



Conservation in the Classroom

Agroecology + Innovation Matters

Lesson:	Community Based Agriculture: Small Lots, Big Impact
Grade Level:	10-12
Estimated Time:	Two 40-minute class periods
Purpose:	
After completion of the lesson, students will be able to research, connect, and apply geographic, economic, and policy data to current issues in food accessibility and agriculture regulations.	
Student Learning Objectives	
Students will be able to:	
<ol style="list-style-type: none"> 1. Determine if their community is a food desert. 2. Define Community Based Agriculture. 3. Research statistical information about their communities. 4. Interpret local policies and apply them to agriculture enterprises. 	
Materials Needed:	
Day 1	
<ul style="list-style-type: none"> • Small Lots: Big Impacts PowerPoint Presentation • Community Based Farming Worksheet Part 1 • Community Assignments Supplement • USDA Food Access Research Atlas • Data.census.gov 	
Day 2	
<ul style="list-style-type: none"> • Small Lots: Big Impacts PowerPoint Presentation • Community Based Farming Worksheet Part 2 • Community Based Farming Worksheet Part 3 • Community Assignments Supplement • American Legal Publishing 	
Vocabulary:	
<ul style="list-style-type: none"> • City Hall • Code • Community Farming • Food desert • Industry • Median Household Income • Municipal • Policy • Urban Farming 	
References / Resources:	
<p>https://data.census.gov/ https://codelibrary.amlegal.com/ https://www.ers.usda.gov/data-products/food-access-research-atlas/go-to-the-atlas/ https://guides.loc.gov/municipal-codes</p>	

Standards and Outcomes

CS.01.01. Research, examine and discuss issues and trends that impact AFNR systems on local, state, national and global levels.

CS.01.03. Identify public policies and examine their impact on AFNR systems.

CS.02.01. Research and use geographic and economic data to solve problems in AFNR systems.

SS.G.1.9-12: Use maps (created using geospatial and related technologies, if possible), satellite images, and photographs to display and explain the spatial patterns of physical, cultural, political, economic and environmental characteristics.

Day 1

Engage (Interest Approach):

5 MINUTES

Read and display on the board whichever scenario below would be most relevant to your students (*slides 2 & 3*):

- **Scenario 1a (slide #2 - for students in rural settings):** You went to school all day and then worked extra hours at your part-time job. After work you need to pick up toppings to make a homemade pizza for dinner. You would like to have fresh green peppers, mushrooms, and fresh jalapeños for toppings, but the closest grocery store with produce is over 10 miles away one-way and you have a tight budget for fuel (and you're tired from your long day!). There is a convenience store that you drive by on your way home that carries some pre-packaged grocery items like packaged pepperoni, canned pineapple, and bacon. Do you drive 20+ miles round-trip to pick up fresh toppings from the grocery store or swing by the store that's on your way home and pick up the convenient options?
- **Scenario 1b (slide #3 - for students in urban settings):** You went to school all day and then worked extra hours at your part-time job. Once you are finally off work, you need to pick up toppings to make a homemade pizza when you get home. You would like to have fresh green peppers, mushrooms, and jalapeños for toppings, but the closest grocery store with produce is over 1 mile away and would require you to either walk or take 2 buses to get there, and you are tired from your long day. There is a convenience store that you pass by on your way home that carries some pre-packaged grocery items like packaged pepperoni, canned pineapple, and bacon. Do you walk or bus the extra 2+ miles to pick up fresh toppings from the grocery store or swing by the store that's on your way home and pick up the convenient options?

Invite students to share their answers and reasons why they would make that choice.

Show PowerPoint slide #4.

Say: Most of us would probably choose the convenient option, even though we know it is less healthy. This scenario describes a **food desert**. "Food desert" means a location lacking fresh fruit, vegetables, and other healthful whole foods, in part due to a lack of grocery stores, farmers' markets, or healthy food providers (IDPH, 2019).

Grow: Research, Analyze, and Interpret Economic Data

10 MINUTES

Direct students to access the USDA Food Access Research Atlas (<http://tinyurl.com/atlasusda>) (slide #6); allow students 5 minutes to explore the atlas independently.

Explain: The map on slide #4 is from an Illinois Department of Public Health report that was published in 2019. It shows the census tracts where residents must travel more than a mile in urban areas and more than ten miles in rural areas to the nearest supermarket.

Invite students to make observations about the map. Note the different parts of the state that are designated as food deserts.

Ask prompts such as:

- What surprises them about the data? (*Often students are surprised that food deserts exist in rural, suburban, and urban areas and not just in rural areas*)
- What seems to be a common thread throughout all the communities?
- Why do they think those areas have become food deserts? Is it because food won't grow there? Or are there other reasons?

Guide the conversation to the conclusion that all the communities share a commonality – they all have a lack of access to fresh vegetables, fruits, and nutritious groceries.

Share with students that one piece of solving food access inequality is accessibility to locally grown, fresh food.

Say: Let's look at one of these communities from the Atlas and learn a little bit more about it so we can come up with possible solutions to accessibility.

Display slide #7 and play the short video (no audio) that shows searching for and locating a community on the map.

Invite students to share observations about the community, noting its relative location within the state and that it appears to be a rural area surrounded presumably by farmland.

Say: Ok, now we know that this is a community that meets the definition of a food desert. I wonder how big this community is? What do people do for work there? How old are they? Does anyone have any ideas as to where we could go to find that information out? (Census)

Display slide #8 and play the short video (no audio) that shows how to search for and locate census data profile for the community.

Discuss the census data about the community. It is interesting to note that the median income (remind students that median means “middle”; median income means that half of households had income more than this amount, and half less.) is less than the state average, and that the population is just slightly older than the state average. And, even though the community is located in a rural area, considerably less than 1% of the community populations' industry is agriculture (remind students that Industry is the type of activity at a person's place of work).

Activity: Small Lots: Big Impacts Part 1

15 MINUTES

Pair students (or students may work independently, whatever scenario makes sense for the classroom) and have them select a community at random (see the Community Assignment Handout for a printable list of communities and links to their census profile).

Distribute the Small Lots: Big Impacts worksheet and direct students to begin research for the questions on page #1 (part 1).

Give students 10 minutes to complete page #1 (part 1) of the Small Lots: Big Impacts worksheet (adjust time as needed based on the research skills of the students in the class).

Reflect: Small Lots: Big Impacts Part 1

5 MINUTES

Invite students to share any of their reflections from question #4 on the worksheet. Encourage them to share their definitions of a food desert (they don't have to be perfect!). Revisit the definition on slide #4 if needed.

Day 2

Engage (Interest Approach):

5 MINUTES

Say: We have already determined that one possible solution to address food deserts is to increase access to fresh fruits and vegetables in the community. One way that this could be done is to grow the items right where they are needed. Take out your worksheets from yesterday. What percentage of the population in your communities that you researched are working in the agricultural industry? (*Tip: You may wish to have a volunteer write the responses on the board so students can visualize how few people are involved in agriculture in each community, regardless of urban/suburban/rural locations.*)

Since so few people in these communities are working in an agricultural workplace, what are some alternative ways that people living in the area could produce fresh fruits and vegetables?

(Some possible answers that students may suggest are backyard gardens, community gardens, and similar arrangements. These are all possible solutions, but remind students that it would be difficult to grow enough volume in backyards (assuming that everyone has a backyard) to feed a community.)

Activity: Small Lots: Big Impacts Part 2

15 MINUTES

Direct students to flip to page #2 (part 2) of the Small Lots: Big Impacts worksheet. To complete the first step, tell students that they should read at least two of the articles listed in the section. Students don't need to read all four, but they do need to read at least two. Remind students that the questions are not looking for "right" or "wrong" type answers, but the question is asking students to create a definition and to think critically about what they read. Give students approximately 15 minutes to complete steps 1 & 2 of the worksheet, depending on the reading abilities of students.

Invite students to share their answers to question #3 and discuss. (*Tip: it may be helpful to have a volunteer write some of the answers on the board.*) If none of the students have brought it up as one potential obstacle, point out that **one obstacle may be local laws that could limit what farming looks like within the city or town, or even prevent someone from farming within city limits.**

Ask: Where could we go to find out about local laws? Who would we need to talk to?
(*Answer: local government*)

Grow: Researching and Applying Local Policies

15 MINUTES

Say: Some local governments post their ordinances and laws online, while you would need to call city hall to inquire or go in-person and request a copy of ordinances. Let's go back to our example of Paris, IL.

Display slides #11 - #14 and play the short video (no audio) that shows how to search for and locate the local code for the example community.

Distribute Part 3 of the Small Lots: Big Impacts worksheet. *(To save time, give students the direct link to the ordinance listing for their community; if time is not an issue, give students time to search online for the local codes and ordinances of their assigned community.)*

Working in the same pairs from the last class period, allow students time to research and record the local laws of their assigned communities.

Reflect: Small Lots: Big Impacts Parts 2 & 3

5 MINUTES

Invite students to share what they found about their local ordinances and what questions they may still have. Ask for students to share any observations about the process and what the next steps could be like in a community based farming operation.

Optional Assessment:

To expand the lesson into day 3, allow students to create a poster to display their research findings regarding their assigned community.

Note: The activities on Day 2 may take students longer than the allotted 40 minutes to complete. If possible, assign the activity, “Small Lots: Big Impacts Part 2” as pre-work to be completed prior to day 2 and have students share their answers to question #3 as an interest approach.

Optional Supplemental Activity: Have students locate an abandoned lot within their assigned community with Google Earth. Here are steps to do this:

- Go to earth.google.com
- Enter the name of the community in the search bar
- Have students zoom into the community and look around for what appears to be an empty lot.
- Click the “Enter Street View” icon located on the bottom right corner 
- If the lot looks like it could possibly be used for a community based agriculture enterprise, have students record the address and/or link it to a virtual worksheet. You could also invite students to capture a screenshot of the lot to include in their worksheet. Example: [940 E Water Street](#)