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Teaching Earth Science Through Inquiry

TOILET PAPER TIMELINE

In this case study, we will observe Tom O'Brien, an associate professor of Graduate K–12 Science Teacher Education at Binghamton University in Binghamton, New York, lead an earth science class through an investigation of constructing a toilet paper timeline and geologic scale while using Internet resources for researching topics in geologic history and fossil formation. This case study, although fictitious, is based on O'Brien's article "A Toilet Paper Timeline of Evolution" (2000).

A researcher in inquiry-based instruction and constructivist teaching strategies, Tom has years of experience with National Science Foundation (NSF) grants focusing on teachers implementing the 5E Learning Cycle. Prior to teaching at Binghamton, Tom was a high school chemistry teacher in Kentucky and one of the original contributors to Chemistry in the Community (known as ChemCom), an interactive, community-based high school chemistry program.

The "Toilet Paper Timeline" inquiry aligns to the *National Science Education Standards* (NRC, 1996) for grades 9–12, which are quoted below.

Science as Inquiry Standard

Students will

- Formulate and revise scientific models using logic and evidence. (p. 175)
- Recognize and analyze alternative explanations and models. (p. 175)

Life Science Standard

- The great diversity of organisms is the result of more than 3.5 billion years of evolution that has filled every available niche with life forms. (p. 185)

