

Pre-AP Science Summer Institute Outline
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Goals:

1. Use Inquiry based laboratory investigations to teach science processing, critical thinking, and problem solving skills.
2. Create a student centered, interactive classroom emphasizing thinking, reading, writing, and graphical interpretation of data.
3. Utilize technology based data collection and analysis devices including graphing calculators, CBL2/Lab Pro/Lab Quest interface units, science sensors, and appropriate computer software.
4. Structure curriculum to prepare students for AP classes emphasizing concept sequencing, process, and thinking skills through Vertical Teaming

Day #1:

1. Introduction to Pre-AP and AP philosophy
2. Acid Rain Simulation
3. Energy content of fuels and foods
4. Scientific writing, data interpretation, and calculations
5. Forming writing and project teams

Day #2:

1. Population growth simulation
2. Observations and analysis of aquatic bottle ecosystems
3. Greenhouse Effect
4. Utilize appropriate computer software to organize, graph, and evaluate data
5. Vertical Teaming and Sequencing of Concepts in Biology, Chemistry, Environmental Science, and Physical Science/Physics – project time

Day #3:

1. Designing and conducting “inquiry” based laboratory investigations: Bottle Ecosystem Components, Respiration Rates of an Invertebrate (Crickets, Mealy Worms, etc.)
2. Graphical representation and interpretation of data – mathematical modeling of data
3. Modifying “cook book” labs
4. Vertical Teaming and Sequencing of Concepts in Biology, Chemistry, Environmental Science, and Physical Science/Physics (continued from day #2) – project time

Day #4:

1. How temperature, pH, and concentration affect enzyme catalyzed reactions
2. Designing a water filtration device to purify simulated, polluted water
3. Bottle Ecosystem Analysis and Conclusions from Day #3
4. Vertical Teaming and Sequencing of Concepts in Biology, Chemistry, Environmental – finalize projects

Day#5:

1. Alkaseltzer and Reaction Rates
2. Project Presentations by Vertical Teams (Concept map and sequencing, inquiry based lab or demonstration)
3. Institute Evaluation