In this presentation we will show how MATLAB can be used in conjunction with \LaTeX to build students writing and visualization skills in multivariable calculus. In our multivariable calculus classes students are given an hour and a half per week of computer lab time where they complete investigative MATLAB activities. At the completion of the lab, MATLAB’s powerful publish command allows students to create a full \LaTeX document that embeds all of their code and figures. Students are then required to use \LaTeX to give meaningful and thorough explanations of the mathematics in the form of a technical lab report. Several examples will be presented along with preliminary data of the effectiveness of this method. (Received August 07, 2013)