Scientific Presentations

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(Adapted from presentations by Sepideh Mirabi and Prof. Gregory Sivakoff)

Types of Scientific Communication

- **Reports:**
  - People can have it in front of them and read it at their own pace.
  - You can include as much detail as needed.

- **Presentations:**
  - Consider the layout of the room.
  - Timed, but people can talk to you in person afterwards.

- **Posters:**
  - People can walk up to your poster and look closely.
  - You may or may not be there when someone looks at your poster.

Purpose of Presentations

- The goal of a scientific presentation is to convey important information to the community about your research work in a brief and concise format.

- **Benefits of Presentations:**
  - They help improve your presentation skills.
  - They can give novel ideas to develop research work.
  - They help you think about the content of your research and develop a clear (visual) structure.
  - They can help you learn time management.

Presentation Details

- Your presentation will be a series of PowerPoint (or similar) slides.
- You should aim for your presentation to be 5 minutes. What does 5 minutes worth of material look like? Do you tend to speak faster when you are nervous? Is there a chance you might forget something and pause? Take these into account when practising.
- Think a bit about how many slides you will have. 2 slides is probably not enough to convey everything important, but 200 is most likely too many. If you only stay on a certain slide for 5 seconds, is it really worth it to show that slide at all? I would suggest no more than 10 slides!

What to Include

- Review the guidelines for writing a lab report in the lab manual and in the presentation in the Google Drive folder. Much of the same advice applies here.

- However, the point of a presentation is not to just flip through the pages of your report and read them off to your audience. Explain the most important points concisely and in a visual way.

- For this, you should follow specific advice for visually displaying scientific information.

Structure

- Presentations contain sections very similar to lab reports:
  1. Objective
  2. Introduction
  3. Experimental Method
  4. Results and Discussion
  5. Conclusion
  6. References (these can be shown as footnotes on each slide)

- Try to lay the content in your slides out in a logical way. The viewer's eyes shouldn't have to jump all around in order for them to build a coherent story of what you're saying, especially while you're speaking.

Backup Slides

- When giving a presentation, people will likely ask you questions (during or after). In order to prepare, you should anticipate what questions you might be asked, and you can include any helpful information you did not have room for in your main slides in backup slides. These start after the last slide of your presentation.

- Useful things to include might be raw data, details of a calculation, details on error propagation, extra plots, more background theory, etc.

- Think of them like an appendix the audience does not get to see unless they ask.

Audience

- Think about who your audience is. For the purposes of PHYS 146, your audience is a group of scientifically-literate non-experts.

- You will be the only expert on your own project, so you should explain it from the beginning to the end. However, do not do so in a condescending or oversimplified way that will offend or bore your audience.

- Imagine you were an audience member. Would you be able to understand what you are saying or showing if you had not done the work?

General Advice

- Don’t overwhelm your audience with huge amounts of text. It can be confusing to try to read text on the screen while also listening to someone talk. Keep sentences on your slides short. Minimise the number of bullet points you use, and do not just read off your slides!

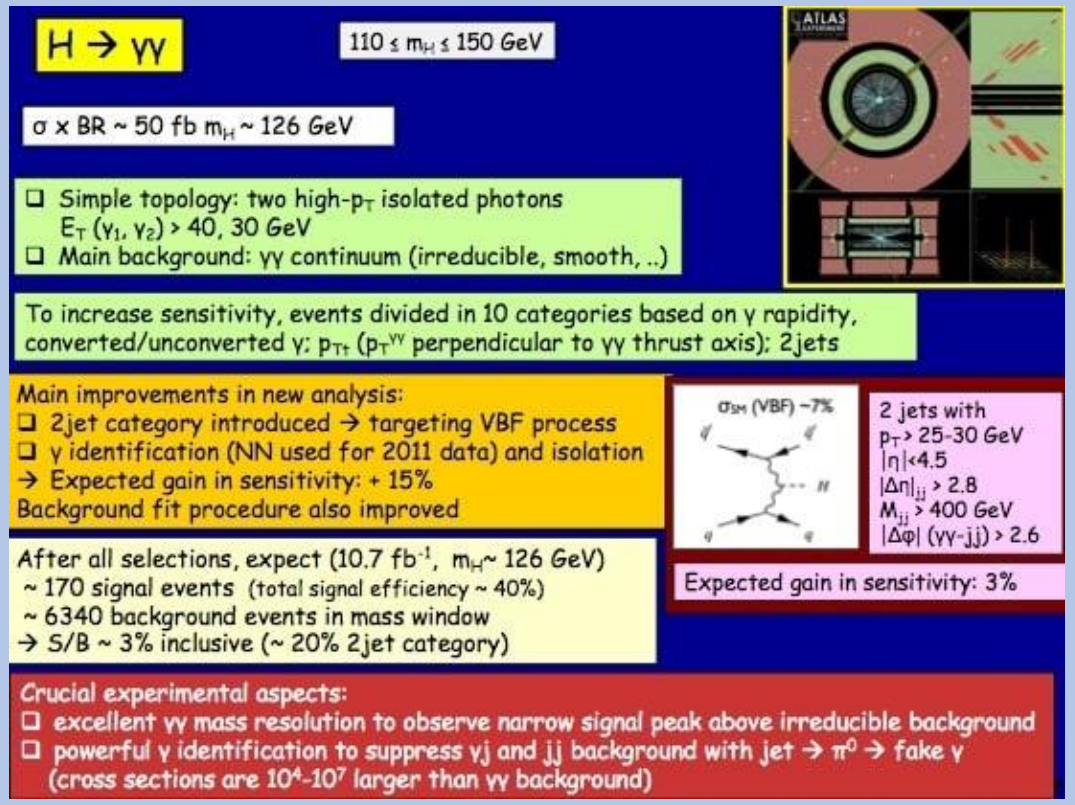
- It is easy for the audience to look at figures while you explain those figures. Make sure they are clear and organised nicely on the slide.

- Tables of numbers and equations should be kept to a minimum. The audience does not need to be shown your raw data. Only show equations that are key to the theory or analysis.

Fonts

- Please use a sensible font.

✗



✗

Fonts

- Serif fonts are difficult to read. Use sans-serif fonts like Arial, Tahoma, or Verdana. No Times New Roman!

T vs T

- You should use a consistent font throughout your poster.

- **Font Size Suggestions:**
  - Titles: ~40 pt
  - Subtitles: ~32 pt
  - Main Text: ~24 pt

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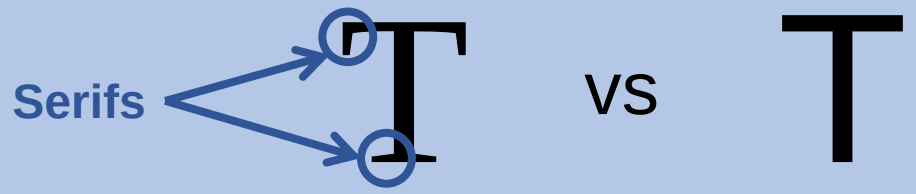

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Fonts ← Arial 48 pt

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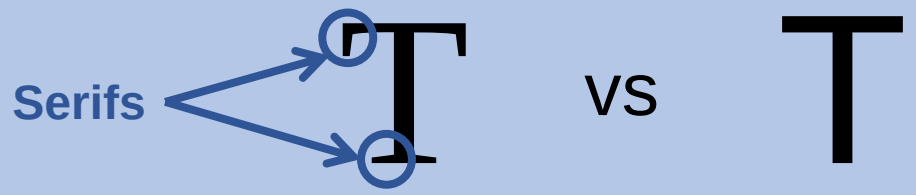

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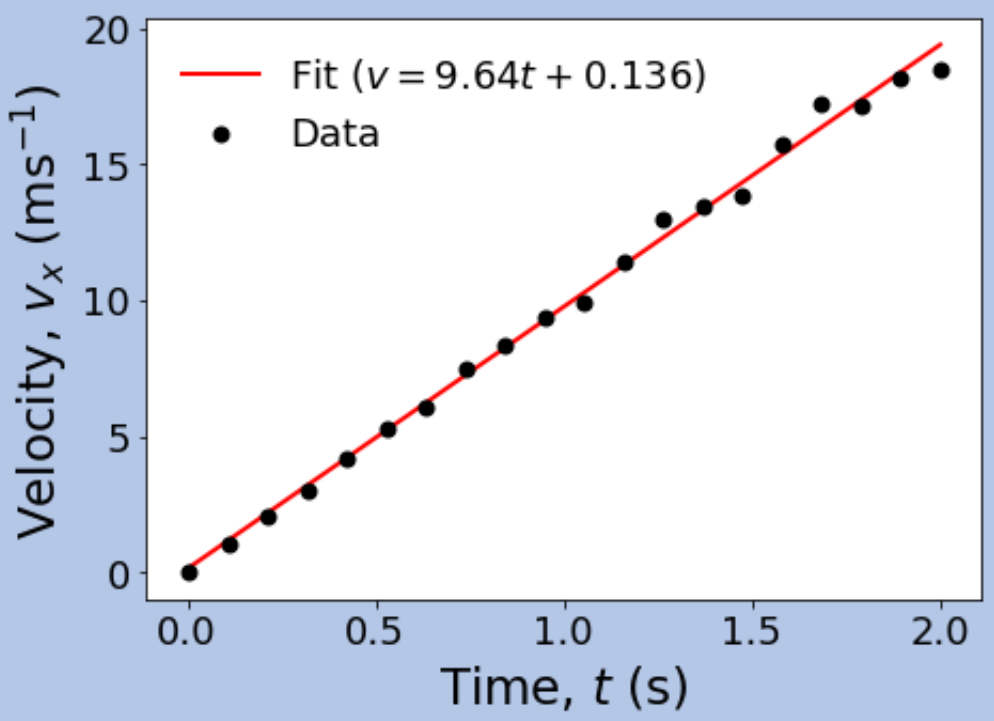
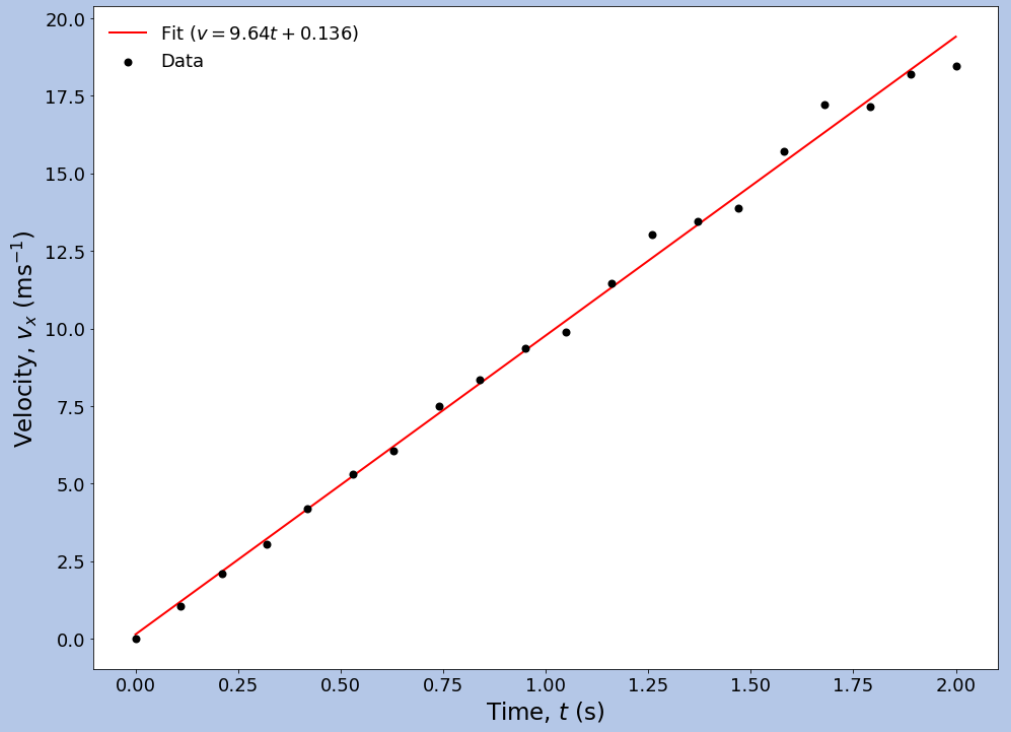
Legibility

- Text should be legible in figures as well. Adjust the font size in your graphs to make sure the labels can be read.





Colour

- Be thoughtful and deliberate about what colours you use. Try to limit the colours to a small, consistent colour scheme.

- Avoid using colours that do not work well together. Use contrasting but reasonable colours for text and background.

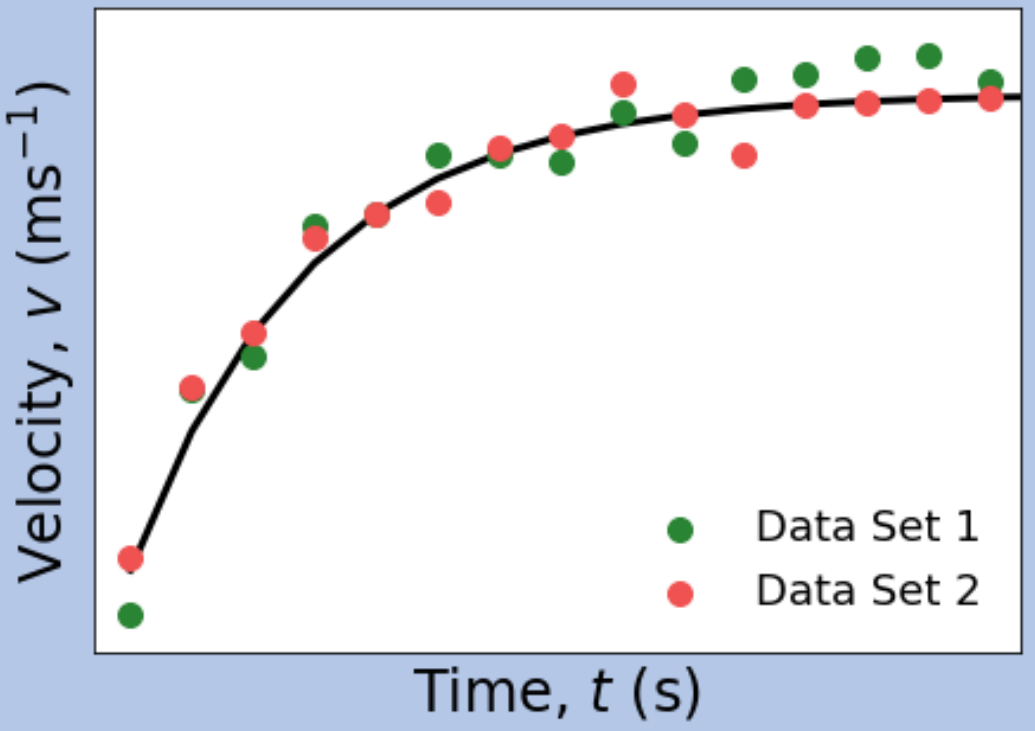
Good	Ok	Bad	Ouch

- Consider that black on white looks good on a computer screen, but not necessarily on projector screens or in print.

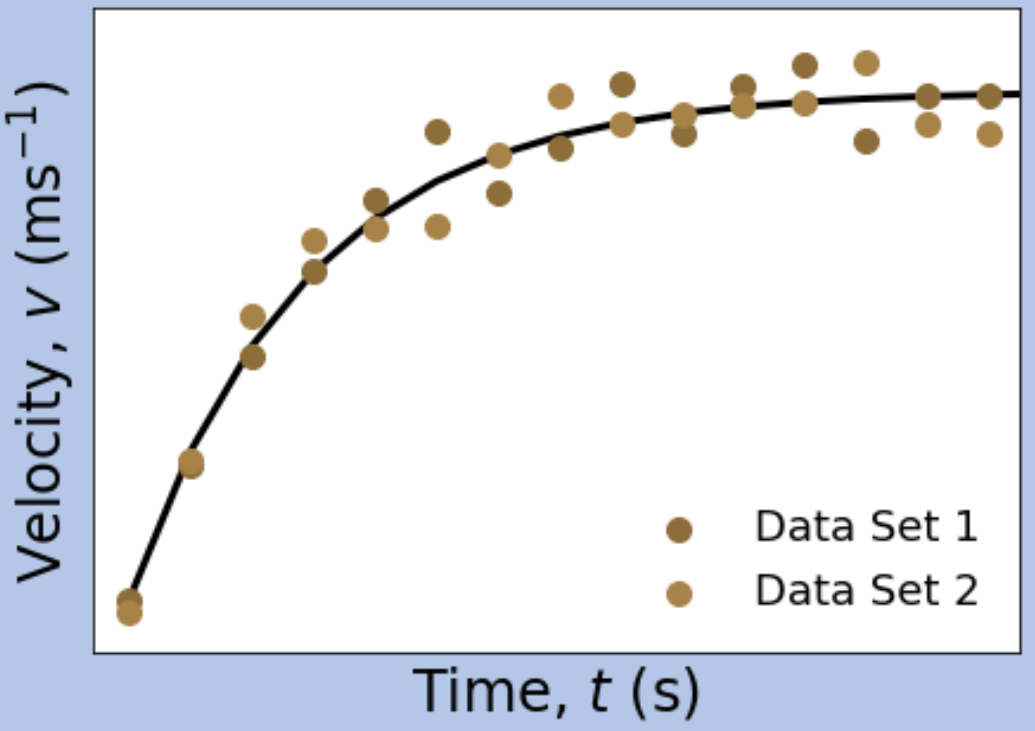
Colour

- Be considerate of colour blindness. Google colour blind-friendly palettes for your diagrams and plots.

Trichromacy



Deuteranopia



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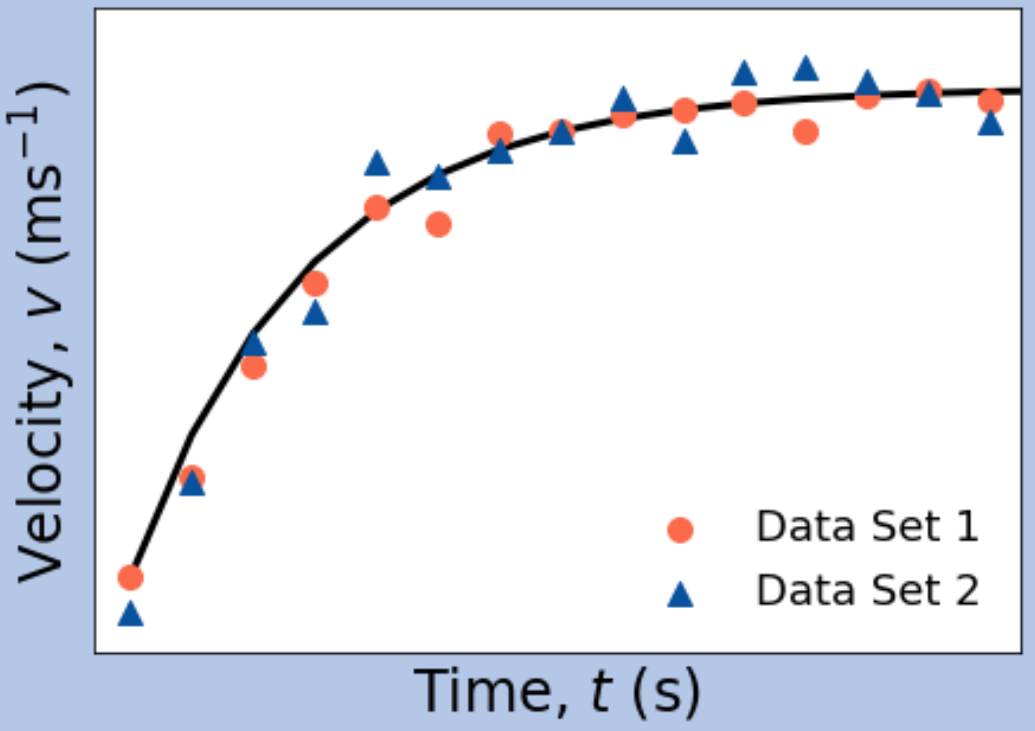

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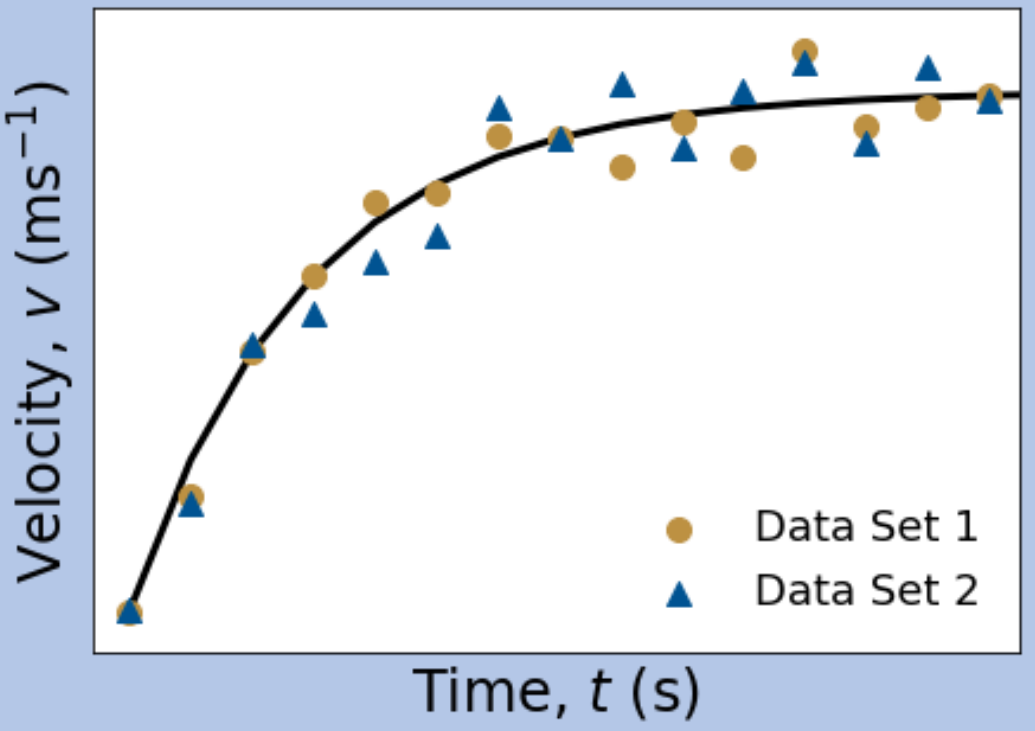
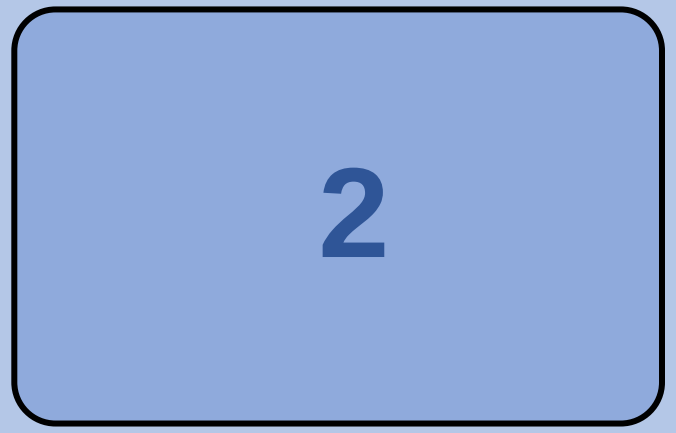


Slide Numbers

- There are three options for numbering slides:

No Slide Numbers

Ok, but makes it difficult for the audience to refer back to specific slides.



Only Slide Numbers

The audience can refer to specific slides and isn't distracted.

Including the Total

The audience can be easily distracted by how far along you are.

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