Survival Chemistry: Using Everyday Things to Create Energy and Drinking Water

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This six-week high school Chemistry unit designed for 10th through 12th graders has three foundational chemistry experiments that focus on energy and water. These experiments will be repeated and spiraled throughout the year, encompassing all Chemistry topics. The experiments are 1.) producing biodiesel, 2.) producing bioethanol, and 3.) purifying, filtering, and distilling water. The unit has been designed to be taught from the beginning of the year to engage students with hands-on experiments that they will get to repeat throughout the year. The 'big idea' behind this unit is that through repeated practice with complex experimental processes, students will develop higher level laboratory and critical thinking skills that will be critical for their future. Students will visualize applications for these experiments as well as gain the hands-on skills necessary to succeed in their future science endeavors through the culminating activity. The unit will culminate with an end of the year activity which will have students working together in a post-hurricane (or other natural disaster) scenario with limited supplies. Students will have to join forces to create a biodiesel processor, a bioethanol processor, and water purification, filtration, and distillation system to assist with the survival of their community.

(Developed for Chemistry and Biochemistry, grades 10-12; recommended for Chemistry and Biochemistry, grades 10-12)