Think about the kind of information you need and decide where to look.

- Definitions
- A few basic facts
- Short, general introduction
- In-depth overview of broad topic
- Deep discussion of very specific idea
- Many detailed facts or statistics
- Format or presentation of information – text, maps, charts, photos, video, audio, art

- Use encyclopedias, atlases, government or educational websites for brief and basic information and facts. For example:

  http://www.tsunami.noaa.gov/tsunami_story.html

  Earth Science: Earth's Weather, Water, and Atmosphere (a specialized encyclopedia available in the library and online)

- Use books and e-books for broad or in-depth information (and textbooks can be good for basic information, too). For example:

  http://oceanworld.tamu.edu/resources/oceanography-book/contents.htm

- Use articles from newspapers, magazines, news web sites for current and popular topics. For example: (MLA style citation)

  "Psychic Paul? Scientists see 8-on-8 illusion." Telegraph [Calcutta, India] 12 July 2010. Infotrac Newsstand. Web. 20 Nov. 2013.

- Use academic (scholarly, peer-reviewed) journals, for in-depth, original research, often on very specific topics. For example: (APA style citation)

  Igarashi, Y. Y., Kong, L. L., Yamamoto, M. M., & McCreery, C. C. (2011). Anatomy of historical tsunamis: Lessons learned for tsunami warning. *Pure & Applied Geophysics, 168*(11), 2043-2063. doi:10.1007/s00024-011-0287-1

Think about ways to search

What search words should you use? Keywords

- What are the best words to describe your topic?
- Are there synonyms you can use?
- Will broader or more specific words help?

  Octopus (popular name for related species)

  Octopus vulgaris (a specific species)

  Cephalopod (broad term for group that includes octopuses)

- Can a word have different meanings?
- Does the context matter?

  Searching for **San Jose Earthquakes** – finds
  - the shifting of the earth near San Jose
  - San Jose's soccer team

- Don't use connecting words like of, for, about, the … Just use the important words

HINT: the search tool you are using can affect your choice of words and how many to use in a search.

What are good ways to combine words?

Operators are used to combine words

- AND (+) operator: <u>all</u> the search words must be in <u>each</u> document found. They don't have to be together or in the same order they were typed.

  More words with AND = fewer results

  Most online search tools assume AND when you type a space between words

- To keep words together as an **exact phrase**, you can usually use quotation marks, e.g. "tidal waves".
- OR tells the search to find at least one of your keywords. Good for adding synonyms.

  More words with OR = more results

- NOT excludes a word, e.g. earthquakes NOT soccer.

<u>Note</u>: Combining different operators in a single search can be hard to do correctly, and sometimes the order of your words matters.

Besides selecting and combining keywords, how else can you tailor your search?

- Limit by formats (text, images, video); popular or scholarly level; type of site (edu or gov); date; and more
- Restrict your keywords to one part of a document such as the title instead of searching the entire text

HINT: Look for an Advanced Search option to learn about operators and limits in different search tools.

More information at http://www.ccsf.edu/library

Think about the most useful search tools for finding what you need

Search Engines such as: *Google*, *Bing*, *Ask.com*, *DuckDuckGo*

- huge amounts of information
- quality is extremely variable - *anyone can put anything on the web*
- large amounts of information such as current journal articles are not available through search engines at all, or unless you pay for them.

Subject Directories such as: *ipl2, Infomine*

- search pre-selected websites that have been reviewed for quality by experts and librarians.

Library Catalogs such as CityCat at CCSF

- There's still lots of information available in print and audio and video formats, but not on the web!

Periodical Databases include articles from academic journals, magazines, news sources.

- Most content in these is not free on the web.
- Libraries pay for these databases and make them free to their patrons. Examples at CCSF include:
  - **EBSCOHost** covers over 28 databases on all subjects. Examples of journals and magazines included are: *Marine Ecology*, *Marine Geodesy*, *Ocean Dynamics*, *Scientific American*, *Discover*
  - **Gale Powersearch** goes to over 19 databases in all subjects. *Journal of Marine Biology* is included.
  - **Both** EBSCOHost and Gale Powersearch include *Nature*, *Marine Biology*, *Smithsonian*, *Popular Science*, and *National Geographic*
  - **ARTStor** is a database CCSF has that is NOT included in EBSCOHost or Gale Powersearch.
  - **Many more** databases are at ccsf.edu/library
- The San Francisco Public Library gives you access to **JSTOR**, another very good journal article database.

Think about EVALUATING the quality of the information you find

- Is the information up-to-date, or is the time frame appropriate for your topic?
- Is the author an expert in the topic being studied?
- Is the website, journal, magazine from a reliable organization or sponsor?
  - .gov or .edu websites are often good for research
  - .org means non-profit – but these have many different purposes
  - .com means commercial – but many reliable news sources are .com
  - look for an "about" link to find out about the website or organization
- Look for objective info or multiple perspectives. Watch out for bias & subjectivity.
- Are sources or references provided in the document? Are they reliable sources?
- Check for logical arguments and conclusions. Do you see errors or contradictions?
- Is the information the appropriate level?
  - A scientific study published in an academic journal is ideal, but maybe you need a more easily understood summary from a magazine or news report.

http://oceanworld.tamu.edu/resources/oceanography-book/usingtheweb.htm

http://www.ccsf.edu/NEW/en/library/research-help/evaluating-information.html

Evaluation is hard!

- Even government and educational sites or peer-reviewed articles can have errors and bias.
- If you're new to a topic, it's easy to get confused.

So what do you do?

- Use multiple sources to check them against each other and to learn more.
- **Ask your instructor or a librarian for help!**

Think about giving proper credit and avoiding plagiarism by CITING SOURCES

Plagiarism is representing someone else's work as your own. When you do research and use someone else's work, you must give credit to that person, even if you rewrite the information in your own words.

- Choose one standard citation style such as MLA or APA and follow it consistently in your project. *Notice the complete article citation examples on page 1.*
- In your document, use the author's last name and a page or paragraph number to show where the information is from.
- The author's name in your text links to a list of citations that give complete information about a source.
- Citing sources handouts and links to sample papers : http://www.ccsf.edu/NEW/en/library/research-help/citing.html

More information at http://www.ccsf.edu/library