Basics of Literature Searching

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Why search the literature?

- Find out if information from proposed project is already available
- Acquire a broad general background in a given field
- Acquire new ideas for exploration
Basic Types of Literature

- Primary literature – a peer-reviewed written format relaying results of work for the first time to a community larger than the research group itself
- Secondary literature – publications that synthesize and summarize information from the primary literature
Basic Types of Literature

- Tertiary literature – based on primary or secondary sources and aimed at scientists working in different areas from the main topic.

- Gray (or Grey) literature – publications (including electronic) not usually available through ordinary bibliographic routes.
Characteristics of Primary Literature

- Describes original research
- Written in enough detail that work could be reproduced
- Very specific
- May see the terms “We” or “I” used
- Fairly standard format: Intro, Materials and Methods, Results, Discussion and Conclusion
- Possibly difficult to follow if subject not well understood
Examples of Primary Literature

- Many of the American Chemical Society Journals (Journal of the American Chemical Society, Journal of Organic Chemistry, etc.)
- Physics Review Letters – several flavors
- Many other journals in specific areas
- Conference proceedings
- Government reports, patents, dissertations
Characteristics of Secondary Literature

- Summarizes and/or brings together primary literature results in a specific field
- Mostly references primary literature sources
- Authors likely have produced primary literature in the subject field
- Useful for “getting up to speed” in an area one with which one is not overly familiar.
Examples of Secondary Literature

- Review articles (Accounts of Chemical Research, Chemical Reviews, Nature, Science, etc.)
- Could be books
- Monographs, multigraphs (several authors contributing sections)
- Encyclopedias and dictionaries
- Handbooks and data compilations
- Bibliographies
Characteristics of Tertiary Literature

- Written in a more popular style rather than a scientific style
- Do not necessarily include references to the primary literature
Examples of Tertiary Literature

- Science magazines
- Newsletters
- Science articles in newspapers
- Introductory textbooks
- Encyclopedias
Characteristics of Gray Literature

- Limited distribution channels
- Some peer-reviewed, some not
- Typically not produced by commercial publishers
Examples of Gray Literature

- Technical reports
- Preprints
- Business documents
- Government documents
- Symposia
- Unpublished works
- Notes on finding gray literature

(http://www.doncio.navy.mil/iltoolkit/Types_Gray_Lit.htm)
An Approach to Exploring a Topic

- Approach depends upon familiarity with topic. If not familiar with topic, start at the tertiary or secondary level and work towards the primary.
- For example, start with an encyclopedia or book, move to review article and, from there look in the primary literature.