ELECTRON FLOW

Pre-Visit Class Activity

Electric Vocabulary

Students will participate in a jigsaw activity to summarize and teach other students the meaning of key terms for the *Electron Flow* field trip.

Objective:

- Develop background knowledge of key terms used in the *Electron Flow* laboratory experience.
- Practice using reference materials to locate information.
- Practice summarizing information.

Duration:

- Preparation: 20 minutes
- Instruction: 50 minutes

Correlations to California Academic Standards

California Content Standards

Fourth Grade

> **Writing - 1.6: Locate information in reference texts by using organizational features (e.g., prefaces, appendixes).**
>
> **Writing - 1.7:** *Use various reference materials (e.g., dictionary, online information) as an aid to writing*
>
> Students use reference materials to find information.

Fifth Grade

> **Writing - 1.3: Use organizational features of printed text (e.g., citations, end notes, bibliographic references) to locate relevant information.**
>
> Students use reference materials to find information.
>
> **Science - Physical Science - 3a**. *Students know when liquid water evaporates, it turns into water vapor in the air and can reappear as a liquid when cooled or as a solid if cooled below the freezing point of water.*

Science - Physical Science – 3b. *Students know water vapor in the air moves from one place to another and can form fog or clouds, which are tiny droplets of water or ice, and can fall to Earth as rain, hail, sleet, or snow.*.

Students summarize definition of the water cycle's phases.

Vocabulary List:

1. Atom
2. Circuit
3. Current
4. Efficiency
5. Electricity
6. Electron
7. Kilowatt
8. Kilowatt Hour (KWh)
9. Nucleus
10. Volt
11. Watt

Materials List:

- Dictionary for each student or access to an online reference such as Merriam-Webster's Word Central (http://www.wordcentral.com).
- Piece of recycled paper or copy of "riddle template" and pencil for each student or student group.

Getting Ready:

1. Divide your class into groups of four.
2. Write the vocabulary list on the board.
3. Locate enough dictionaries, encyclopedia, or online reference sources for your students.
4. Make a model of a "riddle template" (see below).
5. Copy the following definition from Merriam-Webster's WordCentral.com definition for "current" onto a transparency:

   1: a) *the part of a fluid body moving continuously in a certain direction* ***b)*** *the swiftest part of a stream*
   2: *general course or movement:*
   3: *a stream of electric charge; also* ***:*** *the rate of such movement*

   Model how to identify which information is appropriate for the topic they'll study on the field trip. For example, "1 and 2" obviously doesn't pertain to the topic of electricity.
6. Think of how to model writing a two-sentence riddle for a term, such as "current".

   Point out how key words in a word's definition, like *charge* and *stream*, that can help write a riddle:

   Running water I am not. Sufficient of me is needed or your machines will act depleted.

Procedure:

1. EXPLAIN ACTIVITY

- Tell students that in preparation for the trip to the Roseville Utility Exploration Center, we should get to know some key terms, like the ones you've listed on the board.
- Explain that students will be responsible for teaching each other what these terms mean through writing riddles.
- Explain that students will trade papers twice so it's important to use the best handwriting possible.

2. DEMONSTRATE IDENTIFYING APPROPRIATE INFORMATION

- Show the transparency for the definition for "current". Model how to identify the appropriate information and key words in the definition.

3. SUMMARIZE

- Explain that each member of a group will be responsible for at least 2 terms. Direct groups to decide which terms each member will cover.
- Distribute riddle worksheet and reference materials.
- Explain that the bottom half will be used to write the riddle. For this step, students should write the word's definition in the top half only.
- Model how to summarize or "put into your own words" a definition for water.
- After students have summarized the definitions for their terms, encourage them to sketch the meaning of each term while they wait for their peers to finish summarizing.

4. WRITE RIDDLES

- Have student's trade papers.
- Model how to write a riddle based on the summary.
- Direct students to write a riddle in the bottom half of the worksheet for each summary.
- Hold the worksheet in landscape (horizontal) position and demonstrate how to fold the form into half backwards on itself to hide the top half.

5. REVIEW DEFINITIONS

- Go over the terms and ask students to share their definition for each term.

6. SOLVE RIDDLES

- Have students fold over their papers so that only the riddles show.
- Direct students to trade papers once again, this time with a person from a different team.
- Ask students to solve each riddle.

7. WRAP-UP

- Go around the room, asking students to share a riddle they solved.
- As an extension, assign each of your students a term. Then ask them to draw the meaning on a full-sized sheet of paper. Hang these papers around the room to serve as reminders of what they'll learn on their field trip.

Word: Summary:	Word: Summary:	Word: Summary:
Riddle:	Riddle:	Riddle: