

How to Read a Science Paper

Research papers can get pretty overwhelming. So, here's a short guide on how to read one.

1. Research papers are made up of different parts.

Science papers are usually made up of an Abstract, Introduction, Methods, Results, Discussion and Reference section.

Abstract: this is a summary of the entire paper. It gives you the main method used and the most significant findings of the experiments.

Introduction: this contains a short review of the literature that you will need in order to understand the rest of the paper. This is included because scientists more than often base their experiments on prior knowledge or experiments already existent in their field.

Methods: this part lists all the techniques and experiments the researchers carried out, a bit like a an ingredients list and recipe instructions.

Results: a description or numerical data that the researchers observed from their experiments.

Discussion: Here, the researchers mention all the possible explanations for their results and links them back to the literature.

References: This part is where the researchers list previous research papers that relate to their work. Usually, a reference is listed after a 'factual' statement is made as a means of providing evidence.



2. Read through the abstract first

It's rare that a paper is read in the order that it's written. Starting with the abstract gives you a good idea of where the paper is coming from, what it includes and then what its main findings were.

PLANET

NOT A
PLANET

4. Read the subheadings and figures in the Results

Doing this will help you understand why the researchers made the conclusions they did in the abstract. However, this part can get very tricky, so don't worry if you don't understand all of the techniques or phrases used. However, if you feel brave enough, try to go through the paragraphs too - this will give you tonnes more data and clarification.

3. Get to grips with the Introduction

Having already read the abstract, you'll probably know what the researchers have achieved, but you might not know how that fits in with the field. By reading the introduction, you'll have a simplified review of the research's background at hand. Whilst going through the introduction, try to annotate parts you feel are most significant or look up words you aren't familiar with. This'll come in handy later.

5. Discussion, Methods and Reviews

The Methods and Discussion sections are great to solidify your understanding further, though review papers you may find online can help you understand the research from a different perspective as well as update you on progress.

6. Videos, Articles and News and Views

Like reviews, articles, videos and 'News and Views' pieces are made to explain research fields and, sometimes, particular papers. Some of these resources are made with a layman audience in mind and looking these up can give you a wider grasp of the field.

7. Practise makes better!

Reading science papers is difficult for everyone at first and, with practise, you'll get the hang of it! Annotating, reading around, making notes and learning lab techniques can all help towards making you more fluent. Lastly, there is no one way to read a paper - just figure out what works for you and roll with that. Good luck!