How to Read Scientific Papers

Much of a scientist’s work involves reading research papers. Because scientific articles are different from other texts, like novels or newspaper stories, they should be read differently. Here are some tips to be able to read and understand them.

1. **SKIM**

   First get the “big picture” by reading the title, key words and abstract carefully; this will tell you the major findings and why they matter.

   - Quickly scan the article without taking notes; focus on headings and subheadings.
   - Note the publishing date; for many areas, current research is more relevant.
   - Note any terms and parts you don’t understand for further reading.

https://www.elsevier.com/connect/infographic-how-to-read-a-scientific-paper
Read the article again, asking yourself questions such as:
- What problem is the study trying to solve?
- Are the findings well supported by evidence?
- Are the findings unique and supported by other work in the field?
- What was the sample size? Is it representative of the larger population?
- Is the study repeatable?
- What factors might affect the results?

If you are unfamiliar with key concepts, look for them in the literature.

3. INTERPRET

- Examine graphs and tables carefully.
- Try to interpret data first before looking at captions.
- When reading the discussion and results, look for key issues and new findings.
- Make sure you have distinguished the main points. If not, go over the text again.
SUMMARIZE

- Take notes; it improves reading comprehension and helps you remember key points.
- If you have a printed version, highlight key points and write on the article. If it's on screen, make use of markers and comments.

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- Angel Borja, PhD. "11 steps to structuring a science paper editors will take seriously," Elsevier Connect (June 24, 2014).
- Mary Purugganan, PhD, and Jan Hewitt, PhD. "How to Read a Scientific Article," Cain Project in Engineering and Professional Communication, Rice University.
- Robert Siegel, PhD. "Reading Scientific Papers," Stanford University.