Thousand Islands Girl Scout Council

OUR COUNCIL'S OWN BADGE

CHEMISTRY

for girls 11-17 and Cadette/Senior Girl Scouts

Choose two skill builders, one technology, one service project, one career exploration and two activities from any category,

This IP is the creation of the Chemistry and Physics clubs at St. Lawrence University, with help of Agnes Hoey of SLU's Information Technology Dept.

SKILL BUILDERS

1.	Explain the difference between a chemical reaction and a physical reaction. Name three examples of each that you can identify in your own home.
2.	Make a list of chemicals found in your home, and their use. Share this list with others in your troop or group. Tell how to safely store chemicals in your home, and how to dispose of them safely.
3.	Write the simple equation for photosynthesis. Explain what parts sunlight and chlorophyll play in it.
4.	Give the names and symbols of the three main parts of 10-6-4 fertilizer. Explain what each part does for plants. Draw a sketch of the carbon dioxide-oxygen cycle.
5.	Explain what oxygen does in the body of an animal. Describe how oxygen, carbon dioxide, and carbon monoxide are carried in the body.
6.	Describe the chemical changes that take place for at least two of the following: when vegetables cook, when meat cooks, when bread dough rises, when bread bakes, when bread is chewed.
7.	Name two chemicals that cause air, water, or soid waste pollution near your home. Tell where these pollutants might have originated. How might you control these pollutants.
8.	Name three organic and three inorganic chemicals. Explain the difference between polar and nonpolar. Show how polar and nonpolar substances do not mix.
9.	Write the formula for ozone. Tell where ozone is found, why it is considered a pollutant, and why it is necessary for a healthy environment.
10.	Write the formula for carbon dioxide. Explain how carbon dioxide can cause the greenhouse effect.

11.	Write the formula for sulfur dioxide. Explain what acid rain is, and how it can be prevented. Explain what pH measures. Measure the pH of rain or a body of water near your house. What was the pH level?
TECHNOLOGY	
1.	Carry out an experiment to show at least one way of protecting iron or steel from rusting. Explain why aluminum does not rust the way iron or steel rust.
2.	Do an experiment in which one metal makes another metal deposit from solution. Explain what takes place in terms of the activity series of metals.
3.	Construct a Cartesian diver. Explain why the medicine dropper sinks to the bottom when the sides are squeezed.
4.	Visit an industrial plant that makes chemical products or uses chemical processes, and describe the processes used. What, if any, pollutants are produced and how are they handled.
5.	Visit a laboratory, hospital, or business that uses chemicals and find out how and why they are used. Share with others what you have learned.
6.	Prepare an indicator from a plant leaf or bloom. Show that it works when vinegar neutralizes a baking powder solution. Give a brief summary of the steps you took and the results you got.
7.	Compare the strengths of a 5% solution of baking soda and borax by titrating each with vinegar. Give a brief summary of the steps you took and the results you got.
8.	Test two different foods for starch and protein. Explain how you performed the test and the results you got.
9.	Compare the amounts of vitamin C in two different kinds of fruit juice. Give a brief summary of the steps you took and the results you got.
10.	Show that an ink or food color has two or more colors by using paper chromatography. Describe the process and your results.
CAREER EXPLORATION	
1.	Explain the difference between organic, inorganic, physical, analytical, and environmental chemists. What are the differences between their education and training? Name at least one career for each.
2.	Medical professionals must know chemistry. For at least two major medical careers, explain the importance of chemistry.

3.	Describe two different kinds of work done by chemists, chemical engineers, and chemical technicians. Explain the education and training for each.
4.	Visit a County Agent to learn how chemistry is helping solve farm problems such as soil fertility and crop pests. Share with others what you have learned.
SERVICE PROJECT	
1.	Create a poster or game for younger girls to teach them about using and disposing of chemicals safely. Explain what carbon monoxide testers are for, and why they should be in their homes.
2.	Explain why it is important to keep chemicals away from children, and the different ways to prevent chemical accidents. Create a game for younger children to play.
3.	Create a poster showing hoe to treat chemical burns, swallowed chemicals (ingested), and how to prevent chemical accidents. Include the number for poison control on your poster.
4.	Work with the local Fire and Police departments to create a flyer for your community that shows what to do in the case of a chemical emergency. Place the flyers in a location such as the library, where people can pick them up.

PATCH TRACKER

Track each girl's progress here.

	CHEMISTRY *List girls' names and check off progress.* →												
SB	1st Skill Builder												
SB	2nd Skill Builder												
T	Technology												
CE	Career Exploration												
SP	Service Project												
**	Select any.												
**	Select any.												

COUNCIL'S OWN PATCH ORDER FORM: CHEMISTRY

Please complete the information below, enclose a check made payable to: *Thousand Islands Girl Scout Council*, and mail to: Thousand Islands Girl Scout Council, 253 State Street, Watertown, NY 13601.

Troop Number_____ Troop Level_____ Leader Name_____
Neighborhood_____ Council_____

Leader mailing address_____

_____ patches x $ 1.05 =	
Postage cost ($1.25 for each dozen patches for orders in continental US)	
TOTAL	