

Professional Development Workshop Descriptions

Drop the Lecture and Let the Students Pick Up the Learning in AP* Science

Grade Level: 9th-12th grade AP science teachers

Length of Time: 6 hours

Description:

Many teachers work harder than their students preparing notes and conveying information through lectures, while their students sit before them as passive receptacles. In this workshop, teachers are challenged to invite their students to seek information for themselves through activities. This places the teacher in the role of a mentor, guiding the students while they explore concepts and formulate ideas. In order to make this transition, teachers must identify the reasons AP science teachers try to convey knowledge through lecture when most will readily recognize the superiority of learning by experience. During the workshop, teachers will perform several hands-on activities individually and in small groups, using a variety of modalities. They will then reflect on the amount of time spent covering the concepts and deduce whether the time spent was more profitable and the experience more memorable than an equal amount of time spent in lecture. We will end the session by strategizing ways to develop a year-long curriculum that is infused with higher-level learning activities for every day of the year.

Raising the Level of Critical Thinking in High School Science

Grade Level: 9th-12th grade teachers

Length of Time: 6 hours

Description:

In a 2006 study of 57 developed countries by the Organisation for Economic Cooperation and Development, U.S. high school science students ranked 29th. The study results speak to the need for revising teaching methods in science so students acquire the ability to think, hypothesize and take calculated risks.

The goal of this workshop is to create and rehearse teaching strategies that help students develop critical thinking skills within the framework of local, state and national curriculum requirements. Teachers will learn ways to effectively conduct and interact with their classes and discover specific critical thinking training activities that can be used in a variety of content areas for high school science.

Helping High School Students Design Their Own Scientific Experiments

Grade Level: 9th-12th grade teachers

Length of Time: 6 hours

Description:

Teachers will be guided through the process of writing a scientific experiment just as their students would experience it in the classroom. They will learn how to promote critical thinking and scientific thought by pressing students to design and modify their questions, hypotheses, procedures and data analyses. The importance of peer-reviewed learning will be reinforced throughout the workshop as a tool for student-directed learning as well as a model of how professional science advances. Participants will emerge from this workshop armed with a clear procedure for leading their classes through student-designed scientific experiments.

Creating High-performance Vertical Teams

Grade Level: 6th-12th grade Pre-AP and AP teachers

Length of Time: 6 hours

Description:

Guided by local, state and national standards, middle and high school teachers will work together to set skills, content and development objectives for students progressing through 6-8 years of science schooling. Participants will predict the long-term results of vertical student preparation to increase motivation and commitment to the set goals. Teachers will learn techniques that can be used at any grade level to assist the students in practicing scientific thought and foster collaborative learning similar to that experienced by professional scientists. Precise methods for developing science skills and critical thinking will be mapped out and practiced by the teachers so they are comfortable using these methods when they return to their classroom.

Improving AP* Biology Exam Scores

Grade Level: 9th-12th grade AP Biology teachers

Length of Time: 6 hours

Description:

In the first session of this workshop, teachers will examine the format, scoring and grading of the AP Biology Exam using questions from past exams to ascertain the breadth and depth of knowledge

expected of the students. Teachers will then be assisted with devising and implementing strategies for helping students develop the critical thinking and writing skills necessary for success on the AP Exam. The second session of this workshop will include a guided tour of websites, downloadable programs, virtual labs, test questions, software, guided chapter notes, videos, chat rooms and other resources for teachers and students to use in their study of AP Biology. Teachers will leave with concrete teaching strategies, essay writing exercises and support materials to use throughout the school year.

Improving AP* Environmental Science Exam Scores

Grade Level: 9th-12th grade AP Environmental Science teachers

Length of Time: 6 hours

Description:

In the first session of this workshop, teachers will examine the format, scoring and grading of the AP Environmental Science Exam using questions from past exams to ascertain the breadth and depth of knowledge expected of the students. Teachers will then be assisted with devising and implementing strategies for helping their students develop the critical thinking and writing skills necessary for success on the AP Exam. The second session of this workshop will include a guided tour of websites, downloadable programs, virtual labs, test questions, software, guided chapter notes, videos, chat rooms and other resources for teachers and students to use in their study of AP Environmental Science. Teachers will leave with concrete teaching strategies, essay writing exercises and support materials to use throughout the school year.

Using the *AP* Biology Daily Lesson Plans Curriculum* to Increase Student Engagement and Performance

Grade Level: 9th-12th grade AP Biology teachers

Length of Time: 6 hours

Description:

Teachers will learn how to guide their students through model building activities, role playing experiences, simulation games, Socratic discussions and the use of manipulatives and demonstrations to promote student involvement and motivation. The curriculum was designed to help teachers cover the required AP Biology content using activities that are 100% hands-on, so that the students take center stage in the learning process. Workshop participants will practice the

use of kinesthetic activities as a primary means of classroom teaching to create a fun, rich and demanding learning environment.

Using the *AP* Environmental Science Daily Lesson Plans* Curriculum to Increase Student Engagement and Performance

Grade Level: 9th-12th grade AP Environmental Science teachers

Length of Time: 6 hours

Description:

Teachers will learn to guide their students through model building activities, role playing experiences, simulation games, Socratic discussions and the use of manipulatives and demonstrations to promote student involvement and motivation. The curriculum was designed to help teachers cover the required AP Environmental Science content using activities that are 100% hands-on, so that the students take center stage in the learning process. Workshop participants will practice the use of kinesthetic activities as a primary means of classroom teaching to create a fun, rich and demanding learning environment.

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