

TxCETP Course Component: Understanding Scientific Inquiry

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II. Activities

Inquiry A: *The Scientist*

Objective: Students confront their prior conceptions about the nature of science and scientific inquiry.

Time Frame for Activity: 30 - 40 minutes

Materials:

1. Examples of scientific and non-scientific knowledge (See Appendix of Resources)
2. Class roll divided into heterogeneous groups of three using the following criteria:
 - a. classification
 - b. intended major

Procedure:

1. Get the students into the heterogeneous teams.
2. Individually, students list examples of what they each consider to be scientific truths. No class or group discussion at this point.
3. Hand out list of examples of scientific and non-scientific knowledge (1 list per group) and in their groups have students label those examples as scientific or non-scientific.
4. Discuss the basic tenets of science (repeatability, tests are done in the context of natural law, tentative nature of science, requires objectivity, questions asked must be testable, etc.) and use the items from the list described in Step #3 as examples of adherence or non-adherence to those tenets.
5. Informally, ask the students how accurate their group was in distinguishing between scientific and non-scientific knowledge.
6. Based on the tenets of science, ask each student to re-examine his/her list of scientific truths and with the help of the group, make any changes necessary (in a different color of ink, preferably). A discussion of scientific truth as opposed to truth based on faith, etc. may develop at this point and would be ideal!

Formative Assessment:

1. What new concepts have you learned regarding the nature of science?
2. What misconceptions regarding the nature of science did you possess before today's class? Collect the list of scientific truths each student wrote and then modified (if modification occurred!).