# Soapmaking can serve as a vehicle for teaching practical and discipline-specific skills during lockdown

## Soapmaking 101 – Exploiting COVID-19 to teach practical science and analytical skills remotely

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### INTRODUCTION

- COVID-19 safety measures prevented medical science students from undertaking a range of standard physiological labs.
- Students requested that other ways be found to provide them more practical skills/analytical experience, even when working remotely.
- Given the press regarding handwashing and its effectiveness against COVID-19, we developed a soapmaking practical, streamed live from the lecturer's kitchen that allowed us to address student needs, developing a compressed version they could undertake during their limited classroom laboratory time if they were on campus.
- We used this practical as a platform for numeracy, analytical skills, health and safety, COVID-related physiology, toxicology and careers discussion.

### PROJECT OUTLINE

- **DURING LOCKDOWN**
- Academic developed a protocol for soapmaking that they could film easily at home using existing University technology e.g. Collaborate, Panopto.
- Reagents were chosen so that students could safely undertake the same experiment at home if they wished, with variation available in case students lived outside of the UK or had problem obtaining some resources.
- This live practical lesson was streamed via Collaborate so students could ask questions about various steps of the protocol and could collect data.
- The same lesson was provided to a US student audience who were also experiencing issues with running practical labs remotely.

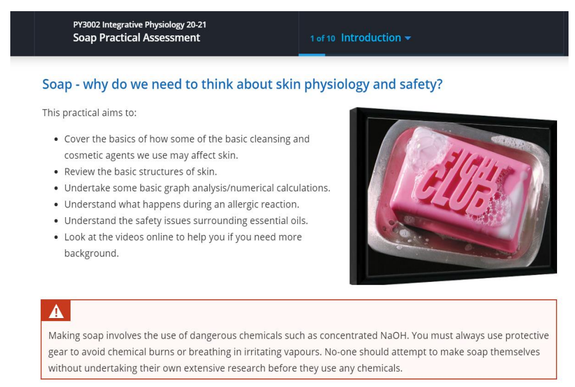
- **AFTER LOCKDOWN – BACK ON CAMPUS**
- Protocol developed so students could undertake similar experiments and gather data.
- Used slightly different equipment/recipes etc to give them more experience.
- Existing YouTube videos of new protocol utilised to help students with experiments.
- Online assessment integrated parts of experiments streamed from lecturer's home and lab-based experiments.
- Data/videos provided for those who could not attend campus.

### RESULTS

- This exercise allowed us to start some remote practical teaching before we could re-enter the practical labs and then continue when we could access campus again. We were able to achieve a variety of things using this activity:

- Live streaming allowed students to see an experiment in action, along with errors (!), collection of data/maintain a lab book, discussing how science was being used to tackle COVID, what careers this branch of science could lead to, plus a bit of pastoral care.

- Students could follow protocols, input data and undertake assessment through various tasks using our cloud-based system, Lt.
- This allowed academic staff to author new material quickly and students to access resources through a variety of devices remotely.

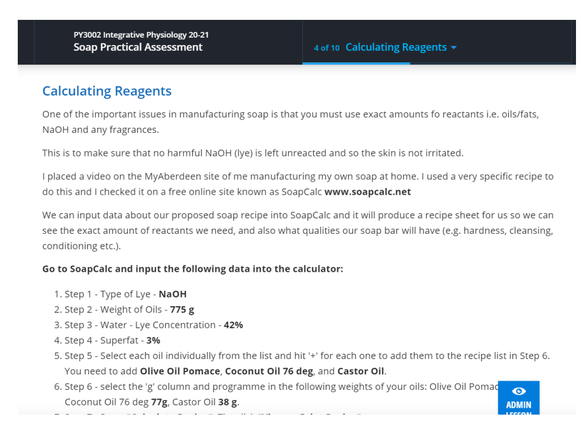



- Tasks such as calculations are not often popular with students, but we were able to contextualize so students could see why these skills are important, and why getting these wrong could cause danger to the public.

- Data sets were provided for more advanced analysis/plotting/interpretation.

- We were able to explore issues relating to health and safety, toxicology, allergy and anaphylaxis.

- Part of the assessment involved students reading more widely to obtain safety information, along with using external safety web resources so they could check the accuracy of their work.




- Once we were able to return to campus, we were able to give students the chance to run their own socially-distanced variant of the experiments, but also provided an online variant for students who could not come to campus.

- **For a class of n = 40 at Level 3, grades ranged from D3 to A1, with a mean score of an A4.**
- **Analytics showed that students spent significant time using the assessment and resources, as evidenced by the login/watch time.**

### DISCUSSION

- Whilst the pandemic disrupted the normal human practical classes we would usually, run, this exercise showed that we could quickly adapt and develop new activities that could help students demonstrate their mastery of a variety of graduate/transferable attributes.
- In addition, we were able to develop an activity that related to the pandemic and help explain some of the questions that students had about COVID-19 and some of the health advice being recommended at the time.
- We also demonstrated that we could achieve a large amount using existing resources and equipment, spending only minimal amounts of money, and using existing expertise within our staff population.