



MIDDLE GRADES SCIENCE Core Training Modules—Year One

Participants will explore lessons from the LTF Middle Grades Life and Earth and Middle Grades Chemistry and Physics guides. Each day will entail some direct content instruction as well as active learning through laboratory explorations. Participants will examine the processes of learning science and engage in meaningful discussions of rigor and pace in the Pre-AP middle school classroom. Participants are given passwords to access the protected materials on the LTF website, including diagnostic activities and End-of-Course test materials. Teachers leave every training day with lessons that are classroom-ready and with sufficient preparation to begin using the lessons in their own classrooms.*

Day One Introduction to Laying the Foundation through Experimental Design

This is the first module of any science training series. It will be presented to a mixed audience of middle school and high school teachers. It explores the layout of the guides and emphasizes the philosophies and strategies we employ. Participants will develop the concept of experimental design by performing selected activities from the middle grades, biology, chemistry and physics courses.

Day Two Numbers in Science

This module will explore activities from the Middle Grades Life and Earth and Middle Grades Chemistry and Physics guides that demonstrate the many ways that students are asked to deal with numbers in the science classroom. Concepts such as measurement, error, significant digits, and numerical relationships will be discussed and demonstrated.

Day Three Meaningful Graphs

This module will explore activities from the Middle Grades Life and Earth and Middle Grades Chemistry and Physics guides that emphasize students' abilities to create and interpret meaning from graphical representations of data. A look at the graphing skills required by AP* students and a discussion of proper graphing techniques will be presented. Participants will have the opportunity to perform some activities that incorporate graphing skills into the middle school classroom.

Day Four Rate

This module will explore activities from the Middle Grades Life and Earth and Middle Grades Chemistry and Physics guides that emphasize the variety of instances where rate can be explored in the middle school classroom. Rate is a common theme among all AP science exams, and its introduction and development in the middle school classroom can help lay a strong conceptual foundation.