

1077-O1-847 **Teena Carroll*** (teena.carroll@snc.edu). *Curve Sketching with Puzzle Pieces*.

In the introductory calculus sequence, students often struggle with problems where they need to produce a function satisfying a list of properties determined by the first and second derivatives. I designed an activity where students each determine one criteria for a function and work in teams to build a function satisfying all of the restrictions from the group. I provide them with large identical puzzle pieces which must be rotated correctly and taped to the wall to physically build this function.

The activity naturally produces functions which have cusps and corners, giving students a library of visual examples of these phenomena (which are relatively hard to come by using familiar functions at this level.) Including this activity has greatly improved students' test performance on related questions and has virtually eliminated "I-just-don't-know-how-to-start-this-problem" angst. As an added bonus, the functions on the walls create a de-facto mathematics art gallery in the classroom which inspires discussions both in and outside of our class. (Received September 13, 2011)