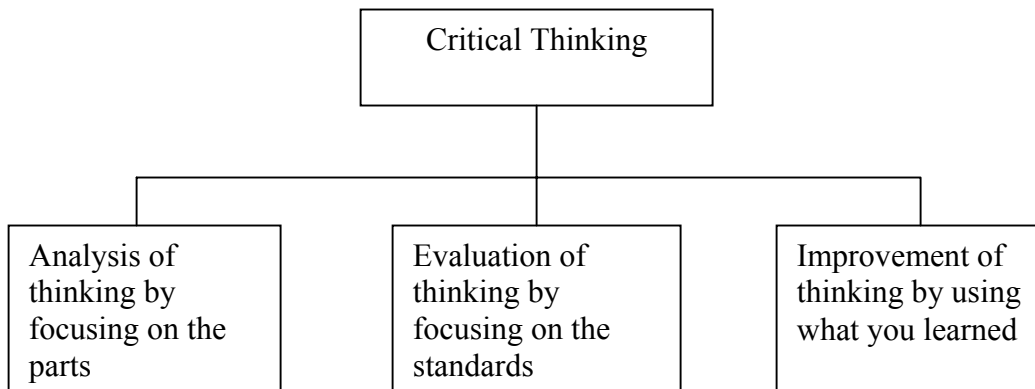
"A well cultivated thinker:

- raises vital questions and problems, formulating them clearly and precisely;
- gathers and assesses relevant information, using abstract ideas to interpret it effectively;
- comes to well-reasoned conclusions and solutions, testing them against relevant criteria and standards;
- thinks openmindedly within alternative systems of thought, recognizing and assessing, as need be, their assumptions, implications, and practical consequences; and
- communicates effectively with others in figuring out solutions to complex problems.

Critical thinking is, in short, self-directed, self-disciplined, self-monitored, and self-corrective thinking. It requires rigorous standards of excellence and mindful command of their use. It entails effective communication and problem solving abilities and a commitment to overcome our native egocentrism and sociocentrism."

- from p. 4 of "The Miniature Guide to Critical Thinking Concepts and Tools" by R. Paul and L. Elder (2006)

Basics of Critical Thinking Skills



What Do Businesses Want?

“A study released last month tells us we could be in deep trouble within a very short time. It found that most young people entering the U.S. workforce are missing key skills that will help them use their knowledge, skills like teamwork, cooperation and leadership. While new college grads know the three Rs, the ability to apply them is what's missing. The study was conducted by a group that included The Conference Board, Corporate Voices for Working Families, the Partnership for 21st Century Skills and the Society for Human Resource Management.

“Researchers asked 431 HR officials about the skill levels of new entrants to their workforce. Did they think they were excellent, adequate or deficient in the skills they considered important? What were those areas, and might the importance of those skills change over the next five years? What skills would emerge as most critical over the next five years, and what kind of remedial training would they undertake if basic skills were lacking, and how much would that remedial training cost?

“The results told a story of unmet expectations. The new workforce is not ready, they say. They make the distinction between "applied skills" and basic knowledge skills like reading and mathematics, and it's the applied skills that are sadly lacking. They include critical thinking and problem solving, oral and written communications, teamwork and collaboration, diversity, leadership, creativity and innovation and ethics and social responsibility. And those skills, they said, are more important than ever "because of our increasingly complex knowledge and technology-based global economy." At all educational levels, the applied skills trumped the basic knowledge skills, although high school graduates are ill-prepared for entry-level jobs even in that area. And nearly three-fourths of employers said those young people are lacking in professionalism, work ethic, effective work habits, working productively with others and workload management.”

Taken from: <http://www.wfcresources.com/Work-lifeClearinghouse/UpDates/ud0046.htm>
 On February 4, 2008

Thinking Skills Resources

The Foundation for Critical Thinking - <http://www.criticalthinking.org/>

“The Foundation and Center for Critical Thinking aim to improve instruction in primary and secondary schools, colleges and universities. We offer conferences and professional development programs, emphasizing assessment, research, instructional strategies, Socratic questioning, critical reading and writing, higher order thinking, quality enhancement, and competency standards.”

Dimensions of Critical Thought –

<http://www.criticalthinking.org/resources/TRK12-strategy-list.cfm>

This page lists lesson plans for varying grades as well as affective and cognitive strategies for developing critical thinking skills

Socratic Questioning Techniques –

http://www.i-learnt.com/Thinking_Socratic_Questioning.html

“When we ask questions we are often attempting to encourage students to reflect on their understanding. Two questions arise from this desire

- 1) How can we best frame the question such that it will encourage discussion and reflection rather than students justifying their present point of view or knowledge?
- 2) What is the role of the teacher when students are using online discussion groups?”

Bloom’s Taxonomy - http://projects.coe.uga.edu/epltt/index.php?title=Bloom%27s_Taxonomy

“Bloom's Taxonomy is a multi-tiered model of classifying thinking according to six cognitive levels of complexity. Throughout the years, the levels have often been depicted as a stairway, leading many teachers to encourage their students to ‘climb to a higher (level of) thought.’”

Higher Order Thinking Skills -

<http://www.northerngrid.org/ngflwebsite/hots/introductiontohots/learning.htm>

Don Passey, Senior Research Fellow at the Department of Educational Research, Lancaster University has produced an overview of Higher Order Thinking Skills.

Rigor and Relevance - <http://www.iowa.gov/educate/content/view/673/1024/>

This site from the Iowa Department of Education, reports the results from a study on how to improve rigor and relevance in secondary schools.

Springboard – <http://professionals.collegeboard.com/k-12/prepare/springboard>

From College Board – a program to help prepare students for AP and college-level classes

International Baccalaureate - <http://www.ibo.org/>

A United Nations program currently used in six PSD schools that “help develop the intellectual, personal, emotional and social skills to live, learn and work in a rapidly globalizing world.”

Future Problem Solving – <http://www.fpsp.org/>

The Future Problem Solving Program International (FPSPI) engages students in creative problem solving. Founded by creativity pioneer, Dr. E. Paul Torrance, FPSPI stimulates critical and creative thinking skills and encourages students to develop a vision for the future.