

## **LESSON PLAN:**

### **Brooklyn Farmer:** Connecting Agriculture and Society

**Grade Level: (Target Grades: 9 - 12)** This lesson plan is designed to be used for high school students but may also be adapted for the college classroom.

**Subject Areas:** This lesson plan specifically addresses concepts covered in Life Sciences, Agricultural Education, and Geography, but also has strong cross applications to English Arts.

#### **Objectives:**

This lesson aims to introduce students to the ecological concepts of sustainability and the local. By the end of this lesson, students will:

- be able to define sustainability
- understand how to distinguish between the global and the local
- understand basic connections between agriculture and society
- discuss the incentives and limitations of urban farming and local food production

#### **Time Needed For Completion:**

This lesson can be completed during a standard class period, with additional homework hours required for the final section.

#### **Materials:**

- Copy of "Brooklyn Farmer"
- Classroom or other space for the activity and presentations
- Copies of the two worksheets provided

#### **Procedure:**

##### **Introduction of Key Terms and Concepts:**

1) Ask students to think about a favorite meal and list all of its ingredients. Do they know who grew these ingredients? Do they know how far these ingredients had to travel to get to them? Ask students to take note of which questions, if any, they are unable to answer specifically. Introduce or review the concepts of "Sustainability" and the "Local." Discuss how food systems affect the relationship among organisms within an ecosystem. Explain how the equilibrium between organisms and their environment has been disrupted and that the notions of sustainability and the local have been introduced to correct this disruption. Have students reflect on their meal and ask them to consider if it was locally and sustainably produced and what effect its production might have on the larger ecosystem.

## What is Sustainability?

According to the EPA: "Sustainability is based on a simple principle: Everything we need for our survival and well-being depends, either directly or indirectly, on our natural environment. Sustainability creates and maintains the conditions under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations. Sustainability is important to making sure that we have, and will continue to have the water, materials, and resources to protect human health and our environment."

Read more at: <http://www.epa.gov/sustainability/basicinfo.htm>

### Other online links or resources:

UN definition of sustainability: <http://www.un-documents.net/ocf-02.htm>

The Three Pillars Model for Sustainability:

<http://www.thwink.org/sustain/glossary/ThreePillarsOfSustainability.htm>

## Viewing Brooklyn Farmer:

2) Explain that the majority of food consumed in the in the U.S is not produced within proximity to the community that consumes it. Have the students watch **Brooklyn Farmer**. As students watch, have them note answers to the following questions:

- Why did Ben Flanner, Head Farmer of Brooklyn Grange, decide to start a farm on a rooftop in Brooklyn? What are the benefits of rooftop farming in New York City?
- Think of at least three challenges that Flanner and his team faced with the farm. How did they overcome these challenges?
- In what ways were the farmers of Brooklyn Grange resourceful or innovative? Be specific.
- Ben Flanner and Michael Meier both left desk jobs to work as urban farmers. What were the incentives that drove them to make this life change? Do you think that this choice is possible for everyone?
- How does Ben Flanner measure the success of the farm? Would you measure success the same way? Why or why not?
- How does Brooklyn Grange farm address the challenges of Earth's limited resources?

## **Discussion: Evaluating Sustainability in Small Groups**

3) To debrief/discuss the film, ask students to break into pairs or small groups and share their impressions or observations about the above questions. Have each group outline the incentives and challenges faced by Brooklyn Grange Farm. Ask students to compare and contrast their findings to what they know of conventional farming practices. This group work should summarize points of agreement or disagreement and qualify or justify points of view in light of evidence presented from the film.

## **Group Work: Proposals for a Sustainable Food system at School**

4) Using the *Group Proposal Worksheet* provided, ask students to work in small groups to select an alternative or under-utilized site at their school that could be repurposed for sustainably producing or distributing food. Ask each group to make a two-minute 'elevator pitch' proposal to the class. Each student should have a role in this brief presentation. Students should emphasize how their proposal is creative and ultimately sustainable. This is an exercise in decision-making and consensus, which also challenges students to organize and present their ideas to a larger group.

## **Homework: Proposing Change at a Local Level**

5) As homework, ask students to return to their favorite meal. Using the *Individual Project Proposal Worksheet* provided, have students examine how their favorite meal could be more locally and sustainably produced within their community. These proposals should expand beyond the confines of the school and the example of rooftop farming discussed in Brooklyn Farmer.

## **Related National Standards for Grades 9-12:**

### **Science Standards: Life Sciences Grades 9-12**

6. Understands relationships among organisms and their physical environment:

- ✓ 6.1: Knows how the interrelationships and interdependencies among organisms generate stable ecosystems that fluctuate around a state of rough equilibrium for hundreds or thousands of years.
- ✓ 6.2: Knows how the amount of life an environment can support is limited by the availability of matter and energy and the ability of an ecosystem to recycle materials.
- ✓ 6.5: Knows ways in which humans can alter the equilibrium of ecosystems, causing potentially irreversible effects.

## **Agriculture in History and Society: Grades 9-1**

- ✓ Understands the connections between agriculture and society.

## **Geography: Grades 9-12**

### **Level IV:**

- ✓ **Benchmark 2:** Understands programs and positions related to the use of resources on a local to global scale (e.g., community regulations for water usage during drought periods; local recycling programs for glass, metal, plastic, and paper products; different points of view regarding uses of the Malaysian rainforests, etc.).
- ✓ **Benchmark 4:** Knows issues related to the reuse and recycling of resources (e.g., changing relocation strategies of industries seeing access to recyclable material, such as paper factories, container and can companies, glass, plastic, and bottle manufacturers; issues involved with the movement, handling, processing, and storing of toxic or hazardous waste materials; fully enforced vs. consistently neglected approaches to resource management).

## **Common Core: English Language Arts Grades 9-10**

- ✓ **SL 9-10.1 and SL 11-12.1** Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on related topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
- ✓ **SL 9-10.1 b.** Work with peers to set rules for collegial discussions and decision-making (e.g. informal consensus, taking votes on key issues, presentation of alternative views), clear goals and deadlines, and individual roles as needed.
- ✓ **SL 9-10.1c.** Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, and challenge ideas and conclusions.
- ✓ **SL 9-10.1 d.** Respond thoughtfully to diverse perspectives, summarize points of agreement/disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.

- ✓ **SL 11-12.1.b.** Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.
- ✓ **SL 11-12.1.c.** Work with peers to promote civil, democratic discussions and decision making, set clear goals and deadlines, and establish individual roles as needed.
- ✓ **SL 11-12.1.d.** Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
- ✓ **SL 11-12.4.** Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative, or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and range of formal and informal tasks.