# Template for Planning and Protocolling Experiments

General advice:

* Ask people! Even if you are working on this on your own, and will be alone during the experiment, it never hurts to talk your procedure over with someone. If you're working with unfamiliar tools or materials, do get some hands-on experience with people who have worked with these things, and ask for advice or maybe even a cooperation. Make sure you are familiar with the process before you run your experiment – a lack in craft skill and knowledge, when they are relevant to the process, can easily skew results, lead to false conclusions, or ruin a whole experiment.
* If there's been similar experiments, try to get in touch with the people who ran them for information and feedback. No need to invent the wheel over and over again, or to repeat the mistakes of others. (Unless, of course, you are trying to repeat the experiment, but then it also is a good idea to talk to the first experimentors about this.)
* Plan for enough time! Both preparation and research, as well as the experiment itself, as well as the documentation tend to take much longer than expected. Getting feedback from others will also take time, so it is smart to start research and planning as early as possible. For the experiment itself, check your scheduling and make sure you will have a sensible timeframe, and sustainable workloads for everyone involved. Add in some buffer time where your experiment process allows for it – that way you can take a breather, or have an opportunity to catch up if something took longer than expected.
* Don't forget to schedule time for drying or curing times before you can pack up your experiment and cleaning up.
* Finally, the last step – the aftermath. Do not underestimate the post-processing and write-up time! As a guideline, count on investing at least as much time for the aftermath – sorting through your documentation, checking and transcribing the protocol, editing photographs, and writing up the results, maybe arranging for analyses – as you have invested in preparatory work, planning, and the actual run of the experiment. If in doubt, or if other people are involved (labs, collaborators for analysis, …) add some more time to your calculations for delays and wait times for feedback.
* Have some extra tools and materials on hand if at all possible, just in case something happens. If something is crucial for your measurements, make sure it works, and you are familiar with its use (and, if possible, have a fallback or an extra, such as pH measurement strips in case your pH meter gives up). If more people will use a certain tool, make sure everyone is familiar and comfortable with it before you start.
* In case you are working with natural materials, they might influence your outcome due to natural fluctuations in their properties. Planning and documenting your experiment well, and limiting the factors with natural variation can help, as it makes it easier for yourself or others to repeat your experiment later. An example would be to use de-ionised water instead of tap water for dyeing experiments.
* If possible, always include a reference or a neutral sample in your experiment – that way, you can compare re-runs with variations or repeats better with each other. For example, in a dyeing experiment about the influence of metal kettles, include a sample that is mordanted and dyed in a neutral vessel.
* If you are planning a large experiment that includes a lot of different samples, and you have not made something similar before and know for sure that it works, do a test run. Do not skip this – for instance, in a dyeing experiment, using vessels that are too small for the amount of goods to be dyed can result in spotty dyeing, and that will wreak havoc on the possibility to compare the outcomes.
* Try to get co-experimentors to help and assist you while you are running the experiment – otherwise you will have to hop between taking notes, taking photograps, checking your protocol, and actually doing things. An assistant to take notes, photos, and talk things through with is invaluable to keep things smooth, well-documented, and under control.

# Archaeological Experiment Protocol

#### Experimentor(s):

List your experiment participants and helpers here.

#### Tools and Materials:

List everything you will need here, down to puny things like pens (that hopefully will write on all the surfaces you need them to write on!) and labels. Don't forget the things you will need for documentation (including things like camera, colour control cards, measurement tools, SD cards for pictures, and something to backup your data).

Once you're done writing your experiment protocol, double-check this list to make sure everything is included, and your protocol tools and materials and this list match.

#### General Procedure:

A short abstract/overview of the procedure comes here; this should include the question that is to be answered by the experiment.

#### Items On Hand after the Experiment:

Your outcome in terms of actual physical items – the things you will have on hand afterwards to make your measurements and analyses. This also serves as a check for you to see if your plan is in danger of growing too much, and as planning help to see how many labels etcetera you will need.

# Experiment Schedule:

#### Preparation:

Any preparation procedures for the experiment go here – that is things that you need to do or get before running the actual experiment. Make this a list to help you have everything you need on hand. Preparation includes charging batteries of tools you may have to use, and checking that any tools are in working order.

Preparation steps that are actual parts of the experiment will go into the protocol part.

#### Protocol:

This should be a detailed list of all the single steps necessary to perform the experiment. Writing down the protocol in detail, step by step, will help you catch holes in your plan, make sure you have thought of all things you need, and hopefully give you an overview of how long each step will take, and thus how much time you have to factor in for the whole experiment. Try to estimate how long individual stages will take, don't forget that things may need to heat up and cool down, soak or dry, that measuring will also take time, and that you may need a breather here and there. List your time estimates, and plan for some more time for running the actual thing. If there's good points to take breaks, or things that are of adaptable duration since they can just sit for longer and wait for a bit, mark these spots as well, as possible buffer times.

Also list your documentation points and procedures in this protocol (e.g. “take photos”, “measure pH”) at the appropriate places. It can be easy to forget taking photos or measurements in the excitement of the moment, so it helps to remember taking data if you have the written reminder in your protocol! Make tables for your measurements in advance, and leave spaces in the protocol to fill in the time when you are starting and ending procedures. Remember to make spaces and tables large enough so you can write into them by hand!

Think of this like a very detailed recipe that you only need to follow when running the experiment, taking you through it step by step. Imagine that you are writing the protocol for an entirely clueless other person who will run the actual thing instead of yourself! This may sound weird, but having everything you planned written minutely down in the protocol means you will be less prone to forget something in the heat of the moment, or when you begin to be tired, or when you get distracted. It also means you can clearly see when the plan and reality start to diverge, and makes it easier to tell helpers what to do without forgetting crucial steps.

Any tools and materials that you are going to use should also get listed in the “tools and materials” section above, giving you a checklist to run through before you get started, or when you pack up your things to go to the experiment place.

When you are ready to go, print out your protocol. Make sure you have enough space between sections and/or in the margins to take notes. Though saving paper when possible, I recommend printing it on one side of the sheets only – this gives you readily available extra space for notes on the back of each page. If your experiment includes liquids of any kind, print on a laser printer if possible, not an ink printer.

If your experiment schedule seems very long, or very complicated, or it includes a lot of individual samples to be processed, make a test run – it will save you time, money, and, most importantly, a lot of stress and regrets in the end. (We have enough proof already that it is easy to botch experiments…)

Our experience also has shown that experiments tend to explode – not in the literal sense, but in the sense of a sudden insight that doing some additional procedures might give more useful data about the process to be studied, so don't be surprised if that happens to you, and try to plan some extra time and available materials for this.

And then – good luck, and may your experiment be fruitful!

Protocol Example:

|  |  |
| --- | --- |
| Step 1 | prepare waterbath |
| tools | beakers (20x 250 ml), waterbath pot |
| materials | tap water for waterbath |
| procedure | fill pot with tap water to c. 3 cm height, check function |
| outcome | - |
| time needed | 10 mins |

|  |  |
| --- | --- |
| Step 2 | prepare dyeing samples |
| tools | skeiner, scissors, labelling pen, scales |
| materials | labels, yarn, fabric |
| procedure | skein samples of yarn (each 4 g), tie off for dyeingcut samples of fabric (each 6 g) in size 8 x 16 cm |
| outcome | 40 samples of a piece of fabric and a skein of yarn, 10 g weight for each pair |
| time needed | 2.5 hrs |

empty template:

|  |  |
| --- | --- |
| Step |  |
| tools |  |
| materials |  |
| procedure |  |
| outcome |  |
| time estimated |  |
|  |  |
| start/end time |  |
| notes |  |

This template was written by Katrin Kania and developed from experiences mostly during the European Textile Forum ([www.textileforum.org](http://www.textileforum.org/)). For input, feedback, questions or remarks, please email to katrin.kania@pallia.net.