

Critical Thinking Skills

It is unrealistic to fill students with facts without showing them how to think about the facts, how to comprehend, compare, and evaluate ideas and information. This could be accomplished through Critical Thinking, which is:

“ . . . the examination and testing of suggested solutions to see whether they will work.” Lindzey, Hall and Thompson, 1978.

“ . . . deciding rationally what to or what not to believe.”
Norris, Stephen R. “Synthesis of Research on Critical Thinking.” *Educational Leadership*, v 42, n 8, May 1985. 40-45.

Suggested Web Sites

Teaching and Self-Teach Material

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

This Web site relates to most of Dr. de Bono’s work in the teaching of “thinking tools,” lateral thinking, and the communications framework. The information contained here is pertinent to people of all ages.

Review of Research Studies

<http://www.nwrel.org/scpd/sirs/> (Index page)

<http://www.nwrel.org/scpd/sirs/6/cu11.html>

This summary is based on a review of 56 Critical Thinking documents. A total of 33 of these are reports of research studies or reviews. The other 23 are descriptive, theoretical, or guidelines documents or are concerned with research in areas other than the effectiveness of programs and practices.

The National Center for Teaching Thinking

“Lessons and Articles”

<http://www.nctt.net/>

The National Center for Teaching Thinking is an educational service organization providing workshops, staff development programs, and resources for schools and colleges interested in incorporating an emphasis on critical and creative thinking into their curriculum.

Questioning for Quality Thinking and Steps to Extend Student Thinking

http://ed-u-tech.net/models/faculty/minor/Critical_Thinking.htm

Written in Questioning for Quality Thinking using *Bloom’s Taxonomy of Learning Opportunities*. Provides “Steps to Extend Student Thinking” in the classroom.

Career Activity File — Employability Skills

Critical Thinking (continued)

The Center for Critical Thinking

<http://www.criticalthinking.org/k12/k12class/trc.html>

The Center for Critical Thinking has created a wealth of information including instructional guides and lesson plans to help educators implement Critical Thinking in every aspect of their teaching.

Detective Fiction: Focus on Critical Thinking

<http://www.cis.yale.edu/ynhti/curriculum/units/1995/1/95.01.01.x.html>

Literature is an excellent source of instruction in critical thinking skills because it encourages the verbal exchange of ideas which develops thought processes. This curriculum unit presents the literary genre of detective fiction to entice, motivate, and instruct sixth-grade students. It will present a “whole-learning” approach, focusing on improving the critical thinking skills of students through the use of the mystery novel.

Holistic Critical Thinking Scoring Rubric

<http://www.insightassessment.com/HCTSR.html>

http://www.insightassessment.com/pdf_files/rubric.pdf

The use of the rubric by learners and teachers facilitates understanding of critical thinking, the use of the language of thinking, and focus on the skills and habits of mind that characterize a person who uses reasoned judgment to problem solve and to make decisions about what to do or what to believe.

Creativity, Problem Solving, Critical Thinking Lesson Plans and Resources

<http://www.cloudnet.com/~edrbsass/edcreative.htm>

The sites listed below provide lesson plans and resources for promoting problem solving, creativity, and critical thinking.

Games and Puzzles

<http://www.kcmetro.cc.mo.us/longview/ctac/toc.htm>

Rock or Feather: A Critical-Thinking Activity

<http://sde.state.ok.us/home/defaultie.html>

Click on the “Site Index” link on the left of the main page, then locate “Guidance and Counseling.” Click on “Activities.”

A simple activity can reveal much about the students you work with each day. Students make and defend their choices in this activity, called “Rock or Feather?” Are you more like a rock or a feather? summer or winter? the city or the country? Which word in each of those word pairs best describes you? your personality? your dreams? You have to choose one — the one that describes you the best — and you have to be able to explain why you made the choice.

Critical Thinking (continued)

Helping Children Analyze Thinking

One set of concepts children need to learn in order to take thinking apart (i.e., analyze it) is the elements of reasoning. We take our thinking apart to find problems in our thinking — and fix them.

Elements of reasoning include:

- Purpose of the thinking.
- Questions we are trying to answer.
- Information we need to answer the question.
- Inferences or conclusions we are coming to.
- Concepts or key ideas we are using in our thinking.
- Assumptions or ideas we are taking for granted.
- Implications and consequences of our thinking.
- Points of view we need to consider.
(Example: What am I looking at? How am I seeing it?)

Used with permission from Critical Thinking Consortium, Dr. Linda Elder at <http://www.criticalthinking.org>

Winner of the Future Problem-Solving Program Slogan Contest – Middle Division

“Future Problem Solving: Where ordinary problems are changed into extraordinary solutions.”

T. Milko, Holy Family Regional School, Rochester, Michigan

Critical Thinking (continued)

A Checklist for Reasoning

1. All reasoning has a purpose.

- Take time to state your purpose *clearly*.
- Distinguish your purpose from other purposes.
- Check periodically to be sure you are sticking to your purpose.
- Choose purposes you can actually achieve.
- Recognize when other people have a different purpose from your purpose.

2. All reasoning is an attempt to figure something out, to settle some question, or solve some problem.

- Take time to *clearly* and *precisely* state the question you are trying to answer.
- Express the question in several ways to *clarify* its meaning.
- Break a complex question into sub-questions.
- Identify whether the question has one right answer, is a matter of mere personal opinion, or requires reasoned judgment.

3. All reasoning is based on assumptions.

- Figure out what you are taking for granted. In other words, *clarify* your assumptions.
- Determine whether what you are taking for granted is *justified*.

4. All reasoning is done from some point of view.

- Figure out what you are looking at and how you are seeing it. In other words, fill in these blanks: “I am looking at _____. And I am seeing it in the following way _____.”
- Figure out other *relevant* viewpoints or other ways of looking at the thing you are considering.
- Figure out the strengths and weaknesses of your way of looking at the situation.
- Figure out the strengths and weaknesses of other ways of looking at the same situation.
- Try to be fair-minded in evaluating all points of view.

Critical Thinking (continued)

A Checklist for Reasoning (continued)

5. **All reasoning is based on information and evidence.**
 - Gather information that is *relevant* to your question.
 - Make sure all your information is *accurate*.
 - Make sure you have *sufficient* information to answer the question.
 - Search for information that opposes your position as well as information that supports it.

6. **All reasoning is expressed through, and shaped by, concepts and ideas.**
 - Identify key ideas and explain them *clearly*.
 - Consider different concepts or different ways of defining concepts.
 - Make sure you are using concepts with care and *precision*.
 - Use concepts the way educated persons would use them.
 - Notice when people misuse concepts in order to get you to do something they want you to do.

7. **All reasoning contains inferences, interpretations, and conclusions.**
 - Make sure your inferences are *logical* in the situation.
 - Figure out whether there are other possible inferences you might make.
 - Figure out the assumptions that are leading to your inferences.
 - Make sure you are *accurately* or *logically* interpreting the situation.

8. **All reasoning leads somewhere or has implications and consequences.**
 - Think through the *logical* implications of your decisions.
 - Search for negative as well as positive implications.
 - Consider all possible consequences.

Critical Thinking (continued)

**Analyze the Parts of Thinking
of a Character in a Story**

Complete the following statements about a character in the story entitled _____
_____.

1. The most important problem the main character faces in the story is . . .
2. The main purpose of the main character in the story is . . .
3. The most important information the main character uses in his or her thinking in the story is . . .
4. The main concepts or ideas the main character uses in his or her thinking are . . .
5. The main assumptions the main character makes (the things he or she takes for granted) are . . .
6. The main conclusions (or inferences) the character comes to is . . .
7. The main consequences of the main character's behavior are . . .
8. The point of view of the main character: She or he was looking at _____
_____ and sees it _____
_____.

Career Activity File — Employability Skills

Critical Thinking (continued)

Mission Impossible

Activities

Carlos, Jessica, Tamika, Jacob, Lajuan, and Allison are signing up for programs at their local *CareerTech* center. Each student chooses a different class. Using the clues below, figure out which students are enrolling in which programs.

	Graphic Comm.	Auto Technician	Horticulture	Marketing	Health & Medical Occ.	Law Enforcement
Carlos						
Jessica						
Tamika						
Jacob						
Lajuan						
Allison						

1. Allison and Tamika like to work outside.
2. Jacob asked the auto mechanic student for advice on his car.
3. Tamika and the horticulture student enrolled in English together.
4. Jessica, Lajuan, the marketing student, and the health care student carpool on Thursday.
5. Lajuan doesn't know a spark plug from a fuel injector.
6. Jacob can't stand hospitals.
7. Jessica helps her father change the oil in his car.
8. Lajuan and Jacob ate lunch with the law enforcement student.
9. Tamika enjoys watching television shows on criminal investigations.

Related Subjects

Math
Language Arts

National Career Development Guidelines

Competency IX
Understanding how to make decisions.

Suggested Oklahoma P.A.S.S. Concept

Elementary
Critical Thinking

Used with permission from the Ohio Career Development Program, Ohio Department of Education

Career Activity File — Employability Skills

Critical Thinking (continued)

What Position Should They Play?

Activities

As you read the description of each of the following workers, use the chart below to determine the occupation that connects most closely with the person's interests, personality traits, skills/abilities, and work habits. Determine the job for which each of the following workers is best suited. Then write the name of that occupation on the blank after the worker's name.

1. Tiffany enjoys working with people, and she is very outgoing. She likes to help others, and she is dependable. She likes keeping up with the latest styles.
2. Jerry enjoys fixing things. He is quiet, and he likes to work with his hands. He likes job security and enjoys working with tools. He is good at math.
3. Michelle likes to solve problems, and is very curious. She is able to stick to a problem and is able to concentrate for long periods. She enjoys figuring out how things work.
4. Casey loves art and is extremely creative. She is sensitive to details, and she likes to create new things. She likes to use her imagination, and she likes to work alone.
5. Ryan prefers organized tasks that remain the same rather than changing every day. He is careful and responsible with good verbal and writing skills. He likes to be supervised closely but fairly.
6. Maria likes to direct others. She is independent and responsible with a flair for numbers. She likes to feel pride in her accomplishments, and she wants a job that pays well.

	Drafter	Biologist	Commercial Artist	Cosmetologist	Business Executive	Cashier
Interests						
Personality Traits						
Skills/Abilities						
Work Habits						

Tiffany _____ Casey _____

Jerry _____ Ryan _____

Michelle _____ Maria _____

Related Subjects

Math
Language Arts

National Career Development Guidelines

Competency IX
Understanding how to make decisions.

Suggested Oklahoma P.A.S.S. Concept

Middle School/Junior High
Critical Thinking

Used with permission from the Ohio Career Development Program, Ohio Department of Education

Critical Thinking (continued)

How To . . .

Activities

This is a 30-45 minute activity in which students must write concise instructions about how to complete a process. Divide the class into groups of 3 to 4 students, depending on the size of the class. Give each group a process, written on a 3 x 5 card or slip of paper. They must write a set of instructions. Examples of processes you may want to use include how to tie a tie, how to lace a shoe, how to reproduce a picture without looking at the picture itself, how to make a peanut butter and jelly sandwich, etc. Other processes may certainly be used, but there should be as many processes as groups to avoid repetition of the same process. Once the groups are given their tasks, the members of each group must collaborate in writing a set of concise, yet complete, instructions for completing their process (10-15 minutes). After the students are finished writing, give each group a set of instructions from another group. Now the fun begins! One by one, each group will attempt to complete the task described by another group. The process must be completed using only the instructions written down. No other communication is allowed!

Evaluation

The students will be measured by how easily the group performing the process accomplishes the task.

Materials/Supplies

- 3 x 5-inch notecards or slips of paper
- materials for “how-to” — may be items found in the classroom such as a shoe and lace, makeup, cell phone, etc.
- pen or pencil

Related Subject

Language Arts

National Career Development Guidelines

Competency IV

Understanding the relationship between educational achievement and career planning.

Suggested Oklahoma P.A.S.S. Concept

High School

Critical Thinking