

**APEX Cohort 1: Year 2**  
**PTI Classroom Action Research Activity**  
**Electricity and Magnetism Unit for Fall 2014 or Spring 2015**

Using the unit on Electricity and Magnetism you will be teaching this academic year in one of your physics classes, conduct an action research activity to determine the effectiveness of the of the PTI professional development ideas you received this summer. The action research activity will have the following components:

- 1) **Description of the context of the Electricity and Magnetism unit** including grade level, physics class type (AP, regular, Honors, etc.), textbook or other curriculum materials and Internet sites used as a part of the unit, number of students in the class, dates the unit and tests covered, etc.
- 2) **Lesson plans or lesson outlines of unit** (from textbook or individually designed unit, whatever you use) for each lesson in the unit.
- 3) **Daily diary of events that occurred each day** that seemed important to you – students’ actions and reactions, things you did that worked or did not work, etc.
- 4) Administer a **pre-test** before the unit starts- **high school modified pre-test version of the Electricity and Magnetism Concept Inventory, EMCI.**
- 5) Administer a **post-test** after the unit is finished – high school modified post-test version of the Electricity and Magnetism Concept Inventory, EMCI.
- 6) **Interview a small group of your students** at the end of the Electricity and Magnetism unit. Ask a version of the question, “What were your perceptions of this unit?” Some questions that you might ask include:
  - a) “What did you enjoy or like about the activities?” “What were the best parts of the unit?”
  - b) “What physics content areas in the unit were you the most confident about learning?”
  - c) “What physics content areas did you find difficult about the unit?”
  - d) “How did you get to the point where you finally got the idea in a difficult part?”
  - e) “What learning experiences did you find most helpful?”
  - f) “What do you think I wanted you to learn as a result of this unit?”
  - g) “Do you have questions about what we have learned?”
  - h) “How important was this topic to you?”
- 7) **Write a narrative summary of the action research activity** as a professional development activity. What did you learn? Was it successful? What would you change?
- 8) **Report the results of this activity with parts 1-7 in a written narrative report**, including the students’ pre and post test scores and attach it in an email to [dwsunal@bama.ua.edu](mailto:dwsunal@bama.ua.edu) by **May 15, 2015**. The Part Titles will include
  - A. **Description of the context of the Electricity and Magnetism unit**
  - B. **Lesson plans or lesson outlines of unit**
  - C. **Daily diary of events that occurred each day**
  - D. **Students’ pre and post test scores on the Revised EMCI test, match the pre and post with each student, use a code number for each (e.g 001, 002. etc, no names)**
  - E. **Interview results a small group of your students**
  - F. **Narrative summary of the action research activity- What did you learn?**
- 9) **Present the results during the summer PTI June workshops** so that others can gain from your lessons learned about ways to implement PTI year long E&M activities into your physics teaching.