



2010-2011 Outreach Options

Beyond Benign strives to bring high quality curriculum enriching hands-on science experiences to schools. Typically we prepare for classes of 30 or less students. Each school visit we aim to visit 4 separate classrooms approximately 120 students. Our lessons have been designed to be done in one-hour blocks in the classroom with students paired together in groups of 2-3. We introduce the concepts of green chemistry and sustainability in an engaging way that is not only fun for the students but connected to their lives. We ask for a minimum donation of \$250 to cover our supplies and travel. *We have a scholarship program for schools unable to raise the funds.*

Middle School Options

6-8:

Blackberry Solar Cell Construction- Students will construct a dye-sensitized solar cell using safe materials such as blackberries. During the process students learn about how the materials, product and process meet the cost, safety and performance criteria of green chemistry technology. After construction is complete, students measure the voltage output of their solar cells and discuss how the technology is continuing to emerge. (Renewable Energy)

Sho-E-Factor- This hands-on activity illustrates the concept of the environmental impact factor of a product. Students work in teams to construct a shoe using simple materials provided. Students will measure the amount of waste and brainstorm ways to reduce the overall environmental impact factor. Upon completion of the activity students will walk away with an understanding of how green chemistry addresses pollution prevention.



Field Trip Options

Our Beyond Benign Classroom holds a maximum of 25 students and our lab holds a maximum of 18 students. Typically field trips are offered for school groups from 9:00am-12:00pm. Generally there is an introduction to Green Chemistry, Lab Activity and a Tour of the Warner Babcock Institute for Green Chemistry (with an opportunity to see scientists in action and ask questions). We can arrange a space for your group to have lunch provided students bring their own many groups opt to stop on the bus ride back to school. We ask for a minimum donation of \$100 to cover lab supplies for the day.

Middle School (6th-8th grade)

Science of Shampoo: (Exothermic reactions)

Students will observe, measure and record the amount of heat given off in an exothermic reaction. The lab is designed to connect how the process of a single ingredient found in shampoo links to green chemistry principles of sustainable production.