

Grade Level	5th Grade	
Infused Core Areas	ELA, Earth Science	
Standard Alignment		
Standards Covered	Objectives	Assessment
<u>ELA:</u> Writing Standard 1: Write arguments to support claims with clear reasons and relevant evidence.	SWBAT write strong persuasive statements in favor of earth-friendly agricultural practices.	
<u>Earth Science:</u> 5-LS1-1. Support an argument with evidence that plants obtain materials they need for growth mainly from air and water.	SWBAT argue that natural resources are more productive for plant growth and health.	
Vocabulary	<ul style="list-style-type: none"> ● Agriculture ● Pesticides ● suffix "cide" 	
Preparation/Materials/Resources	<ul style="list-style-type: none"> ● PPT/Youtube video ● Anchor Chart: Pesticide pros/cons ● Chromebooks ● Construction Paper ● Markers 	
What Will Be Done During the Lesson?	<p><u>Intro/Hook:</u> *Intro Objective and Vocabulary*</p> <p>We know that plants need food, water and sunlight to grow properly. Most of the nutrients plants need are already in the soil. But, when we're making crops for lots of people, sometimes farmers use <u>pesticides</u> to protect and grow more plants.</p> <p><u>We Do</u> However, pesticides have some other effects. Let's learn about it: https://www.youtube.com/watch?v=GLIIZ-qjXJA</p> <p>Leading Discussion Questions:</p> <ul style="list-style-type: none"> ● How do pesticides negatively affect plant growth? ● How do pesticides negatively affect humans? ● What are scientists' concerns about pesticides? ● What are some more earth-friendly ways we can protect our plants and our environment? <p><u>Independent:</u> Now that we've taken a look at some of the different effects of pesticides, what plants need to grow, and talked about some earth-friendly practices, I'm going to put you in groups. I want each group to pretend they run a farm.</p> <p>Make me an advertisement (you can create a poster, or make a video) that shows me how your farm fends off pests in an earth-friendly way.</p>	

Grade Level	8	
Infused Core Areas	Ecosystems: Interactions, Energy, and Dynamics	
Standard Alignment		
Standards Covered	Objectives	Assessment
B-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on biodiversity and ecosystem health.	SWBAT evaluate effective methods for herbicide free farming.	
LS2.C: Ecosystem Dynamics, Functioning, and Resilience Moreover, anthropogenic changes (induced by human activity) in the environment— including habitat destruction, pollution, introduction of invasive species, overexploitation, and climate change—can disrupt an ecosystem and threaten the survival of some species.	SWBAT describe the ways that herbicide farms are detrimental to the environment and human health.	
Vocabulary	Anthropogenic Bioaccumulation Crop Rotation Cover Crops Pesticides/Herbicides	
Preparation/Materials	SmartBoard Youtube Anchor Charts	
What will be done during the lesson?	<p><u>Intro/Hook:</u> *Intro objective and vocabulary*</p> <p>When we think about a healthy farm and a healthy environment, what are some of the things we think about?</p> <p>What might be some threats to healthy farms and healthy environments?</p> <p><u>I Do</u> Now that we've learned some things about what a healthy farm needs to function, and what some potential threats might be to farms and to humans, let's learn a little more.</p> <p>https://www.youtube.com/watch?v=g6LMw9I6rxU</p> <p><u>We Do</u> What did we just learn about <u>bioaccumulation</u>? What were some of the species talked about in the video? How does bioaccumulation affect those species, and in turn affect the planet and humans?</p> <p>With what we learned about <u>crop rotation and cover crops</u>, how could these methods help species like birds of prey?</p>	

What about biological control? What are some pros and cons of using a method like biological control?

Create anchor charts/brainstorming for crop rotation, cover crops, and biological control that list pros/cons

Activity

In groups, you'll be assigned one of the three sustainable farming methods: biological control, crop rotation, or cover crops. With your group, I want you to write a letter to our local congressman arguing for herbicide free farms.

In the letter, please include:

- The effects of herbicides/pesticides on local communities
- The effects of herbicides/pesticides on our environment and biodiversity

Some things to think about:

- Language! Using what we know about the suffix “cide”, do you think this is something you’d want to include in your advertisement?
- When we use persuasive writing, we’re trying to convince our audience of something. Brag about your farm!
- You can use my example of an advertisement I created for my farm that used a fungal defense system while you work.
- Think about the ways that color, shape, and composition make you feel.

Grade Level	10	
Infused Core Areas	Civics/History	
Timeline	2-day lesson, 40 min each	
Standard Alignment		
Standards Covered	Objectives	Assessment
<p>UHC.4.P Summarize the changing role of the government in the economy during the period 1917–1945.</p> <p>This indicator was constructed to facilitate inquiry into how economic conditions prompted an evolution of fiscal and monetary policy featuring significant turning points. This indicator also supports inquiry into the laissez-faire policies of the 1920s, the balance of free markets and government intervention of the 1930s, and the command economies during World War I and World War II.</p>	<p>STWBAT identify the American government’s motivation to produce and sell chemically unfit products during the period 1917-1945.</p> <p>SWBAT identify obstacles in the American agricultural economy during the period of 1929-1939.</p>	
Vocabulary	PCB DDT 2, 4-D	
Preparation/Materials/Resources	SmartBoard Youtube Powerpoint	
What will be done during the lesson?	<p><i>Day 1</i></p> <p><u>Intro/Hook:</u> With what we already know was going on in America in the early 1900s, what do you think would’ve been some of the goals of the American government?</p> <p>Today, we’re going to look specifically at the agricultural economy during this time period.</p> <p>Let’s watch this video to set the scene: https://www.youtube.com/watch?v=vkizE4i1WEI</p> <p><u>We Do:</u> <u>America’s economic terrain during WW1/WW2/Great Depression</u> -So we know that during the Great Depression (1929-1939), rural and farm life were struggling to meet demands that fed American Citizens. Farmers who had borrowed money to expand their farms couldn’t pay back their debts, the prices of the land they were farming on fell, and the farms were often worth less than what the farmers owed to the banks. At the same time, America felt pressure to produce profits from the crops for the war.</p>	

What are some thoughts you have about how they may have been able to do this? What are some obstacles? (Think- post Industrial Revolution technology boom)

discuss

Day 2

-Because of WW1 and WW2, scientists had engineered chemicals that were powerful enough to withstand pests (especially ones that carried illnesses), unfertile soil, and even some weather events.

One of the lead chemical producing companies was Monsanto, who is still around today. Monsanto originated as a chemical company in 1901, and began producing agrochemicals for American farms in 1945 (after WW2). Some of these chemicals were:

- DDT
- PCBs
- 2, 4-D

These chemicals were widely used on American farms to eradicate diseases (like Typhus and Malaria) that were carried over from insects. DDT was being widely used and dumped on every farm, and chemists were producing other herbicides like it- one being 2,4-D. However, like we learned when we went over our vocabulary, these chemicals are highly toxic to humans.

You Do:

Now that we've looked at the motivation for farmers to produce profitable crops, and the effects of some of the farming chemicals used, I want you to write a letter from the position of a farmer to a local representative arguing for or against the use of agrochemicals on your farm.