Food, Farm and Nutrition Curriculum
Connections: Developing educational experiences that meet teacher needs

www.farmtoschool.org
Food, Farm, and Nutrition Curriculum Connections:

Developing Educational Experiences That Meet Teacher Needs
Collaborative Partners

www.farmtoschool.org

www.shelburnefarms.org
Today’s Goals & Who We Are

• How to develop educational experiences on farms and in gardens that reflect classroom curriculum and meet standards (including the Common Core)
  – Emily Hoyler, Curriculum Specialist, Shelburne Farms, Shelburne, VT

• Stories from the field of food, farm, and nutrition education in practice:
  – Tom Sabo, HS Science/Biology teacher, Montpelier High School, & Founder, Center for Sustainable Systems, Montpelier, VT
  – Bob Dillon, Middle School Principal, Maplewood-Richmond Heights School, St. Louis, MO
  – Alice Froehlich, Education Director, Zenger Farm, Portland, OR
“Backwards Design”

- *What is it that we want students to understand about themselves and the world through this food, farm, and nutrition experience?*

- *Why are we doing this?*
Sustainability—“improving quality of life—economically, socially, and environmentally—for all, now and for future generations.”
Some Big Ideas of Sustainability…

- **Community**: A group of living and non-living things sharing a common purpose or space.

- **Systems**: Parts that are connected through larger patterns.

- **Diversity**: All systems and places function because of variety.

- **Interdependence**: All living things are connected. Every organism, system, and place depends on others.

- **Cycles**: Every organism and every system goes through different stages.

- **Change over time**: All organisms, places, and systems are constantly changing.

- **Limits**: Every system has a carrying capacity.
## Understanding by Design®

### Education Experience Snapshot Tool

### Stage 1—Desired Results

**What concepts should students learn as a result of this unit?**

<table>
<thead>
<tr>
<th>Big Ideas</th>
<th>Enduring Understandings</th>
<th>Essential Questions</th>
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</table>

**Established Goals (Standards)**

**Unit Topic:**

### Stage 2—Evidence

**What evidence (assessments) will show that students have met the Stage 1 goals?**

### Stage 3—Learning Plan

**What key learning events (lessons) will help students learn and be successful on the assessments?**
Stage 1 – Desired Results

• **Big Ideas, Enduring Understandings, & Essential Questions:** What is the big idea of the unit?

• **Goals:** Which content standards will be assessed?

• **Food, Farm, & Nutrition:** How will students engage with the community, collaborate, have voice, and address real-world issues?
Designing with the end in mind…

• **Big Ideas:** important concepts and ideas that help students make sense of the world. These concepts reoccur across disciplines.
  – interdependence, systems, cycles, communities

• **Enduring Understandings:**
  core understandings that will endure beyond the unit or school-year

• **Essential Questions:**
  thought-provoking questions that foster inquiry and meaning-making
For example: Three Sisters Garden

Interdependence - all living things are connected.

<table>
<thead>
<tr>
<th>Big Idea</th>
<th>Enduring Understanding</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Interdependence</td>
<td>Human &amp; natural communities are interdependent systems.</td>
<td>• How are human &amp; natural systems interrelated?</td>
</tr>
<tr>
<td></td>
<td>Every organism/ system/place depends on, and is affected by, others.</td>
<td>• How do we depend on natural systems?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• How do natural systems depend on us?</td>
</tr>
</tbody>
</table>
### Big Idea

Cycles-
every organism and every system goes through different stages

### Enduring Understanding

- Every living thing has a life cycle.
- Living things have different needs at different life stages.

### Essential Questions

- What cycles can we find in the garden?
- How are cycles related to one another?
- What cycles are we a part of?
Common Core Standards
http://www.corestandards.org/
Practices: Inquiry!

Crosscutting Themes:
• Patterns, similarity, and diversity
• Cause and effect
• Scale, proportion and quantity
• Systems and system models
• Energy and matter
• Structure and function
• Stability and change

Disciplinary Core Ideas, includes:
• Life Science
• Earth Science

http://www.nextgenscience.org/
next-generation-science-standards
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Stage 2- Evidence

How will learning be assessed?

• Determine how students will demonstrate their learning:
  – What kind of performance tasks will allow students to demonstrate their understanding?
  – What criteria will be used to judge this performance?

• Identify other evidence to determine whether the goals were achieved.
  – Tests, quizzes, writing pieces, self-assessment/ reflection
Great Project-Based Learning resource:

Buck Institute for Education

http://www.bie.org
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What key learning events (lessons) will help students learn and be successful on the assessments?
Stage 3 – Learning Plan
- the “cool activities”

What **learning opportunities** do you need to provide so that students can achieve the learning goals?
Resources:

Emily Hoyler, M.Ed, Curriculum Specialist, ehoyle@shelburnefarms.org

- Shelburne Farms http://www.shelburnefarms.org
- Shelburne Farms’ Sustainable Schools Project- http://www.sustainableschoolsproject.org
- Common Core State Standards http://www.corestandards.org/
- Buck Institute for Education- Project-based Learning http://www.bie.org
Why incorporate Food Education into your curriculum?

• Food Education is relevant and rigorous.
  • Everyone eats.
  • The food system is complex.
Effective Teaching

- Relevance
- Rigor
- Relationships

*Based on five-year study by the International Center for Leadership in Education involving 75 high schools in 10 states.*
Rigor/Relevance Framework®

- **Assimilation (C)**
  - Knowledge in one discipline
  - Apply in discipline
  - Apply across disciplines

- **Application (B)**
  - Apply to real-world predictable situations
  - Apply to real-world unpredictable situations

- **Acquisition (A)**
  - Students gather and store bits of knowledge and information. Students are primarily expected to remember or understand this knowledge.

- **Application (D)**
  - Students have the competence to think in complex ways and to apply their knowledge and skills. Even when confronted with perplexing unknowns, students are able to use extensive knowledge and skill to create solutions and take action that further develops their skills and knowledge.

© 2012 International Center for Leadership in Education
The need for “Season Extension” in VT:

March 15, 2011

Outside

Inside
Why incorporate Food Education into your curriculum?

- It can easily be taught across the curriculum, enabling students to make connections that will strengthen understanding.

- Often, we teach kids oversimplified “facts”, in isolation, and out of context.
Greenhouse
Cross-curricular connections

- Business Class
- Art Class
- Environmental Science
- Biology and AP Biology
- Physics
- Health
- Cooking Class
- Spanish
- Social Studies
- Economics
- K-6 Lettuce Party
2.64 kw photovoltaic system
Why incorporate Food Education into your curriculum?

• It’s experiential.
  • Makes your lessons come alive.
  • Kids will remember it.
Making Broadforks
Why incorporate Food Education into your curriculum?

- Because our current food system is not sustainable.
  - Average meal travels 1,500 miles from farm to plate
  - Substantial pollution associated with transportation
    * 7 to 10 calories of fossil fuel energy for 1 calorie of food energy
      ( = 20% of petroleum use)
    * Emissions (Global Warming, Acid Rain, Particulates)
    * Packaging, Refrigeration
  - Disconnected from source of food
    * Unwilling to pay fair price for food
    * Enables exploitation of migrant workforce and degradation of rural communities
  - Health consequences
    * Teen obesity and Type II Diabetes on the rise
The average American meal travels 1,500 miles from farm to plate.
MHS Students harvest salad greens 150 feet from the cafeteria.
15 feet from the cafeteria door
800 lbs of potatoes
Onions
Second Generation MHS Squash
Black Beans
In the Kitchen
Central Vermont
Community Seed Library

Due to the pressures of an industrial agricultural system that focuses on mass production and the increasing reliance on a dwindling number of commercial seed companies, we have lost over 90% of varieties for most crops. This loss of our cultural heritage has put the food security of future generations in jeopardy.

The Community Seed Library intends to address this crisis by serving as a repository for seeds adapted to our growing conditions. It aims to create a network of farmers and gardeners committed to growing diverse varieties of heirloom plants. This food will be delicious, nutritious, and all ours!

You can be a part of this community movement by locating and donating heirloom seeds (ask your grandparents) or by volunteering to grow selected varieties for seed.

This project is a joint endeavor between the Central Vermont Food Systems Council, Montpelier High School, and the Center for Sustainable Systems.

For more information, contact: Tom Sabo toms@mpsvt.org
Beyond the Projects

It’s the thread that connects the dots between units within a discipline...

AND

...between the disciplines themselves.
Incorporated as a non-profit on January 18, 2012

An organization dedicated to bringing relevance and rigor to high school education in Central Vermont.

Uses the food system as a vehicle to deliver purposeful, experiential lessons, across a variety of academic disciplines.

Uses sustainability as a cross-cutting theme enabling deeper curricular integration through the lens of social, ecological, and economic need.

Service learning-based projects, developed by certified teachers in their respective disciplines, are carried out at school gardens and the Two Rivers Center farm in Montpelier.

Summer programming offers academic credit and stipends.

Food produced through the CSS will be sold through student-run businesses and provided to community organizations serving those in need.
CSS - Maiz

Author: Sarah Voinisky and Colleen Purcell
Based on lesson by: Sarah Voinisky
Date created: 06/12/2012 4:12 PM EDT; Date modified: 07/31/2012 12:08 PM EDT

VITAL INFORMATION

Subject(s)
Foreign Language

Grade/Level
Grade 11, Grade 12

Time Required
6 weeks, of 3 66-minute classes, with homework assigned for each class meeting time.

Objective(s)
Students will consider why there was an increase in Latino immigrants between 1994 and 2011. They will look at the effects that NAFTA has had on Mexico’s economy and how it has influenced emigration of corn farmers. Through the cultivation of corn at Two Rivers Center students will identify the factors that influence corn production and it’s salable value. They will then employ their second language skills to read the teacher prepared texts in order to define the issues around corn production in North America; students will list these issues by studying L1 texts. Finally, they will generate possible improvements that could be adopted at the federal, and international, levels.

Students will also decide how to use the corn that they grow at the farm (some options are: cook with it in the school, donate it to the school cafeteria, to a local food bank, or to replant some.)

Summary

IMPLEMENTATION
Summary

1. It’s a good way to teach (what we’re already teaching).
   • This is supported by brain research, as well as our own experience
   • Increase engagement, retention, and understanding
   • Develop critical thinking and problem solving skills

2. It’s important stuff to teach (the context provides purpose and meaning).
   • Considers social, ecological, and economic needs
   • Analyzes the past, assesses the present, anticipates the future
   • Cultivates citizenship
Food, Farm and Nutrition Curriculum Connections
A Journey in Urban Sustainability
Experience Gap
Arc of Sustainability
The Bee Story
Pruitt-Igoe Now

The design thesis is to repurpose the site for an ecological center to integrate the community and bring tourists into the city of St. Louis.

In an effort to learn about the habitat and the environment, we would like to have a center to incorporate the established wildlife and prairie grassland. This allows multi-generations to explore and investigate the natural landscape in array of outdoor activities, while incorporating education for the community.

The Site fosters appreciation and honor for the past, present and future of the Pruitt-Igoe and the great impact it had on the nation as a whole.

Social, Economic, Environmental Justice
Passion Based Learning
Common Core Calls for Interdisciplinary, Real-World Work
Expanding the Definition of Success
Lunch is Academic Period
Resources:

- Cornerstones of Learning
- MRH Website
- MRH YouTube Channel
- Missouri Environmental Education Association
- Stop Stealing Dreams
- Green Classroom Professional Guide
- Success Through Sustainability
- Greenprint
Youth Education Programs

- Camps
- Field Trips & Service Work
- In-classroom Programming
- Farm School Partnership (previously Farmer in the Classroom)
Farmer in the Classroom Programming 2011-2012

• Fall
  – Field trip: Farm Tour & Service Learning
  – School visit: Worms in the Room

• Winter
  – School visits: Tomato Time Travel and Eating up the Miles

• Spring
  – Two field trips & service: Wetland Ecology, Soils Scientists or People Need Plants
Farm School Programming 2012-2013

• Fall
  – Field Trip: Climate and Weather & Service

• Winter
  – Classroom Visit: Worms in the Room

• Spring
  – Field Trip: Wetland Ecology & Service
  – Field Trip: Plants & Service
Resources

- Food Miles, download a VT-centered copy from the Sustainable Schools Project website www.sustainableschoolsproject.org
- Agriculture in the Classroom, www.agclassroom.org
- Eat Think Grow, www.eatthinkgrow.org
- State Benchmark standards
- Zengerfarm.org
Questions?

You can type questions into your webinar control panel.

You can also contact the webinar organizer at chelsey@farmtoschool.org