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Kathleen R Fowler* (kfowler@clarkson.edu), Clarkson University Department of Mathematics, 8 Clarkson Avenue, Potsdam, NY 13676-5815. *Applied Mathematical Modeling and Research Opportunities for Middle School, High School, and Pre-Freshmen Students.*

We present a variety of outreach activities that we have implemented to help students in grades 6-12+ understand the role of mathematics in solving real-world problems. At the middle school level, we describe a workshop given to local middle school teachers to promote math modeling and project-based learning. For middle and high school students, we give examples of coaching students in national problem solving and open-ended modeling competitions. Also, we describe experiences mentoring high school students on research projects for a state-wide competition. At the pre-freshmen level, we describe a summer research experience for in-coming freshmen. All of these programs have challenges but ultimately results in an enriching, enlightening experience for all those involved, which in some cases include undergraduate and graduate student mentors, faculty, and local teachers. (Received August 29, 2011)