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Tamaraa B Veenstr* (tamara_veenstra@redlands.edu) and **sarah-marie belcastro** (smbelcas@toroidalsnark.net). *Investigating the mathematics of folding regular-polygon-base boxes*. Preliminary report.

Folding is a popular and currently well-funded area of research in the sciences and engineering, and of course mathematics underpins all of this work. We have created materials for a collection of activities for exploring mathematical folding suitable for high-school students. The process of folding boxes from crease patterns engages students and makes the mathematics of the construction intriguing. This presentation will focus on a two-class-period activity set particularly appropriate for calculus students. In the first class period, students fold four different boxes from crease pattern handouts—a downloadable video demonstrates the crucial steps of box assembly—and generalize to create an octagon-based box crease pattern. In the second class period, students design a crease pattern for an n -gonal-base box and explore the trigonometry of the crease pattern in the limit as n increases. These activities allow students to build on high school mathematics material (geometry, trigonometry and limits) to develop their mathematical reasoning skills and see an interesting and unusual application of mathematics. (Received September 15, 2014)