Research framework

# Rationale

You will often be asked to perform some research into and object/activity/idea, and then to analyse your research to produce some sort of deliverable (eg. a report or a presentation). Without a framework to guide you, it is highly likely that you will not be massively productive and will waste a fair amount of time, ‘just looking at webpages’. Furthermore, when you come to work on your deliverable, you may very well find that you don’t really remember very much of what you looked at.

It is important that you structure your research and a framework, such as the one below, can be very useful.

It is important that you follow the framework below **for each artefact** you examine. And that you do this work **before** you move on to the next artifact.

# The 4-point framework

## What and when (AKA the reference)

* Very simple, what was it, when did you analysie it?

## What did you analyse?

* For each artifact you examined, summarise the artifact.

## What did you learn?

* Here you present your analysis of the artifact, this will be the largest section.

## How will analysis of this artifact influence your work?

* In this section you need to reflect on whether, this artifact will be useful to your work. Figuring out that it will not be useful is as important to know, as if it is going to be useful.
* Here you should discuss the points of learning that have:
	+ Influenced your thinking;
	+ Provided evidence for any of your arguments;
	+ Established a foundation from which you can base another idea or argument.
* For example:
	+ The stuff about the Solanaceae family is not relevant to my presentation.
	+ The history—although interesting—is not relevant.
	+ The material about capsaicin is very useful.
	+ The bit about seed dispersal, and in particular, the bit about birds and mammals, is very useful indeed.

# Example

You are working on a presentation about why chillis are hot.

## What and when (AKA the reference)

* sci.org blog post: ‘Why are chillis spicy for humans, but not for birds?’, <https://www.soci.org/blog/2022/5/2022-05-31-chilli-chemistry#:~:text=What%20makes%20chillies%20hot%3F,it%20causes%20in%20the%20mouth>., Accessed Mon 18.09.2023

## What did you analyse?

* A blog post from SCI.org (Society of Chemical Industry), explaining why chillis are hot for humans, but not for birds.

## What did you learn?

* The chilli pepper (Capsicum spp.) is a member of the Solanaceae, the plant family that includes edibles such as potatoes, tomatoes, aubergines, but also poisonous plants such as tobacco, mandrake, and deadly nightshade.
* The chilli was brought to Europe in the 15th century by Christopher Columbus and his crew. They became acquainted with it on their travels in South and Central America and, shortly thereafter, to India via the Portuguese spice trade.
* In 2019, 38 million tonnes of green chilli peppers were produced worldwide, with China producing half of the total. Spain is the largest commercial grower of chillies in Europe.
* A chemical called capsaicin gives chillis their heat.



* Capsaicin is the main substance in chilli peppers that provides the spicy heat. It binds to receptors that detect and regulate heat (as well as being involved in the transmission and modulation of pain), hence the burning sensation that it causes in the mouth.
* The seeds of chillies are dispersed in the wild by birds who do not have the same receptors as mammals and, therefore, are unaffected by capsaicin. Perhaps chillies have evolved to prevent mammals from dispersing their seeds?
* Capsaicin has also been shown to protect the plant against fungal attack, thus helping the fruit to reach maturity and the seeds to be dispersed before succumbing to rot. This antifungal property can also be put to good use in helping to preserve foods for human consumption.

## How will analysis of this artifact influence your work?

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