Facilitator's Guide

Grade: Five
Unit: Inquiry
Title: Scaffolding Inquiry

Topic:
Lesson Summary:
Arkansas Frameworks: http://www.arkansased.org/teachers/word/science_k-8_011006.doc

Science Standards

NS.1.5.1 Make accurate observations
NS.1.5.4 Interpret scientific data using data tables/charts, bar graphs, circle graphs, line graphs, stem and leaf plots, Venn diagrams
NS.1.5.5 Communicate results and conclusions from scientific inquiry

Math Integration

measuring perimiter
time

Literacy Integration

writing testable questions, hypothesis (if, then statements)
five minute paper

National Frameworks:

	Instruction	Facilitator's Notes
Objectives:	The participants will exhibit an understanding of the different levels of inquiry and when to apply them.	
Focus Question:	When is it appropriate to use the different levels of inquiry?	
Background Information:	Inquiry and the National Science Education Standards state, "Inquiry is something that students do, not something that is done to them. There are four levels of inquiry covered in this lesson, Directed, Guided, Coupled and Full Inquriry. When determining the level of inquiry to use, one should tconsider the ability level of the students into account. There will be times when fifth grade students may need directed inquiry while others may be ready for full inquiry. Knowing these levels will assist teachers in differentiating the assignment based on student readiness. In addition, teachers will be able to move from level to level in order to guide the students to full inquiry. Inquiry as defined in the National Science Education Standards (NRC, 1995) … a multifaceted activity that involves making observations; 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 communicatin Inquiry requires identification of assumptions, use of criti alternative explanations.	

Timeline:	One to two 45-50 minute time periods	
Materials:	Directed Inquiry lab sheet and rubric Guided Inquiry lab sheet and rubric Experimental Design lab sheet and rubric Two Directed Inquiry sun sheets Two Guided Inquiry sun sheets bowl water timer scissors pencil/pen a variety of types and weights of paper	
Safety		
Teacher Preparation:	Prepare copies of lab sheets, rubrics, and suns set a bowl, timer, sicssors, pen/pencil and variety of papers on each table.	
Elicit	What is inquiry? What are the stages of inquiry? At what grade level do you introduce each level of inquiry?	Using these two questions open a discussion about what the groups thinks inqiry is and what the levels are. Don't confirm, or condem any thoughts on the subject.
Engage	Do a demo of a sun unfolding in water.	
Explore	Let Participants do the Directed Inquiry and then pass out the Guided Inquiry and let them compare the Directed Inquiry with the Guided Inquriy and look at the rubrics for each.	Be sure to use warm water for the activity or the suns will take too long to open.
Explain	Discuss the difference between the Directed and Guided Inquiry.	Pay close attention to: charts graphs directions questions materials conclusions explanations rubrics
Elaborate	Pass out the Experimental Design graphic organizer and explain it to the teachers by using the paper suns as the topic. Time permitting you can allow participants to carry out the open inquiry.	Topic: Paper Suns How Does It Act: Unfolds Materials: Paper, Water, How can you change the materials: Paper - weight, color, Water - density, temperature How can you measure change: Time it takes sun to unfold
Evaluate	Five minute paper to answer the question: What are the stages of inquiry and at what grade level do you introduce each level?	

Extend	As you do activities during the day discuss the level of inquiry that are being used.	
Cross-Curricular Integrations:		
Technology		
Resources:		