

# Virtual Chemistry for Pharmacy

## Practical - STEM Presentation



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PROGRESS INDICATOR

# Project Brief

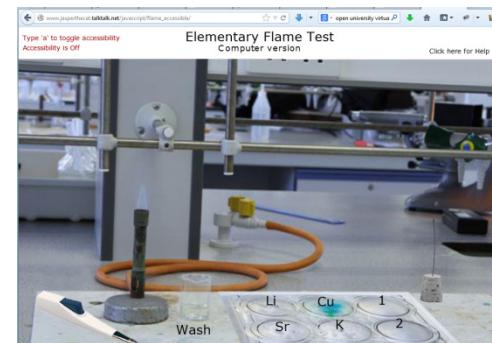
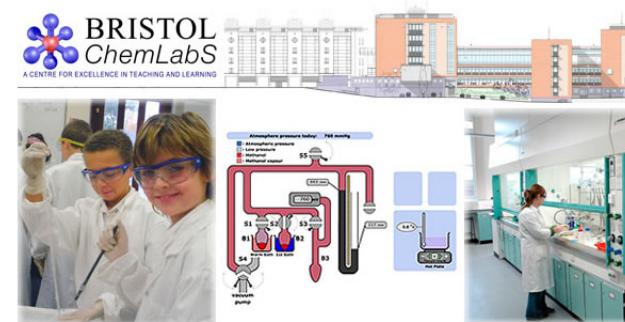
- To design, develop and run a 10 virtual practical's on chemistry for pharmacy
- To facilitate the development of online support materials through the VLE
- To facilitate the use of interactive teaching methods using 'clicker's

# The background

- A new Mpharm Programme still going through GpHC accreditation with 80 new students
- A brand new 'virtual lab' teaching space
- No capacity for 'real lab' chemistry teaching
- Two Modules (Y1 CP and Y2 CP) each with 5 practical needing to show curriculum integration
- One forward thinking Pharmacy professor, two new medicinal chemistry lecturers and one instructional designer up for a challenge!

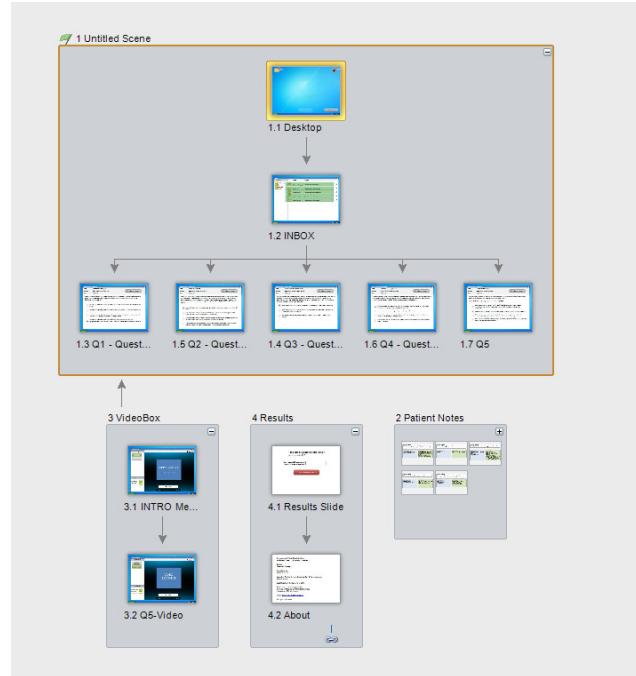
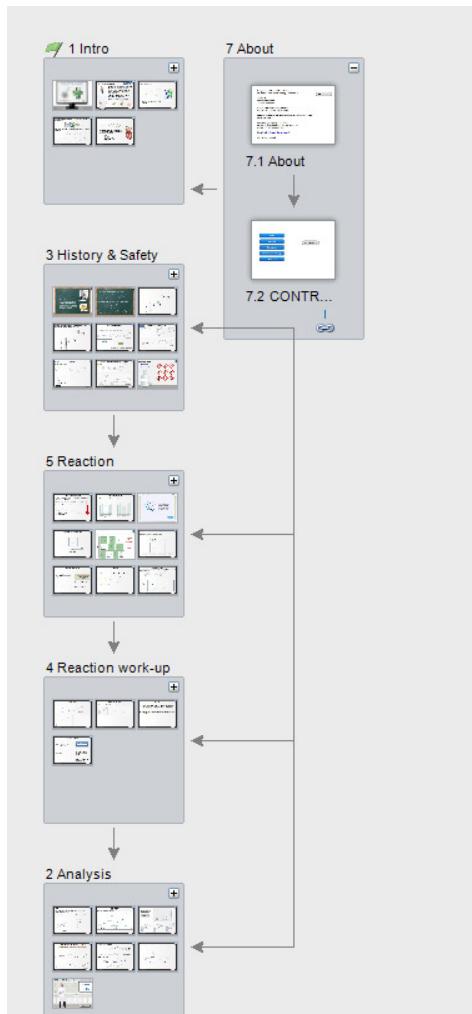
# Literature Review and Pre-development Research

- Bristol Online Labs
- (OU) OpenScience
- Stock experiments e.g ChemCollective
- Numerous ‘virtual’ chemistry textbooks
- Chemistry attitudes and expériences questionnaire (CAEQ)



A screenshot of a website page for a virtual lab. The top navigation bar includes "HOME", "ABOUT", "CONTACT", and "LOG IN". The main content area is titled "RESOURCE TYPE: Virtual Labs". It contains a sub-section titled "Stoichiometry" with a "Get Info" button and a "Go" button. Below this, there is a "Glucose Dilution Problem" section with a "Get Info" button and a "Go" button. The left sidebar has a "RESOURCES BY TOPIC" section with links to "Stoichiometry", "Thermochemistry", "Kinetics", "Equilibrium", "Acid-Base Chemistry", "Solubility", "Oxidation-Reduction and Electrochemistry", "Analytical Chemistry/Lab Techniques", "Physical Chemistry", and "Properties of Solutions". The bottom of the sidebar has a "RESOURCES BY TYPE" section.

# Developing the 'Learning Design'



# Technical Development

- Articulate Storyline a new breed of rapid e-learning development tools (6 months old)
- University investing in Canvas at the beginning of our development
- Roles in development and innovation for CBL

# Demonstration Time!

- Fingers crossed!

# Blended Learning

- The Mpharm programme purchased 80 clickers and their use is being piloted across the first year.
- Data from each use is being saved for analysis at the end of the year.
- Staff development on MCQ design and the use of clickers was delivered to support the work
- Canvas is being developed to support ‘banks’ of formative MCQs and to host mini-revision lectures

# Evaluation Strategy

**CHEMISTRY EDUCATION  
RESEARCH AND PRACTICE IN EUROPE**  
2002, Vol. 3, No. 1, pp. 19-32

**RESEARCH REPORT**  
*Attitudes*

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## **THE DEVELOPMENT OF THE CHEMISTRY ATTITUDES AND EXPERIENCES QUESTIONNAIRE (CAEQ)**

*Received 24 April 2001; first revision 27 December 2001;  
second revision 20 February 2002; in final form/accepted 1 March 2002*

**ABSTRACT:** In this paper we describe the Chemistry Attitudes and Experiences Questionnaire (CAEQ) developed to measure first year university chemistry students' attitude-towards-chemistry,