Teaching Strategies for Chapter XX

***Advanced Graphics***

You may be curious about this chapter. Teachers have a serious problem covering all the AP Computer Science "A" material in a first course. Over the years the number of topics has steadily increased and this merry trend seems to be continuing. So after a considerable quantity of graphics sprinkled in during earlier chapters, here is an entire chapter devoted to advanced graphics and not one item is covered on the AP exam.

It is true that it takes time to teach graphics, but the results are interesting. I have students who continue to work on their assignments when the bell rings. I also have students who come after school and in general have a much greater interest in computer science because of their interest in graphics. Creating any sophisticated graphics program involves using a large number of different topics and many of them are covered on the AP exam.

This unit used to be taught in the middle of the course, but then the topics of the APCS course grew larger and larger. Right now it is meant to be a pleasant topic for the students after the have finished taking the AP Computer Science Examination. There are no quizzes, no exercises and no tests. This is strictly a matter of small teams working on a graphics project.

The chapter is divided into three parts. The first part is designed to alert students that graphics and mathematics go hand-in-hand. The mathematics is presented in a gentle manner, but it is not avoided with the assumption that it is too hard. Any student who wants to be involved in serious graphics animation had better learn mathematics.

The second part teaches students how to use mouse routines with graphics programs. Each program is small and places the emphasis on one particular mouse feature. The neat thing is that at the end of the chapter, students can create their own paint program.

The third part explains virtual memory and buffering techniques. This section is a first introduction into animation that goes beyond the simple "draw and erase" approach. This third section is not easy for many students. The bottom line of this section is the concept of selecting a section in memory (virtual video memory) that is the correct size to store graphics information. At the right time the virtual memory is switched to the video memory for an instant display on the screen.

I will assure you that the students who create the better graphics projects in my class are also the students who scores 5s on the AP exam.