A Sample Critical Thinking Assignment

Science and Scientific Claims

Assignment (10 pts):

Read the attached article, "106 Science Claims and a Truckful of Baloney," by William Speed Weed. He is a freelance writer and regular contributor to *Popular Science* magazine. He lives in San Francisco. This article is found in *The Best American Science and Nature Writing 2005,* published by Houghton Mifflin.

Observe your surroundings and compile a list of 10 scientific claims that you encounter. They can be from food packaging, the internet, billboards, television commercials, shampoo bottles, etc. Describe each claim, its source, and provide an evaluation of each claim as bogus/false, true, incomplete, misleading, or whatever is an appropriate assessment (as is done in the article). Do some internet (or other) research to evaluate each claim. Be careful to use reliable sources, e.g. peer-reviewed journal articles, fine print, text books, doctors, scientists, and *reliable* internet sources. Cite all sources, please.

Note: As with the other writing assignments, you'll be graded on the: (1) thoroughness of your answers (in this case, your description and evaluation of each claim), (2) writing clarity, and (3) proper use of citations.

Please drop off this assignment into box X in Room Y on Monday, DATE.

Skills of Critical Reading and Thinking and Rules of Evidential Reasoning

Table 1. Skills involved in critical thinking (Wade, 1990).

Skills of Critical Thinking	**Simple Techniques**
1. Ask questions: be willing to wonder.	Start by asking "Why?"
2. Define the problem.	Restate the issue several different ways so it is clear.
3. Examine the evidence.	Ask what evidence supports or refutes the claim. Is it reliable?
4. Analyze assumptions and biases.	List the evidence on which each part of the argument is based. The assumptions and biases will be unsupported and should be eliminated from further consideration.
5. Avoid emotional reasoning.	Identify emotional influence and "gut feelings" in the arguments and exclude them.
6. Don't oversimplify.	Do not generalize from too little evidence.
7. Consider other interpretations and evaluate them with evidential reasoning.	Make sure alternate views are adequately evaluated.
8. Tolerate uncertainty.	Be ready to accept tentative answers when evidence is incomplete, and new answers when further evidence warrants them.

Table 2. Rules for evidential reasoning (Lett, 1990), or a guide to intelligent living and the scientific method (Lipps, 1999).

Rules for Evidential Reasoning	**What to Do**
1) Falsifiability	Conceive of all evidence that would prove the claim false
2) Logic	Argument must be sound
3) Comprehensiveness	Must use all the available evidence
4) Honesty	Evaluate evidence without self-deception
5) Replicability	Evidence must be repeatable
6) Sufficiency	A. Burden of proof rests on the claimant. B. Extraordinary claims require extraordinary evidence. C. Authority and/or testimony is always inadequate.

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