

## **“Give Me 45 Seconds and an Active Internet Connection...”**

Dr. Katz 2008-2009

Education today is very different than when I was a student. The need to memorize facts, dates, and equations has become essentially non-existent due to the unlimited electronic resources that you have at your disposal. My chemistry teacher had me memorize the periodic table in its entirety, albeit smaller than it is today; you have the ability to program one into your calculator! Of course there are certain facts you need to know to get along in life; for example, it is certainly in your best interest to know that there are four quarters in a dollar. Today, if you give me “45 seconds and an active internet connection,” I could recreate most of my high school and college knowledge base.

The real challenge in life these days is to be a great critical thinker. To this end, we have started to investigate what it means to think critically and why this is important. But to simply know what this means and why this is important is not enough. We also need to educate ourselves on what is going on in the world around us! Forming educated opinions about important issues and having an open mind to both sides of that issue requires that we KNOW both sides. One could argue that our opinions will not be valid if we haven't thought them through clearly and investigated BOTH sides of an issue.

So what does this mean? Well, as I already mentioned, there are endless resources out there. Are they all of value to us? Recall the CTQ about states of matter...we saw evidence of three, seemingly reputable websites with three clearly different statements about what should have been an easy answer to a basic scientific question. When we get to controversial issues such as nuclear waste, stem cell research, and animal testing, how many more websites do you think you will find!? Much of the information you will find is outdated, some is meant for an audience with limited capacity (elementary school vs. graduate school) and some is simply incorrect. It is your job as the researcher to discern which is which. Much of the information you see on the web is generated from society's fear of scientific advancement, yet some of it is perfectly valid and unbiased. Conversely, not all of the scientific research you see published is valid. Sometimes you simply have to do more research. Arguably, the more consistent evidence you have to support a particular claim, the more likely it is to be true. Keep in mind, there are many legitimate two-side arguments when it comes to these controversial issues. Your job is to be able to defend BOTH sides and THEN decide your opinion.

Science seems to bring out the “controversial but legitimate” two-sided arguments and the internet is the best resource for reputable “one-sided” web pages. For example, Greenpeace is well known for its activism in the environmental lobby (<http://www.greenpeace.org/usa/campaigns/nuclear>), while the Nuclear Regulatory Commission (<http://www.nrc.gov/>) can likely give you study after study showing you why certain nuclear power plants benefits far outweigh its detriments. These are genuine, one-sided perspectives which have opposite but compelling arguments. Here are some others: *Irradiating food; Water treatment plants; Fertilizers; Fuel efficient vehicles; Animal testing; Stem cell research; Pesticides; Hydroelectric power; Wind power; Immunizations; Cloning; Artificial sweeteners; Abortion; Evolution vs. Creation; etc.* It is possible that you have many you can think of that I haven't even mentioned.

Your *preliminary* assignment is to find websites that support both sides of any current scientific controversy, accurately reference the sources, write a brief paragraph or two describing each side, and a paragraph which clearly indicates your opinion of the issue based upon your understanding of both sides. This is not meant to be a long paper; it is a short opinion paper based upon your good investigation and critical thinking. You may choose any science topic as long as you haven't used it before and you get it approved by me. You must obtain and cite at least 2 sources for each “side” (minimum 4 sources) and it must be clear from your discussion (citations are a good way to do this, but there are other ways) that all sources were utilized.