

Facts, Vocabulary, and Resources



New York Agriculture in the Classroom

2012 Agricultural Literacy Week Educator's Guide Supplement

New York Agriculture Facts

- New York grows a diversity of fruits and vegetables. Our leading fruits are apples and grapes. Our leading vegetables are cabbage, sweet corn, and onions.
- Grain corn is used as feed for animals, and also to make food for humans such as cornmeal which is in cornbread, polenta, and masa flour for corn tortillas. In 2010, about 85 million bushels of grain corn was grown in our state. Acreage for the state's corn harvest is nearly 590,000 acres.
- Acreage for the soybean harvest in 2010 for New York was about 282,000 acres which totaled over 13 million bushels, according to Ag Statistics Service figures.
- Our leading agricultural product is dairy milk. Milk is produced all across New York State. We are third in the U.S. for milk and dairy production. That's a lot of seeds to grow a lot of hay and grain for the cows.
- Maple syrup starts with a maple seed that grows into a tree. New York produced 564,000 gallons of maple syrup in 2011, second only to Vermont.

Additional Information and Resources

New York Agricultural Statistics information:

- www.nass.usda.gov/Statistics_by_State/New_York/index.asp
- www.nass.usda.gov/Statistics_by_State/Ag_Overview/AgOverview_NY.pdf

A Look at New York Agriculture:

www.agclassroom.org/kids/stats/newyork.pdf

New York climate information:

nysc.eas.cornell.edu/

New York soil information:

www.ny.nrcs.usda.gov/technical/soils/index.html

Cornell Farm to School Program:

farmtoschool.cce.cornell.edu

Vocabulary

flower: reproductive part of a plant, that becomes the fruit and seeds (flowers we eat: broccoli, cauliflower)

fruit: the part of a plant that contains seeds (fruit we eat: apples, tomatoes)

germinate: to begin to grow from a seed to a plant

harvest: when plants are ripe and ready to be eaten or made into something that can be eaten or otherwise utilized

leaf: part of a plant that absorbs sunlight and makes food for the plant (leaves we eat: lettuce, cabbage)

nutrient: substance that nourishes the plant and helps it grow

photosynthesis: the process by which plants turn sun, water, and air into food

root: the underground part of a plant that anchors it in place and allows it to absorb nutrients and water (roots we eat: carrots, radishes)

seed: a tiny plant with leaves, stems, and root parts inside a protective coat (seeds we eat: peas, corn)

stem: part of a plant that supports it and carries water and nutrients from the roots to other parts of the plant (stems we eat: celery, asparagus)

shoot: part of a seed that grows up towards the sun

soil: naturally occurring outer covering of earth where plants grow

Definitions adapted from *Healthy Foods from Healthy Soils* by Elizabeth Patten and Kathy Lyons.



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Dear Educator,

Thank you for welcoming volunteers into your classroom to celebrate NY Agricultural Literacy Week and National Agriculture Week!

Each year thousands of teachers and tens of thousands of students across the state join us to explore the people, plants, animals, processes, and natural resources that connect us to the food and fiber system we rely on everyday. This program happens because of your support and continues to improve based on your invaluable feedback.

This year we have selected a book that highlights the importance of plants in our food system. As you will discover in *Seed Soil Sun*, most everything we eat can be traced back to a small seed. This includes dairy products, eggs, and meat as these animals also eat plants that grow from seeds. New York grows a bounty of edible roots, stems, fruits, flowers, seeds, and leaves on farms of all sizes.

We hope the resources included in this Educator's Guide are helpful as you continue the momentum of Agricultural Literacy Week and integrate learning about agriculture throughout your curriculum. The possibilities are limitless and support hands-on learning in all content areas, opportunities to connect to your local community, linkages with your school garden and Farm to School programs in the cafeteria...and so much more!

On behalf of our incredible county coordinators, volunteers, and many partners throughout the state, thank you for your participation this week and ongoing support.

Sincerely,

Angela Hedstrom

Coordinator, New York Agriculture in the Classroom

P.S.

We hope you will continue to work with us next year. Our 8th annual Agricultural Literacy Week will be March 18-22, 2013.

Inside you will find:

- Information for volunteer readers
- Sample schedule, activity plan, and links to more lessons
- Connections to Learning Standards
- Facts, vocabulary, and additional resources

Spring 2012 Opportunities



www.nyaged.org/aitc

- Join us for one of our *Food, Land and People (FLP) educator workshops* at various locations around the state. Aligned to NYS learning standards, *FLP* features 55 hands-on lessons, developed and tested by thousands of educators.
- Participate in our new **webinar series** on school gardening.
- Get your class involved in the **I ♥ NY Agriculture Contest**. Entries are due April 13, 2012. More information: www.nyaged.org/aitc/programs/contest.htm
- Visit our website to join our e-list, like us on Facebook, and learn more about our latest resources and programs.

Our mission is to foster awareness, understanding, and appreciation of how we produce food and fiber, what we eat, and how we live, by helping educators, students, and their communities learn about and engage with agriculture and food systems.

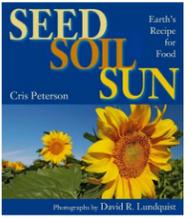
Established in 1985, New York Agriculture in the Classroom (NY AITC) is a partnership of Cornell University, the NYS Department of Agriculture and Markets, the NYS Education Department, Cornell Cooperative Extension, and the New York Farm Bureau.

Please return your completed evaluation postcard for a free classroom resource



Schedule and Activity Plan for Volunteer Readers

Resources for Volunteer Readers and Teachers



A Note to Volunteer Readers:

- Read both the book and this activity plan several times before you work with classes during Agricultural Literacy Week.
- You may want to use sticky notes on some of the pages of the book to help you remember specific talking points or questions you want to discuss with students.
- Please give this supplement and the Educator's Guide to the teacher when you are done. Please give the book to the school library.
- Many thanks for your support of agricultural literacy efforts in New York!

Introduction (5-10 minutes)

1. Gather students together in the reading area of the classroom.
2. Introduce yourself and invite students to share their names with you. Ask students to brainstorm what they think of when they think of agriculture. Record their answers on a large sheet of paper or on the whiteboard (you can ask the teacher to record student answers for you). You may provide the class with a definition such as "agriculture is the production of food and fiber through farming and forestry."
3. Discuss briefly your relationship to agriculture and why it is important to you.
4. Explain the plan for your time together. You will be exploring seeds and how they grow into the foods we eat.

Reading Aloud (15 minutes)

Read *Seed Soil Sun: Earth's Recipe for Food* by Cris Peterson. Some questions you may ask as you read and/or after the story: What are your favorite foods to eat that come from seeds? Does the size of the seed tell you whether it will grow into a big or small plant? Do you know someone who is a farmer? Have you ever been to a corn field? Is soil the same thing as dirt? What are some plant parts you eat? How do farmers help seeds grow into the food we eat? When we eat cheese, yogurt, meat, eggs, or drink milk, how are we still relying on seeds for food?

Hands-on Activity (30 minutes): Bean Baby

Background:

As we just learned in the book, seeds need sun, air, soil, space, and water to grow. Every spring, farmers plant millions of seeds in the soil. Inside each one is a new plant waiting for the right conditions to grow. We can create the conditions for seeds to germinate in our classroom with a few simple materials—a small plastic bag, a cotton ball dipped in water, a seed, and a warm safe place. Many seeds do not need sunlight or soil to germinate, or begin to sprout, but they will need these very soon after the root begins to grow down and the shoot reaches up. For this activity we are going to give our own seed the moisture and warmth it needs to swell, split open, and begin to grow.

Explain to the students that we are going to plant soybeans. A bean is the seed of a bean plant. New York farmers planted over 280,000 acres of soybeans in 2010. You can imagine one acre as being a bit smaller than the size of one football field. Soybeans have many uses including food for people (tofu, edamame, soy sauce, soy milk, cooking oil, salad dressings, snack foods) and animals, ink for printed papers, crayons, and is an ingredient in many other products we use each day such as sunscreen, hand lotion, shampoo, and lip balm.

Adapted from *A Judy's Day Activity: Making a Germinating Book* from Cornell Plantations and *A Bean is a Seed* from Oklahoma Agriculture in the Classroom. You can find links to these activities on the next page under "Extensions".

Materials:

- small plastic bag (2" x 3" jewelry size), 1 for every student
- cotton balls, 1 for every student
- water, enough for the entire class to dip their cotton ball in
- soybean or other bean seeds, 1 for every student

Instructions:

1. Each student will place a damp cotton ball in their bag. Dipping it in a small container of water works well. The cotton ball should be thoroughly wet but not dripping. Take care not to squeeze it out as this compacts the cotton, giving the roots less surface area to adhere to. Too much water can drown a seed, so if there is water collected at the bottom of the bag, turn it over and let it drip out. Too little water and the seed will not have the moisture it needs to germinate.
2. Show students how to gently push their soybean along the side of the bag, between the plastic and the cotton ball.
3. Leave the top of the bag open so air can flow through and the sprout has somewhere to go once it starts growing.
4. Explain to students that they need to place their bag in a safe, warm place in the classroom. Alternatively, they may punch a hole in the top of the bag and insert yarn to make a necklace to wear the bean baby around their neck and under their shirt to keep it in a warm dark place.
5. Discuss with the students that they need to check their bean baby several times a day for germination and to observe and record the growth. These seeds generally sprout within one week.

Conclusion (5 minutes)

1. Invite students to make predictions about their bean babies: How many days will it take for your bean baby to germinate? Will all of the seeds germinate? What will the bean babies look like in two weeks?
2. Ask the students to share one thing they learned today about seeds, food, farmers, and agriculture. What would happen if farmers didn't plant all those seeds each spring?

Extensions

1. Have students create their own germinating book. Making an accordion germinating book adds a written component to reinforce learning, the book itself becomes a built-in plant stand and includes space for observing and recording growth and other information. Print out the step by step plans, which include photos, from Cornell Plantations: www.cornellplantations.org/sites/default/files/germinatingbook.pdf
2. Take a look at the *Seed Soil Sun Educator's Guide* from the American Farm Bureau for more activities on seeds, soil, and plant parts we eat.
3. Invite your school food service director or staff, a chef, or farmer to your classroom to make bread (flour is made from wheat seeds, also called wheat berries), taste test different cooked beans, or make a plant part soup.
4. Make seed mosaics—artwork from different seeds. These can be done on heavy paper, reused cereal boxes, or on ceramic planters. Lesson plans available from Cornell Garden-Based Learning: blogs.cornell.edu/garden/get-activities/signature-projects/dig-art/activities/mosaic-making/
5. More activity ideas from Oklahoma Agriculture in the Classroom's *A Bean is a Seed*: www.clover.okstate.edu/fourh/aitc/lessons/primary/beans.pdf