Primary Research Article
- Describes original research, i.e. results of a study appear for the first time in published form.
- The article usually provides the following: an Introduction, Methods (or Materials and Methods), Results, Discussion, References (or Literature Cited).
- Peer-reviewed - this process ensures that other respected scientists ("peers" of the author) have scrutinized the manuscript and that the manuscript's author has appropriately addressed any criticisms made by the referees. Only then will the journal's editor accept the article for publication in the journal.
- Text may indicate dates when manuscript was submitted/received and accepted for publication.
- Some research articles acknowledge their sources of research grants and funding.

Example:

Scientific Review Article
- Its purpose is to provide a comprehensive overview / summary of the research literature on a specific topic. Such an article is sometimes called a “literature review”. Often there will be wording in the article title, in the abstract, or in the first few pages that will indicate that the article is a review.
- Generally cites a very large number of references (eg. 80 or more) in the References list.
- Review articles range from a critical synthesis of previous research that provides new insights into an old question, to less critical summaries of previous works.
- Peer-reviewed. Text may indicate dates when manuscript was submitted/received and accepted for publication.

Example:

General Science Article
- The writing in general science articles is less formal, and sometimes more personal, than in scientific research or review articles. e.g. “Would you be surprised to find bedbugs in your home?”
- The purpose is usually to inform and interest a wide but literate audience.
- These articles can be understood by people unfamiliar with the primary literature on the topic, so are a good starting point for students.
- They are sometimes (but not always) written by scientists.
- The science is typically portrayed in an accurate manner, while complex ideas are simplified and masses of information are summarized concisely.
- Magazines that mainly publish such articles written by scientists include Scientific American, American Scientist, and Natural History.


Science News Article
- Communicates new scientific developments to a broad scientific audience.
- Are sometimes very short, in order to briefly summarize a new study published elsewhere, and comment on why the results are significant.
- Found in a range of publications, from science magazines to scholarly journals (e.g. many scientific journals include their own "news" sections).
- Scientists make use of science news articles to keep abreast of new developments in scientific research, technology, and policy in their own and other fields of science.

Popular Press Science Article (Magazine or Newspaper)

- Explains science in laymen's terms (e.g. Newsweek, Time, The Globe and Mail).
- The average person can read & understand the material even if no scientific training.
- Usually written by journalists.
- Often focuses on the effect on society of scientific discoveries or phenomena.
- Too often, however, the balance in these articles is tipped towards getting the reader's attention rather than relaying an accurate scientific message.
- As a rule, these articles do not include references to scientific studies.
- The articles sometimes include the URLs of websites, to which the public can refer if they have an interest in the topic.
- **Popular press science articles are NOT suitable as scientific references in student papers.**


**Gray literature:** Apart from articles and books, information about ocean sciences can be found in a variety of sources that are known as "gray literature":

- Information produced by bodies such as government departments, agencies, non-profit groups, institutes, or university departments (not published by a commercial publisher).
- These materials can include reports, policy papers, project proposals, conference proceedings, theses, newsletters, and many other types of documents.


**CSE Citation Style**
The citations listed on this handout follow the Council of Science Editors (CSE) citation style. In this style, the journal title is abbreviated (eg. Eur J Cancer). However, to locate the fulltext of an article, you may need to identify the journal’s full title. You can do this by using the ISI Journal Title Abbreviation list (see link on OCEA 1001 library guide):
https://images.webofknowledge.com/images/help/WOS/A_abrvjt.html

**Access to Journals**

**Online**
If Dal has the online version of a journal, you may find a link to it by entering the journal’s full title into one of the following:

1. “Search Library Resources” tabs (select e-Journals tab): libraries.dal.ca
2. Novanet Classic online catalogue: http://aleph1.novanet.ns.ca/F (select Journals/Serials tab at top of screen)

**Print / Paper**
If Dalhousie or another Novanet library has the print version of a journal, you will find a listing for it in the Novanet online catalogue, along with a library location and (depending on the library), a call number that will allow you to find the journal in the library.