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*Calculus activities to enhance student understanding.* Preliminary report.

The purpose of this study was to develop and utilize a multi-class period, student-centered set of activities that were aimed at allowing college students to thoughtfully describe the ideas behind the definitions of derivatives and integrals using geometric language, pictures and visualizations. While structuring the activities, we relied on the van Hiele theory on geometric learning and research on concept attainment from mathematics education literature. The results of this study include (1) a narrative description of individual students' thought processes about these topics and their resulting descriptions and definitions and (2) a description of patterns of thought that emerged among students as they worked through the sequenced activities. Our presentation consists of a description of the activities, the educational foundations that ground the activities, and our experiences implementing them for the first time in a calculus class. The analyses of student work drew from the activities and follow-up exam problems, as well as student feedback from a structured survey. (Received September 04, 2015)