

# Dissecting a scientific paper

## Title

- Based on the title, what is the main point being made by the paper? In one to three sentences, explain what you think the title means.

## Authors

- Was this research performed by one or a few individuals, or was the research a broad, collaborative effort across several institutions?
- What sort of topics do the first and last authors study? Does this give you any insight into the topic of the paper?

## Abstract

- Try to translate the abstract into your own words sentence by sentence.

## Introduction

- Are there keywords or ideas that you don't understand? If so, write them down. If time, look them up.
- What questions is this study trying to answer?
- Why are the authors addressing the questions that they are?
- Try to phrase the main idea being tested in the study as a hypothesis.

## Materials and methods

- Sketch or summarize the experimental design that the study takes to answering the main question.
- What are the names of the key techniques used to collect the data?
- Are there any aspects of the study's method that you do not understand? If so, what are they?

## Results

- What are the main findings of this study?
- Are there any results presented here that you do not understand? If so, what are they?

## Figures and Tables

- Are any of the figures designed to communicate details of the study design, as opposed to results? If so, which ones?
- What interpretations described in the Results section are supported by each figure/table?
- Do any of the figures/tables include particularly important results? If so, what are they?

## Discussion and conclusion

- What are the most important findings of this study? What ideas are supported or contradicted by these findings?
- Why are these findings important?
- Were any of the study's findings surprising or hard to explain? If so, what were they, and why were they surprising?
- What were the strengths and weaknesses of the study's design?
- What sort of additional studies would help address the weaknesses of this study?
- What questions about the topic of this paper remain to be answered?
- **Based on this study, describe an experiment you could design and conduct.**