

## Chemistry Merit Badge Pre-Work

- This merit badge will be presented in one four-hour session.
- Scouts are required to wear masks and follow social distancing recommendations both in the classroom and outside.
- Scouts must submit prework to their counselor by email ahead of the merit badge session. Counselors will not collect physical copies of prework during the class. Please note that we are unable to open Google Docs on Fairfax County Government computers, nor does this site have WiFi. **Pework requirements must be sent as a pdf attachment to [Kari.Schilling@fairfaxcounty.gov](mailto:Kari.Schilling@fairfaxcounty.gov) one week prior to the class date. Some pre-work requirements will be discussed/shared in class, please bring copies of all pre-work with you.**
- The blue card will be held at Hidden Oaks until proof of all requirements have been reviewed and signed off by a BSA scout counselor for these badges. Upon completion, the blue card will be mailed to the scout. Pre and post work should be emailed to [Kari.Schilling@fairfaxcounty.gov](mailto:Kari.Schilling@fairfaxcounty.gov)

### Please bring to class:

- Pre-Work
- Blue Card
- Pen or Pencil
- Snack/lunch and a drink. Water fountains will not be available. Please no red liquids.
- Appropriate clothing for being outside. Parts of the session will take place outdoors. Please wear sunscreen, insect repellent and appropriate clothing and footwear.
- Worksheet (useful, but not mandatory)  
<http://usscouts.org/mb/worksheets/chemistry.pdf>

### Pre-Work

The following should be completed by the scouts before the program and brought with them on the day of class.

**Requirement 1c.** Obtain an SDS for both a paint and an insecticide. Compare and discuss the toxicity, disposal, and safe-handling sections for these two household products.

**Requirement 4a.** Cut a round onion into small chunks. Separate the onion chunks into three equal portions. Leave the first portion raw. Cook the second portion of onion chunks until the pieces are translucent. Cook the third portion until the onions are caramelized, or brown in color. Taste each type of onion. Describe the taste of the raw

onion versus partially cooked onion versus caramelized onion. Explain what happened to molecules in the onion during the cooking process.

**Requirement 5.** List the five classical divisions of chemistry. Briefly describe each one, and tell how it applies to your everyday life.

**Requirement 6a.** Name two government agencies that are responsible for tracking the use of chemicals for commercial or industrial use. Pick one agency and briefly describe its responsibilities.

**Requirement 7.** Do **ONE** of the following activities:

**7a.** Visit a laboratory and talk to a chemist. Ask what that chemist does and what training and education are needed to work as a chemist.

**7b.** Using resources found at the library and in periodicals, books, and the Internet (with your parent's permission), learn about two different kinds of work done by chemists, chemical engineers, chemical technicians, or industrial chemists. For each of the positions, find out the education and training requirements.

**7c.** Visit an industrial plant that makes chemical products or uses chemical processes and describe the processes used. What, if any, by-products are produced and how they are handled.

**7d.** Visit a county farm agency or similar government agency and learn how chemistry is used to meet the needs of agriculture in your county.

For help or questions, contact Kari Schilling at [Kari.Schilling@fairfaxcounty.gov](mailto:Kari.Schilling@fairfaxcounty.gov), or at (703) 941-1065.