

April, 2013
Food For Thought

In This Issue

Meet a Local Florist
Teaching With and About Flowers

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Flower Resources

Flowers for Kids program - Lessons on how to grow and care for flowers, includes some chemistry, biology, and hands-on lessons.

www.flowersforkids.org/

NH Department of Agriculture, Markets and Food

- provides a map of gardens, garden centers and farms throughout the state - see publications at:

www.agriculture.nh.gov

NH Plant Growers Association - a professional organization for plant growers. The website contains newsletters, current research, lists of botanical gardens in New England. www.nhpga.org

Greetings,

April is supposed to be the month of showers that bring May flowers. But flowers need more than showers, and bloom at many different times of the year, depending on the kind of plant and the growing climate. In many cases they also are nurtured by farmers or floriculturalists who have studied botany, agro-science, soil chemistry, business or have artistic leanings.

In this issue, we'll explore the important role of flowers and how they can be used as a tool for learning. Flowers can be edible, decorative or an important stage in the production of nutritious fruits. Flowers are quite accessible and provide great hands-on opportunities for exploration.

My interview with a NH florist provides some insight into the business of raising and selling flowers. We've given some examples of nurseries and garden centers that can provide great field trip opportunities. With Mother's Day coming, some classrooms grow flowers to share with moms or grandmothers. There are nearly endless possibilities to teach with and about flowers. These lessons can add to an understanding of biology, ecology, economics, and so much more.

I also contributed a personal reflection

Missouri Botanical Gardens - Biology of Plants: lesson plans, diagrams, vocabulary words and activities related to growing and examining plants. www.mbgnet.net/bioplants/grow.html

Project Bud Burst

Parts of a Flower lessons and dissection activities for grades K-4
<http://budburst.org>

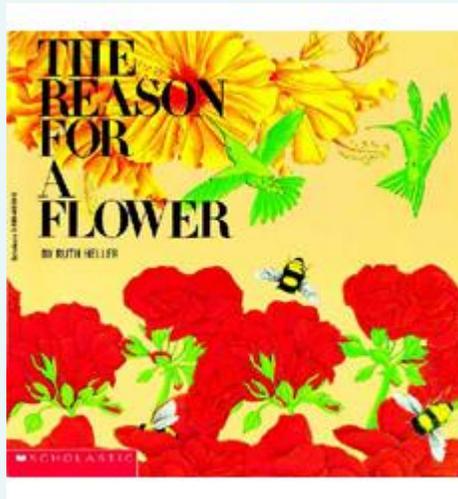
Books

Keepers of Life

by Michael Caduto and Joseph Bruchac This book takes a look at plants (including flowers) from a Native American perspective and includes legends related to plants as well as creative activities and useful background information. Best for grades K-6. ISBN: 55591-186-2.

The Reason for a Flower by Ruth Heller

"The reason for a flower is to manufacture seeds", but there's more to it than that and this book illustrates plant and flower parts with rhythmic lines and vibrant pictures. Best for grades P-2. ISBN: 978-0698115590



Botany for All Ages

by Jorie Hunken This is an activity book designed to give educators many options for hands-on lessons related to plants. It is broad and includes wild as well as cultivated plants. ISBN: 978-1564402813

Hands-on Nature by Jenepher Lingelbach and Lisa Purcell

This is an excellent collection of activities for teaching about natural cycles, adaptations and

on agriculture in Tanzania. The insight that I gained from visiting a country south of the equator (barely) and on the other side of the globe was too amazing not to share. I hope readers will be inspired by my story.

Enjoy the changing season, the coming of spring and the opportunities to teach and learn about growing plants and raising animals.

Happy Spring,

Ruth

Ruth Smith, Statewide Coordinator
NH Agriculture in the Classroom

Meet a Local Florist

Lorrie Carey of Boscawen came to the floral business through her grandfather, Sumner Marshall. He grew up on a farm where they raised chickens, cows and vegetables. But he had a particular love for flowers. Marshall began a floral business in the 1960's, both growing and selling them. Lorrie took over Marshall's business in 1990 after he passed away.

I asked Lorrie about the floral business. Here is some of what she shared with me.

NHAITC: Do you grow the flowers that you sell?

LC: I used to but the costs of growing your own have gone way up, primarily due to energy costs of heating greenhouses in northern climates, material costs, regulations and labor. Also, one grower can't meet all the needs because different plants require different conditions. To get the variety of flowers that I need to satisfy my customers, I go to sources. I buy locally and regionally when possible. However, the local options are vastly reduced, for the same reasons I stopped growing my own. For example, I used to get most of my

designs. The plant section includes puppet shows on the parts of a flower and many flower exploration ideas. Best for grades 1-6. ISBN: 58465-078-8.

Project Seasons by Deborah Parrella

Though not exclusively about plants, this activity guide has a hefty chapter on green plants with many engaging activities for students to learn about plant growth and adaptations. ISBN: 0-9642163-0-2

Flowers, Field Trips and Fun

by Deb Robie

As the weather improves and planting time approaches what better way to bring Agriculture in the Classroom than to take your students on a field trip.

How about some math: \$522 MILLION dollars in the environmental horticulture industry in New Hampshire.

How about science: hydroponics vs. soil vs. organic vs. traditional.

How about social studies: where does a recent immigrant go to find ethnic diversity in plants and vegetables.

How about language studies: English vs. Latin names.

The great thing is you can find all of these answers around our great state.

Visit these farms and businesses to find out about the variety of New Hampshire's vast horticultural industry. Small or large they all have something to contribute to the story.

Evenmore Gardens in Canaan is a small family type farm www.lacassep.byregion.net

Florediem Daylilly Farm in Alstead is a bit larger. www.florediem.com

Spider Web Gardens in Tuftonboro is large by New Hampshire standards but run by a local farmer/businessman.

roses from Madbury NH. Now they come from Columbia.

Different flowers come from different regions. Holland of course is known for the tulips, orchids come from Thailand, and carnations are from South America. Some flowers are grown in northern regions though. I get my Gerbera daisies from Canada.

NHAITC: How are these various flowers grown?

LC: The Canadian ones obviously need greenhouses but most of the southern flowers are field grown. Because of that they are heavily influenced by weather. A drought or flood can impact availability of certain flowers. Seasons will also determine what flowers are available. There are some things that can be grown year round, but many of them do well at distinct time periods.

NHAITC: What skills does a florist have to have to succeed?

LC: The number one requirement is business education. It's not just about loving flowers. The design aspect is secondary to understanding the business aspects. The profit margin is really small so you have to be able to plan and budget. Most NH florists are small operators. Design skills are also key, obviously. It's important to know how to arrange flowers artistically. Knowing what flowers go well together, how long each will last, etc. determines how satisfied the customers will be.

NHAITC: How is being a local florist, connected to agriculture?

LC: Floral growing is the artistic end of agriculture. It's essential to understand what the plants need to produce their best flowers and how to meet those needs. There are also ways to collaborate with other aspects of agriculture. One year I worked with the Granite State Dairy Promotion to create flower arrangements in milk bottles for Mother's Day. Both

www.spiderwebgardens.com

Granite State Nursery in Northwood is also very large but accessible www.granitestatenursery.com

These farmers are happy to talk with teachers and students about math, language arts, social studies, science, economics, etc. You get the idea. Go forth, get your hands dirty and educate.

NHAITC Calendar

"Cows and Communities: How the Lowly Bovine Has Nurtured NH through Four Centuries", by Steve Taylor.
All programs start at 7:00 pm and are open to teachers, parents and community members. These programs compliment the 2013 Ag Literature Project. Admission is free.

April 1: Weare Town Hall

April 3: Prescott Farm EE Center, Laconia

April 30: Nottingham School
These programs are funded by the NH Humanities Council www.nhhc.org

April 10: NH Environmental Educators Conference, Waterville Valley
www.nhee.org

May 7: School to Farm Day at Brookdale Farm in Hollis

May 16-17: School to Farm Days at Carter Hill Orchards in Concord

June 4-6: School to Farm Days at UNH, Durham

4th grade teachers, contact us to sign up for the one nearest you.

June 25-28: National Ag in the Classroom Conference, Minneapolis, MN
On-line registration is open:



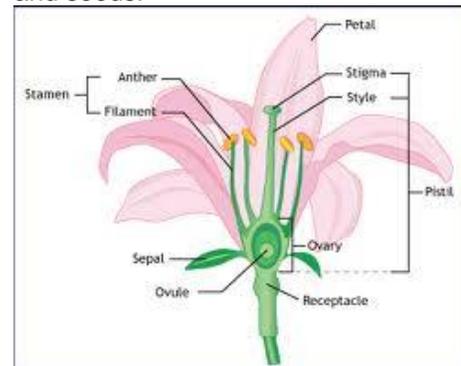
partners enjoyed the opportunity to educate the public about local agriculture.

NHAITC: Do you ever work with schools to teach children about flowers and growing plants?

LC: Yes, I have visited schools and hosted field trips at my shop. Students learn by doing, how to make a floral arrangement and then can take it home. As a small business owner, I enjoy spending time educating and being engaged with the community.

Teaching With and About Flowers

There are six main parts of a plant, the roots, stems, leaves, flowers, fruits and seeds.



Each one is equally important because they all help the plant grow and /or reproduce. Flowers however, get a lot of attention because they are usually beautiful, smell sweet and come in many different shapes, sizes and varieties. They can send powerful messages of love, friendship or sympathy. Studies have been conducted on the positive influence that flowers have on human emotions. <http://www.aboutflowers.com/health-benefits-a-research/emotional-impact-of-flowers-study.html>

But at their very basic level flowers are the plant part whose function is to produce the pollen and eggs which

Agriculture Across the Globe

I was given an extraordinary birthday gift this year and was able to fulfill a life-long dream to visit the East African country of Tanzania at the end of February. While the wildlife was amazing, the scenery incredible, the history and culture fascinating and the people warm and gracious, I of course was also intrigued by the agriculture.

Everywhere we went (except in the national parks), there were signs of agriculture. People were close to the source of their food, in fact many residents were involved in the production of food for themselves and for market. We passed one store with a John Deere sign out front, but I never saw a tractor. What we did see in both expansive fields and small garden plots was people with hand hoes working the red brick soil, planting and nurturing their crops. They grew cotton, corn (maize), sesame seeds, beans, and a wide variety of other vegetables. In the yards there were free ranging chickens. In the fields there were herds of cows and goats, often watched over by very young boys.

At the open air markets, women sold vegetables and fruit. Mounds of fresh bananas, mangos and pineapples were carried on the women's heads and then spread out on blankets. The smell of roasting corn or goat meat wafted through the air. In a separate rock-walled impoundment, there was an auction where cows and goats were sold, on the hoof. The animal sounds mingled with the African voices of bidders and auctioneers determining the animals' fate.

We also visited a local school. Some of the children practiced their English by introducing themselves and telling us what they wanted to be when they grew up. They mentioned professions such as doctor, pilot and accountant. The teacher asked if any of them wanted to be farmers. Not a single hand was raised. They were going to school to escape that life and do something "meaningful".

I was so struck by that. The contrast was incredible. I thought about how hard some of us work to teach American children about the importance of agriculture because they are not exposed to it the way past generations were. Half

when fertilized become seeds for the next generation.

One of the most interesting things to recognize about flowers is that they all have the same mission, but have developed countless unique ways to get the job done. The petals of a lady slipper are drastically different from that of a daisy yet bumble bees find them both attractive as sources of food. It's fun to examine the different parts of flowers with students and explore both divergent and common traits.

Find pictures of different flowers, explore their pollinators. Have the students develop questions about the relationship between the two. Explore some of the characteristics of flowers pollinated by butterflies vs. bees or beetles. See what conclusions the students may come to. If you are planting a pollinator garden at your school, it is important to explore which plants are used by different pollinators. Once the garden is active and growing, it's a great place to test the hypotheses and make observations.

The role of the flower parts is worth reviewing. The showy parts are the petals. They are often extravagant in color and shape to draw in insect, bird or mammalian pollinators. Sometimes the petals are large enough to provide a platform for the pollinator to sit on while they are gathering food and collecting pollen. The structure and color of the petals is usually related to the kind of pollinator that finds them attractive. For instance cardinal flowers are in the shape of a long thin tube, just right for the beak of a hummingbird. They are also red, which happens to be a color that hummingbirds are particularly attracted to. The interaction between flowers and pollinators is a rich area of ecological study.

Of course not all flowers are pollinated

way across the world, kids who are exposed to it every day are working hard to do something different. Farming is hard work with sparse financial rewards and they want a "better" life.



Herd of Maasai cattle - photo by R. Smith

How can we help young people, wherever they live, appreciate the importance of farmers and the work that they do? Do farm jobs have to become hip or high tech to be attractive? Do we need to pay farmers more so they can work hard AND be comfortable financially? Is it important to think about who will be raising our food in the future if some kids don't know about agriculture and the ones who do are fleeing it? Yes, yes, and yes.

Of course the answers aren't that easy, and frankly neither are the questions. But the role of education is exceedingly clear. Our job as teachers, farmers and agricultural supporters is to continually remind our students that we depend on a complicated network of plants, animals, producers, processors and business people to provide our daily sustenance, and so much more. Using agriculture as a unifying theme during geography lessons can be a great way to explore different cultures. There is a great deal of diversity among practices and people from different areas. Yet we are united by some common needs. We all need food and a healthy environment in which to grow it and people who are willing to do that work. Thanks to all of you who are spreading that message.

Contacts

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by animals. Some rely on the wind (corn) others such as wheat and peas can self pollinate. The seeds of these plants are genetically identical to their parents because there is no mixing of genes from one plant to another through pollination.

The pollen is formed on the anther, held up by a filament. Together these parts make up the stamen or the male part of the flower.

The female part is called the pistil. On the top the stigma is sticky to catch the pollen. From there it goes down the tube or style into the ovary where the fruit forms and holds the seeds.

Not all flowers have both male and female parts. When they do the flower is called perfect, complete or bisexual. When male flowers and female flowers are separate they are called imperfect, incomplete or unisexual. Only about 10% of flowering plants are unisexual but the list includes common species such as birches and oaks. In unisexual plants both male and female flowers may grow on the same plant (monoecious), as in the case of squashes, or they may be on different plants as with holly trees (dioecious).

Knowing these details can provide opportunities for miniature scavenger hunts as flowers are dissected and examined. Kids love being able to find and identify the different parts. One way to test their knowledge of flower parts and functions is to have them create their own, either by drawing or using three dimensional objects. Make sure they can identify and explain each part and why they made it the way they did.

Local florists may be willing to share flowers for a class to dissect. If you call them in advance, they may be able to save out some blooms that aren't perfect for arrangements but would work fine for classroom

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study. Flower shops can also be interesting places for a class field trip. See the interview with Lorrie Carey for examples.

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