

Switching to online learning – the Good, the Bad and the Ugly



CHEM113: 250 students, wide range of backgrounds, at least half have 1-2 Level 3 Chem AS (external)

CHEM114: 80 students, all have at least 3 Level 3 Chem AS (external) or equivalent, range from 3 As, to 3 Es or Scholarship (OS)

Issues: Coping with change to 3^o study and need for self management, sense of isolation/lack of community, overwhelmed, not engaging with opportunities for help till too late

What have we learned from teaching under COVID-19?

From the literature

- Increase in viewing of ‘worked example’ videos
- A large proportion of students do not interact online – “easy to skip a meeting because I can do it later”
- Asynchronous learning is preferred from synchronous
‘In house’ videos preferred to ‘internet’ options.
- Weaker students tend to ‘opt’ for on-line learning but are less likely to succeed.
- Pull of on-line distractions
- Major barriers in on-line learning: lack of social interaction and community

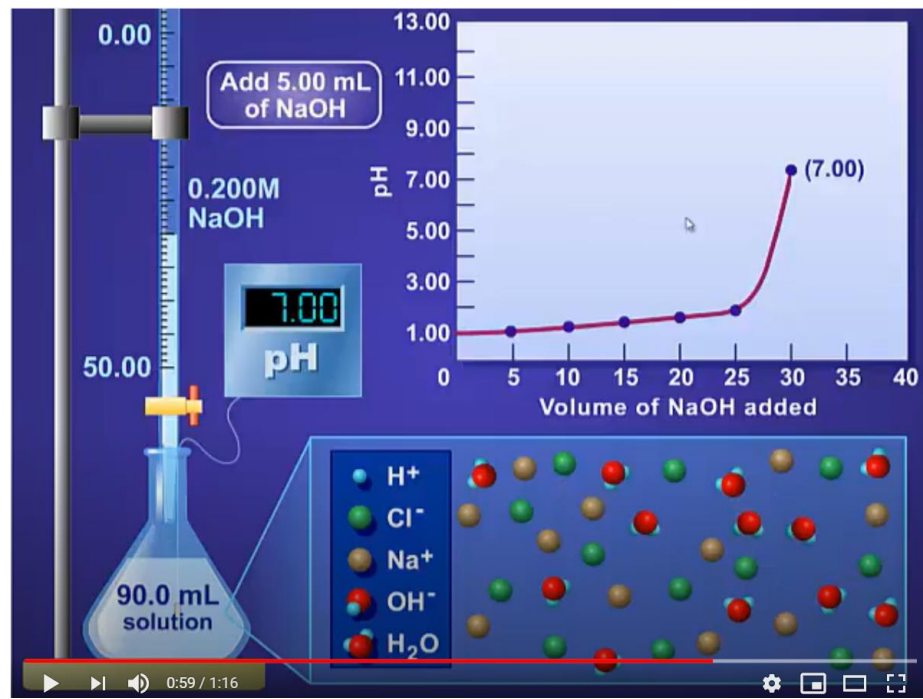
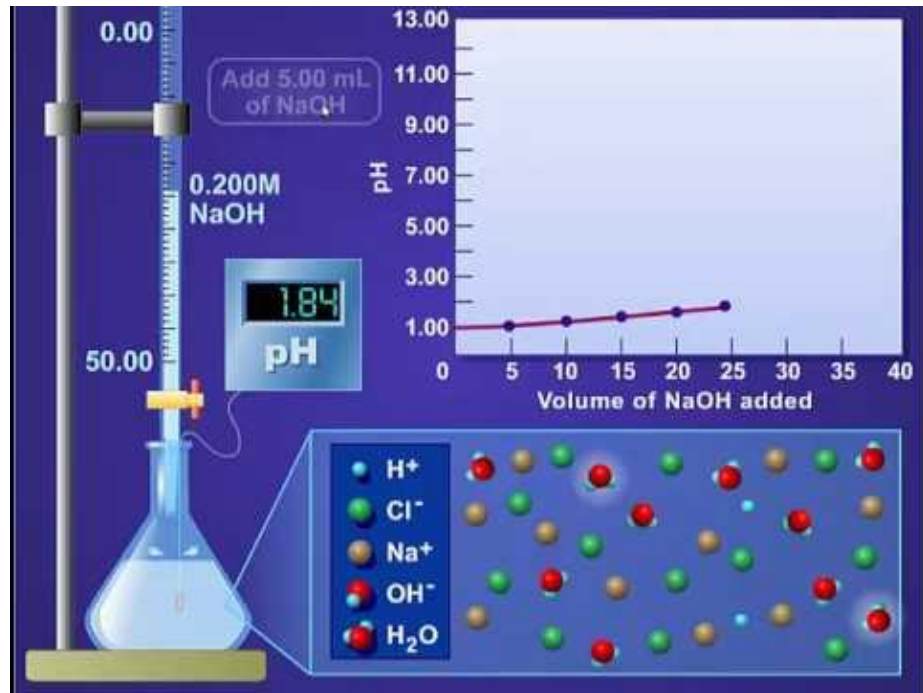
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- The Good – let's keep this in our programmes in the future
- The Bad – with a bit of tweaking we might be able to salvage something useful
- The Ugly – let's not go there again



GENERATING TITRATION CURVES

<https://www.youtube.com/watch?v=SQEmKzx7Ghs>



CREATIVE EXERCISES

Exercises that help students – particularly scholarship students – review/recall/map their knowledge of a subject area

Write down as many **correct, distinct and relevant** facts as you can about:

1. $\text{CH}_3\text{CH}_2\text{CH}_2\text{Br}$ $\text{CH}_3\text{CH}=\text{CH}_2$ $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$
2. 107.87 g $\text{AgNO}_3(\text{aq})$ reacts with 36.46.g $\text{HCl}(\text{aq})$
3. $\text{CH}_3\text{CH}_2\overset{\text{O}}{\parallel}{\text{C}}\text{H}$ $\text{CH}_3\overset{\text{O}}{\parallel}{\text{C}}\text{CH}_3$ $\text{CH}_3\text{CH}_2\overset{\text{O}}{\parallel}{\text{C}}-\text{OH}$
4. CF_4 , SF_4 , XeF_4
5. 0.1 mol L^{-1} solutions of HCl , NaCl , CH_3COOH
6. $\text{CH}_3\text{CH}_2\overset{\text{O}}{\parallel}{\text{C}}\text{Cl}$ $\text{CH}_3\text{CH}_2\overset{\text{O}}{\parallel}{\text{C}}\text{NH}_2$ $\text{CH}_3\text{CH}_2\overset{\text{O}}{\parallel}{\text{C}}\text{OH}$
7. $\text{CH}_3\text{CH}_2\overset{\text{O}}{\parallel}{\text{C}}\text{CH}_3$ $\text{CH}_3\text{CH}_2\underset{\text{OH}}{\text{C}}\text{HCH}_3$ $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$

SCAFFOLDING LOGICAL EXPLANATIONS

- Developed for Level 2 and Level 3 students at Te Kura by Delene Holm
- Adapted for CHEM113 (mostly equivalent to NCEA Level 3) and CHEM191 (mostly equivalent to NCEA Level 2)
- Students have 7-8 questions to answer to help scaffold a logical explanation for a range of structure and bonding.
- Can be crafted to suit each school/teachers/ approach to a topic
- Students should progress to practising exam style questions that they answer, initially using the scaffold and then working independently.