

Chemistry

Prepared by:

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Target Group:

1st Year Scouts and Above

Times Offered:

One, one-hour block

Pre-Requisites:

Requirement 3

Materials Needed—Staff:

Cooking oil
Sand or Cocoa
Rubbing alcohol
Yeast

Materials Needed—Scout:

Instructional Outcomes:

Upon completion of this activity, scouts will have a basic knowledge of Chemistry and the job opportunities with it, while learning safety and how it applies to scouting.

MONDAY

Requirement 1

- (a) Obtain safety data sheets (SDS) for sucrose (sugar), isopropyl alcohol (rubbing alcohol), and a waterproofing spray. Compare their properties and potential hazard(s), including handling and disposal guidelines and toxicity information.
- (b) What types of personal protective equipment (PPE) are recommended for each, and why? How does the recommended PPE change with toxicity and route of exposure?
- (c) Review the pictograms in Section 2 of each SDS. What do they mean, and how do you see them used in your community?
- (d) Discuss the safe storage of chemicals. How does the safe storage of chemicals apply to your home, your school, your community, and the environment?

TUESDAY

Requirement 2

- (a) Discuss with your counselor why you think soap and alcohol are used to clean cuts and scrapes. Discuss how you could test your hypotheses with your counselor.
- (b) Coat your hands with a mixture of cooking oil and a nontoxic powder, such as sand or cocoa. Wash your hands with water and observe what happens. Coat your hands again, then wash with soap and water. Discuss the differences with your counselor.
- (c) Perform an experiment to demonstrate how rubbing alcohol affects microbial growth using baker's yeast. Discuss the results with your counselor.

WEDNESDAY

Requirement 4

- (a) Design and conduct an experiment to compare at least two different types of waterproofing. Discuss with your counselor which one you would prefer to use on your tent and which one you would prefer to use on your boots, and why.
- (b) Describe the four classes of fires, and the four classes of fire extinguishers. Discuss with your counselor how sand, baking soda, and the four classes of extinguishers work to put out fires.

Requirement 5

Describe how chemistry can be used to reduce the environmental impacts of single-use items, such as water bottles, bags, straws, or batteries.

THURSDAY

Requirement 8

Identify three career opportunities that would use skills and knowledge in chemistry. Pick one and research the training, education, certification requirements, experience, and expenses associated with entering the field. Research the prospects for employment, starting salary, advancement opportunities and career goals associated with this career. Discuss what you learned with your counselor and whether you might be interested in this career.

*Will need to this in the museum

FRIDAY

Requirement 6

Identify five fields of chemistry. Briefly describe each, tell how each applies to your life and how they interact.

Requirement 7

Identify three government agencies that oversee or provide guidance on the use of chemicals for personal, pharmaceutical, commercial, or industrial use, and discuss the agencies' history and responsibilities with your counselor.