

**TxCETP Course Component: Understanding Scientific Inquiry**

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**Inquiry B: *The Fly***

Objective: Students design an approach to solving a particular problem using the scientific method as they understand it prior to class and then modify their approach following a discussion during class which will clarify the nature of the method and its proper use.

Time Frame for Activity: 50 minutes

Materials:

One copy of Chapter 3 from To Know a Fly (See Appendix of Resources) for each student

Procedure:

1. Students are placed into the heterogeneous teams they were in during the last class period.
2. Students have 10 seconds to write a definition of the Scientific Method. Upon completion, students put their definitions aside.
3. Class discussion on flies begins, including how flies behave when they land on food. The discussion should adhere to the tenets of science discussed in the previous class. Questions such as, “What are the flies doing? Do they seem to prefer some foods to others? How can they sense different tastes, or do they?”, etc. may help guide the discussion.
4. Students are asked, “How are flies able to sense different tastes?”. Students work in their groups and devise an investigation which addresses this question/problem that will be turned in at the end of class. The design of this experiment must ultimately include the following:
  - Personal observations of flies
  - Question upon which they are basing their hypothesis
  - Written hypothesis
  - Experiment to test the hypothesis (includes a control, replication, etc.)
  - Predicted outcome
  - Other experiments based on predicted outcomes
5. As the students work, the photocopy of Chapter 3 is given to each student.
6. When the group has finished writing their investigation, the students read the handout.
7. As the students read Chapter 3 (should take about 9 minutes at the most), the following question (one per group) is handed out FACE DOWN, “How did your experiment differ from that described by the author and what changes (if any) do you think you need to make in your design?”

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8. When each group is finished reading, they turn over the question and begin composing an answer to that question on the page containing their investigation outline.
9. When the students are done, a discussion begins which solicits recognition of the scientific method and some of the key points associated with it, such as:
  1. the nature of good scientific questions and hypotheses (good opportunity to tie in the basic tenets from previous period)
  2. qualitative vs. quantitative observations
  3. value in the universality of the method
  4. the importance of repeatability and its power to derive solid scientific explanations.
10. Students re-evaluate their 10-second definition.

Formative Assessment:

1. Ask the students to re-evaluate their 10-second definitions and working in their groups, decide how or if they would modify their respective definitions.
2. Collect the investigations and definitions of scientific method.