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Using Computer Resources (Both Internet and Non-Internet) to Enhance Materials Education

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Teaching is more than presenting subject matter and grading, just as a course is more than subject matter and tests. To many engineering and an increasing number of applied science students, materials is a difficult subject. Carefully planning the student experience and using computer resources throughout the course can address this concern. Planning the student experience is critical, it is necessary that a set of activities, including subject matter presentation, be planned to elevate a student's level of learning.

This presentation will focus on planning a set of activities based on Bloom's Taxonomy, assessing and evaluating the effectiveness of those activities, and a means for building on the work of others. For example - coverage of Phase Diagrams will include an internet enhanced "lecture", basic class notes, discussion questions at the beginning of class, team problems requiring the students to apply and analyze what they have learned, homework problems with tips and narrative solutions, a partially self-directed experiment, and test objectives for study. The design of these and internet incorporation will be discussed. Other examples will be presented.

The presentation will also include a review of Process Based Education and the introduction of an electronic repository and associated journal for materials resources.