

**APEX Cohort 2:
PTI Classroom Action Research Activity
Force and Motion Unit for Fall or Spring 2014-15**

Using the unit on Force and Motion you will be teaching this academic year in one of your physics classes (if possible the same type of physics class that the baseline measure was performed last school year), conduct a teacher action research activity to determine the effectiveness of your application of the PTI professional development ideas you received this summer.

The teacher action research activity will have the following components:

- 1) **Description of the context of the Force and Motion 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 *Force Concept Inventory, FCI*.
- 5) Administer a **post-test** after the unit is finished – high school modified *post-test* version of the *Force Concept Inventory, FCI*.
- 6) **Interview a small group of your students or have all students respond on paper** at the end of the force and motion 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 by November 9, 2013. The Part Titles will include
 - A. **Description of the context of the Force and Motion 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 FCI 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 one of the upcoming APEX weekend workshops** in the fall (spring) so that others can gain from your lessons learned about ways to implement PTI summer activities into your physics teaching.