KUTZTOWN UNIVERSITY

ELEMENTARY EDUCATION DEPARTMENT

PROFESSIONAL SEMESTER PROGRAM

Teacher Candidate: Paige Weaver Date: 3/2/15

Cooperating Teacher: Dr. White Coop. Initials

Group Size: Small Group Allotted Time 60 minutes Grade Level Third

Subject or Topic: Electricity Section

STANDARD: (PA Common Core):

3.2.3.B4. Identify and classify objects and materials that are conductors or insulators of electricity.

S3.A.2.1.1**:** Generate questions about objects, organisms, or events that can be answered through scientific investigations.

S3.A.2.1.2: Make predictions based on observations.

I. Performance Objectives (Learning Outcomes)

A. The third grade students will be able to classify materials as conductors or insulators of electricity by completing a journal entry.

B. The third grade students will be able to ask questions based on their observations by completing a journal entry.

C. The third grade students will be able to make predictions based on their observations by completing a journal entry.

II. Instructional Materials

1. Brain Pop video about electrical circuits
2. Chart paper
3. Markers
4. 3 wires with alligator clips
5. Battery holder with D sized battery
6. Flashlight bulb with bulb holder
7. Testable materials
   1. Pencil
   2. Penny
   3. Quarter
   4. Plastic
   5. Paper clip
   6. Toothpick
   7. Soda can
   8. Rubber

III. Subject Matter/ Content (prerequisite skills, key vocabulary, big idea, New Content)

1. Prerequisite Skills
   1. A lightbulb can be lit up by creating a simple circuit
   2. Conductors allow the flow of electricity
   3. Insulators block the flow of electricity
   4. Good observers make predictions, record findings, and ask questions
2. Key Vocabulary
   1. Electricity- a form of energy resulting from the existence of charged particles
   2. Conductor- a material or device that conducts or transmits heat, electricity, or sound
   3. Insulator- a substance or device that does not readily conduct electricity
   4. Circuit- a complete and closed path around which a circulating electric current can flow
3. Big Idea- Scientific discovery through electricity
4. New Content
   1. What is needed to make a simple circuit?
      1. Energy source (D Battery)
      2. Conductive path (Wire)
      3. Load (Light bulb)
   2. Examples of conductors- materials that electricity can move through freely
      1. Copper
      2. Aluminum
      3. Water
      4. People/animals
      5. Gold
      6. Silver
   3. Examples of insulators- any material that blocks the flow of electricity
      1. Glass
      2. Rubber
      3. Plastic
      4. Porcelain
   4. Observation- make predictions, record findings, and ask questions for further inquiry

IV. Implementation

1. Introduction
   * 1. Start a concept web on the white board with the word “Electricity” in the center. Take 5 minutes to brainstorm as a class what the students know about electricity. Record responses by constructing the concept web.
     2. Introduce concepts of electrical circuits, conductors, and insulators to the students by playing the Brain Pop video entitled “Electric Circuits.”
     3. Explain to the students that today they will become scientists by observing and exploring circuits, conductors, and insulators.
     4. Allow students 5 minutes to write at least one prediction about the experiment in their journal. Talk about the importance of making a prediction and state an example.
2. Development
3. Distribute materials to make a simple circuit and review rules. Allow students 5-10 minutes to explore the materials and try to make the light bulb light up. Provide assistance if needed.
4. After each group has understood how to complete the circuit, distribute the materials that they will test as either conductors or insulators and review rules. Explain that they can test the materials by including them in the circuit. Explain that if the light bulb lights up the object is a conductor, and if the light bulb remains unlit then the object is an insulator. Allow students 5-10 minutes to explore the materials and classify them as either conductors or insulators of electricity. Provide assistance if needed.
5. Distribute chart paper and markers to each group. Allow students 5 minutes to make a list of conductors versus insulators based on their observations. Act as facilitator and ask students why they are classifying the materials as either a conductor or insulator.
6. Bring class together and in a big group construct a chart of conductors versus insulators on the white board. Ask students to share their observations for input on the chart.
7. Ask students to draw a model of their circuit on the bottom half of their chart paper in their groups. Explain that they should label the model with the different parts.
8. Bring class together and ask student volunteers to aid in drawing the different parts of a model of a simple circuit on the white board.
9. Closure
10. Review what was learned about electricity by creating a new or adding to the class concept web.
    1. Share ideas, discoveries, and observations in a pair share
    2. Ask students to brainstorm what made them good scientists during the experiment (predictions, recording results, asking questions, discussion)
11. Have student complete a page in their journal including a drawing, procedure, conclusion, and at least one future question.
12. Assignment- Tell students to explore (with an adult) how electricity is used within their home and to brainstorm a list of where they see or use electricity every day. This can be in a drawing, a written list, or a combination of the two. Review basic electrical safety for at home. (Send letter home to parents so that student is exploring safely).
13. Accommodations / Differentiation –
14. Student learning levels will be considered when making groups.
15. Evaluations will be completed orally with the teacher scribing the students’ answers.
16. Assessment/Evaluation plan
    1. Formative
       1. Student journals will be completed to demonstrate classification of materials as either conductors or insulators of electricity. A checklist will be used to document learning by either a check plus or check minus.
       2. Students will demonstrate their knowledge of how to conduct good scientific investigations by making at least one prediction and at least one future question based on observations recorded in their journal entries. A checklist will be used to document learning by either a check plus or a check minus.

V. Reflective Response

A. Report of Students’ Performance in Terms of States Objectives

B. Personal Reflection

1. Did the lesson fit in the time allotted? If not, why?

2. Did the students achieve the expectations of the objectives? What evidence supports this conclusion?

3. What could I have done differently to enhance my students’ learning?

4. Were the students actively engaged in the activity? What could have been done differently to enhance engagement?

VI. Resources

1. BrainPOP - Electric Circuits - Movie. (n.d.). Retrieved April 4, 2015, from https://www.brainpop.com/technology/energytechnology/electriccircuits/Boiselle,
2. W.A. (2002) *10 Easy Steps to Teaching Magnets & Electricity.* Vernon Hills, IL: Learning Resources Inc.

**Science Journal Entry**

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Activity: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Focus Question:

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Picture or Model: Don’t forget to Label!

Procedure/Observations:

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Future Question(s):

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