

How to navigate a scientific paper with time constraints: A graphic approach

Using the Guide: Start at the top, decide your motivation and/or time constraints and follow the arrows. They'll direct you to the important paper sections as well as the key information you should extract at each level.

1. What is your motivation?

Get the basics, is this paper worth reading or passing along?
Understand if the researcher's work is relevant to your project

Understand the significance and broader impacts of the work

Read the paper for a class discussion
Present the paper at Journal Club

Gather information to replicate the research findings
Review a paper for journal submission

2. How much time?

3 minutes
30 minutes
3 hours
3 days

3. What do you read?

4. What should you learn from each section?

TITLE

ABSTRACT

- What question(s) are the authors addressing? - What is the work's significance?
- What is the major finding or scientific contribution?

MATERIALS AND METHODS

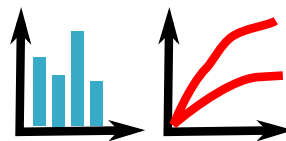
- What are their experimental assays and reagents?
- If there are alternative approaches, how did they select this system?
- Would you do anything differently?

RESULTS

- What are the conclusions they draw from the data?
- How do these results answer the greater question identified in the abstract?
- Do the results 'add-up' to the final claims of the paper?

FIGURES, TABLES, AND DATA

- Can you identify the results in the images/charts/graphs?
- Can you circle specific results (i.e. two-fold change in response, effect of treatment vs. control)?
- What are the controls in the experiment and have they presented them properly?



CONCLUSIONS/ DISCUSSION

- What do the results mean? - What are the next steps?
- Can you think of other interpretations of their results?
- If you were writing a story with their results, how would you interpret the data?
- What are other implications for the work, besides what the author(s) identified?

SUPPLEMENTAL INFO AND REFERENCES

- What are the controls and supporting data?
- What other supporting data would you like to see?
- Are there additional references that would deepen your understanding of their work?
- Which references would also be pertinent to your work?