

## AP Chemistry

### Stop Motion Animation Galvanic Cell Project

#### AP Chemistry Learning Objectives:

LO 3.12: The student can make qualitative or quantitative predictions about galvanic or electrolytic reactions based on half-cell reactions and potentials and/or Faraday's laws.

LO 3.13: The student can analyze data regarding galvanic or electrolytic cells to identify properties of the underlying redox reactions.

#### Task:

- Create a short stop motion animation (using a free app like Stop Motion Studio) that shows the workings of a galvanic cell. You may use the model pieces given in class if you want. You will need to draw out the container for the pieces to move in and you may need to create a few additional pieces or adjust the pieces to fit the cell you are given.
- Create four questions to go along with your animation.

#### Requirements:

- Show the entire process of a Galvanic cell – use the substances highlighted below:
  - o  $\text{Cu}^{2+}$  and Ag
  - o Zn and Ag
  - o Ag and  $\text{Cd}^{2+}$
  - o Mg and  $\text{Fe}^{2+}$
  - o  $\text{Ni}^{2+}$  and  $\text{Cu}^{2+}$
- Use words (written or spoken) to describe what is happening.
- Must include (not necessarily in this order):
  - o What species you have (in aqueous solution and in solid form) at both anode and cathode at beginning and at end and what has changed from beginning to end
  - o How you know which species will be oxidized and which will be reduced (and what does that mean?)
  - o Reduction equation and oxidation equation and overall balanced redox equation
  - o What is happening at the anode (at the microscopic and macroscopic level)
  - o What is happening to the electrons
  - o What is happening at the cathode (at the microscopic and macroscopic level)
  - o What happens with salt bridge and why this is necessary
  - o Explain what compound you put in the salt bridge and why
  - o Calculation for standard voltage for this reaction
- Along with the stop motion animation, you must have **4 questions** that go along with your animation. These questions should not be DIRECTLY answered in your video, but should go along with the reaction you have. You may model these off the questions asked in class, but they must be original questions. Make sure to provide any information needed to answer the questions.

The questions must be on one page and the answers (worked out if calculations) on a separate page.