Gold Seal Lesson:

Copernicus Education Gateway

Author(s): *Gail M. Venezio*			***Lesson Title:*** *Electricity*			
Grade Span			***ICLE Application Model***			
K-4 ***X***	***5-8***	***9-12***	***A***	***B***	***C***	***D*** ***X***

Instructional Focus:

Listening:
Students listen for a variety of purposes appropriate to the grade level.

Tools and Technology:
Students use appropriate tools and technologies to model, measure, and apply the results in a problem-solving situation. Students communicate the reasoning used in solving these problems.

Basic Concepts and Knowledge:
Students develop an understanding concepts using facts, theories, principles, and models.

Performance Task

- Begin by asking each student to bring a 9volt battery to school.
- Students will have spent considerable amount of time discussing, different cultures and holidays around the world. The common theme is that all cultures use some form of light to celebrate the holidays.
- Using a simple circuit we can construct and teach the concept of series circuit.
  - Children will learn that some materials conduct electricity and other act as insulators.
  - Students will learn that electricity is a form of energy that gives us light.
- After discussion of Rudolph the Red-Nosed Reindeer, and other cultures, and the importance of light in expression of holidays, construct a circuit.
  - Pass out paper plates, paint brown, let dry.
  - Poke a hole with pencil in center. Place a bulb through hole and take some insulation off wire for students.
- Begin discussion of materials used in a circuit.
  - Wire conducts electricity. Wire is coated in insulating material, so we do not get a shock when handling.
  - Plastic is an insulator, water is a conductor-discuss why we need to dry hands before touching electrical appliances.
- Experiment with a large battery and wire, and bulb.
  - Discuss the parts. The battery gives us the power or energy, wire carries the electrical current, plastic coating provides insulation from electrical current, and bulb provides the light. Have each student hold part of wire or help to complete a circuit. The circuit is complete when all metal is touching metal and electricity flows from battery terminal through wire to bulb, and back to wire to battery terminal. Now introduce the concept of a switch-something that causes a temporarily interruption of the flow of electricity.
- Now we can begin to build our own circuits with these simple understandings. Construct our own Rudolph following the attached photograph.

ICLE Essential Skills

Follow oral or written directions. (ela4)
Plan and apply real or hypothetical models and constructions to facilitate investigation and learning and the solution to practical problems. *(Not Ranked s115)*
Understand electric current (i.e., the flow of electric charge) and apply it to conductivity, amperage, resistance, and circuits in parallel and series. (s29)

Scoring Guide:

Score each of the following characteristics on a scale of 4 to 0, where 4= surpasses expectations; 3= high quality performance; 2=satisfactory quality performance; 1=minimum quality performance; 0= does not meet expectations.

Task	Criteria Score
Students will be able to describe light as important to celebrations of all cultures. Name at least 1 culture, and describe.	____
Students will be able to construct a simple circuit, given wire, bulb and battery. Student to demonstrate successful circuit.	_____
Students will be able to build a switch into their circuit. Given a paper clip, student will build switch.	_____

Keywords

English Language Arts	Mathematics	Science
Reading	**Algebra**	**Earth Science**
Writing	**Geometry**	**Life Science**
Communications Understanding Follow Directions	**Statistics**	**Chemistry** Acids
Literature	**Calculus**	**Physics** Change, Electricity Electrical Circuits Energy Polarity
Other	**Trigonometry**	**Other**
	Other	

Picture, Chart, or Graph file name(s):

Rudolf Electrical Circuits