

CBC Demo Lab Digest



*Keep your eye on the finish line!
You are almost there!*

*This is our last Newsletter for
the Summer. Good luck with
Finals! Demo Digest will
return in the Fall :)*

To order for Summer 2024, Please click
here :)

or scan the QR Code:



Today is Friday, June 21st
... And these are the trendiest
demonstrations for the upcoming week!

We are currently re-organizing our lab now chemicals, models, and all equipment alike are just as confused of their location as we are ... so while they are still (somewhere) on our shelves, order while you can!

Use the [link](#) (Password: hydrogen) to order as well as the full list of demos; as always, early orders are very appreciated!

General Chemistry I

Weekly topics

- CH 11 Liquids and Intermolecular Forces
- CH 12 Solids and Modern Materials

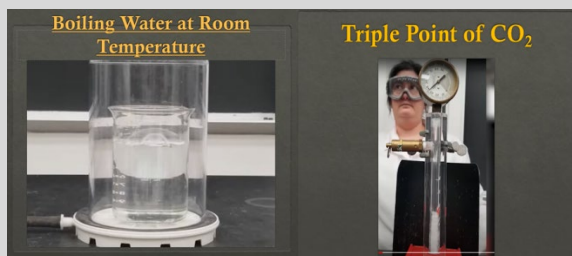
Liquids and Intermolecular Forces



Halogens – Display flasks containing the halogens chlorine, bromine, and iodine.

- Add a special flask of bromine that can be frozen in liquid nitrogen.

Polarity and Geometry – Show the dependence of dipole-dipole forces on geometry by contrasting the effect of a charged rod on streams of H₂O and “CCl₄” (actually hexane) flowing from burets.



Boiling Water at Room Temperature – Show water boiling at room temperature in a beaker in an evacuated bell jar, then put your hand in the water after boiling to convince students of its low temperature. (Upon request, we can give you a clean beaker and tap water if you want to drink the boiled water).

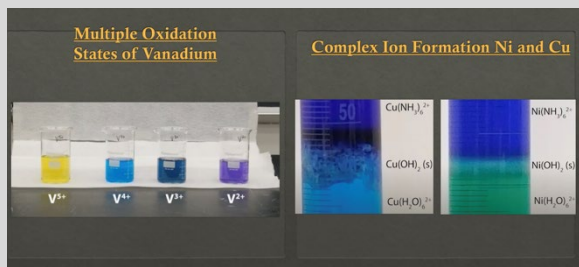
Triple Point of CO₂ – Demonstrate the existence of three phases of CO₂ at the triple point by adding crushed dry ice to a clear acrylic tube fitted with a pressure gauge and a release valve.

General Chemistry II

Weekly topics

- CH 23 Transition Metals and Coordination Chemistry.
- CH 21 Nuclear Chemistry.

Transition Metals and Coordination Chemistry



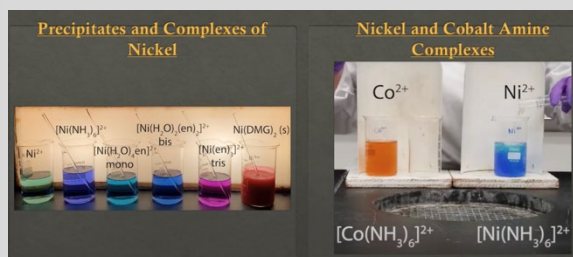
Multiple Oxidation States of Vanadium - Shake a solution of ammonium meta-vanadate with a Zn-Hg amalgam to reduce the vanadium from

+5 to +4 to +3 to +2 with different colors at each stage.

Complex Ion Formation Ni and Cu –

Show color change associated with formation of complex ions. In a tall graduated cylinder of Cu²⁺ or Ni²⁺ aqueous solutions, carefully add 6 M NH₃ to create a layering effect of [M(H₂O)₆]²⁺ / M(OH)₂ / [M(NH₃)₄]²⁺

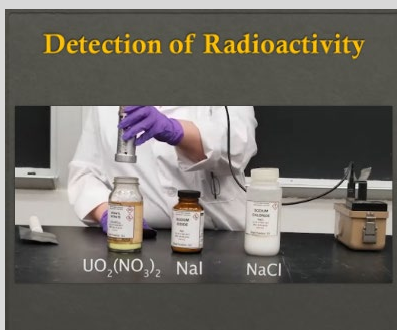
- CuSO₄ gives a blue / white / dark blue layering
- Ni(NO₃)₂ gives a green / white / dark blue layering



Precipitates and Complexes of Nickel –

Add different amounts of ethylenediamine to beakers of Ni²⁺ to contrast the colors of Ni(H₂O)₆²⁺ and the Ni²⁺ chelate complexes with one, two, and three ethylenediamine molecules.

Nickel and Cobalt Ammine Complexes – show the dependence of color on both the metal ion and its oxidation state. Add concentrated ammonia to Ni²⁺ and Co²⁺ solutions to show different colors with the same ligand. Next, shake some of the resulting [Co(NH₃)₆]²⁺ complex with O₂ to shift the oxidation state from Co²⁺ to Co³⁺, to show different colors with different oxidation states.



Detection of Radioactivity – Use a Geiger counter to demonstrate the radioactivity (or lack thereof) of several substances, including NaI, NaC and uranium salts. A sheet of lead is provided to display the ability of lead to block radiation.

Have a great week!



P.S. If you are ahead/behind of schedule, let us know so we can adjust the demos accordingly. Currently we are simply using the syllabi to guess where your respective classes are at. And [here](#) is the [link](#) again