## Environmental Science [Download all Associated Files for this lesson from our Website](http://peer.tamu.edu/DLC/NSF_Resources.asp?ID=942&type=browse&num=10&terms=&content=allcontent&subject=allsubjects&grade=allgrades&query=query&hl=no&count=537&number=6&view=yes)

**Summary:** This lesson depicts environmental science as it relates to agriculture. The history of current technological farming advancements is illustrated as well as types of farming practices. Pros and Cons are discussed.

**Keywords:** biotechnology, chemical agriculture, conventional farming, DDT, environment, GMO, organic, the green revolution, silent spring, sustainable,

**Subject TEKS:**

1. Principles of Agriculture, Food, and Natural Resources

(6) The student explains agriculture, food, and natural resource systems at the local, state, national, and international levels. The student is expected to:

1. Identify reasons for world trade;
2. Identify the political impact of agriculture, food, and natural resources;
3. *Identify the interdependency of agriculture and the environment;*
4. *Explain ethical stewardship practices that reduce negative impacts of agriculture upon land, air, and water resources;*
5. *Review regulations and major laws to evaluate their impact on agriculture, food, and natural resources management;*
6. *Analyze appropriate written material to stay abreast of current issues impacting agriculture, food, and natural resources management;*
7. Collect and analyze public opinion and data in order to make informed decisions; and
8. Use critical-thinking skills to identify, organize alternatives, and evaluate public policy issues related to agriculture, food, and natural resources.

(15) The student explains the relationship between agriculture and safety, health, and the environment. The student is expected to:

1. *Determine the effects of agriculture, food, and natural resources upon safety, health, and the environment;*
2. *Identify regulations relating to safety, health, and environmental systems in agriculture, food, and natural resources;*
3. *Describe methods to maintain and improve safety, health, and environmental systems in agriculture, food, and natural resources;*
4. *Identify alternative energy sources that stem from or impact agriculture, food, and natural resources;*
5. *Evaluate energy and water conservation methods; and*
6. *Describe the importance of safety, health, and environmental regulations and procedures in the workplace.*

**Grade Level:** 9th - 12th

**Learning Objectives:**

The learner will:

* Identify the importance of agriculture in his/her daily life
* Analyze the positive and negative effects of agriculture to the environment
* Describe the development of current farming practices
* Describe the future of farming practices
* Review and synthesize current material related to sustainable agriculture, policy, and practices

**Time Required:** 2 – 50 minute lessons

* 1 – 50 minute lesson for PowerPoint and quiz
* 2 – 50 minute lessons for research and presentation

**Materials:**

* Environmental Science PowerPoint
* Environmental Science Quiz
* Environmental Science Quiz Key

**Lesson Introduction / Motivation:**
Show the YouTube clip “Silent Spring”: <https://youtu.be/IC3jAQBqb38> Following the video, ask your students to describe environmental concerns in their community.

Be sure to explain to your class if you would like them to write these answers in a particular notebook, on a piece of paper to turn in or on a different medium that you prefer. After your students have completed the first task, begin presenting the material.

**Presentation/Explanation:**
The PowerPoint should be used as a tool to better help students understand the material. Questions throughout the PowerPoint will promote thoughtful insight and depth to the lesson. These can also be used as attention grabbers. Have students write their answers or the collective class answers to the questions and turn them in after the PowerPoint presentation.

**Activity/Application:**

Research: Have students conduct an online research assignment to discover more information about farming methods and sustainability. Then, have them write a paper or make a presentation over a policy, regulation, or a sustainability method not mentioned in the PowerPoint. The following are useful sites:

* <http://www.csrees.usda.gov/nea/biotech/in_focus/biotechnology_if_animal.html>
* <http://www.usda.gov/wps/portal/usda/usdahome?navid=BIOTECH>
* <http://www.sare.org/>

Quiz: This quiz will evaluate the knowledge gained over environmental science in agriculture. All of the answers can be found in the PowerPoint.

**References:**

* http://science.howstuffworks.com/environmentalAdd your second bullet point here
* <http://en.wikipedia.org/wiki/Environmental_science>
* EarthKind
* <http://www.csrees.usda.gov/nea/biotech/in_focus/biotechnology_if_animal.html>
* <http://www.usda.gov/wps/portal/usda/usdahome?navid=BIOTECH>
* <http://www.sare.org/>
* Sociohorticulture 335 PowerPoints, Taylor Paine

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