Incorporating Research into the Classroom

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Integrated Science
Physical Science

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Goals

- Incorporate actual research into the classroom setting
- Higher level transfer through problem-based learning strategies
- Targeting these activities to the DE state standards
General Activities

- More labs, hands-on activities, demonstrations, presentations

- Transfer tasks:
  1. Inquiry
  2. Material Separation lab
  3. Plate tectonics
  4. Astronomy Museum exhibit
  5. Ecology: Hg contamination

- Journaling
Newton’s 1st Law
Newton’s 3rd law

Balloon Rockets
Presentations

- Fundamentals of geology and plate tectonics
- Rapa Nui as a model for resource exploitation and ecological disaster
Transfer Tasks: 

*Inquiry*

**Goals:**

- Devise an experiment that will test the effects of salt on temperature
- Write their own procedure, materials, etc.
Transfer Tasks: *Material Separation*

- Student put in role of coastal geologist
- Must separate a “contaminated mixture” into components
- Student devise their own materials and methods
Plate tectonics

Quicktime animation with guided questions
Transfer Tasks: 
*Astronomy exhibit*

Goals:
- Understand basic astronomy principles
- Assessed on: ability to work in groups, understanding of principles, creativity, thoughtfulness
Transfer tasks: 
Food webs and Hg cycling

- Scenario: Hg contamination of a recreational water source
- Based on my research
- Various roles for students to select:
  1. Doctor
  2. Citizen
  3. Scientist
  4. Environmentalist
  5. Industry employee
Journaling

- Using Maggie’s concept of organized, focused journaling
- Prompt assessment
- Emphasizing critical thinking and writing skills
- Provides students with an opportunity to reflect
Reflections

- Communicate science
- Understand how students learn
- Work with experienced educators
- Engage and motivate high school students
- Learn and implement effective teaching strategies
Goals for next year

- Field trips: engaging students in data collection in a field setting
- Data analysis
- Use of physical models to demonstrate scientific principles
- More PBLs
- Publications of results and experience