

Capitalizing on the Dynamic Features of Excel to Consider Growth Rates and Limits
Daniel Taylor, Montross Middle School, VA and **Deborah Moore-Russo**, University at Buffalo (SUNY)



Daniel G. Taylor currently teaches middle school mathematics at Montross Middle School in Virginia. He received his master's degree at the University at Buffalo. His research interests include utilizing technology to enhance instruction as well as brain research regarding learning.



Deborah Moore-Russo (dam29@buffalo.edu) is an Assistant Professor in the Department of Learning and Instruction at the University at Buffalo (UB) where she teaches graduate-level mathematics education courses. Before coming to UB, she taught pre-calculus and calculus courses for five years at St. Gregory's College and for nine years at the University of Puerto Rico at Mayag'ez.

It is common for both algebra and calculus instructors to use power functions of various degrees as well as exponential functions to examine and compare rates of growth. This can be done on a chalkboard, with a graphing calculator, or with a spreadsheet. Instructors often are careful to connect the symbolic and graphical (and occasionally the tabular) representations of the functions. However, the graphs that are typically used for this are static. The most recent versions of Microsoft® Excel® (Excel) allow instructors to illustrate the connections between the symbolic, tabular, and graphical representations of the equations through quick generation of the function graphs. This requires only minimal input including three components: the equation of the function, its starting point, and the incremental changes between independent variable values. By formatting the spreadsheet to depend on these three things, the input values (and the calculated output values) are easily manipulated, allowing for changes in scale.