

**Program Title:** Doing Science: The Process of Scientific Inquiry

**Program Description:** This program consists of a series of lessons from the NIH Curriculum Supplement Series. The purpose of these lessons is to help students understand the basic aspects of scientific inquiry, the purpose of scientific research and to provide opportunities to practice and refine critical thinking skills.

These lessons can be done alone or in conjunction with the lessons adapted to use the Pine Bush as the content area.

**Age/Grade Level:** Grades 6-8

**Background Information:** (See NIH webpage)

Doing Science: The Process of Scientific Inquiry – BSCS/NIH

Introduction to program      pages 1-17

The 5E Instructional Model      pages 6-12

The Process of Scientific Inquiry pages 19-33

The complete NIH Supplement can be found at:

<http://science.education.nih.gov/supplements/nih6/inquiry/default.htm>

[http://science.education.nih.gov/supplements/nih6/inquiry/guide/nih\\_doing-science.pdf](http://science.education.nih.gov/supplements/nih6/inquiry/guide/nih_doing-science.pdf)

**Lessons and Activities:**

	<b>Title</b>	<b>Time (min)</b>	<b>Pages(NIH)</b>	<b>Masters</b>
<b>Lesson 1:</b>	<b>Engage</b>		35-45	
<i>Activity 1</i>	<u><i>Mystery Cube</i></u>	40-50	35-40	<i>1.1 Mystery Cube Template</i>
	An introduction to the basic aspects of scientific inquiry. Students are asked to make observations, ask questions, share information, propose explanations and defend their reasoning, based on a pattern of numbers on a cube.			
<i>Activity 2+3</i>	<u><i>Biological Box</i></u>	40-50	40-43	<i>1.2 Biology Box Template</i>  <i>1.3 Thinking about Inquiry</i>
	An introduction to the basic aspects of scientific inquiry. Students are asked to make observations, ask questions, share information, propose explanations and defend their reasoning, based on a pattern linking environments and food chains. Activity 3 is a reflection on the process of inquiry.			
<b>Lesson 2:</b>	<b>Explore</b>		47-55	
<i>Activity 1</i>	<u><i>What's the Question?</i></u>	30-40	49-52	<i>2.1 Working with Questions</i>
	Students explore questions in a scientific context. Students examine what makes a question testable.			
<i>Activity 2</i>	<u><i>Questions... . .</i></u>	30-40	52-54	<i>2.2 Letters to the Editor</i>
	Students develop testable questions based on letters to the editor related to several health issues.			
<b>Lesson 3:</b>	<b>Explain and Elaborate</b>		57-87	
<i>Activity 1</i>	<u><i>Unusual Absences</i></u>	40-50	57-62/71-73	<i>3.1 Investigative Report Form</i>  <i>3.2 Letter from Principal</i>  <i>3.3 First Memo from Director</i>  <i>3.4a,b,c Attendance data</i>  <i>3.1 Student Guide</i>
	Students role-play as members of the community health department conducting a scientific investigation related to possible health problems in a local school district. Students analyze data on student absences.			

<b>Title</b>		<b>Time (min)</b>	<b>Pages(NIH)</b>	<b>Masters</b>
<i>Activity 2</i>	<u><i>What's the cause?</i></u>	<i>40-50</i>	<i>62-65/73-76</i>	<i>3.1 Investigative Report Form</i> <i>3.5 Second Memo from Director</i> <i>3.6 Interview Summary</i> <i>3.7a,b Quotes from Interviews</i> <i>3.8a,b,c,d School Calendars</i>

Students role-play as members of the community health department conducting a scientific investigation analyzing data to answer testable questions generated in Activity 1 to determine the cause of the absences.

<i>Activity 3</i>	<u><i>What's the Source</i></u>	<i>40-50</i>	<i>65-67/76-78</i>	<i>3.1 Investigative Report Form</i> <i>3.9 Third Memo from Director</i> <i>3.10a,b Activity Tables</i> <i>3.711a,b Activity Maps</i>
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Students role-play as members of the community health department conducting a scientific investigation to pinpoint how students became ill.

<i>Activity 4</i>	<u><i>Reflecting on Inquiry</i></u>	<i>40-50</i>	<i>67-71/78-81</i>	<i>3.12 Analyzing Evidence</i>
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Students reflect on the scientific processes used in Lesson 3

**Lesson 4:** **Evaluate** 89-95

<i>Activity 1</i>	<u><i>Pulling it all together</i></u>	<i>40-50</i>	<i>90-95</i>	<i>4.1 Memo from Director</i> <i>4.2a Data from Investigation</i> <i>4.2b Data from Investigation</i> <i>4.3 Report Form</i> <i>4.4 Evaluation Form</i> <i>4.1 Student Guide</i>
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Students evaluate each other's ability to work through the scientific process. The class is divided into two groups. Each group receives different data about the same health problem. Groups trade reports and evaluate the work of other students.