

Chemistry Merit Badge



Pre-requisite Worksheet

Updated: Sept. 2009

Name: _____ Troop/Pack Number: _____

Scout Masters, please give pre-requisites to scouts prior to workshop.

Scouts must complete pre-requisites prior to workshop. Be sure to answer all parts of each question, otherwise pre-requisites will be incomplete. Scouts must be at least 11 years or hold first class scouts status. Scouts must arrive in uniform and have a Merit Badge Application fully filled out and signed by their Scout Master. Scouts must have read the Chemistry Merit Badge pamphlet.

Scouts must bring pamphlet and completed pre-requisites to the workshop session.

The Detroit Science Center Merit Badge Counselor reserves the right to give partial or no credit to scouts not completing the above requirements.

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

Bring both MSDS for the paint and the insecticide with your pre-requisites. Discuss the toxicity, disposal, and safe handling of these common household products with your parent or guardian.

I verify that (name of scout)_____ has given a prepared talk about toxicity, disposal, and safe handling of paint and insecticide with me.

Parent/Guardian Signature: _____ Date: _____

1d. Discuss the safe storage of chemicals. How does the safe storage of chemicals apply to your home, your school, your community, and the environment?

Safe storage of chemicals in your home:

Safe storage of chemicals in your school:

Safe storage of chemicals in your community:

Safe storage of chemicals in the environment:

2c. Describe the difference between a chemical reaction and a physical change.

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

What did the raw onion taste like?

What did the partially cooked onion taste like?

What did the caramelized onion taste like?

What happens to molecules in the onion during the cooking process?

4b. Describe the chemical similarities and differences between toothpaste and an abrasive household cleanser. Explain how the end use or purpose of a product affects its chemical formulation.

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

a. Division of Chemistry: _____

Description: _____

How does it apply to your everyday life: _____

b. Division of Chemistry: _____

Description: _____

How does it apply to your everyday life: _____

c. Division of Chemistry: _____

Description: _____

How does it apply to your everyday life: _____

e. Division of Chemistry: _____

Description: _____

How does it apply to your everyday life: _____

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 to the public and the environment.

Two government agencies that are responsible for tracking the use of chemicals for commercial or industrial use:

Pick one agency and describe its responsibility to the public and the environment:

6c. Using reasons from chemistry, describe the effect on the environment of ONE of the following:

1. The production of aluminum cans or plastic milk cartons
2. Sulfur from burning coal
3. Used, motor oil
4. Newspaper

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

Work done by chemists includes: _____

How to prepare for this career (education and training requirements): _____

Work done by chemical engineers includes: _____

How to prepare for this career (education and training requirements): _____

Work done by chemical technicians includes: _____

How to prepare for this career (education and training requirements): _____

Work done by industrial chemists includes: _____

How to prepare for this career (education and training requirements): _____
