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Russell D Blyth* (blythrd@slu.edu), Department of Mathematics & Computer Science, Saint Louis University, 220 N. Grand Blvd., St. Louis, MO 63103. *Do it together to understand it: group activities that help liberal arts students understand mathematical concepts.*

For the past ten years I have been teaching a small “freshman inquiry seminar” class based on the first six chapters of Burger and Starbird’s textbook “Heart of Mathematics.” The pedagogy is non-traditional; students are assigned to read each text section ahead of class so that class time is spent on discussion, questions and (primarily) group activities. The course material naturally lends itself to some predictable hands-on activities (for example, cutting Möbius bands in halves or thirds), but we will focus our talk on several other activities that help students break through their initial difficulties in understanding some topics. For example, we will discuss using a computer worksheet to assist in encoding and decoding messages using public key cryptography (students exchange messages via email during class and gain a better appreciation for how public key cryptography works), walking paths in an open space of the classroom floor to figure out winding numbers, and attempting to unravel themselves from a ring of held hands to demonstrate equivalence or non-equivalence of a knot to the unknot. At the conclusion of the talk we will discuss two creative projects that students undertake, one on the fourth dimension and one on fractals or chaos. (Received September 18, 2011)