Hope in School Gardens: The Amherst School Gardens Project

Xochiquetzal F. Salazar

University of Massachusetts - Amherst, xsalazar@umass.edu

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Hope in School Gardens

It has become increasingly apparent that there lies a huge disparagement of appreciation for the earth and the food provided by it in our American society, particularly in relation to food within our school systems. Food in America has lost its value. Less than a century ago, the average United States citizen spent 21.7% of his income on food. Today that number has plummeted to 5.7%, which is significantly less than many of America’s contemporaries (e.g. Canada, Great Britain, etc.) (“U.S. spends less on food”). With school lunch times as low as 15 minutes and the total food cost of the meal most often under a dollar, significantly less than the food cost of inmate meals, the lack of concern for the health and well-being of our youth is more visible than ever (“The Cost of School Lunch”) (Wagner and Sarabi 29).

Although the Healthy, Hunger-Free Kids Act, the first school lunch reform enacted by the USDA in 15 years campaigned by First Lady Michelle Obama, is a step in the right direction, its implications are inert if children are not eating the food. A recent Boston study published by Elsevier suggests that, on average, less than 85% of the school food provided to students is actually consumed, and over 25% of the school’s annual food budget is essentially thrown away with the garbage (Cohen et al.). This translates to a loss of approximately $1,238,846,400 from school lunch waste on a national level. With the recent explosion of the sarcastic tongue and cheek hashtag “#ThanksMichelleObama” on Twitter in regards to the healthy, but visually unappealing food being served to children at school, it is clear there is still much work to be done (“Kids 'thank' Michelle Obama”).
So, how do we remedy this reluctance, convincing students to eat the healthy food they are being served? We must start at the source, inviting students to celebrate and honor the origins of their food, which begs another question: how do we accomplish this? The answer lies in school garden programs. At the Amherst School Garden Project, we understand that we do not have the capacity or support to infiltrate the school lunch system with the food we grow on site at Fort River and Wildwood Elementary Schools. We *do*, however, possess the power to bring about great change in the lives of the children we touch, and ultimately, the school food systems of our community in Amherst.

The Amherst School Gardens Project began as an initiative piloted by UMass alumni Sarah Berquist and Aaron Drysdale in 2012, initially dubbed Permaculture in the Pioneer Valley. Made possible through the UMass Creative Economy Grant that the UMass Permaculture Initiative received Berquist and Drysdale set out to bridge the gap between the Amherst community, schools in the area, and the college campuses of the Pioneer Valley. Through these funds, ground was broken at Fort River and Wildwood Elementary Schools by planting two apple trees. With support from the Stockbridge School of Agriculture, Grow Food Amherst, UMass Permaculture, UMass Gardenshare, and students such as myself, the project continues to evolve and flourish.

Through an integrated learning experience, the Amherst School Gardens’ University of Massachusetts Amherst Sustainable Food and Farming crew provides students with in-school, afterschool, and at home activities that not only comply with Common Core Standard requirements outlined by the U.S. Department of Education, but also facilitate an understanding for compassion towards the earth (see Appendix A, Appendix B, and Appendix C). In our
attempts, we culminate a symbiotic relationship between care for ourselves, care for one another, care for the garden, and care for the earth as a whole.

Our lesson plans encourage the formation of connections between the seeds we place in the ground, the plants they produce, and the food we consume, involving parents through our online blog posts and at-home lessons (see Appendix D). The result is an explosion of discussion facilitated by the children involving the vegetables they like to cook with their families, the spicy smell of garlic and other Allium family bulbs, what is tasty and what is not, what they grow at home or want to grow - the list goes on. The merit of this impact is only affirmed when I personally had the pleasure of watching the children enjoy harvesting and tasting what they plant in the garden, even if it was something they previously referred to as “yucky.” It has been an incredible thing to watch the eating habits of the children I teach change before my eyes.

By observing the sanctity of the gift of food and sharing this mentality with the students, we are empowering them to demand more from the food system they are a part of. We are inviting them to ask their parents, teachers and, yes, the lunch staff, where their food is coming from. If we can get enough students asking these kinds of questions and refusing to settle for anything less than healthy and sustainable food, the necessary change we seek is inevitable. The installation of school gardens in institutions across our nation will, undoubtedly, bring forth these questions amongst our students.

At the Amherst School Gardens Project, we acknowledge that school gardens are not the only factor that will rectify our broken school food systems. Yet, we also recognize that they are an incredible tool to start the necessary conversations and action that reinforce this movement so critical to the success of America’s youth. Hope for our children’s future lies in school gardens. For images of our team at work with students, please refer to Appendix E.
Our Mission: To provide elementary school level children with hands on gardening experience, empowering knowledge of their foods’ origins, lessons that correspond to the U.S. Department of Education’s “Common Core State Standards,” and a community that encompasses the varying citizens of Amherst.

Who We Are: UMass Amherst Sustainable Food and Farming students dedicated to enriching the education of the children we have the pleasure to work with and getting them into the gardens we
Grade 1

**Common Core:** Science and Technology/Engineering Learning Standards

**Strand:** Life Science (Biology)

**Topic:** Characteristics of Living Things

**Learning Standard:** Differentiate between living and nonliving things. Group both living and nonliving things according to the characteristics that they share.

**Lesson:** In this activity, the students will tour the garden, each identifying two items to share with the class. These could be, but are not limited to rocks, soil, insects, trees, one of the various annual or perennial plants, grass, etc.. There will be a discussion about what qualifies as living, and we will ask the children to try to group them together based on if they are living or nonliving things. Any incorrect groupings will be rectified, and it will be explained why the item is either living or nonliving. Living things will further be divided into plants and animals, and will be compared/contrasted.

**Justification:** The students will explore the defining factors of living vs. nonliving things in the outdoor classroom through an interactive experience that will facilitate critical thinking skills and hands on identification by the individual. Discussion before and after the activity will reinforce the defined learning standard.

Grade 2

**Common Core:** Science and Technology/Engineering Learning Standards

**Strand:** Life Science (Biology)

**Topic:** Living Things and Their Environment

**Learning Standard:** Identify the ways in which an organism’s habitat provides for its basic needs (plants require air, water, nutrients, and light; animals require food, water, air, and shelter)

**Lesson:** In this lesson, students will plant a small pollinator garden with several species of flowers that attract butterflies, bees, hummingbirds, and other pollinators. This can include any combination of marigolds, black eyed susans, bee balm, milkweed, thistle, sunflowers, and/or jewelweed. Students will discuss the basic needs of living things and how they interact with their environment to access those needs. There should be an emphasis on nectar to show the relationship between pollinators and flowers, demonstrating that one species could not survive without the other. There can also be a discussion on what the seeds need to survive (sunlight, air, water, nutrients, and soil). The children can then draw their houses and discuss the difference and similarities between the habitat’s and needs of pollinators and themselves.

**Justification:** The students will get the opportunity to compare and contrast their own habitats with that of the species living within the garden they created to show the importance of symbiotic relationships. The planting, discussion, and drawing done by the students will strengthen the learning standard by showing the importance of what living organisms need to survive and how their habitats
help them grow.

Grade 3

Common Core: Science and Technology/Engineering Learning Standards

Strand: Life Science (Biology)

Topic: Structures and Functions

Learning Standard: Identify the structures in plants (leaves, roots, flowers, stem, bark, wood) that are responsible for food production, support, water transport, reproduction, growth, and protection.

Lesson: Students will take a closer look at leaf structure and function by collecting leaves from outside and creating leaf rubbings with crayon. Students will discuss their observations of the differences of texture, shape, and color of leaves collected. Some examples might include Maple, Oak, Beech, and Sassafras leaves, which will be abundant to harvest in the fall. Explain that the function of leaves are to capture sunlight to be made into energy for the plant; that the function of leaf veins is to transport water and food to the plant. In the classroom students will create leaf rubbings with the leaves they collected from outside. The texture of the leaf and veins will be displayed beautifully from the imprint made by the crayons.

Justification: Students will develop an understanding of the leaf structure and its function as part of a plant. Students will exercise their observational skills by using their senses to examine a diversity of leaf types. This lesson allows students to explore the outside world and then take it back into the classroom. The leaf rubbings will allow students to get creative and artistic with their leaf findings.

Grade 4

Common Core: Science and Technology/Engineering Learning Standards

Strand: Life Science (Biology)

Topic: Structures and Functions, Adaptations of Living Things

Learning Standard: Recognize that plants and animals go through predictable life cycles, Give examples of how organisms can cause changes in their environment to ensure survival. Explain how these changes may affect the ecosystems.

Lesson: Students will make seed balls, disperse them, and keep track of the changes that occur. Demonstrate the procedure using clay, water, sifted compost, and a native wildflower mix of seeds. As the students are making the seed balls, facilitate a discussion asking questions on what seeds are, why they are important, what do plants need to grow etc. The seed balls will need a day to dry. Explain desertification and why it is important to restore land. Engage in conversation on the effect that spreading the seed balls will have on the environment- for instance, more flowers for pollinators, birds, and animals. During the sowing of the seed balls draw connections to the action of the students (dispersing seed) will create a change in their environment. It is fun to toss them gently and with intention. Track the changes weekly. Send them home with seed balls to throw in a habitat of their choice; explain why certain seed balls germinated and others did not.
**Justification:** Students will learn about the importance of re-vegetation and have the skills to make seed balls. They will review what they know about seeds and plant life cycle. This lesson allows them to make something physical with their hands, employing coordination and creativity. Students will be empowered by the positive change they can create in their environment.

**Grade 5**

**Common Core:** Science and Technology/ Engineering Learning Standards

**Topic:** Earth and Space Sciences

**Strand:** Soil

**Learning Standard:** Explain and give examples of the ways in which soil is formed (the weathering of rock by water and wind and from the decomposition of plant and animal remains).

**Lesson:** The students will observe both sand and topsoil using a hand lens taking notice to the differences in color, texture, and odor. Then the student will observe different types of soils that can be formed by combining relative proportions of the sand and topsoil mixed together. Examining the sand particles will allow the students to see that this type of soil is producing from weathering of rocks whereas topsoil or organic matter is produced from the decomposition of plant or animal remains.

**Justification:** This lesson is valuable to the students’ learning because it will solidify their understanding of soil formation. By performing a hands on activity rather than lecturing, they will be provided with tangible experience in differentiating between soil textures/characteristics. In addition to this, by using a lesson that focuses on touch, children who learn best with their hands will have an opportunity to fully grasp the content of the topic.

**Grade 6**

**Common Core:** Science and Technology/ Engineering Learning Standards

**Topic:** Earth and Space Sciences

**Strand:** Heat Transfer in the Earth System

**Learning Standard:** Explain the relationship among the energy provided by the sun, the global patterns of atmospheric movement, and the temperature differences among water, land and atmosphere.

**Lesson:** The students will observe both land and water temperature differences when one cup of each substance is placed in direct sunlight and the other is placed in the shade. They will distinguish between the greatest temperature differential and relate it to the energy that is provided to each by the sun. The student will also compare and contrast the properties of land and water that may cause temperature differentials.

**Justification:** This is crucial to the education of the students because the concepts that the lesson emphasizes will aid them in future learning. This knowledge will help the children develop a basic understanding of the properties of substances and energy, two important factors in chemistry. By physically observing the temperature readings, the students will be empowered to explore their own
education.

Appendix B

A loose example of the lesson plan that was executed at Fort River on September 18, 2014 follows:

2:15-2:25 – Introductions: who we are and why we are here (talk about how we prepared new beds via the method of sheet mulching, care for the garden as the students have been learning to care for each other and the earth, touch the soil/rocks and relate it to class material on rock formation)

2:25-2:35 – Group 1: Plant greens by the squash/gourds

  Group 2: Plant radishes and herbs in new bed by the sunflowers

  Group 3: Plant cilantro and spinach in bed by wild perennials

2:35-2:45 – Rotate groups

2:45-2:55 – Rotate groups

3:00 – Water and clean up

The lesson itself was arguably rudimentary via Sarah Berquist’s suggestion, yet much more effective than an elaborate one may have been. We were able to make a few connections with the Common Core Standards Ms. Monica must adhere to, expose the students to a variety of gardening practices (e.g. sheet mulching, direct seeding, transplanting, soil texture, composting, etc.), and bridge the gap between the seeds we planted and the food that goes into our mouths. As a bonus, we managed to keep them smiling while doing so. Working in small groups facilitated empowered, engaged learning and exploration.
Appendix C

Take Home Garlic Planting Activity for One Second Grade Class

Materials:

- Approx. 30 garlic cloves
- Approx. 30 – 12 OZ clear plastic cups with holes poked in bottom (using a heated nail)
- Approx. 30 18 OZ clear plastic cups
- Approx. 30 – 1 PT plastic bags filled with compost/potting soil mixture
- Approx. 30 popsicle sticks for labeling (date planted/plant name)
- Approx. 30 brown paper bags to hold activity contents
- Approx. 30 activity instructions/bulb care print-outs (below)

We planted some garlic in the Fort River School Garden this November and wanted to continue the learning and fun with bulbs!

Instructions:

1. Pour 2/3 of the soil mixture into the smaller cup
2. Place the garlic “seed” in the soil, pointy side up
3. Top the bulb with the remaining soil, making sure it is completely covered
4. Place the smaller cup into the larger cup
5. Label and date the popsicle stick and place it in the soil
6. Happy growing and follow the care tips below!

Care:

- Bulbs love sun! They will be happiest by a window that receives plenty of the good stuff.
- Bulbs do not need a ton of water; make sure that the cups are draining properly and water as needed (once or twice a week, using a very small amount of water); bulbs will rot if they are in soil that is too wet.
• Have fun watching the bulb grow and don’t forget to give it plenty of love!

Appendix D

Excerpt from “Fall Greets the Garden,”

“October is here and school is back in full swing! We were all so excited to get back into the garden as the mild heat slipped into an autumn breeze. The mammoth sunflowers are HUGE, heavy with seeds, and both schools have some fun squash growing. With all the chaos that goes along with this special time of year, it has been great getting some quality planting time in with the students.”

To read more http://amherstschoolgardens.com/2014/10/11/fall-greets-the-garden/

Excerpt from “Putting the Garden to Bed,”

“As the winter winds come swooping in and the days are getting shorter, everyone was excited to get back into the garden at Fort River on one of the last warm days of the year, November 5th. The UMass Sustainable Food and Farming crew, along with Ms. Monica Bhomik’s second grade class, had such a fun time talking about one of our favorite foods: garlic! After discussing the strong, pungent, and sweet flavors garlic can have, the kids told us the foods they like with garlic in them, some of their favorites being pizza, garlic bread, stir fry, and spaghetti. Then we spoke about how garlic has a family just like the second graders do: the Allium family, which includes shallots, leeks, and onions to name of few. These related plants smell and taste much alike, and also grow in a similar way.”

To read more http://amherstschoolgardens.com/2014/12/11/putting-the-garden-to-bed/
Appendix E

watering garlic

radishes popping up

Wildwood in the early fall
Works Cited


