

BIOLOGY Core Training Modules—Year One

Participants will explore lessons from the LTF Biology guide. 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 Biology 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 Chemistry of Life and Cells I

Pre-AP Biology teachers will explore introductory activities from the Biology guide that involve the chemistry of life. Over the course of the training sequence, these topics will be revisited and explored in depth each year. This module will investigate the four major classes of biomolecules along with enzyme structure and function. An introduction to cellular structure and surface area-to-volume relationships will also be explored and discussed.

Day Three DNA, Genetics and Animals I

Pre-AP Biology teachers will explore introductory activities from units on DNA, Mendelian genetics and animal systems. Over the course of the training sequence, these topics will be revisited and explored in depth each year. This first group of activities will explore Mendelian inheritance principles in maize, extract DNA from plants, and use graphing calculators to simulate Mendelian inheritance patterns. An activity comparing endotherms and ectotherms will emphasize the importance of incorporating computational activities in the biology classroom.

Day Four Plants, Ecology and Evolution I

Pre-AP Biology teachers will explore introductory activities from units on plants, ecology and evolution. Over the course of the training sequence, these topics will be revisited and further developed. This first group of activities will compare monocots and dicots with respect to stem and stomate structure and function, simulate natural selection, and identify the photosynthetic component of plants