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Finding meaningful ways to incorporate computing into mathematics courses without removing important mathematical topics is often difficult to impossible. Accomplishing this goal in the Calculus sequence is even more challenging because of even greater content pressures. In response to multiple changing realities at both the local and national level including evidence that the standard approach “filters” traditionally under-represented students, extremely different levels of student preparedness, the diverse career and continuing education paths of students, more sophisticated technologies, and access to large data sets that enable more realistic and more relevant applications, faculty members at Centre College and Southwestern University have re-envisioned how we teach our calculus courses. In this talk, we present a model for incorporating computing into Calculus I, which moves beyond just one-line commands and into more complicated multi-line algorithms and loop-based problems. (Received September 25, 2018)