Since 2007 the presenter has led outreach programs that engage high school and undergraduate female students through hands-on extracurricular math activities and encourage them to continue their education. In this talk the structure of the Utah Valley University outreach program Math Girls Rock! (https://www.uvu.edu/math/mgr/) that the presenter has been leading since 2011 will be discussed. This program is designed as a year-long Math Club for Young Women, offering weekly meetings with the undergraduate female students and a series of after-school meetings (2 times per semester) for the high-school girls. The program offers mentoring on two levels: the presenter mentors the undergraduate students who then mentor the high school girls through the designed hands-on projects. It engages both student groups in various fun and interesting math projects that show that math is exciting, beautiful and applicable to various other fields. In addition, the projects are designed to spark student curiosity, to stimulate student inquiry, to get them to get “their hands dirty” with math, and to inspire them to want to learn more. Moreover, survey data on how learning math concepts in these types of informal settings affected the participants’ attitudes toward mathematics will be presented. (Received September 09, 2016)