Framework for Teachable Tidbit
Intersections of Biology and Physics

Group Members: Amy, Erin, Jennifer, Joy, Kathleen, Stephanie, and Sierra (facilitator)

- Who? 25 biology majors
- What? Conceptual Physics course
- Where? Midway through course
Learning Goals and Intended Outcomes/Objectives

• Who? 25 biology majors
• What? Conceptual Physics course

• Learning Goal: Understand how a chemical battery works.

• Learning Objectives:
  1. Identify key features of a battery.
  2. Draw and label a battery and describe how it works.
  3. Develop and explain an analogy of how a battery works to a concept in biology.
Assessment

- **Summative Assessments**
  - **For our tidbit**
    - Create a 3-D model of the analogy and explain how it works like a battery.

- **Other possibilities**
  -Create a poster of your group’s analogy
  - Exam
  - Research paper
  - Given specific materials, make a battery that will light up an LED
  - Research, design and create a battery out of new materials (no lemons or potatoes)

- Activities and Formative Assessments...
Questions from Reading

Why does a battery need…

1) an anode?
2) a cathode?
3) an electrolyte?
4) a wire + bulb?
Think, Group, Share

• What would your life be like if you didn’t have batteries?
Complete the Puzzle

Objective: Identify key features of a battery.

- Assemble 4 pieces
- Match labels and descriptions to each piece
- Draw arrow(s) indicating the flow of electrons
- Discuss **separation of charge** and **potential**
AA Dry Cell Battery

Objective: Draw and label a battery and describe how it works.

- With your neighbor:
  - Research a AA dry cell battery, a different form of a chemical battery
  - Create a sketch on your whiteboard, labeling key features (& compare to puzzle)
  - Compare your sketches with your group
Human Battery

The Matrix, 1999
Propose a Biological Analogy to a Battery

Objective: Develop and explain an analogy of how a battery works to a concept in biology.

• In your group:
  • Brainstorm possible analogies
  • Select one for your final project
  • Create a sketch on your whiteboard as a rough draft for your 3-D model
  • Share
Next Step: Final Project

Objective: Develop and explain an analogy of how a battery works to a concept in biology.

• In your group:
  
  • Create a 3-D model of the analogy you’ve proposed and explain how it works like a battery.