



MATH Training Modules—Year Two

Participants will explore the AP* Calculus or AP Statistics Connection topics through manipulative-rich student lessons. Graphing calculator skills will be introduced, extended, and applied as a part of each training session. In addition, the participants will explore the LTF on-line diagnostics with both multiple choice and free response problems and will discuss scoring practices and rubrics of Pre-AP* questions related to the AP connection topic. Teachers finish every training day with lessons that are classroom-ready and with sufficient preparation to start using the lessons and assessment tools immediately.

Day Five Accumulation

Middle school and high school Pre-AP teachers attend separate sessions where they explore the concept of accumulating area that leads to the concept of the definite integral in AP Calculus. Teachers will explore techniques for approximating area of various closed regions through manipulative-rich middle school lessons. High school lessons extend these techniques to determining the area under a curve using geometric figures. In addition, non-area applications involving rates of change will be investigated. The session will emphasize how the concepts involving accumulation are developed in Pre-AP mathematics classes from sixth grade through pre-calculus.

Day Six Probability

Middle school and high school Pre-AP teachers attend separate sessions where teachers will delve into student lessons that investigate probability. Techniques include using a sample space, conducting simulations, and collecting data. Teachers will discover and apply Pascal's Triangle and the Binomial Theorem to probability. Additional topics include geometric probability and permutations and combinations. Trainers will emphasize how the concepts involving probability and statistics are developed in Pre-AP mathematics classes from sixth grade through pre-calculus.

Day Seven Position/Velocity/Acceleration

Middle school and high school Pre-AP teachers attend separate sessions where teachers will explore the concepts and relationships of position, velocity, and acceleration. Participants will use physical activities and technology such as a CBR and a graphing calculator to more fully understand the concepts. Lessons include sketching a graph from a story, interpreting graphs from a verbal description, and analyzing and comparing graphs of position, velocity, and acceleration. The session will emphasize how the concepts involving position, velocity, and acceleration are developed in Pre-AP mathematics classes from sixth grade through pre-calculus.

Day Eight Limits

Middle school and high school Pre-AP teachers attend separate sessions where teachers will explore the concept of limits from various perspectives. Student lessons use pattern recognition, perimeter and area of polygons, secant and tangent lines to circles and ellipses, and end-behavior of rational functions to lead to an informal notion of a limit. The session will emphasize how the concepts involving limits are developed in Pre-AP mathematics classes from sixth grade through pre-calculus.