Electrochemical Cells and Electroplating

These videos are fewer in number and longer in length than the previous list. Tyler's simple movable graphics in these videos help show conceptually what happens in galvanic and electrolytic cells.

Introduction to Electrochemistry (16:36)

In this video Tyler describes how oxidation-reduction reactions can be used to create galvanic calls (also called voltaic cells) which spontaneously produce electricity and can be used as batteries, and electrolytic cells, which are non-spontaneous reactions that only happen when electricity is put through them.

https://www.youtube.com/watch?v=teTkvUtW4SA

Galvanic Cells (Voltaic) Cells (23:34)

In this video Tyler describes in detail all the parts and operation of a galvanic cell.

https://www.youtube.com/watch?v=7b34XYgADlM

Electrolysis (32:45)

In this video Tyler talks specifically about electrolytic cells, using two different reactions as examples. This video also includes a brief review of assigning oxidation numbers and balancing redox reactions.

https://www.youtube.com/watch?v=dRtSjJCKkIo

Electroplating (15:16)

This is a conceptual description of how electroplating works. Electroplating is part of the Electrochemistry Stoichiometry module in CH302. Tyler doesn't get very deep into the redox chemistry of electroplating in this video (that's in his next video), and he doesn't introduce any formulas for doing calculations.

https://www.youtube.com/watch?v=NClagKbLUMM

Electroplating Part 2 (8:45)

The redox chemistry behind electroplating. One thing to notice is that in electroplating the two half-reactions are the reverse of each other – in his example Ag(s) is oxidized to Ag^+(aq) at the anode, then Ag^+(aq) is reduced to Ag(s) at the cathode. There are no calculations involving coulombs, amps, and time in this video.

https://www.youtube.com/watch?v=0NwSY58g1uY

Tyler DeWitt's YouTube channel is at https://www.youtube.com/channel/UCj3EXpr5v35g3peVWnVLoew