

## Summative Assessment: Green Chemistry Part 1

In this project, students will research the lifecycle of a consumer product. That product could be something that is regularly used in their school, in their home or in their community. They will also research a possible alternative product that may be more sustainable than the one they've selected. Working in teams of four, each team will present their findings to the class and also to concerned stakeholders, including school officials, parents and perhaps appropriate community members. Every student will also be expected to complete a peer evaluation of each team's work.

Teams will be expected to answer the following questions about the lifecycle of each product:

- What are the raw materials that are needed to manufacture each product?
- Where do these raw materials originate?
- How is each product manufactured? (In other words, how does it go from raw materials to finished product?)
- What happens to each product after it has been used?
- How does the lifecycle of your product align with the Twelve Principles of Green Chemistry?
- What are the pros and cons of each product?

Teams must present their findings using a **tri-fold poster** or **powerpoint slideshow** that can answer, at a minimum, all questions presented above. Be sure to display the lifecycle diagram and include explanations for each stage of the lifecycles. Each team must also turn in a properly formatted works cited page with their presentation.

**Sources:** Teams may use books, journals, websites, in-person interviews with appropriate experts, phone call interviews with appropriate experts, and other credible online sources; however, you may only use one encyclopedia-type resource, and this includes electronic encyclopedias. You need a total of at least three resources (including one that exists in printed form, even if you access it electronically).

**Assessment:** Team members will be graded based on the rubric below. Each team will present their findings to the class and during the final event, and this will also be included in the project grade. Furthermore, all students must keep track of their progress with a daily journal. This journal will be turned in and graded as part of the total project grade as well.

**Driving Question: How can we become a sustainable community through the 12 Principles of Green Chemistry?**

Things we can improve:	Base Criteria	Things that were amazing:
	<p><b>Research:</b> teams are reviewed for their research efforts. The research includes the Lifecycle of the consumer product and the alternative product. Also the research clearly connects the 12 Principles of Green Chemistry to both products.</p>	
	<p><b>Presentation:</b> clearly presents the Lifecycle and which of the 12 Principles of Green Chemistry is associated with both the original product and the sustainable alternative product. Teams answer the driving question thoughtfully. Answers audience questions thoughtfully.</p>	
	<p><b>Self Reflections:</b> using tools such as peer review, journal entries, team contract and teacher informal and formal feedback, made adjustments and improvements throughout the project process.</p>	
	<p><b>Team Agreements and Contract:</b> each team member built and abided by their agreements. Each member followed their contract to be helpful and positive as a team. Each member was respectful toward each member and contributed to an effective result.</p>	
	<p><b>Optional Alternative Product Proposal:</b> well-written and explained well to the end-users, people affected by products, and audience. Was able to “sell” the alternative consumer product effectively while clearly answering how the alternative product is more sustainable.</p>	