

Title: Reading Primary Literature

Reading primary literature is how scientists stay on top of new research, learn about new techniques, and find new areas of research inquiry.

What is primary literature? Primary literature can be journal articles or papers that are published in peer-reviewed journals.*

*Note: new pre-print servers share manuscripts that have not yet been peer reviewed, called pre-prints. Pre-prints can be useful, but since they have not been peer reviewed, there may be glaring errors.

Primary literature is not news articles about journal articles, Tweet threads about articles, Facebook posts, textbooks, etc.

Primary literature articles usually contain the following sections: Introduction, Results, Methods, Discussion.

Even though a journal article may have been peer reviewed and published, the paper may still contain errors, its conclusions may not be supported by the data, or the methodology may not be sound. So, you need to read articles with a critical eye.

How I quickly read with a critical eye:

1. Skim the Introduction so I know the vocabulary, I have enough understanding of the background and the significance.
2. Closely read the Results section, focusing on the figures. For each figure, I ask:
 - a) What were the authors trying to show in this figure?
 - b) How did the authors try to show me that?
 - c) Am I convinced that they showed me that?
 - d) Would/could I have done this experiment differently?
3. I read the Methods section when I need to understand how an experiment was done or when I have a question. Otherwise, I skim it at the end.
4. Closely read the Discussion, focusing on their conclusions, and returning to the figures in the Results to find support.