

Program Type: In-class Activities		Duration: 3 class periods
Standards: SC.912.L.17.10: Describe the roles of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere. SC.912.L.17.11: Explain the role of microorganisms in the cycling of matter within ecosystems. SC.912.L.17.16: Evaluate how the introduction of invasive species can disrupt ecosystems and cause economic or environmental harm. SC.912.P.10.2: Explain the law of conservation of energy and demonstrate how energy is transferred within a system. SC.912.N.1.1: Define a problem based on observations, ask questions, and make predictions.		
Learning Objectives: Understand the process of how excess fertilizer can cause water pollution problems.		
Guiding Questions: What are the sources of water pollution? How does excess fertilizer cause water pollution? How do best practices prevent fertilizer pollution?		
Intended Outcomes		
As a result of the program, what I want my audience to LEARN... Sources of water pollution Fertilizer applications and consequences Prevention of excess fertilizer application	As a result of the program, I want my audience to ACT by... Distinguishing between point and non-point sources Explain water pollution from fertilizers Explain best practices for fertilizer application	Assessment: (<i>How will you know your audience has reached your intended outcomes</i>) Review of students' notes and foldable Evaluate student CER reports
Schedule Layout:		Items Needed:
Part 1: <u>Class Discussion of Topics.</u> This includes 5 separate segments to the subject. <ul style="list-style-type: none"> Two or three Film Clips with notetaking. T-Chart for point and non-point sources of water pollution. Brainstorming the question "How does applied fertilizer enter our waterways?" Venn Diagram on differences between landscape and agriculture fertilizer. Brainstorm the question "Why do we need to prevent fertilizer caused pollution?" 		This is guided by the teacher. Notetaking can be on notebook paper or a teacher prepared handout.
Part 2: <u>Article Reading and Notes.</u> Students will read the article and create a 6 box foldable from the article. They will use the headings from the article for the topics of each box and fill in the main ideas in each box. Near the end of the class, the teacher will review the foldable and the class will discuss what they put in each box.		Article: lawnlove.com/blog/why-be-responsible-in-our-use-of-fertilizer/ Colored paper for foldable

Part 3: CER Report (Claim – Evidence – Reasoning). Students will pick from 3 questions/prompts. They will make a claim, collect/list their evidence, and support their claim by making reasoning paragraphs.

CER Report directions supplied as example. Notebook paper can be used for reports.

Details:

Activity Set-Up:

Part 1: This plan should be done after a brief introduction and textbook reading/notetaking on water pollution. Consider gathering content-specific film clips from YouTube and/or creating a format for the notetaking handout aligned with class expectations.

Part 2: Article can be modified for various reading levels.