Centre de Recherche en Infectiologie Porcine et Avicole
Swine and Poultry Infectious Diseases Research Center
CRIPA
Université de Montréal

by Gabriela Silva-Guerra and Aida Minguez Menendez

Infographic Workshop

To improve the design of your scientific posters

Op+lait
Regroupement pour un lait de qualité optimale

Summary

Trainers

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B.A.A.
Communication Agent
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Gabriela studied business administration at UQAM and infographic design at Collège Lasalle. Since 2020, she has been working in the education sector, first at Collège Bois-de-Boulogne and then at CRIPA. Passionate about branding, she puts her creativity to work for CRIPA, creating marketing communication tools such as posters, presentations, brochures, advertising and websites, as well as content for its various digital platforms.

Aida Minguez Menendez
M.Sc., Ph.D.
Communication Advisor
Op+lait

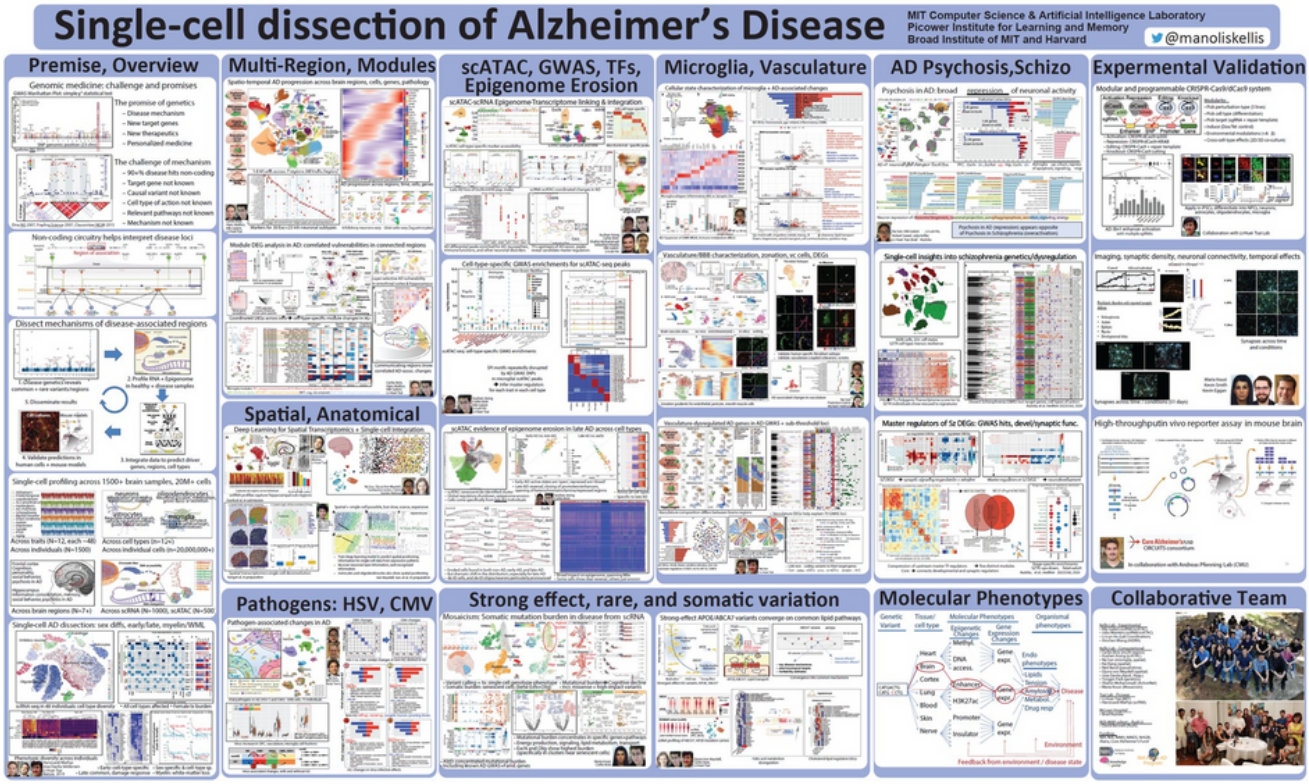
Before moving to Quebec, Aida studied environmental sciences, geological hazards (M.Sc.) and geomorphology (Ph.D.) in Spain. She has worked at the Faculty of Veterinary Medicine at the University of Montreal since 2017, where she started as an illustrator and scientific graphic designer. For the past year, she has been a communications and knowledge transfer advisor for the Op+lait group, where she manages popularization projects and the group's image.

The main goal of this workshop is:

Enabling students to make effective scientific posters

As a scientist, you don't necessarily have a background in communications or graphic design. But today more and more students are taking an interest in popularization and integrating it into their academic work.

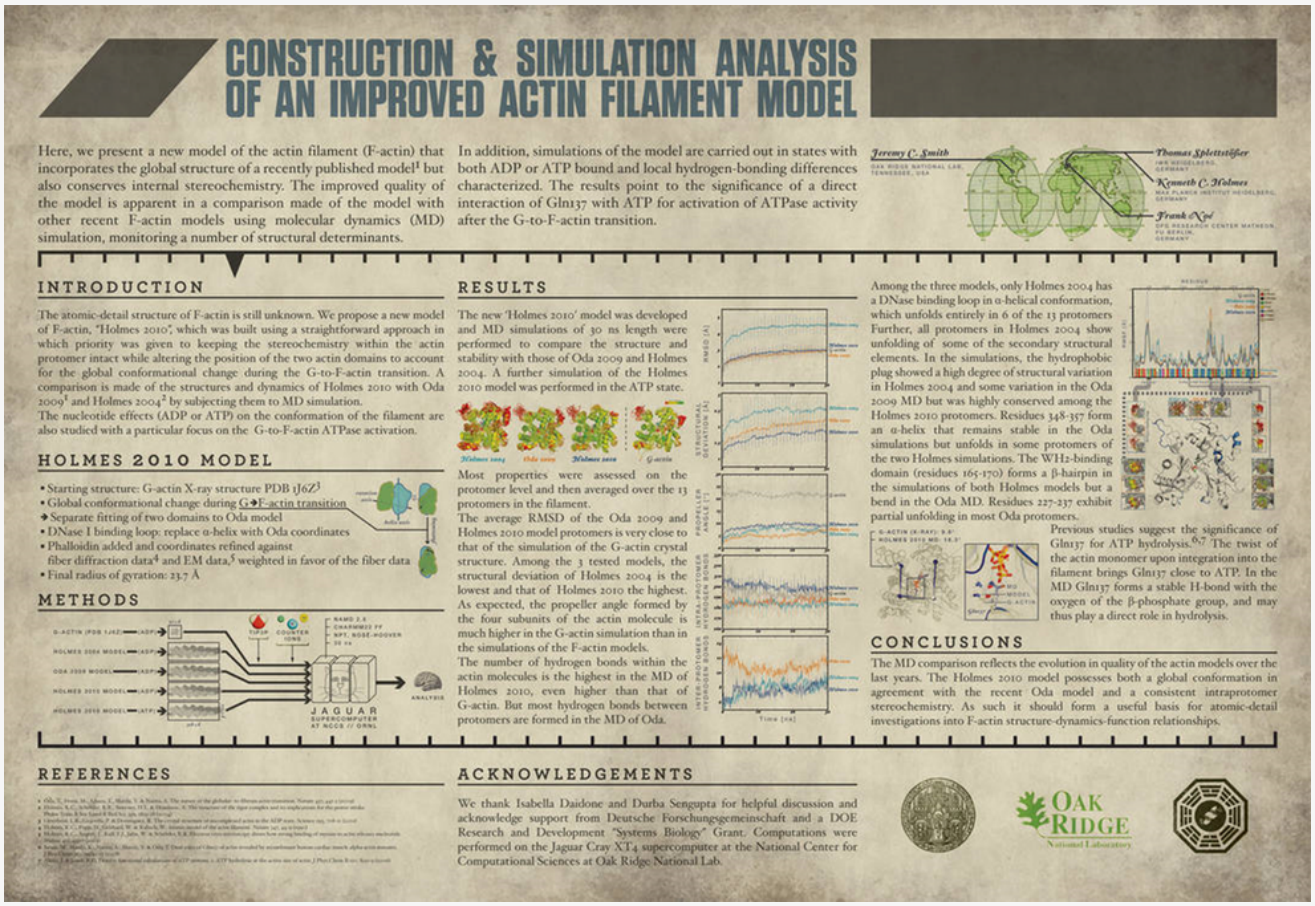
As a student, you don't have much time to devote to making a poster. This workshop is designed to save you time and help you stand out at your next conference.



If you think this workshop is unnecessary, have a look at the poster above. It was actually presented at a scientific conference by an MIT researcher who uploaded it to Twitter.

The poster is very comprehensive and all the information is probably relevant, but it would take about 27 hours to decipher everything in it!

Conclusion: this is not an effective scientific poster.



This may be another extreme example, but you are probably more familiar with this type of poster. It can be found on DevianART, an online art community. You might expect to find interesting things there, but ask yourself:

- Would you hang this poster on your wall? What did the author do?
- Are the results good or bad?
- Can you read the references, and if you can, would you?
- Have you read the text apart from the title? Can you? Would you?

Posters like this are called text walls.
Conclusion: this is not an effective scientific poster.

Perfection ≠ nothing to add
Perfection = nothing to take away

If after a few minutes in front of a poster, someone says: "Tell me about your poster", it means that they haven’t been able to retain anything from the poster, except perhaps a word in the title that makes them think of something. So, in order not to leave the session empty-handed, they ask you to tell them about it.

Think about the last time you attended a conference...

- How did the poster session go?
- Did you make a presentation?
- Did you go around the room to see everything?

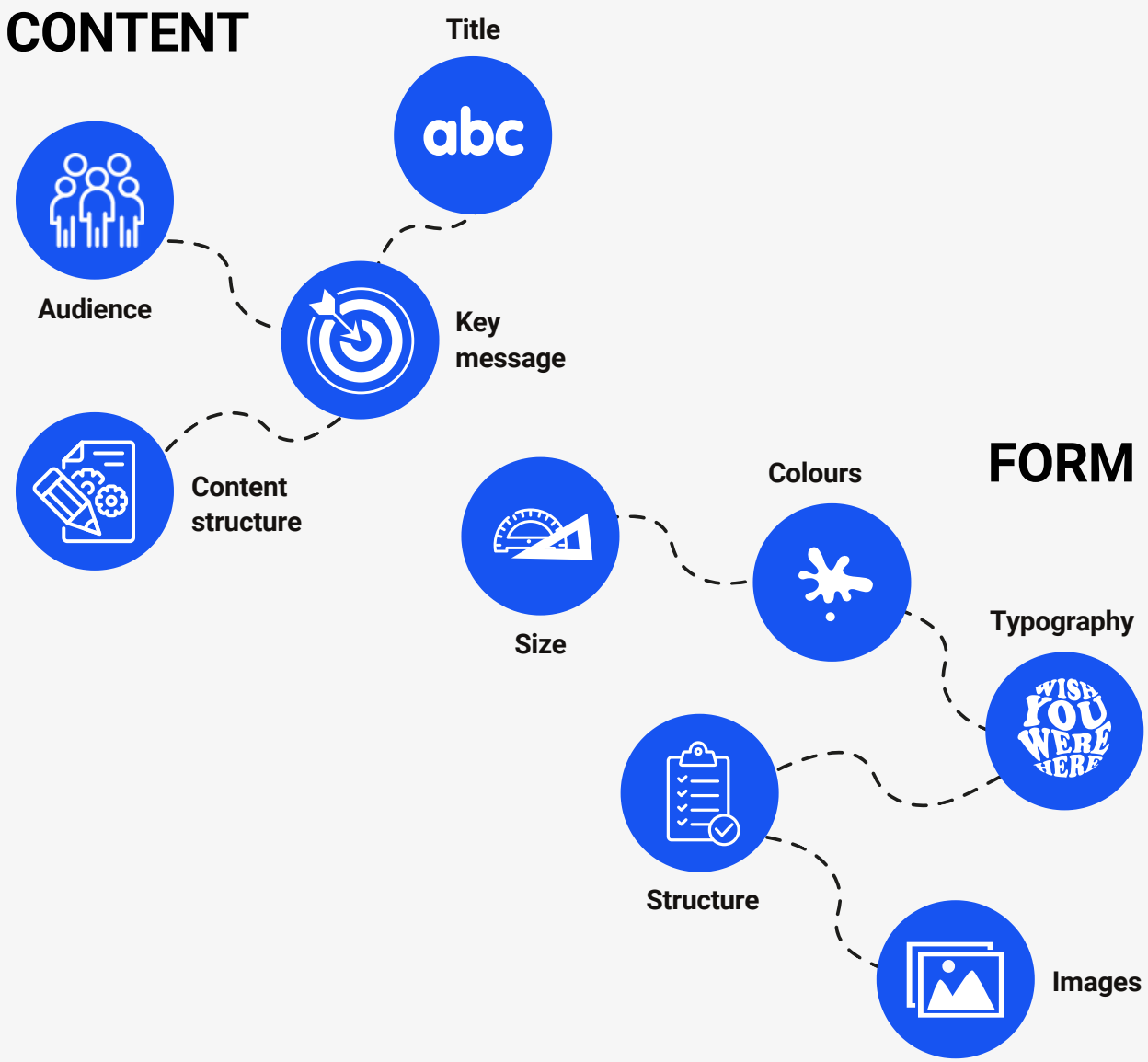
For those who are not experts on the conference they're attending, wandering through a poster session is a daunting task. They walk slowly through the panels, looking for a keyword or an image that catches their eye among the walls of text. That's why we need the poster to speak for itself, through images or a good title.

Often, a poster session is frustrating for both presenter and viewer. For the presenter, because few people stop to look at the poster, and in the end, preparing it was a waste of time. For the viewer, as they wander around the room looking at a bunch of walls of text that don't make them want to stop and read, they leave feeling like they've wasted their time without having learned anything new.

Where to start?

But where to start? Most of the time spent on poster design should be about planning and content. Then you can move on to the design stage.

Scientific poster design can be divided into two main parts: contentand form. This is where we get to the heart of the matter.



Content

The essential feature of a poster is its **content.**

Don't forget that this is **not a scientific article**, but a short communication in visual form.

AUDIENCE

Define your target

The first thing you need to do is decide on the point of your poster (just one), i.e. the message you want your audience to take away with them.

To make the right decision, ask yourself a few simple questions:

Big conference?

Small meeting?

WHAT KIND OF CONFERENCE IS IT?

- Is it a **big conference** with over 100 posters, where you need to attract attention to get someone interested in you during the half-hour coffee break?
- Is it a **small meeting** where you can have a more personal and relaxed interaction with the participants?
- Will the audience be researchers, or are there other **target audiences**, such as farmers, veterinarians/doctors, politicians or decision-makers, where you'll need to popularize your message a little more?

AUDIENCE

Define your target audience

Theme

Project **timing**

WHAT'S THE THEME?

- Is it a **general conference** in your scientific field, such as parasitology, immunology, epidemiology... where you have to explain your pathogen or host in more detail? If it's an immunology conference, for example, the section on results and conclusions could be more concrete and technical, while the project introduction should be explained in more detail. There won't be many people specializing in porcine streptococcus or leishmaniasis, but more in immune response.
- Or is this a **more specific** congress where you have to go into more detail about your method, as in a bovine mastitis congress where everyone has some knowledge of the main mammary gland pathogens, and you have to explain concepts that may seem more elementary?

WHAT STAGE HAS YOUR PROJECT REACHED?

Do you have any results and even some conclusions? Use them! They'll be the star of your presentation. If, on the other hand,you're just getting started, clearly present the objectives or starting hypothesis, the standardization of the method and, perhaps, some perspectives.

KEY MESSAGE

To avoid a wall of text

What is the **message** you want to convey to your audience?

Choose a maximum of **3 key points** for your project

Once you've decided on your main **message**, choose a maximum of **three key ideas** to develop in the poster.

Three results or conclusions that support this unique key message.

What makes a good title?

The title is the main idea

You've got the main idea, now it's time to choose the **title**. The title is the main idea! Don't choose titles that are mysterious or that reveal nothing. The sole purpose of the title is to grab attention and attract the audience. Think about your project's keywords and rework the conclusion to create a **catchy title**.

No more than 10 to 12 words

REMEMBER TO DO THIS BEFORE YOU REGISTER FOR THE CONFERENCE.

TITLE

Catchy title ideas

Example of a short, clear, but unappealing title:

"Innovative technique for the isolation of a new class of antibiotics"

Example of a concrete, attractive title, even for a project that has not yet produced any results

"We're looking for new antibiotics in the bacteria of deep-sea sponges"

Vague title

"Study on the sensation of satiety as a function of food intake and food size"

Catchy title that tells us something

"IN PIECES: Food is more satiating when cut into pieces"

CONTENT STRUCTURE

Logical structure of a scientific poster

Here are the sections that a scientific poster should include.

Introduction: 3 sentences in which you state the **problem**, the **hypothesis** and the main **objective** of the project presented in the poster (not the objectives of your thesis project, but those of this "small" project that you are presenting in poster form).

Method: A description of the **method** in chronological order. You can present it in the form of a **diagram**. It should not attract more attention than the results or conclusions, unless the description of the method is the main objective of the poster.

Results: If there are any (remember that if the project is in its early stages, you can include perspectives instead of results).

CONTENT STRUCTURE

Logical structure of a scientific poster

Conclusion: Restate the hypothesis and briefly list the **specific conclusions** drawn from the results.

Authors and contact details: Don't forget to **check** with your supervisors who the authors of the poster are before sending the abstract to the conference.

They should not attract too much attention. The name of your **main institution** is sufficient. It is not necessary to give the name of the department or the full address of the building where your laboratory is located or the zip code. If anyone wants to know who is responsible for the project, they can ask you. It's a good idea to specify who the contact person is (add a visible **e-mail address**).

References: These are not compulsory, but if you do include some, no more than 5. Use **open access** information if possible.

Acknowledgements: Don't forget any granting or awarding organizations. This section doesn't have to be highly visible. It can be placed in a lower corner. Logos can be placed discreetly in monochrome.

CONTENT STRUCTURE

Logical structure of a scientific poster

We have been looking at the traditional structure of a scientific poster, but now let's consider a new way to think about it.

After completing his PhD a few years ago, **Mike Morrison**, undertook a small project to improve the poster session experience. He published two videos on his YouTube channel to explain it.

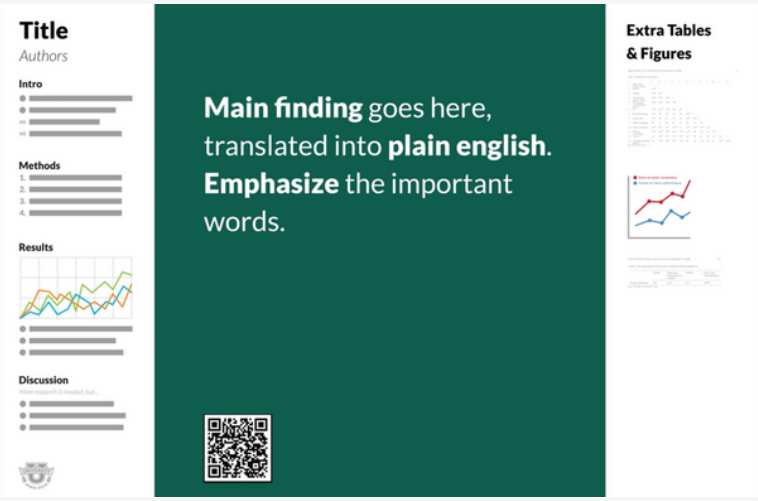
In his **first video**, he develops a very effective way of organizing information on a poster, without paying too much attention to aesthetics.

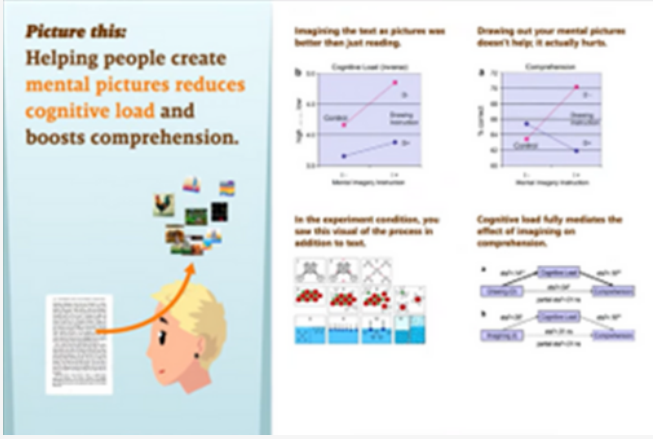
In the **second**, he goes a step further and adds aesthetic improvements that make a poster more attractive. **#betterposter**

CONTENT STRUCTURE

Logical structure of a scientific poster

In these examples, you can see that the title/conclusion is the most important part. To the left are the usual sections of a poster, and in the free space he adds figures and diagrams that support his data or methods. Then, the QR code is used not for references, but to link to documents that support the project, such as videos, scientific articles and so on.





The elements that make a message effective

The main rules for turning this idea into a good poster:

1. **Easy-to-understand** information tailored to your **target audience**
2. A clearly defined **problem**, objective and hypothesis
3. An easy-to-understand, chronological **method**
4. **Valid** and **convincing** results

The elements that make a message effective

And to top it all off:

Don’t put things on your poster that people will i**gnore**

People **ignore** most things

In short, a poster should be as close as possible to an infographic.

Form

SIZE

Check the dimensions recommended by the congress

Horizontal or vertical

Europe

North America

Scientific posters are generally formatted vertically in Europe and horizontally in North America.

STANDARD SIZE

91.4 cm x 121.9 cm
(36" x 48")

OTHER SIZES

42" x 48"
1 m x 1 m
42" x 42"
42" x 60"

Here are some suggested sizes to use when designing your poster, but these are for guidance only.

If you're attending a convention or other event, **be sure to check the recommended sizes and stick to them.**

Golden rules

1 **Catch the eye**

2 **Catchy, readable title**

3 **Balance between images and text**

If there are too many elements competing with each other, and there isn't a well-defined order and contrast between the elements, it will be difficult to navigate and assimilate the poster's information.

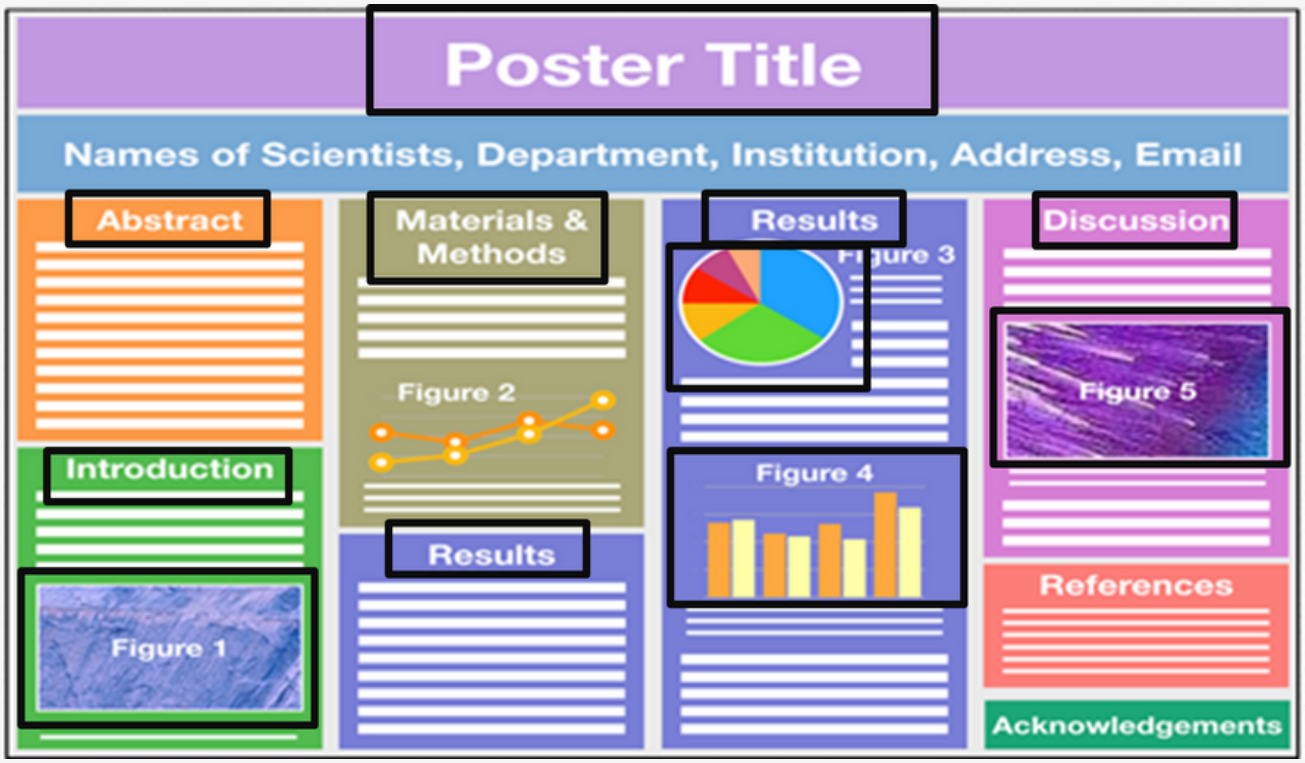
The busier the scientific poster, the less it will achieve its primary objective of attracting the viewer and communicating the key message.

A good scientific poster has three main elements:

1

The clearest and most contrasting elements in the composition. Thus, all titles, subtitles, figures, images and graphics.

They serve to attract the eye, pique curiosity and make people want to approach the poster.

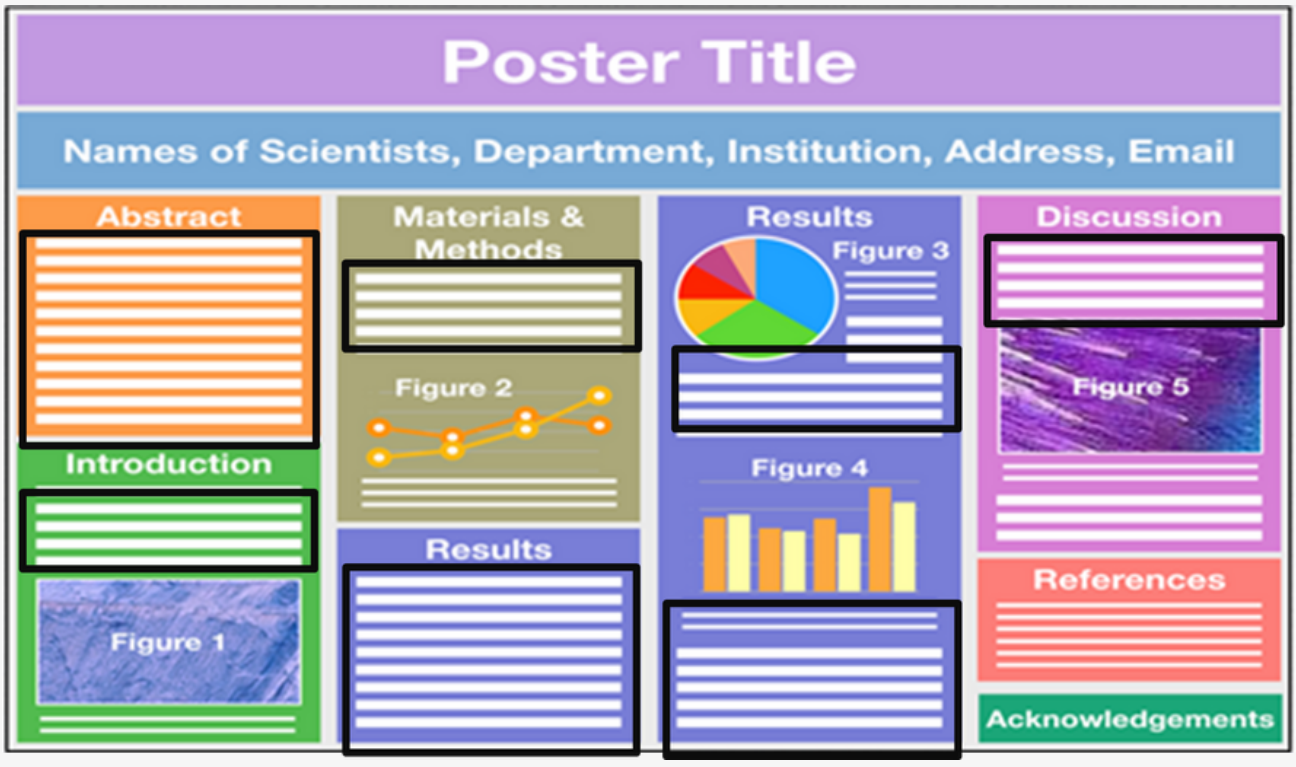


A good scientific poster has three main elements:

2

Elements that are a little smaller and generally placed close to the first elements to support the key message. So, all the paragraphs.

They are used to establish the poster's information flow.

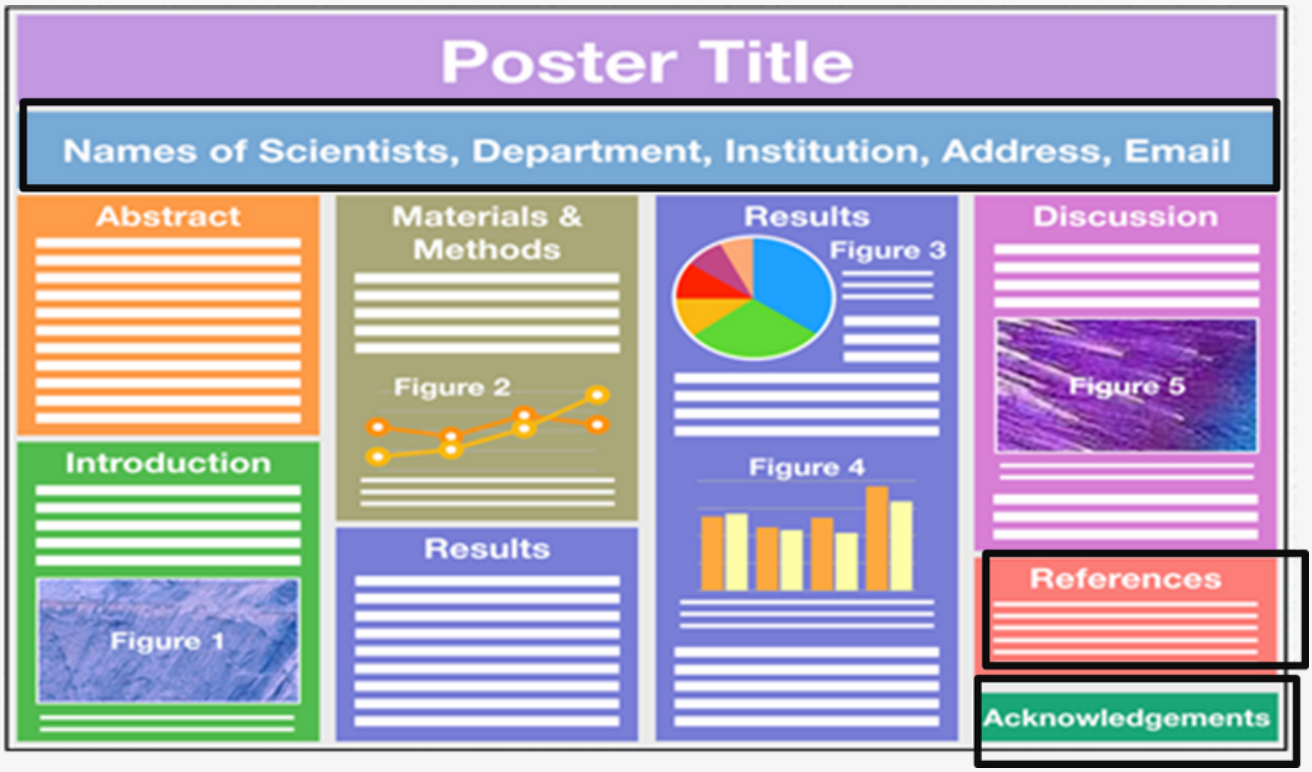


A good scientific poster has three main elements:

3

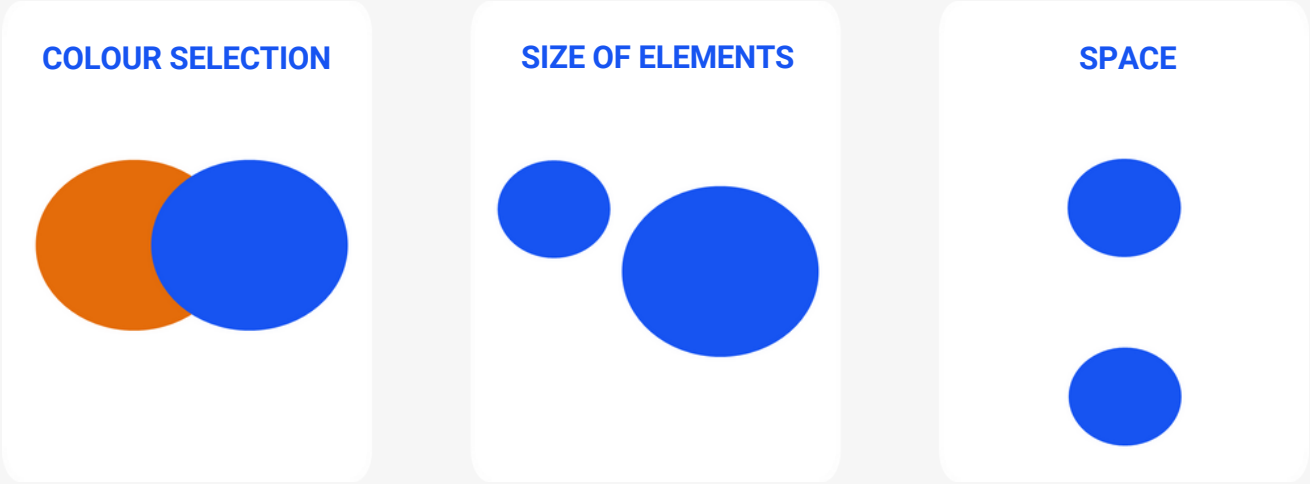
The elements that are looked at after analyzing the first and second elements of the poster. References, acknowledgements, names of scientists, institutions, etc.

They add visual information to the composition and advance the flow of the poster.



COLOURS

Visual hierarchy: Contrast between elements



Visual hierarchy is created by the contrast between visual elements in a composition. Contrast helps to distinguish one element from another, making the poster easier to read.

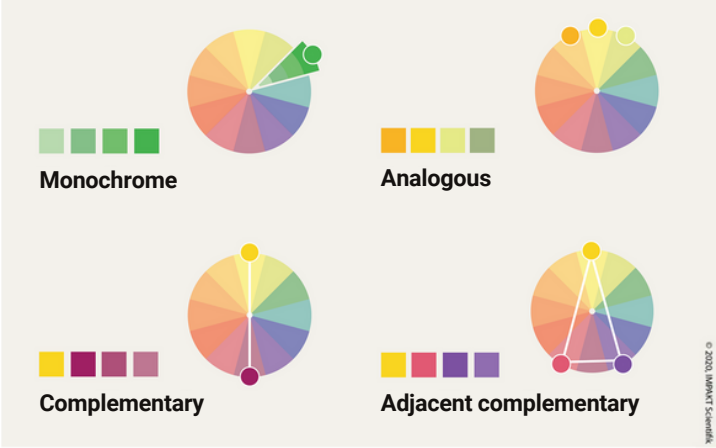
Contrast can be achieved through the choice of colours, as well as through the size of the elements. It can also be done with space. The more space there is between elements, the less noise and competition there will be between them. The eyes will then focus on the most important elements and then on the other elements, directing people's gaze in order of priority.

It's practical to use this method to better assimilate information and have a guideline with a clear message. Used in the right way, visual hierarchy can turn a complex message into a simple one, creating impact and a good impression.

Colour theory

How do we combine colours so that they work well together in our poster?

The colour wheel is a very useful tool because just by looking at it, you can see all the colours and the complementary colours.



Complementary colours are the opposite colours on the wheel, such as green and red, yellow and purple or blue and orange. They have the highest contrast, and so they're generally used if the main objective is to stand out.

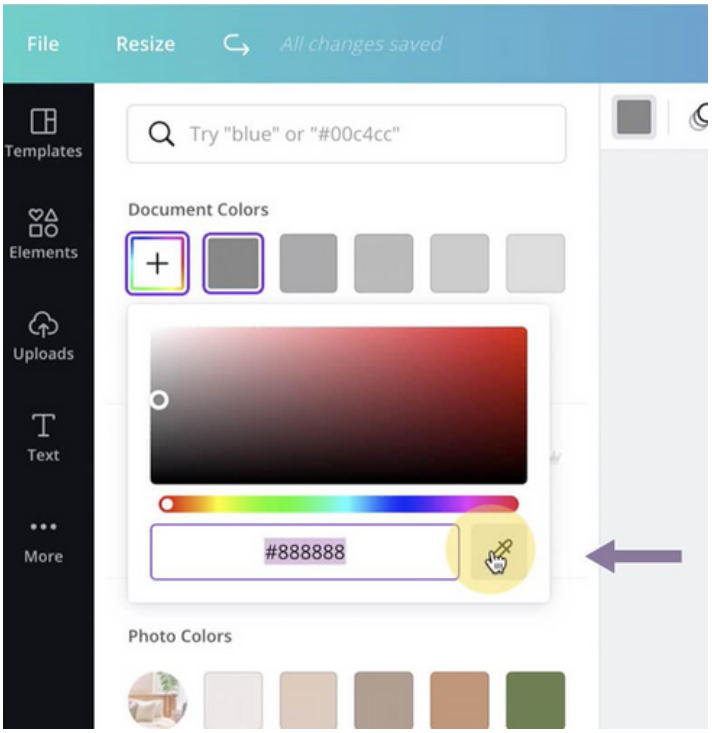
Monochromes are a single colour with different shades of light and dark. They have little contrast, so are used in design to give a different feel.

Analogous colours are colours that are next to each other on the wheel. They have a little more contrast and give the feeling that these colours go well together.

COLOURS

Colour theory

Once the colours have been chosen, this becomes your colour palette. If you include photos in your design, you can use the photo colours as inspiration for your palette.



To find your colours, we recommend you go to Canva, for example, and click on the eyedropper; then use the eyedropper to click on the image where you like the colour, and you'll then have the exact colour code for your palette.

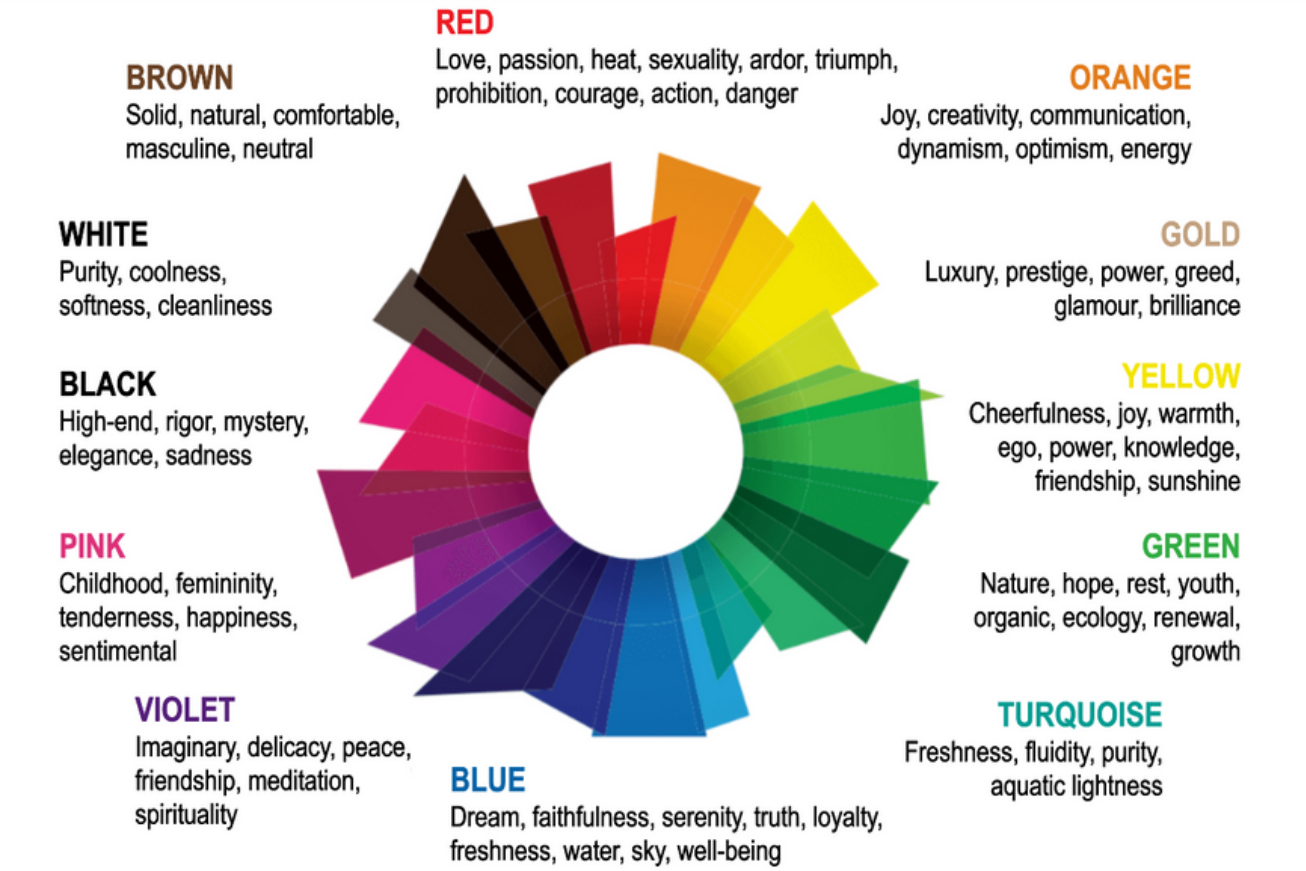
You can also do this with PowerPoint and other software, which will be described later in this guide.

COLOURS

Colour psychology

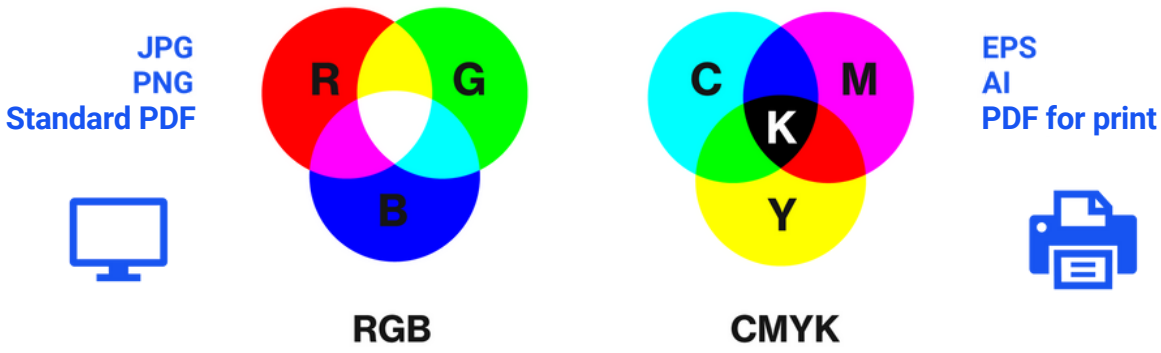
Once you've made your design with the colours you've chosen, take a step back to see if the colours really represent the message or feeling you want to send. To help you convey the right feeling, consider colour psychology.

Here are emotions that colours can evoke.



COLOURS

Digital or printed



One last thing to know about colours: Are you making a digital or printed version?

RGB = Red, Green, Blue
These are the color codes to be used for digital.

CMYK = Cyan, Magenta, Yellow, Black (K=Key)
These are the color codes to be used for a print.

You can switch from one mode to the other by saving your file from standard PDF to PDF for printing.

If you print a document that's supposed to be digital, or you work on a digital file that uses colours for printing, the colours won't be right. They'll look lighter or darker than they should be.

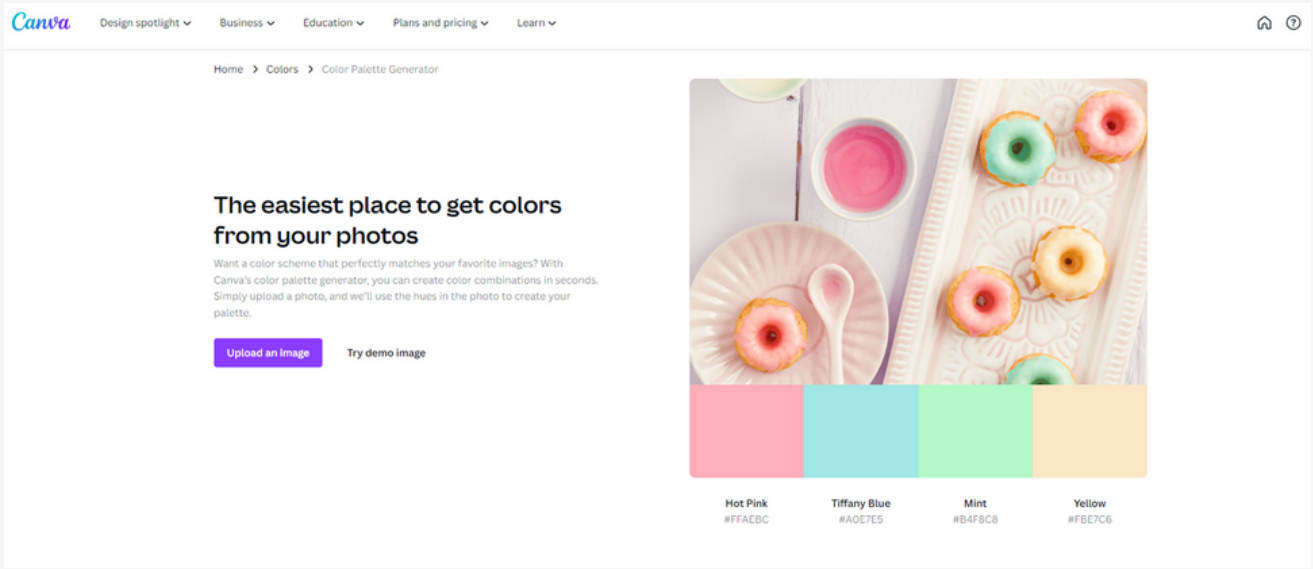
ATTENTION
Don't forget to send your poster to supervisors for correction at least a week in advance to avoid printing at the last minute.

COLOURS

How to find colours?

You can go to this website and you'll be directed to the page below. When you upload an image, it will automatically generate a colour palette that you can modify to your liking.

https://www.canva.com/colors/color-palette-generator/

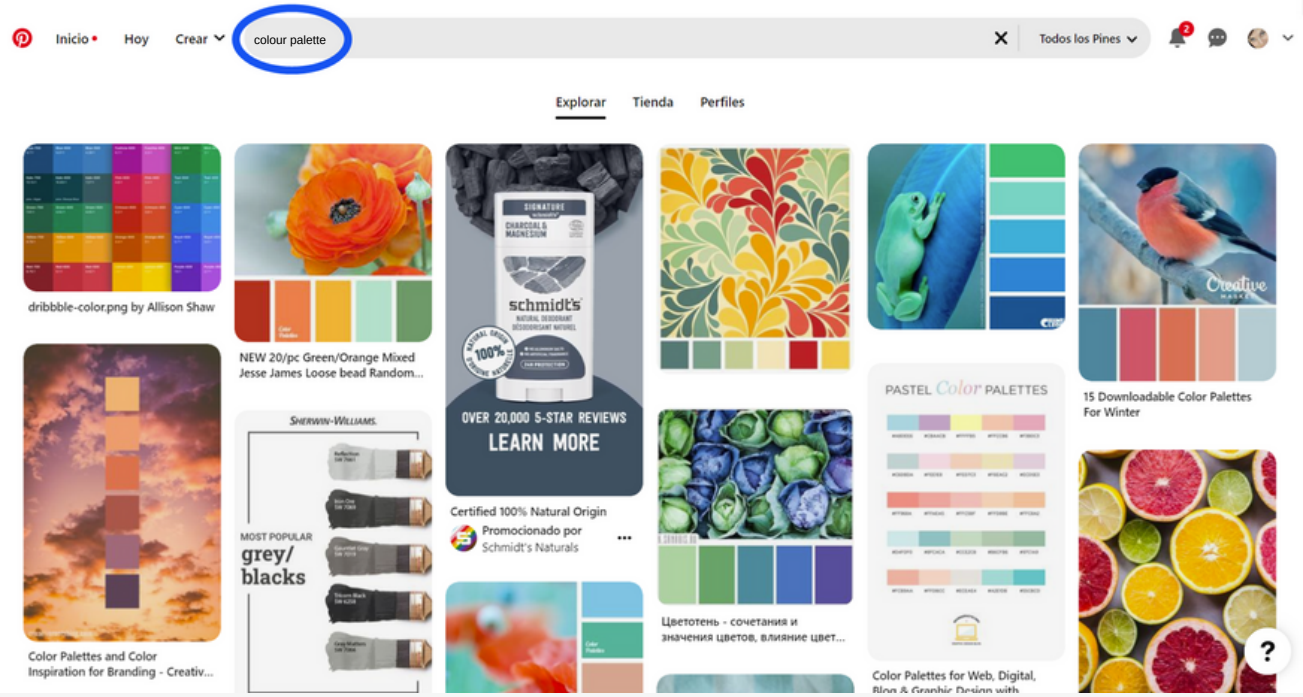


COLOURS

How to find colours?

You can also go to Pinterest and write **"colour palette"** in the search bar. You'll get a variety of results to inspire your poster design.

https://www.pinterest.ca/



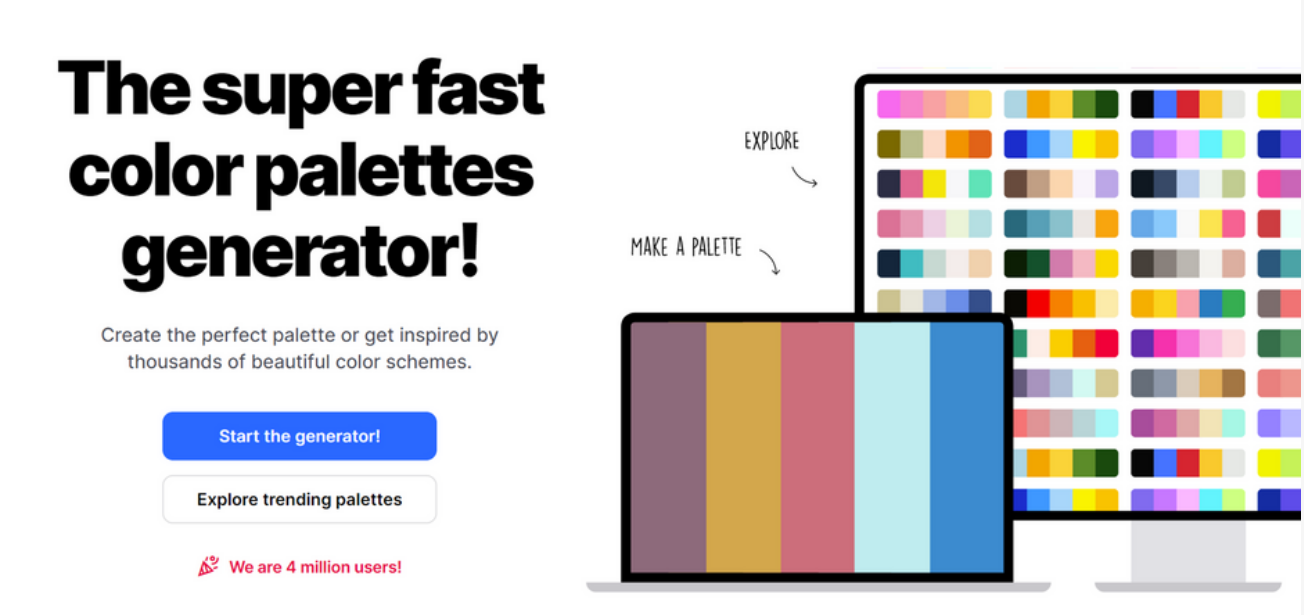
Pinterest

COLOURS

How to find colours?

Another option for finding your colour palette is Coolors, where you can even choose colours for colour-blind people!

https://www.coolors.co/



coolors

TYPOGRAPHY

Typography psychology

Another element in improving your scientific poster is the use of typography. A good poster is simple, uses clear typography and communicates a message in a very practical way.

But did you know that typography also has a psychological impact? Here's a look at the emotions that typography conveys.

FONT EXAMPLES

Times New Roman,
Garamond, Georgia, Palatino

Arial, Helvetica, Futura, Calibri

Alex Brush, Pacifico, Lobster,
Tangerine, Arizonia

Phosphate, Chalkduster,
Graffiti, Grunge, Stencil

TYPOGRAPHY

Ideas for combining typefaces

If you're having trouble combining different typefaces for your poster, we suggest choosing 2 fonts from the same family. Use the thicker one for titles and key words, and the other for body text.

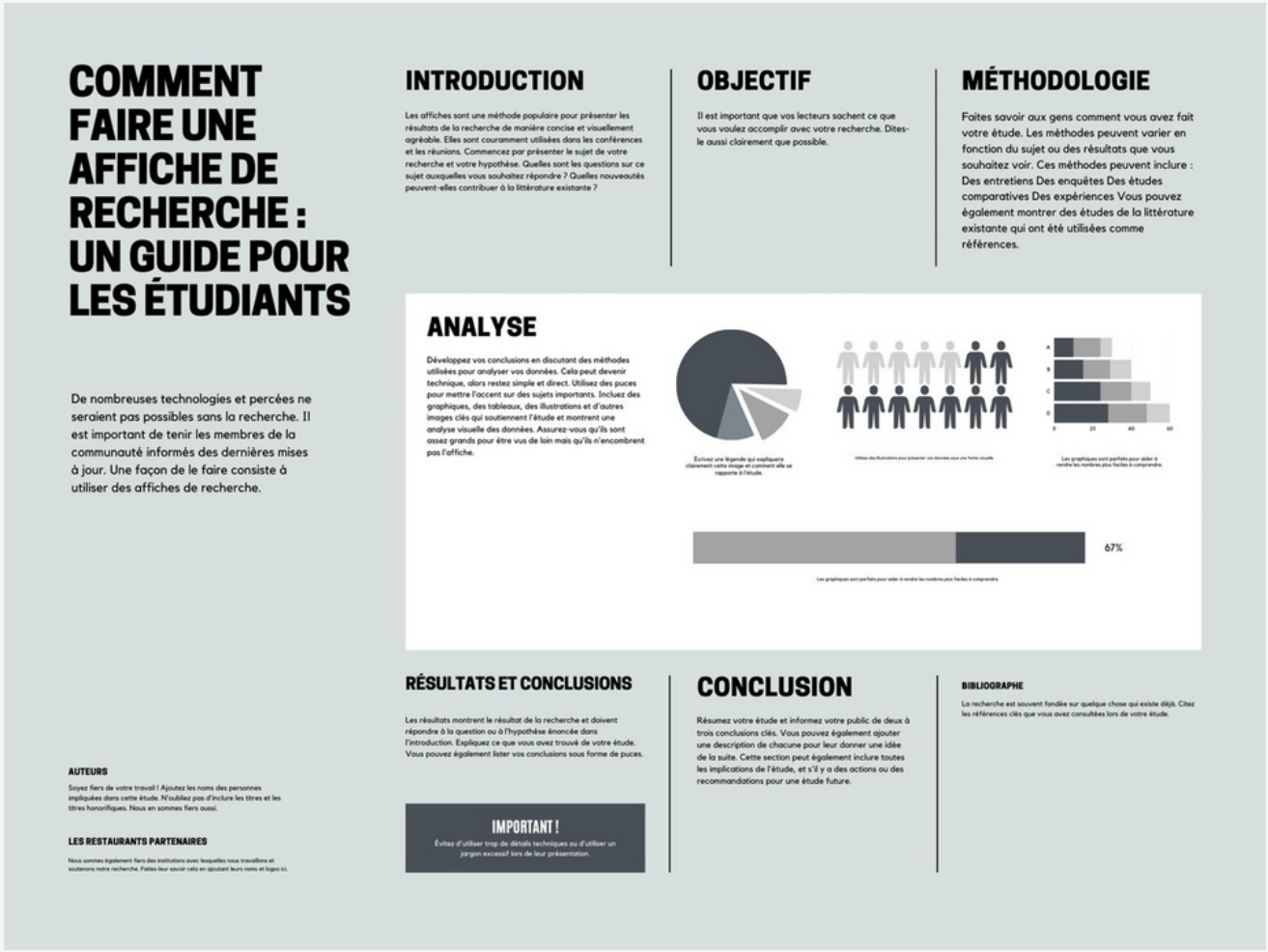
You can get inspired on Pinterest or by searching for designs. Canva even suggests combinations that you can use.

TYPOGRAPHY

Choose fonts that are simple and clear

In our case, as this is a scientific poster, we suggest you opt for **Serif** and **Sans Serif** typefaces. For example, this poster uses two different typefaces, both of which are Sans Serif.

You can see the contrast between the large text headings and the paragraphs and the eye-catching white rectangle in the center of the poster. There's also plenty of white space, which is pleasing to the eye.



TYPOGRAPHY

For optimal readability

A well-designed poster should attract attention and be quickly understood even from a distance.

Here's our suggested text size, but of course this is just for reference because it will depend on the fonts you choose. Some are made smaller, others bigger, so make sure they can be read from a distance of at least 1 meter.

1

Main title
90 pts

2

Subtitle
36-48 pts

3

Body text
28-32 pts

4

References
18-24 pts

STRUCTURE

Layout

The more white space there is, the simpler and more effective the reading, and the greater clarity there is between elements.

Contrary to its name, this doesn't just apply to the colour white. Even if the design is red or blue, there can still be white space. It is the background of the design. It's there to keep the design elements in the poster breathing. This prevents the poster from becoming a wall of text, overloaded with information.

STRUCTURE

Layout

In this poster, you're first drawn to the title, image and graphics, which help you understand the subject, and then, if you want to know more, you'll be drawn to the text. But it's a good example of how information can be conveyed quickly using white space.

Repetition gives a sense of consistency to the design and helps to emphasize the message. Repeating elements gives a cleaner, more structured design, as here in the subheadings, the left-aligned text and the colours.

Proportions help keep the poster balanced. It's important to control the size and quantity of elements and how they fit together.

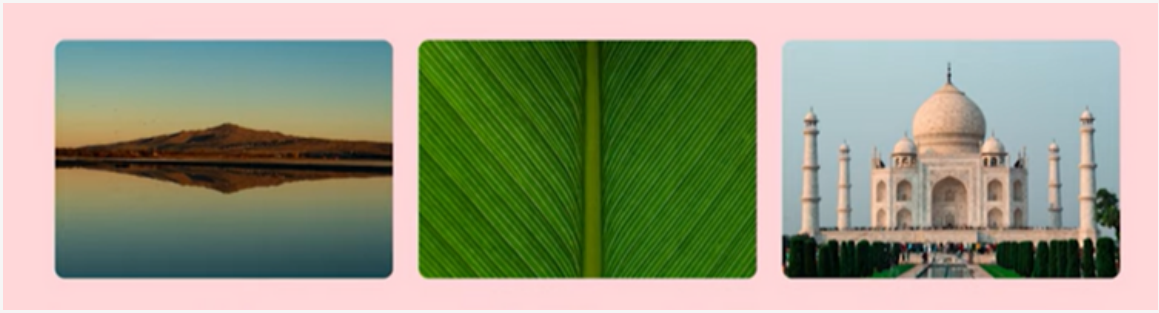
ATTENTION

If you use colours to present data in a graph, it's important to use the same colours to represent the same data in another graph.

STRUCTURE

Layout

SYMMETRICAL



ASYMMETRICAL

Balance is how you position the elements in the design. It can be symmetrical or asymmetrical. Anything symmetrical gives an impression of security, because it's well-structured and everything seems to be in the right place.

Asymmetry is when the elements are not balanced in exactly the same way. For example, one side of the design would have an accentuated element and the other side would have a few less elements to balance it out. It's still balanced, even if it's not symmetrical.

Unbalanced can also be an appropriate technique. For example, when you want to make it clear to someone that something isn't right, you can make a design that represents instability on purpose. This technique is used in scary movies, for example.

STRUCTURE

Layout

Here are two examples. We can see that the symmetrical poster has all the elements well distributed, where as the asymmetrical poster has many more elements at the bottom of the poster than at the top, but this gives it a much more modern and dynamic look.

Another point to remember is alignment. Alignment helps give structure and order to the design. Left, right, horizontal and vertical elements are aligned together along the X and Y axes so that even an asymmetrical poster can look tidy. This is extremely important if you want your design to look professional with a beautiful finish, as in these posters.

ASYMMETRICAL

SYMMETRICAL

Tools for designing a scientific poster

Poster design software

- Powerpoint
- Canva
- Gimp
- Inkscape
- Piktochart
- Adobe Illustrator or InDesign

Websites for finding images

- Freepik
- Pixabay
- Pexels
- Unsplash
- Canva
- Biorender

Tips

Stand out from the crowd

If there's one message you can take away from this training, it's to differentiate yourself.

As a recommendation, we suggest that you:

Put the most important information from your research **in the centre, in big, impactful words, and add a QR Code** for people who want to know more.

This way, your poster won't be loaded with information, and even when you present your poster, there will be more interaction with people. Design really does matter! Even if you have the best research project, a poorly designed poster won't interest anyone! **The goal of a poster session is to learn as much information as possible, quickly and easily.**

It's important for the **title** to be as **clear** and **concise** as possible, because if it's too mysterious, it sets up barriers for people who wants to understand it quickly and easily. And if they feel that it will take too long to understand, they won't want to stop. They prefer a poster that is simple and uncluttered, for shorter, more pleasant interactions.

Stand out from the crowd

Use impactful, entertaining or surprising information to keep people interested instead of providing too much and attracting heavy conversations.

Here's a step-by-step guide to improving your science poster:

1. **Change your title to one that sums up your poster or the message to be retained from your poster.**

2. **Change your complicated paragraphs into short sentences with simple words, explained in the same way you would talk to your friends to make them understand.**

3. **Prioritize images that reflect what you've written to help people understand the poster. Graphics are a little more difficult to interpret. If you add them, remember to add images that reflect the subject of your poster.**

4. **Use colours that evoke the emotion you're trying to convey.**

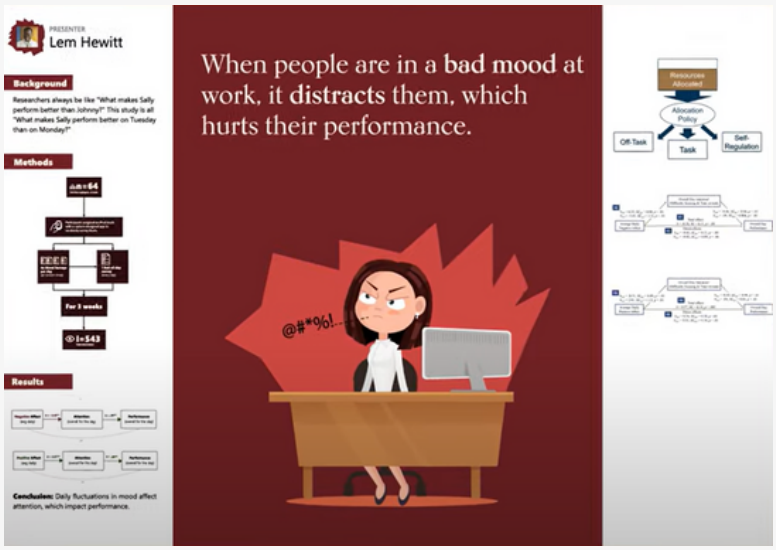
5. **Add a surprise or amusing effect to keep the viewer captivated.**

Example of surprise effects

MIKE MORRISSON

Here the designer uses symbols beside the woman's mouth to show that she's really angry, or an illustration to show what's written in the title.

Let yourself be inspired.



Thanks to this tip, people who stop by will tend to ask questions to find out more about the subject, rather than asking what the poster is about.

This minimizes information overload and heavy conversation, and maximizes clear, precise information while at the same time evoking emotion.

If you have figures to present, you can put them next to each other in large print with a single sentence at the top explaining the graphic. It will work just as well.

Get out of your comfort zone

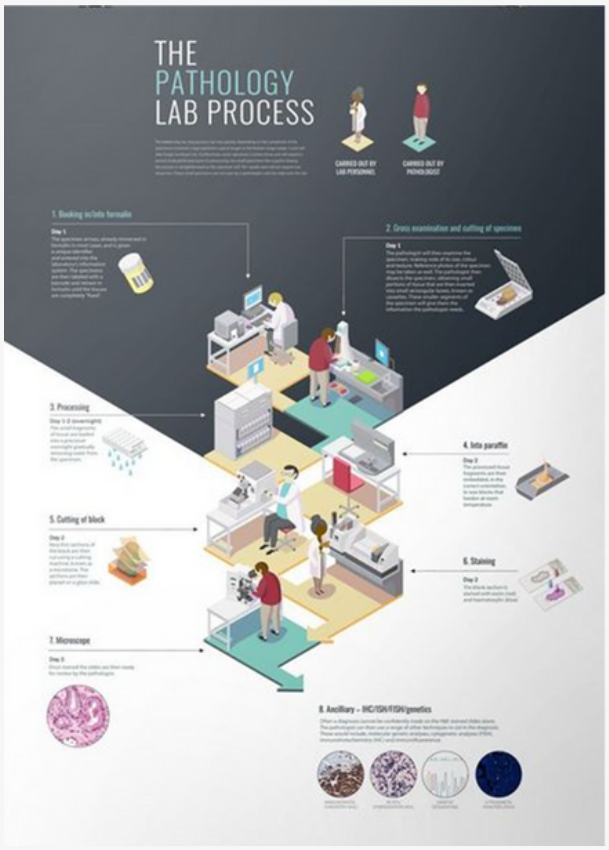
REMEMBER

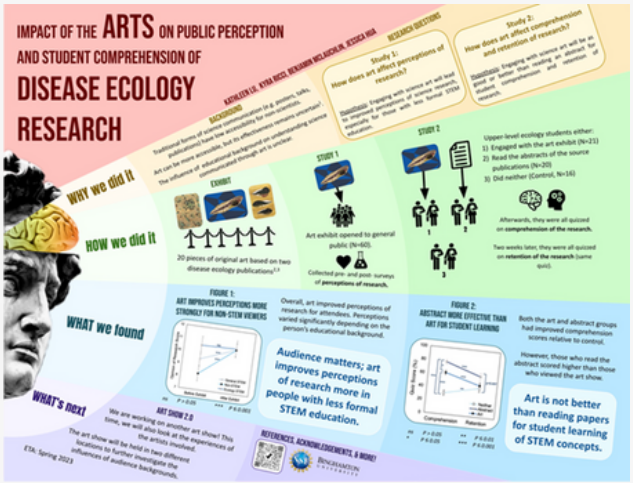
1

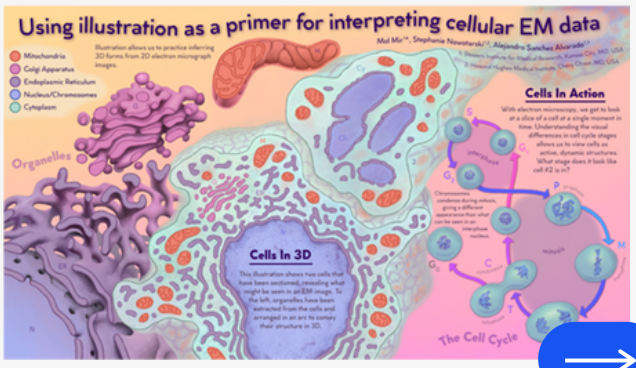
Don't include things that people will ignore

2

People will ignore most things







Useful links

Colour wheel
http://www.lejardindekiran.com/experimenter-le-melange-des-couleurs-en-peinture-reperes-et-principes/

Colour theory
https://www.adobe.com/fr/creativecloud/design/discover/color-theory.html

10 colours and their meanings
https://www.youtube.com/channel/UCTXWK9aaCiJlu6bQboV-oug

Colour blindness
https://fr.venngage.com/blog/palette-adaptee-aux-daltoniens/

Poster templates on Canva
https://www.canva.com/posters/templates/research/

Poster ideas on Pinterest
https://www.pinterest.fr/search/pins/?q=poster%20scientifique&rs=typed

How to create a better research poster, by Mike Morrison
https://youtu.be/1RwJbhkCA58
https://youtu.be/SYk29tnxASs
https://osf.io/ef53g/

Centre de Recherche en Infectiologie Porcine et Avicole
Swine and Poultry Infectious Diseases Research Center
CRIPA
Université de Montréal
Op+lait
Regroupement pour un lait de qualité optimale