

Green Chemistry Lesson Plan Template

A Ready-to-Use Framework for Teaching Sustainable Chemistry Principles

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About This Template

This template is designed for chemistry educators at secondary and undergraduate level who want to integrate the 12 Principles of Green Chemistry into their teaching. Complete the fields below for each lesson. All bracketed fields [like this] should be replaced with your specific content. This template was developed by InfoChemist.com and is free to use, adapt, and share with attribution.

Lesson Information

Lesson Title	
Subject / Course	
Grade / Level	
Duration	
Educator Name	
Institution	
Date	
Green Chemistry Principle(s) Addressed	

Quick Reference: The 12 Principles of Green Chemistry

1. Prevention	It is better to prevent waste than to treat or clean it up.
2. Atom Economy	Maximize incorporation of all starting materials into the final product.
3. Less Hazardous Synthesis	Use and generate substances with little or no toxicity.
4. Safer Chemicals	Design chemical products to be fully effective yet non-toxic.
5. Safer Solvents	Avoid auxiliary substances wherever possible; use innocuous ones.
6. Energy Efficiency	Conduct reactions at ambient temperature and pressure.

7. Renewable Feedstocks	Use renewable raw materials and feedstocks where possible.
8. Reduce Derivatives	Minimize unnecessary derivatization — protecting groups, etc.
9. Catalysis	Use catalytic reagents rather than stoichiometric quantities.
10. Design for Degradation	Products should break down into innocuous substances.
11. Real-Time Analysis	Monitor and control chemical processes to minimize hazardous substances.
12. Inherently Safer Chemistry	Minimize accident potential — explosions, fires, releases.

Learning Objectives

By the end of this lesson, students will be able to: • [Objective 1] • [Objective 2] • [Objective 3]

Warm-Up Activity (5–10 min)

[Describe opening activity — question, video, demonstration, or discussion prompt that connects to green chemistry theme]

Key Concepts & Content (15–20 min)

[Outline main teaching content. Reference which Green Chemistry Principle(s) are illustrated. Include any diagrams, equations, or examples.]

Student Activity / Lab Component (15–20 min)

[Describe hands-on activity, experiment, case study, or problem set. Note: consider using microscale chemistry, water-based reactions, or computational alternatives to reduce waste.]

Discussion Questions

1. [Question connecting lesson content to sustainability] 2. [Question asking students to apply a Green Chemistry Principle to a real-world scenario] 3. [Open-ended reflection question]

Assessment / Exit Quiz

Q1: [Short question testing key concept] Q2: [Application question] Q3: [Green Chemistry Principle identification question]

Resources & Materials

[List chemicals, equipment, safety requirements, reference materials, and digital resources]

Educator Notes & Adaptations

[Note any adaptations for different levels, remote learning alternatives, or assessment modifications]

■ Green Chemistry lesson plans developed using this template can be submitted to the InfoChemist Educator Community. Visit infochemist.com/resources to share your lesson and inspire educators worldwide.