NAME \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Integrated Chemistry and Living Sciences

When researching, it is fine to begin with Wikipedia, but never use it (or any other site) as your only source.

Strive to find authoritative sources. A .gov site is always terrific. A .edu site *may be terrific*, as long as you can assure yourself that it is **not a posted student paper**. Avoid .com and/or .org sites, unless you can ascertain their associations with reputable agencies. Some .com sites are terrific, but some are trying to sell products or services, thus they may not be great for objective information. **At all costs avoid *Answers.com, About.com* and all others which ask the general population to respond.** NEVER, EVER use a blog.

There are at least two different means by which you may search the web, for chemical, biological or biochemical issues.

➊You can type in the name of the process or chemical and go to an authoritative site (such as the ones I have included on the next page). Of course, not every site will list the topic you may want to research. Also, for these small I/PODs you need two separate sources at least. This technique is efficient though.

➋A second technique is to type into any search engine, focused search questions (see below). This technique often leads to surprises and some interesting issues. You may come across sites, that while not worthy of research per se these sites may raise interesting, exciting issues. Keep in mind, in any "report" you are trying to get to "who, what, where, when, why, to what extent or how much"

For example: When trying to research an element: e.g. *chlorine* Go to Web Elements of try searching by typing in:

 a) what type/category of element is chlorine

 b) reactions chlorine

 c) compounds chlorine

 d) chlorine

 …. and scan the results page for .gov, .edu sites.

For example: When trying to research a compound (or a mixture): e.g. *saccharine* Try searching by **typing in:**

1. saccharine structural formula …. (and/or maybe flip over to *images*)
2. saccharine chemical activity
3. chemical reactions involving saccharine / synthesis of saccharine
4. alternative names saccharine
5. current research saccharine
6. what is saccharine
7. health effects saccharine
8. biological effects saccharine
9. allergic reactions saccharine
10. benefits saccharine
11. uses saccharine
12. sources saccharine
13. MSDS saccharine (Material Safety Data Sheet [msds])

**Or get much more specific.... Try typing in:**

1. is saccharine an organic compound (inorganic compound)
2. bonds (bonding of) in saccharine
3. which foods use saccharine
4. is saccharine a polar molecule (water soluble) or : is saccharine nonpolar molecule
5. is saccharine an acid (base, toxin, carbohydrate, protein, lipid, carcinogen, pesticide, antioxidant...)

Turn this over and go on....

Below you will find a few authoritative sites, to help you research elements, compounds, mixtures, and/or chemical processes. This is not definitive ...just a starting point. Each link is “live” and right clicking the link will open it.

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| --- | --- | --- |
| **Institute** | **Links**a) actual b) tinyurl (provided when deemed helpful) | **Comments** |
| American Chemical Society | <http://portal.acs.org/portal/acs/corg/content>[**http://tinyurl.com/54tlbu**](http://tinyurl.com/54tlbu) | This site is not has helpful as some of the others. However, the strongest section, "molecule of the week" is quite good. |
| Centers for Disease Control & Prevention | <http://www.cdc.gov/> | A very good site overall for medical issues. |
| Howstuffworks | <http://www.howstuffworks.com/> | Terrific for any technology / industrial process |
| Hyperphysics |  <http://hyperphysics.phy-astr.gsu.edu/hbase/hph.html>[**http://tinyurl.com/jf7t**](http://tinyurl.com/jf7t) | Great tutorial and background information, only.**Not great** for individual processes or chemicals |
| Linus Pauling Institute | <http://lpi.oregonstate.edu/infocenter/>[**http://tinyurl.com/2unnu5h**](http://tinyurl.com/2unnu5h) | Great place to start on biomedical &/or nutritional issues, such as vitamins and minerals. |
| National Cancer Institute | <http://www.cancer.gov/> |  |
| National Institute of Drug Abuse | <http://www.nida.nih.gov/nidahome.html>[**http://tinyurl.com/6d4qjyb**](http://tinyurl.com/6d4qjyb) | Very informative re: illicit drugs |
| National Institutes of Health | <http://www.nih.gov/> | Name it... They cover so many areas. |
| National Institute ofMental Health | <http://www.nimh.nih.gov/index.shtml>[**http://tinyurl.com/6xxgo2**](http://tinyurl.com/6xxgo2) | This provides a nice blend of medicine, chemistry, neurology, sociology ... |
| US National Library of Medicine | <http://www.nlm.nih.gov/>[**http://tinyurl.com/zu4jq**](http://tinyurl.com/zu4jq) | This can get overwhelming ... but a nice source |
| United States Geological Service | <http://www.usgs.gov/> | I love these folks ... everything from biophysical / physical chemistry to the names of aggregations of animals. |
| University of Colorado | <http://www.colorado.edu/physics/2000/index.pl?Type=TOC>[**http://tinyurl.com/ynhwx7**](http://tinyurl.com/ynhwx7) | Very good background information, only.Not great for individual processes or chemicals |
| Chemistry Explained | <http://www.chemistryexplained.com/index.html> [**http://tinyurl.com/65nu952**](http://tinyurl.com/65nu952) | Another solid source. The bibliographies at the end of each article are excellent. |
| The Brain at McGill | <http://thebrain.mcgill.ca> | Just... wow ... multiple levels of expertise depending upon your interest, all about the brain. |
| WebMD | <http://www.webmd.com/> | This covers the basics of medical issues. |
| The Medical Biochemistry Page | <http://www.themedicalbiochemistrypage.org/>[**http://tinyurl.com/mmhv98r**](http://tinyurl.com/mmhv98r) | A bit complex, but a wonderful source for biochemistry. |

Research ideas:

Chemicals:

1. aluminum oxide
2. calcium sulfate
3. sodium fluoride
4. lithium carbonate
5. resveratrol
6. sodium lauryl sulfate
7. oxytocin
8. vasopressin
9. dopamine
10. ethanol
11. bis-phenol A
12. niacin
13. vitamin D
14. folic acid
15. lactose/lactase
16. sodium stearate
17. acetylsalicylic acid
18. penicillin
19. tetracycline
20. lipitor
21. insulin
22. ammonia
23. methane
24. water
25. testosterone
26. esterdiol
27. aromatase
28. epinephrine
29. serotonin
30. rare earth metals
31. noble gases
32. resveratrol

Chemical Processes / Environmental Issues / Biochemical Processes

1. fermentation
2. batteries / electrochemical cells
3. photosynthesis
4. changing leaf color
5. chemical foundations for environmental concerns (climate change, petroleum consumption, recycling, air quality, water quality, deforestation, urban sprawl)
6. desertification
7. ocean acidification
8. recycling plastics
9. water purification in Mt. Kisco, Danbury, Waterbury, home/well water treatment
10. recycling sewage water
11. sewage treatment (physical means and chemical e.g. flocculation, chlorination)
12. acid precipitation / acid deposition
13. alternative energies (solar panels, wind turbines, tidal turbines, graphene, geothermal, nuclear)
14. disposal of prescription drugs
15. nervous system transmission (hormonal / neuronal)
16. chemical foundations / treatments for diseases / conditions such as: diabetes mellitus, diabetes insipidus, anemia, osteoporosis, asthma …etc
17. biochemical effects of yo-yo dieting
18. physiological changes to your body, due to exercise (great site: <http://www.chemistry.wustl.edu/~edudev/LabTutorials/Buffer/Buffer.html>)