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## **An inquiry-based ‘at-home’ experiment to maximise the practical experience of undergraduate chemistry students during the COVID-19 pandemic**

During the COVID-19 pandemic, universities across the world have been forced to adapt their undergraduate degree courses. This has been particularly challenging with practical STEM subjects such as chemistry. Approaches have included the use of online videos, virtual reality or ‘dry’ laboratories and the reduction of teaching laboratory capacity to enable social distancing. The reduced ability to host students in undergraduate teaching laboratories presents a large challenge of how to provide them with sufficient practical experience.

At the chemistry department of the University of Birmingham we created and implemented an at-home laboratory experiment for the first-year undergraduate chemistry course. The activity, spanning over 2 weeks, focused on data collection, statistical analysis, inquiry-based learning and project planning. This meant that the limited hours available in the teaching laboratories due to social distancing requirements could be focussed on skills that require specialist equipment. The experiments were designed to only utilise safe household items and any additional necessary equipment was provided.

In the first week of the experiment students explored how sodium chloride solutions of different concentrations affect the germination and growth of cress seeds, and used their data to plot a dose-response curve. The second week of the experiment focused on students working as a group to investigate their own hypothesis based on the results obtained in the first week.

In this poster we describe the design of the practical, the results the students obtained and their feedback for the experiment, while also providing a discussion on how similar activities could be integrated into a standard first-year undergraduate chemistry course.

### **Key words**

Chemistry, Practical, At-home, Lockdown, Experiment

### **Region**

UK/Ireland

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