

Goal(s): Student will

- increase knowledge about the Scientific Method.
- increase skills in questioning
- increase skills in working cooperatively.

Unit I

Relating to Science

Lesson #5

Standards:

- Science 1
- Language Arts 1-2, 4, 6
- Math 11,13
- Health 4-5
- GLO 1-5

Topic	Task/Activity	Materials/Time	Notes
Entry	<ul style="list-style-type: none"> • Pose question for Ss to discuss - What questions or comments did the person you shared with have about the Scientific Method? (option: write question on board) 		
Review	<ul style="list-style-type: none"> • Instruct Ss to locate their Using the Scientific Method Worksheet while you return their People Patterns Worksheet. • Ask Ss to share their responses from the homework: <i>What might someone DO, SEE, HEAR, or EXPERIENCE during these steps of the scientific method?</i> 	Using the Scientific Method Worksheet #1 Scientific Method Poster People Patterns Worksheet #1	
Preview	<ul style="list-style-type: none"> • Display OH #1.1 and connect to today's 3 topics: <ol style="list-style-type: none"> 1. Steps of the Scientific Method. 2. Levels of questioning. 3. People Patterns data. 	Unit Overview OH #1.1	
Scientific Method	<ul style="list-style-type: none"> • Display OH #5.1 while cueing Ss to think about their experience and prior knowledge about asking questions • Ask Ss to write a few ideas for each category on Asking Questions Worksheet #1 (or in ObLog). • Invite a few volunteers to share a personal experience that shows value of questioning. • Explain that: <ol style="list-style-type: none"> 1. Questioning is a skill used frequently by scientists as well as people daily. 2. Questioning is a key component of the scientific protocol, as research cannot occur without questioning. 	pen/pencil and ObLog Asking Questions OH #5.1 and Handout #1	

Topic	Task/Activity	Materials/Time	Notes
Scientific Method continued	<ul style="list-style-type: none"> Invite Ss to form heterogeneous groups of 4 with a pen/pencil, Scientific Method Poster, and Science Binder/ObLog. Assign #'s to heterogeneous groups of 4 and explain the roles of each group member: <ol style="list-style-type: none"> 1. Discussion guider (stays with the assignment) 2. Note-taker (listen and write what is said) 3. Two presenters (share with class) Guide Ss to look closely at of the top boxes on the Scientific Method Poster and discuss what these words and symbols mean (<i>Observe, Question & Wonder, and Gather Background Information</i>). Ask presenters to take turns sharing information, chart on OH, board, or chart paper; provide clarification as needed. 	Scientific Method Poster Est: 10-15 minutes	
Question (Q) Matrix	<ul style="list-style-type: none"> Display OH #5.2 and introduce the Question Matrix as a tool for assisting in asking a variety of meaningful questions. Explain the 2 dimensions of the Question Matrix: <ol style="list-style-type: none"> 1. The type of question (e.g., <i>what, when, where, why, how,</i> and <i>who</i> - horizontal movement). 2. The level of thinking (e.g., <i>is, did, can, would, will</i> and <i>might</i> – vertical movement). Confirm Ss understanding that the higher you go up the matrix, the deeper the level of thinking. Invite questions about the matrix to help Ss understand the chart. Select a familiar object and model question asking. Give each group a familiar object and let them practice question asking by using the Question Matrix. Invite groups to ask questions about the Scientific Method. 	Question (Q) Matrix S. Handout Q Matrix OH #5.2 or Poster Est: 20 minutes	

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<p>People Patterns Project</p>	<ul style="list-style-type: none"> • Ask Ss to locate People Patterns Worksheet. • Encourage Ss to review handout by asking the question: <i>What can these data/ information tell us about our community of learners?</i> • Share something you might wonder about (e.g. favorite chore). • Explain the following 5 steps while writing key words on board: <ol style="list-style-type: none"> 1. Review the People Patterns Worksheet and discuss what you noticed. 2. Use the Question Matrix to help you think of good questions. 3. Invite Ss to independently generate <i>questions</i> about these data or new questions they might have about the class members. 4. Elicit responses by calling on Ss to share questions. 5. Remind Ss that they can create numerous questions that they might be interested in researching. • Ask Ss to re-form groups to share their questions. • Invite each group to share one new question or “I wonder” statement at a time. Repeat in same order and ask groups to share until finished. (chart questions) • Allow time for groups to review questions and select those they wish to explore. • Call on groups randomly to pick a question for this first group project (circle each question in a different color to represent each group). • Instruct groups to complete the following: <ol style="list-style-type: none"> 1. Discuss their question to see if it asks exactly what they want to know. 2. Consider additional/associated questions. 3. Review their group’s data (background information) that links to the question. 4. Instruct group members to discuss the 3 questions under “Gather Background Information” on the chart. 	<p>People Patterns Worksheet Chart paper/pens</p>	

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Project continued	<ul style="list-style-type: none"> Monitor to clarify skills and tasks that are part of the first three steps of the Scientific Method. 	Est. 20 minutes	
Assessment as Learning	<ul style="list-style-type: none"> Display OH #5.3 and assign Ss to independently write answers to the following questions: <ol style="list-style-type: none"> What is the Scientific Method? How might asking questions be important or helpful when conducting research? How might the Question Matrix help you? What is a protocol? Why might protocols be important? 	Assessment as Learning OH #5.3 Est: 5-7 minutes	
Homework	<ul style="list-style-type: none"> Explain homework assignment while referring to the wall chart or OH #5.4. WHAT: People Patterns Project Guide. HOW: <ol style="list-style-type: none"> Read People Patterns Project Guide with an adult at home. Identify unclear information. WHAT: Question Matrix (Q-Matrix) HOW: <ol style="list-style-type: none"> Write questions you may have using the Q Matrix. Think about a research topic for your project. 	Wall-chart or OH #5.4 People Patterns Project Guide Question Matrix Handout Est: 5 minutes	