

# Teaching Critical Thinking

by Dr. Jay L. Wile, Ph.D.

## Qualifications

- Ph.D. in Nuclear Chemistry
- University Professor 1990-1995
- NSF-sponsored scientist with >\$200,000 in research grants
- Published over 30 articles in nationally recognized peer reviewed journals
- Currently writes junior high and high school science curriculum for homeschoolers
- Got interested in homeschooling because of homeschool graduates in my university courses

## Critical Thinking: What's the Big Deal?

People in the US, even well-educated, intelligent people, get scammed all of the time!

- ↳ Environmental extremist propaganda
- ↳ Money-making pyramid schemes
- ↳ Products (like the LAUNDRY BALL) that make ridiculous claims
- ↳ Untrue stories that promote a certain belief or agenda
- ↳ Cults

## What is Critical Thinking?

Critical thinking is a disciplined manner of thought that a person uses to assess the validity of a statement, news story, argument, proposition, etc. It is based on: Asking questions, Examining Evidence, Looking at all sides, Analyzing Assumptions and Biases, and Avoiding Emotion and Personal Desires

**NASA and the “Missing Day”** - An illustration of how to apply critical thinking.

Mr. Harold Hill claims that an Engineering team at NASA was running orbit calculations for the planets in the solar system. They have to do this for the proper placement of satellites. The engineers were running the orbital calculations “back and forth over the centuries” when the computer suddenly stopped and generated an error message, stating that a day was missing in “space time.” This, then, was scientific evidence for the sun standing still for “about a whole day” as reported in the book of Joshua. The calculations indicated that *exactly a day* was missing, however. The rest of the “missing day” comes from 2 Kings, when the sun’s shadow went backwards at the command of Isaiah.

**This story is absolutely false, and ANYONE should be able to figure that out!**

## ASKING QUESTIONS

- ⇒ Why would the scientists run the calculations backwards?
- ⇒ How would the computers know what happened in the past?
- ⇒ Why hasn't this been made public?

### **EXAMINING EVIDENCE**

- ⇒ There is no evidence given in the story.
- ⇒ No references indicating a place you might look for confirmation
- ⇒ No particulars about the orbit calculations.

### **ANALYZING ASSUMPTIONS AND BIASES**

- ⇒ The story starts: “Did you know that the space program is busy proving that what has been called ‘myth’ in the Bible is true”
- ⇒ A “Christian Man” is credited for figuring out what the error message meant and “enlightening” the scientists.

### **AVOIDING EMOTION AND PERSONAL DESIRES**

- ⇒ All Christians would LOVE for this to be true!
- ⇒ Most creationists would LOVE for the irony of evolution-based NASA “proving” the Bible!

### **LOOKING AT ALL SIDES**

- ⇒ If you go to NASA’s website and search on “missing day,” you will find a refutation of the story.
- ⇒ Most reference librarians know this story and how to refute it.

## **How Do We Teach This To Our Children?**

### **Have them learn from history.**

- Read commentaries of past examples of people not thinking critically
- Examine past examples and try to determine what happened

### **Have them examine current controversies.**

- Political Issues
- Science issues

### **Encourage them to be skeptical of people’s and products’ claims.**

### **Use curriculum that encourages critical thinking.**

## **Piltdown Man: Evolutionists not thinking Critically**

This was a poorly-faked fossil that was supposed to be a transitional form from apes to humans. The commentaries I have read indicate that the forgery was VERY poor, but evolutionists bought it anyway. Speculations of why it became accepted can be found in:

- Steven Gould writes about it in his book, *The Panda's Thumb: More Reflections on Natural History*. New York: Norton, 1980. pp. 108-124.
- A comprehensive website on the subject is <https://www.bbvaopenmind.com/en/science/scientific-insights/the-piltdown-man-the-greatest-scientific-fraud-of-the-20th-century/>

## Y2K Hysteria: An example of Christians not thinking critically

In this situation, there are not a lot of resources (yet) that discuss *why* so many Christians were fooled by the Y2K alarmists, but you can have your student look at both sides of the issue, knowing who was right in the end.

- *The Millennium Bug: How to Survive the Coming Chaos*, by Michael Hyatt, is an example of the alarmist view
- *Y2K: A Reasoned Response to Mass Hysteria*, by David Hunt, is an example of the other side

Have your student read both books and, knowing now who is right, have the student write an essay postulating why people were fooled by the first argument.

## The Environmental Debate: Looking at both sides!

- *An Inconvenient Truth Sequel* by Albert Gore
- *Climate Hustle* by Curran and Morano

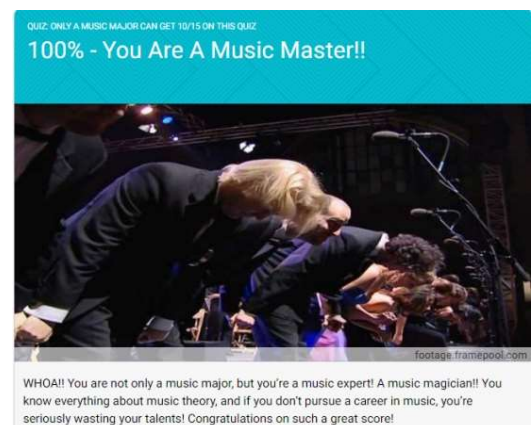
Have your student read a corresponding chapter from each book and write an essay about what he or she thinks is right.

## Evolution: A Study in Scientific Critical Thinking

- *Why Evolution is True* by Jerry Coyne
- *Refuting Evolution* by Jonathan Sarfati

I did this while homeschooling my daughter (with different books). It produced some amazing fruit!

## Encourage Your Children to be Skeptical of Things Found on Social Media!



A teen who plays the piano at my church saw that everyone was posting that they got 100% on the quiz. She was skeptical, so she took it, purposefully missing questions. She still got a 100%.

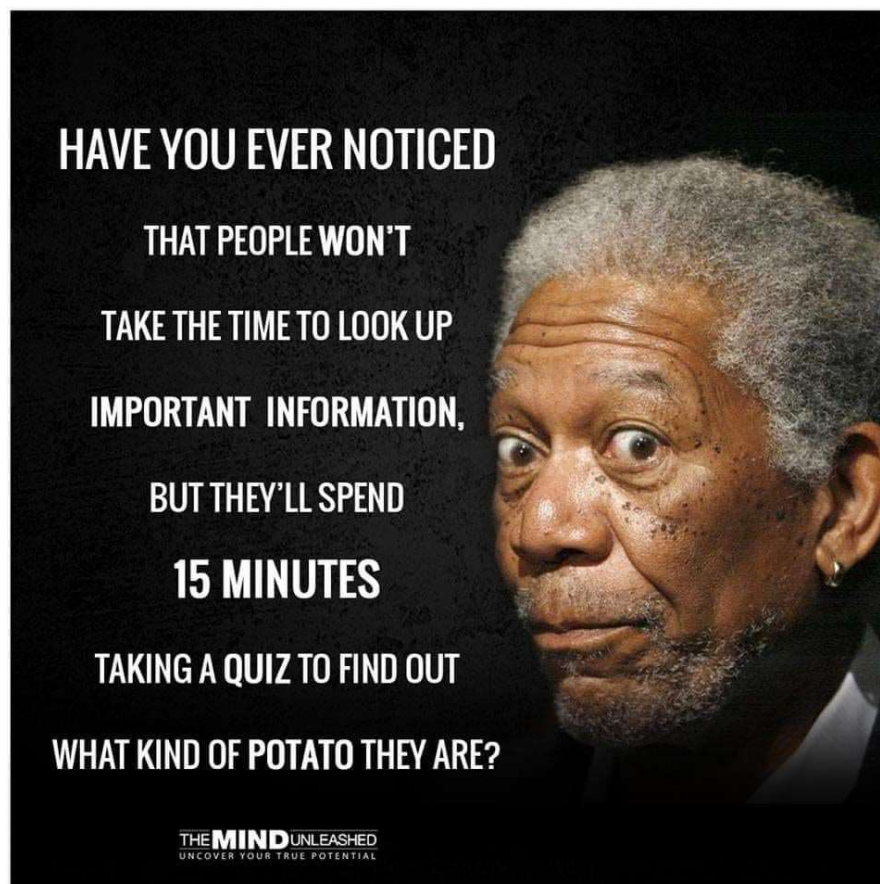
Memes play on your emotions. They are rarely factually correct. You always need to check out such claims.

The fact-checkers are of no help at all.

There's a simple reason for this!

None of this is actually simple!

Even though memes rarely share accurate information, this one does!



### **Curriculum That Encourages Critical Thinking**

***Critical Conditioning*** by Kathryn Stout (Design-A-Study)  
408 Victoria Avenue • Wilmington, DE 19804-2124  
Phone/Fax: (302) 998-3889 • <http://www.designastudy.com/>

This book details reading comprehension skills in a way that encourages critical thinking while you read. A very good book for initially training a student in critical thinking. (Ideal in late elementary or early junior high.)

***Trail Guide to World Geography***

**Cindy Wiggers**

Geography series that adds a critical thinking dimension!

***Building Thinking Skills*** by Critical Thinking Books & Software  
800-458-4849 • fax 831-393-3277 • <http://www.criticalthinking.com/>

Primary (preK-grade K)

Beginning (grades K-1)

Book 1 (grades 2-3)

Book 2 (grades 4-6)

Book 3 (grades 7-12)

***Developing Critical Thinking Through Science*** Main & Eggen

Book One (grades 1-3)

Book Two (grades 4-8)

***History Revealed*** by Diana Waring

Three books that cover world history using a variety of learning styles. Lots of critical thinking is involved.

**Cornerstone Curriculum (David Quine)**

2006 Flat Creek • Richardson, Texas • 75080972-235-5149

<http://www.cornerstonecurriculum.com>

Good Math (especially K-8), Music, Arts, and World view curriculum. Critical thinking is stressed throughout.

**My Science Curriculum** (of course)