



Smithsonian
Science Education Center

Course Overview

This online workshop: **Science: A Work in Progress** is based on ideas presented in *Good Thinking!*, an original animated series developed by the Smithsonian Science Education Center (SSEC) and FableVision Studios as a professional development resource for K-12 science educators.

The idea of a “scientific method” that all scientists use to plan and conduct investigations or pursue improved designs to solve problems is a persistent idea in the teaching of science. Although the understanding that science is a process that can take many pathways has been part of the science standards for the recent past, the steps of the scientific method have persisted in our teaching and our textbooks. Only in some of the most recent editions, has the scientific method been replaced by references to flexible application of the science practices as ways to investigate and explore solutions to new problems and questions.

In this workshop, we will follow one teacher as she looks for additional information and new ways to present the process of scientific investigation and the nature of science to her students.

The format and organization of the workshop are designed to allow individuals to successfully complete the online learning activities independently as a self-paced class, without the need for outside input or feedback. At the same time, this format was designed to flexibly fit into PLC meetings, PD workshops, or any time that you and your colleagues can meet to absorb some new ideas and discuss your experiences as educators. While the content of the series is relevant to all levels of instruction, teachers working at the oldest and youngest ends of the K-12 range may need to include additional discussion during the post-viewing conversation that addresses the implications of the videos for their specific grade level.

Session 1 – Introduction to Course

This session serves as an introduction to the course. The objectives for this course are:

- Examine the roles of the Nature of Science and Science Practices in the teaching of classroom science.
- Discover new references and concepts to describe the process of scientific discovery.
- Find new opportunities to incorporate scientific practices into classroom science and pick up tips for sharing the Nature of Science with groups of students.
- Increase understanding of instructional strategies presented in the video.
- Apply the strategies to planning new instruction.

Session 2 – Moving from the “Scientific Method” to “Science as a Way of Knowing”

In this session, you will examine how science is really done, and explain that science is much more than a simple set of steps, and explore the textures and patterns of learning that represent science as a work in progress.

Session 3 – Classroom Application

In this session participants will apply the ideas and lessons from the video to develop or adapt a lesson plan. The first part of the session will have teachers use a lesson plan template based on the ideas in the video, and look for additional tools and strategies that could be used. The second part of the session will have teachers develop a new lesson plan, based on a topic from their own curriculum.

Session 4 – Wrap Up

This session is a conclusion to the course. The final assessment will be the creation of a lesson plan for your own classroom to produce opportunities for students to think critically about their view of science research and to begin the process of creating a new concept of how science happens: using science practices and the NOS to learn about the natural world.

There will be the option of earning a Science of Teaching Science 1 certificate upon completion of four Smithsonian Science Education Center Pepper Online Workshops.