

Science Education for Teachers

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Freshman and Sophomore Years

Topic	Semester Units	Contact Hours
Life Science	3-4	45-75
Physical Science or Earth Science	3-4	45-75
Investigation & Experimentation	4	75

Junior or Senior Year

Topic	Semester Units	Contact Hours
Chemistry	3	45
Natural Science Inquiry for Teachers	4	75
Total	17 - 19	285 - 345

Physical Science Inquiry

- Interactions and Energy
- Interactions and Force
- Interactions and Fields
- Model of Magnetism
- **Electric Circuits and Electromagnetic Interactions**
- Light, Heat Conduction and Infrared Interactions
- Interactions and Conservation

Cycle 5: Electric Circuit and Electromagnetic Interactions

1. Electric Circuit Interactions
2. Electric Circuits and Energy
3. Electric Circuits and Current
4. Circuits with more than one bulb
5. Magnets, electric current and motors
6. **The Wake Up System**

Homework Assignment

- Based on your experiences with electricity, predict how students engage in scientific thinking about electricity?
- VIEW VIDEO CLIP 1
- Explain Kevin's model
 - What does the model look like?
Use excerpts to support your answer.

Homework Assignment

- VIEW VIDEO CLIP 2

Describe arguments made by students

How did students refute each other's models?

- CLASS DISCUSSION QUESTIONS

Was Skyler and Kevin's thinking sophisticated or simplistic? Support your answer.

Teacher Education Science Methods Course

Focus	Activity
Inquiry Process	Exploratorium Ice Balloons
Questioning	Subtle Shifts
Process Skills	Fair Test experiences
Content Standards	Energy and Matter Kit
Lesson Planning	Video Lessons
Student Notebooks	Analysis of student work
Assessment	Rubric development

Inquiry Based Curriculum K-4

Grade	LIFE	EARTH	PHYSICAL	OPTIONAL
K	Myself and Others	Sunshine and Shadows	Wood (Foss)	
1	Living Things (Insight)	Finding the Moon (Delta)	Solids & Liquids (STC)	Senses (Insight)
2	Butterfly Cycle (STC)	Soils (STC)	Sink or Float (Delta)	Growing Things (I)
3	Brine Shrimp	Earth Materials (F)	Sounds (I)	Amazing Air (Delta)
4	Food Chains Webs (Delta)	Landforms (Foss)	Magnetism & Elect. (F)	Changes of State (I)

Inquiry Based Curriculum 5-8

Grade	LIFE	EARTH	PHYSICAL	OPTIONAL
5	Human Body Systems (I)	Weather and Water (Foss)	Mixtures and Solns (Foss)	Reading the Environ. (I)
6	Experiments Plants (STC)	Catastrophic Events (STC)	Measuring Time (STC)	Magnets and Motors (STC)
7	Human Body Systems Macro-Micro (STC)	Earth History (Foss)	Light (STC-MS)	N/A
8	N/A	Planetary Science (FOSS)	Properties of Matter (STC)	Energy Machines Motion (STC)

Teachers – Learning Through Inquiry



Students – Learning Through Inquiry



Questions About PET Program

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- (se habla español)