Connecting Reading and Science through the use of Inquiry in Elementary Inclusive Classrooms (Pre-K-4)

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Why Teach Science in Grades PreK-4?

• Foundations of science literacy
• Builds attitudes about science
• Nourishes child's natural curiosity
• Develops skills necessary for survival
• Increases respect for humans and surroundings
• Allows students to see alternate explanations
Value of Science Instruction

Finding it Interesting
Intrinsic Value
Finding it Useful
Utility Value
Finding it Connects to a Sense of Self
Attainment Value
Finding its Relative Worth
Cost Value
Inquiry Teaching Methods

- According to the National Research Council, scientific inquiry is a multifaceted activity that involves observation; posing questions; examining books and other sources of information to see what is already known; planning investigations; reviewing what is already known in light of experimental evidence; using tools to gather, analyze and interpret data; proposing answers, explanations and predictions; and communicating the results. (NSES, p.23)
Five Features of an Inquiry-Based Science Classroom (NSES)

- Students are engaged by *scientifically oriented questions*
- Students give *priority to evidence* in responding to these questions
- Students formulate *explanations from evidence*
- Students *evaluate* their explanations in light of alternative explanations.
- Students *communicate* and *justify* their explanations.
Process Skills Used to Create Descriptive Models

- Observations (most fundamental)
- Using space/time relationships
- Using Numbers
- Questioning
- Classification
- Measuring
- Communication

Process Skills Used to Create an Explanatory Model

- Inferring
- Predicting
- Hypothesizing

Process Skills Used to Create an Experimental Model

- Variables – Independent, Dependent, Controlled
5E Learning Cycle

- Engage
- Explore
- Explain
- Extend
- Evaluate
Meeting needs of Students with Special Needs

- Varied Reading levels
- Visual guides
  - checklists
  - cloze notes
  - Graphic Organizers
- Chunked assignments
- Guiding Questions
- Mneumonics
- High Expectations
  - Goal Setting
- Varied Assessments
  - Know student abilities
  - Utilize Formative Assessment
Integrating Reading with Science

- motivates students to learn new content
- trade books offer more in depth explanations
- gain new science process skills
- increase motivation to learn
- children depend on words and images rather than experiences to learn about their surroundings
Group Activity

The Water Cycle
You Try...
Where do I find Resources?

NSTA (National Science Teachers Association) Outstanding Science Trade Books List
www.nsta.org/publications/ostb/

AAAS/Subaru Honor Books

NCTE Orbis Pictus Awards
http://www.ncte.org/awards/orbispictus

PDE SAS (Standards Aligned Systems)
http://www.pdesas.org/Standard/PACore
PA Core Appendices
ELA Appendix B – Exemplar Texts

Time for Kids

Scholastic Classroom Magazines
References


