Reading (And Understanding) Research

adapted from How to read and understand a scientific paper: a guide for non-scientists by J. Raff

As you read, write down or mark every word you come across that you don't understand - you will look them all up later. Remember - you can't understand the paper if you don't understand the vocabulary.

---

1. Read the Introduction
You will read the Abstract and Title in order to determine if the paper is relevant, but when reading for understanding, save the abstract for last and start with the Introduction. The Introduction will provide you with the background you need to read on.

2. Identify the Big Question
What is the Big Question the authors are attempting to answer? What is the purpose of the research? This helps you focus on why this research is being done. Look closely for evidence of agenda-motivated research.

3. Summarize the background in five sentences or less.
What work has been done before in this field to answer the Big Question? What are the limitations of that work? What, according to the authors, needs to be done next?

4. Identify the Specific Questions
What exactly are the authors trying to answer with their research? There may be multiple questions, or just one. Write them down.

5 Identify the approach
How are the authors attempting to answer the Specific Questions?

6. Read the Methods section
Draw a diagram for each experiment, showing exactly what the authors did. This will help you fully understand the work.

7. Summarize the results of each experiment
Write one or more paragraphs to summarize the results for each experiment, figure, and table. Don't yet try to decide what the results mean, just write down what they are.

8. Do results answer the specific question?
What do you think they mean? Take time to think about this. It's okay to change your mind in light of the authors' interpretation (and you probably will) but it's a good habit to start forming your own interpretations before you read those of others.

9. Read the Conclusion/Discussion/Interpretation
What do the authors think the results mean? Do you agree? Do the authors identify any weaknesses in the study? Do you see any? Do you agree with any proposed next steps?

10. Read the Abstract
Does it match what the authors said in the paper? Does it fit with your interpretation of the paper?

11. Find out what other researchers say about the paper.
Who are the (acknowledged or self-proclaimed) experts in this particular field? Do they have criticisms of the study that you haven't thought of, or do they generally support it? Use Google and Google Scholar.