1096-F5-2545 **Emilie Hogan*** (emilie.hogan@pnnl.gov), P.O. Box 999, MSIN K7-90, Richland, WA 99352, and **Gabriela Radu**. *Graph clustering for the high school classroom.* Preliminary report.

We ask students "Have you ever wondered how Facebook recommends friends? How do they know that a new person belongs to certain groups and may be your friend?" This is a topic that most, if not all, students can relate to. Two lesson plans, one for geometry and one for algebra, were developed based on research done by a teacher while completing a summer research internship. The research project was in graph clustering for model reduction in the power grid. Given time series data for phase angle in many generators the goal was to cluster generators based on similar phase angle behavior following a disturbance. We investigated graph clustering techniques such as Markov clustering, Markov chains, and normalizing and squaring each column of the adjacency matrix. This inspired lesson plans to illustrate concepts of graph clustering through geometry and algebra. In this talk we will quickly describe the research in the power grid, the lesson plans that were developed, and how the students responded to the lessons. (Received September 17, 2013)