The calculus reform movement of the last decade was, in a large part, spawned by the realization that too much of calculus education had become just a sequence of rules and techniques. Lost in the process was much of the understanding of the mathematical concepts underlying these techniques and many of the practical applications of these concepts.

These problems are as applicable to the “Business Calculus” or “Brief Calculus” course. The students in these courses often have algebraic skills that limit their ability to handle complicated techniques or realistic applications. Moreover, one could argue that these students have every bit as compelling a need to come away from the course with a firm understanding of the concepts.

We have been using interactive worksheets and formal computer laboratories in several sections of our Business Calculus class. Our goals have been to encourage participation and mathematical conversation among the students, to emphasize concepts rather than formulas, to promote experimentation, to show that the same problem can be approached from many points of view including graphical, numerical and analytical, and finally to present these students with tools that will enable them to solve problems that are based on some semblance of a real-world application.

We use Maple worksheets in one-hour labs approximately every other week. A typical lab worksheet cannot—by design—be completed in a single lab session. Most assignments include a writing component on some aspect of the work covered in the lab. Typically, we design the labs so that they use material that has just been covered in class. However, most labs do introduce some new material. This is partly based on the conviction that students learn best what they discover themselves and partly on the fact that we have given up class time for these labs.

As one might suspect, the experience has had both positive and negative aspects. We will show some examples of the kinds of exercises that students see in our labs and describe the successes as well as the failures. We feel that we have been able to generate more enthusiasm than we had ever experienced before. It is not unusual for us to see students actually discussing and even arguing over mathematics during a lab session—something we had never encountered before in this class. Some key concepts (such as the relationship between the slope of the tangent line and the rate of change or the connection between local extrema and horizontal tangents) seem to be understood on more than a superficial level.