

Sustainability in the Southern High Plains

Identification

Unit Topic: Sustainable Agriculture in the Southern High Plains

Lesson Title: Why is Sustainable Agriculture Needed in the Southern High Plains?

Objectives (The student will be able to...)

- Given materials on the Southern High Plains agricultural commodity production identify the three major crops produced in Southern High Plains.
- Given a description of the Ogallala Aquifer, describe 2-3 water issues facing the Southern High Plains and agriculture in general.
- Given a short introduction to sustainable agriculture, compare and contrast two pros and two cons of sustainable agriculture.
- List 2-3 potential economic benefits of sustainable agriculture, given cotton production statistics and a brief discussion on governmental interactions affecting sustainable agriculture.

Teaching Materials and Resources (What do you need to bring?)

- Provided pictures of the dust bowl
- Two samples of dirt—one sample being sand and the other topsoil
- One bottle of water
- Enough small cups for everyone in the class
- Student workbook

Teaching Procedures— Preparation, Presentation, Application, Evaluation

Preparation (Interest Approach/Motivator)

<p>Key Points</p> <p>– Give everyone in the class a cup and ask each one of them if they would like any water and how much. Do not restrict amounts of water that you give students. You should run out before all students get water.</p>	<p>Methods</p> <p>– Teacher-led activity.</p>
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<p>–Why did some students not get any water? Why did other students take a lot of water?</p> <p>–Give the students that got some water in their cups the topsoil sample and those that did not get water give them the sand sample.</p> <p>–Which soil sample would be more productive in growing crops? Will that soil always be productive? What would make it unproductive?</p>	<p>– Teacher-led discussion. Stress that some were greedy and took more than their share.</p> <p>– Teacher-led activity.</p> <p>– Teacher-led discussion. Stress that a lack of water could cause soil to become unproductive. Also, too much fertilizer or chemicals could cause soil to become unproductive.</p>
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Presentation (The Content)

<p>Key Points</p> <ul style="list-style-type: none"> – Begin discussing commodity production in Southern High Plains using student workbooks. – Cotton is a major crop in Southern High Plains. – Describe the Ogallala Aquifer. – Discuss water issues facing Southern High Plains. – Define sustainable agriculture. 	<p>Methods</p> <ul style="list-style-type: none"> – List on the chalkboard the top four Southern High Plains commodities. – Why is cotton a major crop? Environment, water, soil compatibility. – Refer to student workbook. – What are some water issues that agriculture will face in the future? Government regulations, increased water cost, water shortages. – Discuss the definitions of sustainable agriculture contained in the student handbook.
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Application (What will they do with what you taught?)

<p>Key Points</p> <ul style="list-style-type: none">– Students will reflect on how sustainable agriculture could be beneficial to their community.	<p>Methods</p> <ul style="list-style-type: none">– Teacher led discussion.– Which crops are unique to the community? Will the community ever run out of water?
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Evaluation (How do you know they learned it?)

<p>Key Points</p> <ul style="list-style-type: none">– Give the top four agriculture commodities produced in Southern High Plains– Give three possible current or future water issues.– What is the Ogallala Aquifer?– What is sustainable agriculture?– What are some pros and some cons to sustainable agriculture?– Transition into next day's lesson about specific sustainable agriculture projects unique to Southern High Plains.	<p>Methods</p> <ul style="list-style-type: none">– Oral questioning.– Teacher-led discussion.
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