

# Teaching Critical Thinking

Critical thinking is:

- “Seeing both sides of an issue.” — Daniel Willingham
- “An ability to use reason to move beyond the acquisition of facts to uncover deep meaning.” — Robert Weissberg
- “A reflective and reasonable thought process embodying depth, accuracy, and astute judgment to determine the merit of a decision, an object, or a theory.” — Huda Umar Alwehaibi
- “Self-guided, self-disciplined thinking which attempts to reason at the highest level of quality in a fair-minded way.” — Linda Elder
- Not jumping to conclusions based on limited and/or unreliable data.
- It requires practice.
- It’s thinking about thinking!

“The highest form of critical thinking? A person disagreeing with her/himself.” This acknowledges the importance of self-doubt. In other words, to model critical thinking for students, teachers need to be openly and comfortably uncertain.

## What do critical thinkers do?

1. Understand the logical connections between ideas.
2. Identify, construct, and evaluate arguments.
3. Detect inconsistencies and common mistakes in reasoning.
4. Solve problems systematically.
5. Identify the relevance and importance of ideas.
6. Reflect on the justification of one’s own beliefs and values.

Video: Evan Stoudt is a maths teacher from New Orleans who creates opportunities for Critical Thinking by making purposeful errors during his board work so that students have the opportunity to detect inconsistencies and then defend their analysis.

This scenario aligns with Lau’s #3 (detect inconsistencies and common mistakes in reasoning), and also #6 (reflect on the justification of one’s own beliefs and values).

**YOU DON’T HAVE TO DO ALL THESE 6 THINGS AT ONCE!** You may just want to look at how to make connections between whether ideas in a text are speculations or whether they are from evidence and reasoning.

Critical thinking activities aim to get students to focus on how they and ultimately other people use thinking and reasoning in order to ground beliefs, form judgments, make decisions and question knowledge. The above questions are a break-down of one way to chunk this information/skills to help students but always remember the bigger picture....We are practicing these skills in order to cope with the overwhelming volume of information we are exposed to and to be able to shape our ideas about the world around us.

One idea to use in your classroom is a **Thinking Map** to analyse arguments.

**Ideas to try in your classroom:**

**Toulmin Model of Argumentation – see handouts**

This model is a lot like a debate. Arguments are organized around a proposition into either a pro (agree) or con (disagree) with the proposition. Arguments that deal directly with each other are placed side by side in a pro/con table.

This can be simplified for middle school students into 3 sections:

- 1) Claim: answers the question “what do I want to prove?”
- 2) Grounds: answers the question “what evidence do I have to go on?”
- 3) Warrant: answers the question “how do I get from evidence to claim?”

**Pro/Con Table teaching activities – see handouts**

Additional resources:

Fisher, A (2011). *Critical Thinking: An Introduction (2<sup>nd</sup> Edition)*. Cambridge University Press, Cambridge.

Karbach, J. (1987). Using Toulmin’s Model of Argumentation. *Journal of Teaching Writing*. 81-91.

Matthews, R & Lally, J (2010). *The Thinking Teacher’s Toolkit: Critical Thinking, Thinking Skills and Global Perspectives*. Continuum International Publishing Group, London.

<http://www.procon.org/view.background-resource.php?resourceID=001465>

[https://www.uvm.edu/~asnider/IDAS\\_2011\\_CD/Teachers/Materials%20for%20Parliamentary%20Debate/debatabase%20pdf.pdf](https://www.uvm.edu/~asnider/IDAS_2011_CD/Teachers/Materials%20for%20Parliamentary%20Debate/debatabase%20pdf.pdf)

### Critical Thinking Activity :Because they were worth it? Research finds Neanderthals enjoyed makeup.

You may need to give your class some background info on Neanderthals or have them look it up on the internet before reading through this. It would be better for senior students.

- 1) Read through this article which was published in the journal *Proceedings of the National Academy of Sciences*, 2010.
- 2) General Discussion:
  - a) What do you know about Neanderthals?
  - b) Where/how did you find out about them? How reliable is your knowledge?
  - c) What sort of problems are there in forming judgments about conditions in the world 50,000 years ago?
- 3) Class discussion or written task, ask students to consider:
  - a) Which parts of the information given in the text are known, which are speculated, and which are interpretations supported by reasoning?
  - b) The reliability of different sources of information (newspapers, academics etc) and how their reliability might affect our judgment.
  - c) Is it important that the two archeological digs show similar findings?
  - d) Is there enough evidence in this article to change your view of Neanderthals?
- 4) Types of reasoning
  - a) Is this passage an argument?
  - b) What sorts of reasoning does this passage contain?
  - c) Why does it matter what sorts of reasoning are used?
- 5) Evaluating the strength in reasoning
  - a) Who made the link from 'sparkly pigment' to 'makeup', the scientists or the headline writers? How strong is this inference?
  - b) To what extent is wearing makeup and jewellery evidence of intelligence? How much would your judgment change if you were thinking about modern people rather than early humans?
  - c) What if someone suggested that the pigment was war paint or used in rituals – would this affect your judgment about whether Neanderthals were 'brutish halfwits'?
  - d) Has the reasoning in the passage convinced you that Neanderthals were 'high minded'? Why?