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Number 7

# Natural Inquirer

The *Natural Inquirer* Monograph Series



Flower Power:  
Planting for the Past and the Future







# The *Natural Inquirer*

Monograph Series

## Flower Power: Planting for the Past and the Future

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### Join us in being green!

To reduce the amount of paper used in producing the *Natural Inquirer*, the following sections are now available exclusively on the *Natural Inquirer* Web site, <http://www.naturalinquirer.org>. These resources can be found with the “Flower Power” monograph and on the “Educational Resources” pages.

- Note to Educators
- Lesson Plan
- Reflection Section Answer Guide





# WHO ARE SCIENTISTS?

Scientists are people who collect and evaluate information about a wide range of topics. Some scientists study the natural environment.



**To be a successful scientist, you must:**

**Be curious:**

Are you interested in learning?

**Question everything:**

Do you think about what you read and observe?

**Be enthusiastic:**

Are you enthused about a particular topic?

**Be open-minded:**

Are you willing to listen to new ideas?

**Be careful:**

Are you accurate in everything that you do?





# Welcome to the *Natural Inquirer* Monographs!

Scientists report their research in a variety of special books. These books enable scientists to share information with one another. A monograph is a book about research that focuses on a single science project. This monograph of a *Natural Inquirer* article was created to give scientists the opportunity to share their research with you and other middle school students.

This monograph presents scientific research conducted by scientists in the Forest Service, U.S. Department of Agriculture. If you want to learn more about the Forest Service, you can read about it on the inside back cover of this monograph, or you can visit the *Natural Inquirer* Web site at <http://www.naturalinquirer.org>.

All of the research in the *Natural Inquirer* is concerned with the natural environment, such as trees, forests, animals, insects, outdoor activities, and water. First, you will “meet the scientists” who conducted the research. Then you will read about one of the many interesting aspects of science and about the natural environment. You will also read about a specific research project. The research article is written in the format that scientists use when they publish research in scientific journals. Then YOU become the scientist as you go through the FACTivity associated with the article. Don’t forget to look at the glossary and the special sections

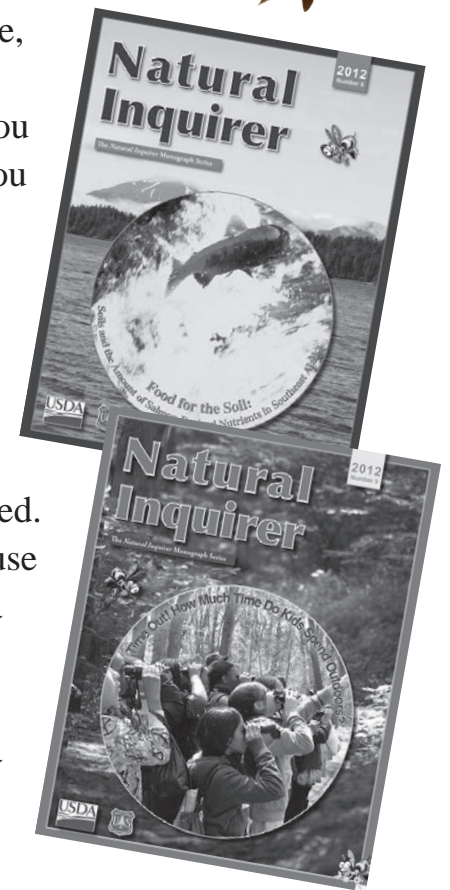
highlighted in the article.

These sections give you extra information that is educational and interesting.

At the end of each section of the article, you will find a few questions to help you think about what you have read. These questions will help you think like a scientist. They will help you think about how research is conducted. Your teacher may use these questions in a class discussion, or you may discuss these questions in a small group.

Each *Natural Inquirer* monograph will help you explore the exciting world of science and prepare you to become a young scientist. You will learn about the scientific process, how to conduct scientific research, and how to share your own research with others.

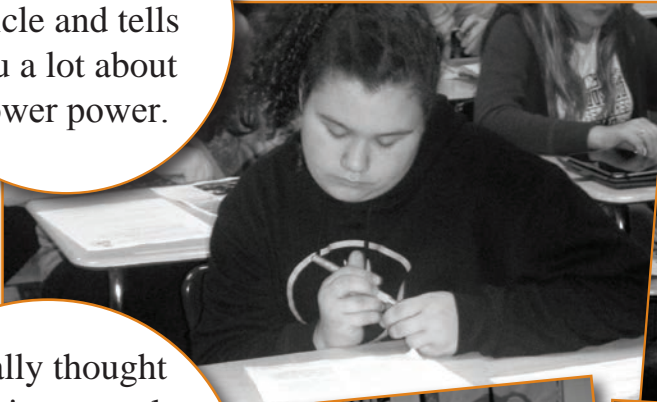
Visit <http://www.naturalinquirer.org> for more information, articles, and resources.



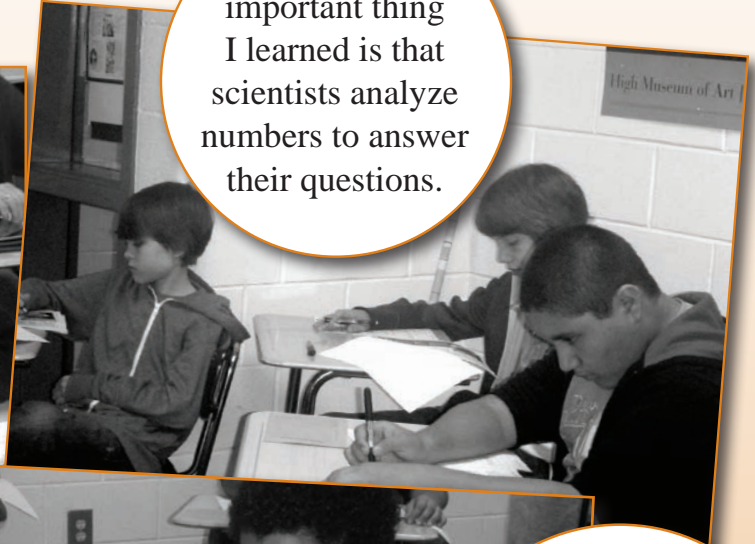
# Editorial Review Board At Work

Ms. Mimi Voyles's 7th grade language arts class,  
Oconee County Middle School, Georgia

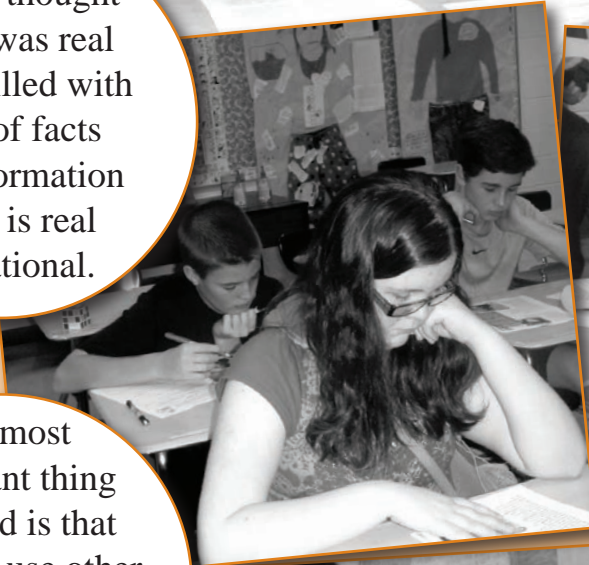
I think it is a really good article and tells you a lot about flower power.



The most important thing I learned is that scientists analyze numbers to answer their questions.



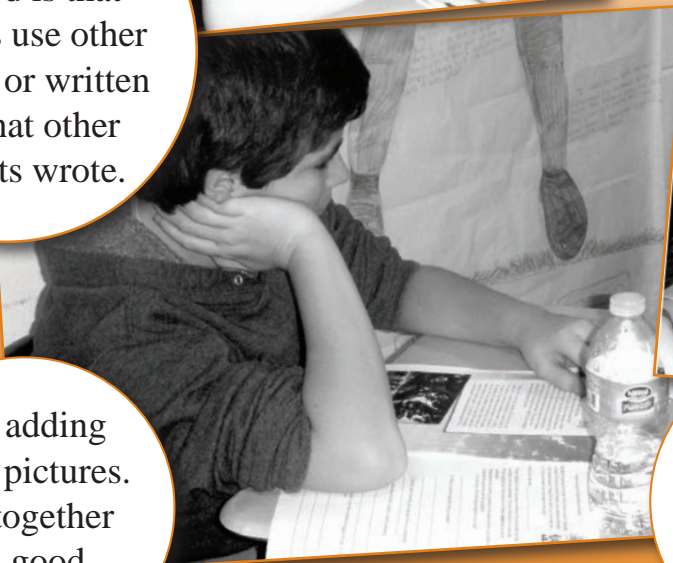
I really thought that it was real good. Filled with a ton of facts and information and it is real educational.



It was great. Just some of the words I didn't understand. But it would be an awesome magazine that I would love to be in.

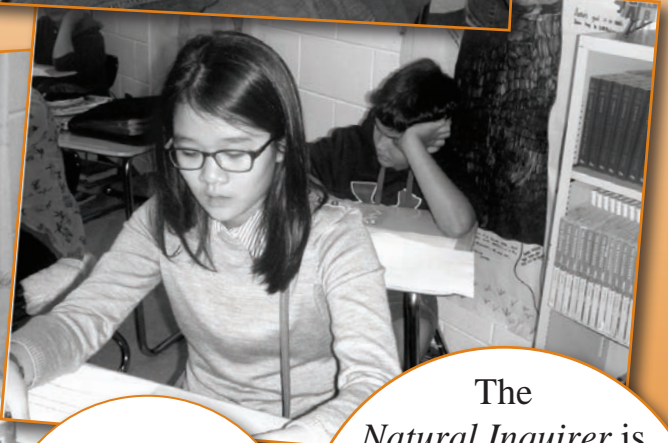


The most important thing I learned is that scientists use other evidence or written work that other scientists wrote.



Try adding more pictures. All together it's good.

I like that there is a glossary and Web resources.

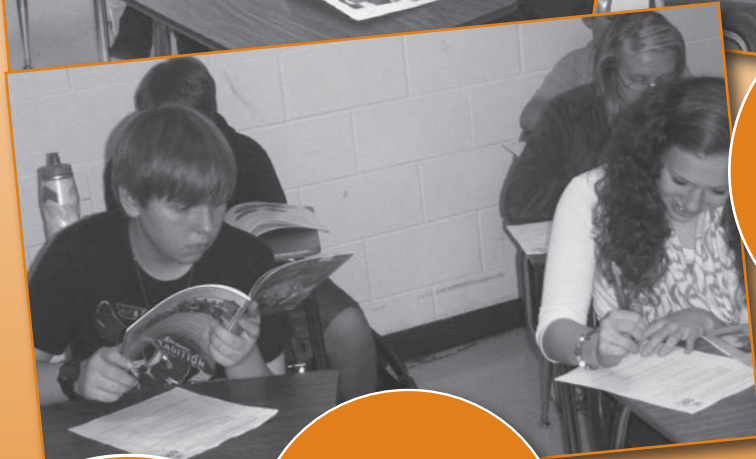
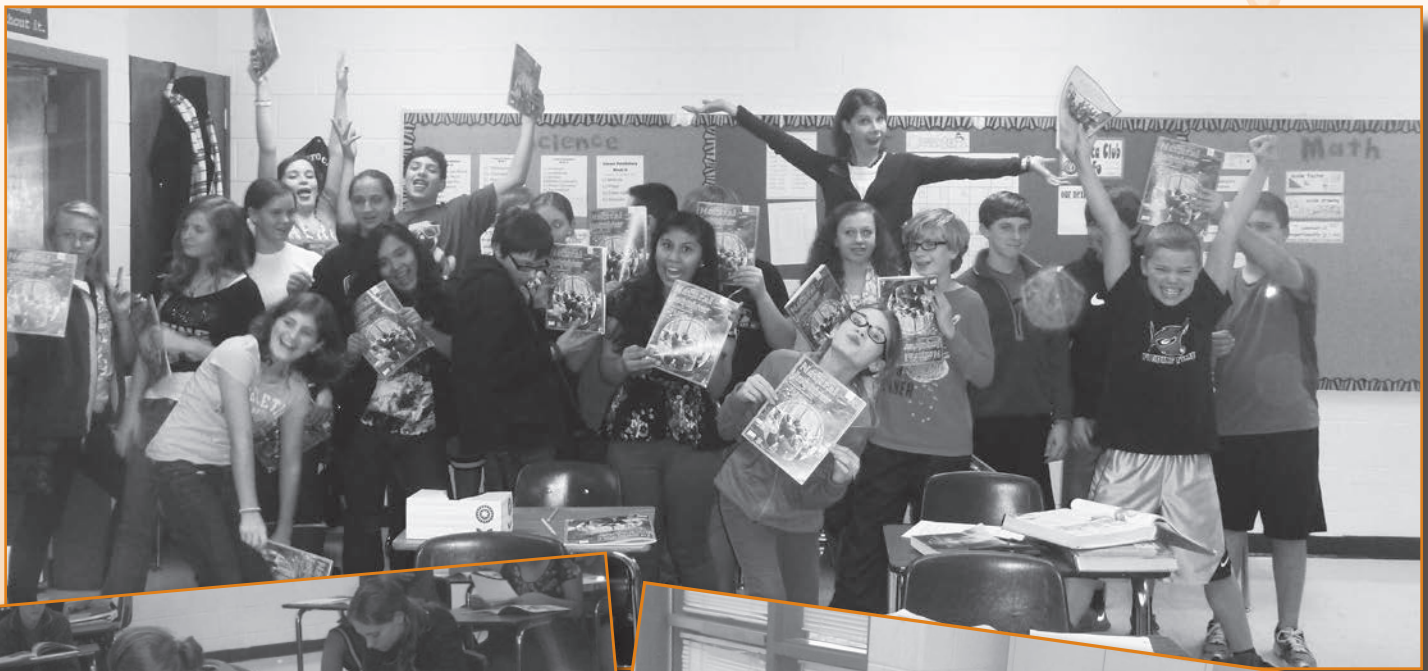


The *Natural Inquirer* is fun and interesting. Science has always been my favorite and best subject and this along with class is educational.



# Design Review Board At Work

Ms. Julie Linsley's 7th grade science class,  
Malcom Bridge Middle School, Georgia



The magazine is good to learn things others wouldn't teach you or even think about on a daily basis.

You may want to add a "Did You Know" section.

We would like more fun facts.

I think the *Natural Inquirer* is very educational but I think it could be more fun and colorful as well.

Put in more pictures of wildlife and some fun facts for kids to look at and read.

We would like more color and more pictures.

The graphs are great, they show great evidence.



# Design Review Board At Work

(continued)

Julie Linsley's 7th grade science class,  
Malcom Bridge Middle School, Georgia

I really liked  
the article and  
thought it would  
appeal to kids  
around my age.



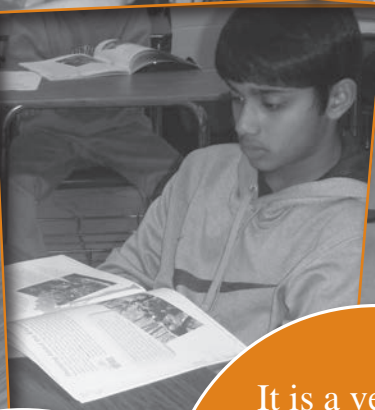
I enjoyed the  
graphs and  
tables. I thought  
they were very  
helpful.



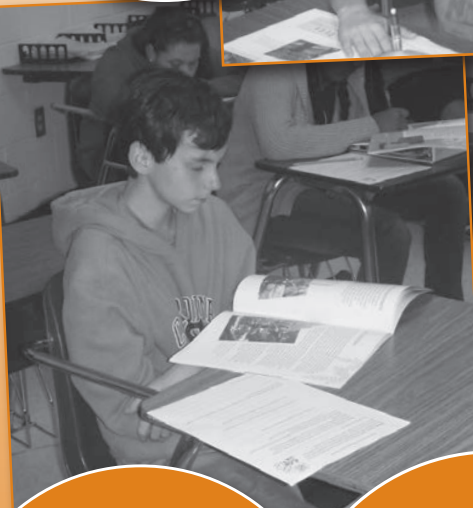
I like that you  
put sidebars for  
words most kids  
would not know.



It is a very good  
book. It has a lot of  
details in it, which  
is good. I really  
like how the book  
is made.

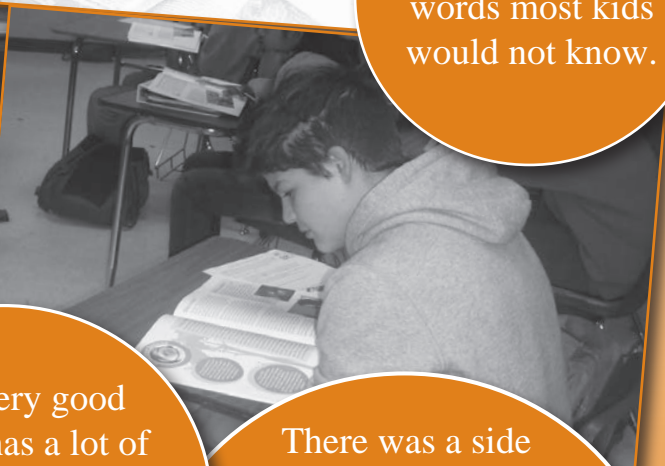


Having so many  
figures causes the  
reader to look  
back and forth  
too much.



Instead of using  
extra space for the  
definitions, just put  
them on the page  
with the word you  
are defining.

There was a side  
paragraph about  
geocaching. It might be  
helpful to add something  
such as "Learn more at  
[www.naturalinquirer.org/  
geocache](http://www.naturalinquirer.org/geocache)" so you could  
read more about it and  
how to get involved.







People attend a ceremony to dedicate a memorial garden in Connecticut.

## What Are Memorial Gardens?

Memorial gardens are areas planted for a specific purpose. That purpose is to remember someone or something special. Memorial gardens are usually planted in memory of people who have passed away. The garden is planted as a **tribute** to the life or lives that were lost. A memorial garden can be any size or can be planted with any type of plant. A single tree or flower can be a memorial garden. Memorial gardens can also be several acres or hectares in size. These gardens may include trees, flowers, shrubs, grasses, and other objects. Other objects include, for example, memorial stones or sculptures.

Memorial gardens give surviving people a place to remember who or what was lost. These gardens give people a chance to share their grief and to heal. In this research, you will read about efforts to create memorial gardens in memory of the people lost during two events in American history.

Glossary words  
are in **bold** and  
are defined on  
page 22.

# FLOWER POWER:

## PLANTING FOR THE PAST AND THE FUTURE

### MEET THE SCIENTISTS!

#### ▼ Dr. Keith Tidball, Senior Extension Associate

My favorite science experience was studying how ants affect sand dune erosion in the Kalahari Desert in Southern Africa.



Photo by Alex Kudryavtsev.

#### ▲ Dr. Marianne Krasny, Forest Ecologist

My favorite science experience was working on the Tanana River floodplain in Alaska to collect data on seedlings and floods, while watching out for moose and bears. In this photo, I am in Shanghai, China. I was in China for the Shanghai World Expo. This Expo highlighted city life around the world. Notice the interesting tree near me. These trees are made to grow this way for decoration.



► **Dr. Erika Svendsen,**  
**Research Social**  
**Scientist**

My favorite science experience is speaking with people in cities who are caring for the environment. I like asking them a very simple question, “Why are you doing this work?” Over the years, I’ve found the answer to this question to be an **affirmation** of life, community, democracy, and the human spirit.



▼ **Dr. Lindsay Campbell,**  
**Research Social Scientist**

My favorite science experience is any time I get to conduct **semistructured interviews**. I enjoy having indepth conversations with individuals about their involvement with the urban environment. I’ve interviewed public officials, natural resource managers, nonprofit employees, private contractors, business owners, and volunteer **stewards**. I have asked people questions about a range of topics. These topics include living memorials, **stewardship** in New York City, urban forestry, and urban agriculture policies and practices. I learn a great deal from my **interviewees**. Much of my work involves analyzing, synthesizing, and translating what they share with me.



## What Kind of Scientists Did This Research?

- **forest ecologist:** This scientist studies the relationship between things that live in forests with their living and nonliving environment.
- **research social scientist:** This scientist studies human societies and human behaviors.
- **senior extension associate:** This scientist develops and conducts natural resource or agricultural educational programs that address statewide or national issues.

## Thinking About Science



Science progresses in many ways. Sometimes, scientists use the written work of other scientists to help them think through a question. This process is called a literature review, and it is common in all scientific work. Scientists must know what other scientists have discovered so they can advance the discoveries further. When you do a research paper for school, you are often doing a literature review, just like scientists. Sometimes, they do the same experiment as other scientists to see if they get the same results.

Social scientists study the thoughts, feelings, beliefs, or actions of individuals or communities. In social sciences, scientists sometimes use case studies to better understand a question or idea. A case study is an examination of a single case as an example. Think about a student who wins a regional science fair. A social scientist might study this one student's experience as an example of other science fair winners' experiences.

In this study, the scientists were interested in ways that people remember past events and people who have died. The scientists wanted to explore why people plant trees and flowers to remember events and people. The scientists became familiar with what other scientists had written about why people plant trees and flowers. The scientists developed a possible explanation for why people plant trees and flowers to remember events and people. Then, the scientists conducted two case studies to investigate whether their ideas made sense in those real situations.



# Thinking About the Environment



The natural environment means many things to people. Some of these meanings are revealed after a natural disturbance, such as a flood or a hurricane, or after a human-caused tragedy. Trees, flowers, and other plants are often planted so that events or people can be remembered. The scientists in this study were interested in how planting trees, flowers, and other plants helped people adjust after a human-caused tragedy or a natural disturbance. The people who designed the 9/11 Memorial in New York City, for example, described their design in this way:

“Visitors will leave the everyday life of the city and enter into a sacred zone defined by a dense forest of 416 oak trees. Above the limbed-up trunks, a canopy of leaves will provide welcome shade in the heat of the summer and seasonal color in the fall. In the winter the sun will cast shadows through a light tracery of bare branches, and in spring, the trees will express the renewal of nature (figure 1). (From <http://www.pwpla.com/national-911-memorial/landscape-design#!/5132>.)”



**Figure 1.**  
In summer, trees offer beauty and shade at the 9/11 Memorial in New York City.

Photo by Mark Cordell.



**Thinking About the Environment, continued.**

In New York City, a planning committee asked citizens what kind of memorial they would like to see. The citizens made comments. Using these comments as a guide, the committee selected a team to design the 9/11 Memorial. A company was hired to plant the trees on the memorial site. Often, however, ordinary people get involved by planting trees and other plants to remember an event, a person, or even many people (figures 2a and 2b). Take a moment to think about your own life. Have you ever planted a tree, flower, or other plant to remember someone or something? If you have not, do you know anyone who has? What makes planting a tree or other plant for this reason special?

**Figure 2a.** Ken Cordell and Beth Kelley Zorbanos plant a tree in memory of Zorbanos' brother, Bill Kelley. Photo by Babs McDonald.



**Figure 2b.** A daughter planted and tends this rose garden in memory of her mother.

Photo by Lorraine Musselman.





# Introduction

The scientists in this study were interested in what communities do after a natural disturbance or human-caused tragedy. In particular, they were curious about planting trees, flowers, and other plants as a way to remember the event or the people who were injured or lost. The scientists noticed that people surviving a human-caused tragedy or natural disturbance often planted trees, flowers, or other plants as a way to remember.

First, the scientists read what other scientists had written about this kind of tree and flower planting. Then, the scientists developed their own ideas about why people plant trees and flowers in memory of events and people. The scientists also developed ideas about what benefits tree planting and other similar actions have for the community.

The scientists thought that tree and flower planting might be a way for people to remember an event as a community of people. The scientists thought that trees, flowers, and other plants symbolized life and growth for the planters. Using trees and flowers as symbols might be a way for people to express hope and strength for the future. Tree and flower planting, therefore, may help communities be strong following a loss. The scientists thought that tree and flower planting was one way communities adapt to loss so that they can move forward while remembering the past (figure 3).



**Figure 3.** A steel beam from the World Trade Center was incorporated into this 9/11 Memorial at the International Peace Garden. The garden is located in North Dakota and Manitoba, Canada.

The scientists also thought that other things happen when people plant trees and flowers after a natural disturbance or human tragedy. The scientists thought that, without realizing it, people and communities learn new things by coming together. Some of the things they learn might be from people sharing the knowledge they have with others. Some of the things they learn might be learned as a group, without anyone teaching. When someone teaches or a group learns together, existing knowledge is shared with others or new knowledge is created by the community.

The scientists wanted to find out if their ideas might be correct. They conducted two case studies of communities that had survived a loss and had planted trees or flowers in memory of their loss.





What is one thing the scientists wanted to learn from these two case studies?

How do you think the scientists gathered information about the communities they studied?

## Methods

Recall that the scientists started their research with a literature review. (Read “Thinking About Science” on page 12 if you have not already done so.) This review helped the scientists to develop ideas about why people plant trees or flowers in memory of a person or an event. These ideas, in turn, helped them focus their efforts to answer their research questions.

For their case studies, the scientists selected tree and flower planting after two events. The first event was in New York City. New York City lost 2,819 lives in the terrorist bombing of the World Trade Center on September 11, 2001. The second event occurred in New Orleans, Louisiana. In

New Orleans, 1,836 people died and more than 850,000 homes were destroyed during, and in the aftermath of, Hurricane Katrina. The hurricane made landfall on August 29, 2005. The scientists studied tree and flower planting efforts by individuals and communities after these two events (figure 4).

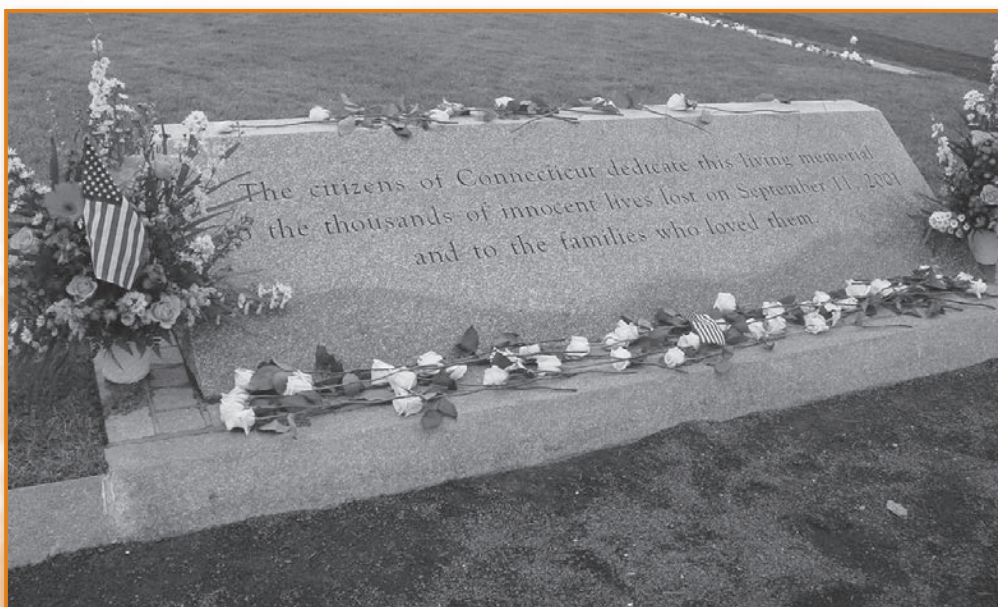
The first effort the scientists studied was a national program. The Forest Service started this program. The program was called the *Living Memorials Project*. The scientists found information on 687 communities across the United States that planted gardens to remember those lost on September 11. The scientists asked



questions of people in 113 of these projects. The scientists wanted to understand why and how people planted trees, flowers, and other plants to remember the events of September 11, 2001 (figure 5).



**Figure 4.** What is the shape of this garden plan? Do you think this is a memorial garden for 9/11 or Hurricane Katrina? How do you know?  
Courtesy of Dr. Keith Tidball.



**Figure 5.** The citizens of Connecticut created this 9/11 memorial.



The second effort the scientists studied was actually that of a number of community groups that worked together. People in these groups planted more than 6,000 trees in New Orleans' hardest hit areas (figure 6). These groups formed after Hurricane Katrina. The groups' goal was to help New Orleans recover from the destruction and loss caused by the hurricane. The scientists asked questions of group members and citizens who planted trees as part of this effort.

The scientists audiotaped all questions and answers. The scientists kept the identity

of each person who answered questions confidential (secret). The scientists listened to the tapes and typed the questions and answers into a computer. They then sorted the answers into categories so that they could understand better what they had been told. The scientists observed people planting and tending the gardens. The scientists also took photos while people worked in the gardens. Using observation and photos, and by asking questions, the scientists collected information about why people plant memorial gardens.



**Figure 6.** Community groups planted trees to remember the impact of Hurricane Katrina and the people lost because of the storm. The black and white buildings are **mausoleum** vaults containing the remains of unidentified or unclaimed victims of Hurricane Katrina. See figure 4 and find the locations of the mausoleums in the memorial garden plan. Courtesy of Dr. Keith Tidball.



# Number Crunch

The scientists asked questions of people in 113 of 687 memorial garden projects. What percentage of the 687 projects did they address with their questions?



## Reflection Section



Which of the two cities suffered from a natural disturbance? Which suffered from a human-caused tragedy?

Many scientists analyze numbers to answer their questions. For the two case studies, what did these social scientists analyze to answer their questions?

## Findings

The scientists discovered that people felt planting trees, flowers, and other plants helped them heal from their loss. In New York City, some people planted sunflowers and daffodils (figure 7). One of these people said—



**Figure 7.** People planted daffodils in public parks across New York City. Every spring, the daffodils help people remember the events of and the people who died on September 11, 2001. Photo by Babs McDonald.

“There is a power and healing that comes from digging in the dirt, planting new life, and nurturing its growth....sunflowers make sense as one tall way to remember life and make it a bit better.”

In New Orleans, people found tree planting was a way to remember what they had lost. One person said—

“These trees we are planting might be a reminder of what we lost, so that we don't ever forget it and don't let that happen to us again.”

The scientists discovered that people living in these communities learned how to plant and take care of the trees and flowers from **professionals** who work with plants and trees. This activity made people feel like they were rebuilding the community. These people created **communities of practice**. These communities of practice shared what they learned with others. This action served to strengthen the sense of community. The scientists believe that, after a loss, people feel an **innate** desire to plant trees, plants, and flowers.

## Reflection Section



Based on what some people told the scientists, do you think the scientists' beliefs about tree planting, loss, and community were correct? Why?

How do you think the scientists concluded that people learned new things from their tree and flower planting efforts?



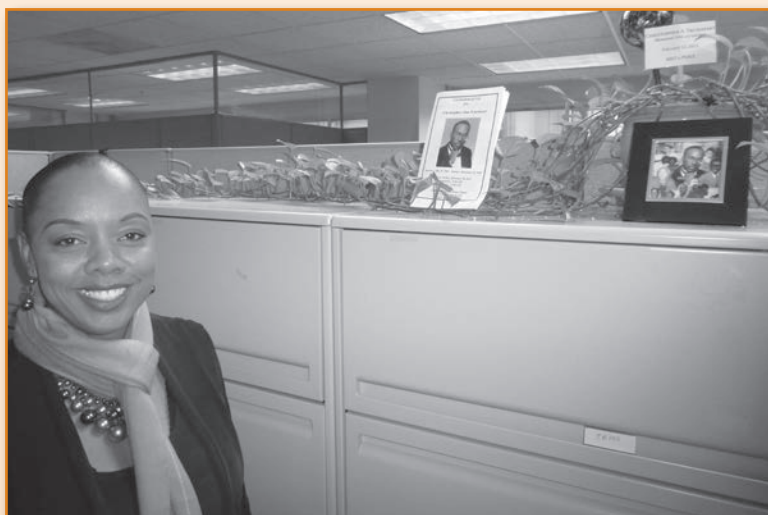
# Discussion

In this research, the scientists thought that communities use tree and flower planting to help adapt to a loss. After people plant trees or flowers, they share their gardens with others. Working together creates communities of practice. Communities of practice enable people to continue working together.

## Reflection Section

How do you think tree planting and flower planting helped people to adapt to their loss?

Describe one community of practice that exists in your school or learning environment.



Memorial gardens can be indoor gardens as well as outdoor gardens. Dr. Sharon Parker (pictured) and Dr. Kerry Britton tend this houseplant in memory of Christopher Trueheart.

Adapted from Tidball, K.G.; Krasny, M.E.; Svendsen, E.; Campbell, L.; and Helphand, K. (2010). Stewardship, learning, and memory in disaster resilience. *Environmental Education Research*. 16(5-6): 591–609. [http://www.nrs.fs.fed.us/pubs/jrnl/2010/nrs\\_2010\\_tidball\\_001.pdf](http://www.nrs.fs.fed.us/pubs/jrnl/2010/nrs_2010_tidball_001.pdf). (Accessed 9 February 2012).

# Glossary

**affirmation** (a fər **mā** shən): A positive statement or a statement that gives assurance that something is true.

**communities of practice** (kə **myü** nə tēs əv **prak** təs): Groups of people who share a concern or a passion for something they do and learn how to do it better as they work together.

**innate** (in **āt**): Existing in an individual from birth.

**interviewee** (**in** tər vyü **ē**): One who is interviewed; one who is asked questions.

**mausoleum** (**mō** sə **lē** əm): A stone building with places for entombment of the dead above ground.

**professional** (prə **fe** shə nəl): One that engages in a pursuit or activity as a line of work.

**semistructured interview** (sə mē **struk** chərd **in** tər vyü): An interview is a formal process of asking questions. A semistructured interview allows the interviewer to ask new questions based on previous answers.

**steward** (**stü** ərd): One who directs affairs. When referring to the environment, being a steward usually means that one is taking good care of the land.

**stewardship** (**stü** ərd ship): The careful and responsible management of something entrusted to one's care.

**tribute** (**tri** byüt): A gift or service showing respect, gratitude, or affection.

Accented syllables are in **bold**.  
Marks and definitions are from  
<http://www.merriam-webster.com>.

## Flower power

is a slogan that was used in America during the late 1960s and early 1970s as a symbol of nonviolence. Hippies, young people involved in the youth movement during that time, used the expression to transform Vietnam War protests into examples of peaceful events. Hippies embraced flower power by dressing in clothing with embroidered flowers and vibrant colors, wearing flowers in their hair, and distributing flowers to the public. These hippies became known as flower children. (From [http://en.wikipedia.org/wiki/Flower\\_power](http://en.wikipedia.org/wiki/Flower_power))



If you are a Project Learning Tree-trained educator, you may also use the following activities as an added resource: Activity #5: Poet-Tree; or Activity #31: Plant a Tree.

## Web Resources



### Forest Service Living Memorials Project

<http://www.livingmemorialsproject.net>

### Planting a Memorial Garden

<http://pss.uvm.edu/ppp/articles/memorial.html>

### Green Is Good For You

<http://www.apa.org/monitor/apr01/greengood.aspx>

### Kids F.A.C.E.®

<http://www.kidsface.org>





# FACTivity

## Time Needed

Two class periods: 15 minutes for the first period, 30 minutes for the second period

## Materials

- Shoe box, hat, or other similar-sized container.
- The math quizzes on pages 25 and 26. (Each student should have one quiz.)
- Copies of the photo on page 27. (One-half of the students will have a photograph. Your teacher may copy the page on cardstock and cut it to create four photos.)

FACTivity answers are given on page 32.

In this research, you learned that people often plant trees and flowers to remember a person or an event during which someone died or something was lost. The scientists found that planting a tree or a plant appears to give people comfort and strength. The trees and plants provided a benefit to the people doing the planting.

Dr. Roger Ulrich is a social scientist who studies what effect natural environments have on people. He found, for example, that hospital patients with a natural scene outside their window recovered more quickly than people who had a wall or building outside their hospital window. Dr. Ulrich found that adding flowers and plants to an office helped increase people's productivity. He found that people felt less stress when they could view natural landscapes

or plants. The natural scenes, plants, and flowers provided a benefit to the people viewing them.

In this FACTivity, you will answer the following question: Does viewing a photograph of a flower provide a benefit to students taking a math quiz? The following are methods you will use to answer this question.

Your teacher will count the total number of students in the class. Along with the other students, write your name on a piece of paper, fold it over, and place it in the box. With the other students, draw out one-half of the total number of student names. One-half of the class will be called the green group (the ones whose names had been drawn out of the box).

The other half will be called the blue group. As an option, you and the other students may name your group.

Your teacher will give each student a copy of the first math quiz. You will be given 5 minutes to complete the quiz. The teacher will collect the quizzes, organize them by group, and put them away until the next class. The class will not score the quizzes now.

Your teacher will give each member of the green group a photograph (page 27). If you are

in the green group, keep the photograph with you until the next science class. Keep the photo handy and look at it at least once every 2 hours. If possible, this FACTivity should include time spent outside of school.

In the first 5 minutes of the next class, take the second quiz. With your teacher, score both the first quiz and the second quiz by group. Calculate the overall percentage of correct answers for each group and each quiz. Four sets of percentages should be available for analysis. Compare the scores of each group by completing the following table:

	Percentage of Correct Answers	
	Blue Group	Green Group
Quiz 1		
Quiz 2		

According to the research in this article and Dr. Ulrich's research, trees, plants, and flowers provide benefits to people.

Answer the following questions as a class or in small groups.

1. Are the group scores on the first quiz about equal? Should they be about equal? Why?
2. How does the math quiz score compare with the concept of productivity? Are math ability and productivity the same thing? Why or why not?
3. If there is no difference or the scores are lower for the green group's second quiz, what could be some possible explanations?
4. If the green group's second quiz scores are higher than before and higher than the blue group's, what could be some possible explanations?
5. Did the flower photograph provide a benefit to the green group? How do you know?
6. How could you improve this experiment? Think about repetition, numbers of students, real experience in or views of the outdoors, and time. Now take 5 minutes in a class discussion to compare the class research with the research in this article and with Dr. Ulrich's research. What are the similarities in the role played by plants and people in each case? What are the differences?



# Math Quiz #1

---



Group name: \_\_\_\_\_

**In 6,251, in which place is the 5?**

\_\_\_ones

\_\_\_tens

\_\_\_hundreds

\_\_\_thousands

**What number does this Roman numeral represent?**

XXVI

\_\_\_\_\_

**How do you write 0.08 in words?**

\_\_\_eight-thousandths

\_\_\_eight-tenths

\_\_\_eight ten-thousandths

\_\_\_eight-hundredths

**Which sign makes the sentence true?**

0.87 ? 0.43

\_\_\_<

\_\_\_>

**Which integer represents this scenario?**

Three new selections are added to the school lunch menu.

\_\_\_-3

\_\_\_3

**Write the expression using an exponent.**

$3 \times 3$

\_\_\_\_\_

**What is  $\sqrt{25}$ ?**

\_\_\_\_\_

**Multiply:**

$\$34.00 \times 0.8 =$  \_\_\_\_\_

**Chris played a video game with three levels. It took Chris 2 hours and 10 minutes to beat the first level. It took Chris 1 hour and 45 minutes to beat the second level. Chris beat the final level in 1 hour and 10 minutes. Chris stopped playing at 5:00 p.m. Assuming that Chris did not take any breaks, what time did Chris start playing the game? Include a.m. or p.m. in your answer.**

\_\_\_\_\_

**Juan Carlos interviewed the last two athletes to finish a bike race. Is this poll a random sample of the athletes in the bike race?**

\_\_\_Yes

\_\_\_No

## Math Quiz #2



Group name: \_\_\_\_\_

**How do you write 0.012 in words?**

- \_\_\_ twelve-hundredths
- \_\_\_ twelve-thousandths
- \_\_\_ twelve-ten-thousandths
- \_\_\_ twelve-tenths

**Which integer represents this scenario from Juan Carlos' perspective?**

Juan Carlos gave an apple to his friend.

- \_\_\_ 1
- \_\_\_ -1

**Is this sentence true or false?**

$31 > 27$

- \_\_\_ True
- \_\_\_ False

**Write out this expression using an exponent:  $4 \times 4 \times 4$**

\_\_\_\_\_

**In 32,421, in which place is the 3?**

- \_\_\_ one-hundred thousands
- \_\_\_ hundreds
- \_\_\_ ten-thousands
- \_\_\_ thousands

**Write 15 as a Roman numeral.**

\_\_\_\_\_

**Shanda interviewed four students after pulling their names from a box containing all student names. Is this poll a random sample of students?**

- \_\_\_ Yes
- \_\_\_ No

**What is  $\sqrt{36}$ ?**

\_\_\_\_\_

**Multiply  $10.01 \times 0.5 =$**

\_\_\_\_\_

**Li-Hua lives in a time zone 6 hours behind UTC/GMT (Coordinated Universal Time/Greenwich Mean Time). When it is late evening UTC/GMT, it is mid-afternoon at Li-Hua's home. If it is 2 p.m. UTC/GMT, what time is it where Li-Hua lives? Be sure to add "a.m." or "p.m." in your answer.**

\_\_\_\_\_





# Common Core FACTivity



## Time Needed

About 15 minutes for an interview (may be out of class)

40 minutes of class time

## Materials

- Piece of lined paper (one for each student; plus one extra piece for each group)
- Pencils
- Digital recorder (optional)

The questions you will answer in this FACTivity are: What patterns do you find in interview responses to the same question? Who and why do young people admire others?

You and your class will conduct a survey. You and your fellow students will each interview one other person. After the interview is completed and notes are taken, you and your classmates will analyze the responses. You and your classmates will look for patterns in all of the responses. This analysis is similar to the analysis done by the scientists in this study of memorial gardens.

You and your classmates will each select a person to interview. No one should be interviewed more than once. Expect to take 5–10 minutes for the interview. This interview can be done for homework or over the weekend. You may interview a friend, a brother or sister, a cousin, or another student.

Before the interview, be ready to take notes with your pencil and paper. If you have a digital recorder, you may also use the recorder. Do not identify the person you are interviewing. This interview will be confidential. Confidential means that the identity of the person being interviewed is kept a secret.

You will ask the following question:

Who is one person you admire and why do you admire them?

Take notes as the person responds. If you have a digital recorder, use it to take notes for later or to check the accuracy of your note taking. Keep the interview going by asking further questions. Examples of further questions might be:

1. When did this happen?
2. How did you feel?
3. Why did you feel that way?



4. Why do you think that happened?
5. Why do you think the person did what they did?
6. Why is that important to you?

Do not ask questions that can be answered with a “yes” or “no.” Rather, ask questions that require an explanation. These questions usually begin with who, what, when, where, why, or how. You should take at least 5 minutes to conduct your interview, but do not take longer than 10 minutes. Remember, you want to discover who is admired and why.

Take notes as the person responds to your questions. Be as complete as possible in your note-taking. Remember that your goal is to completely understand who the person admires and why. Only write what your person is telling you. Do not guess or fill in responses. If you need more clarification, ask the person for more information.

When you are finished, thank the person for taking time for the interview. Assure the interviewee that the interview will be kept confidential.

After your interview, underline key words you feel are important to understanding the person’s responses. These might be words like “kind,” “generous,” “voluntarily,” “bold,” “sense of accomplishment,” or “brave.” You might find other key words like “brother,” “aunt,” “friend.” Any word that you think is important is a key word. Most key words will be nouns, verbs, adverbs, or adjectives. Take your notes to class on the day you will analyze the responses.

Your teacher will help you form groups of three to four students. In your group, look for patterns

in all of the key words. For example, are admired people often relatives or friends? Are admired actions usually positive or negative? Which words or types of words appear in more than one of the interview responses? When you look for patterns, you should look for similar words or similar categories of words across the different interview responses.

Once you have identified patterns, one of your group members will write a short paragraph summarizing the patterns found in your group’s key words. All group members will contribute to the summary.

Your teacher will lead a class discussion about the patterns found in your small groups. Your class will identify patterns found across all small groups.

With help from the class, one student will write a summary paragraph for the entire class. What does your class analysis reveal about who people admire and why?

Compare and contrast your methods, analysis, and findings with the findings in this research about memorial gardens. What are two similarities? What are two differences?

---

### Common Core Standards Addressed

- W.7.2; W.7.4; W.7.5; W.7.7
- SL.7.1; SL.7.4
- L.7.1L.7.2L.7.3
- RST.6-8.3
- WHST.6-8.2; WHST.6-8.4; WHST.6-8.7

# Flower Power Photo Challenge

Explain or write what each photo represents. If you write, be sure to write at least three sentences for each photo using proper sentence structure, grammar, and punctuation.





# Flower Power

## Create-a-Phrase



Draw a line from a word in the left column to a word in the right column to create a phrase from this article. Explain or write at least three sentences to describe what each phrase means.

**semistructured**

**Memorial**

**natural**

**garden**

**9/11**

**study**

**case**

**disturbance**

**Hurricane**

**practice**

**communities of**

**social scientist**

**flower**

**interview**

**memorial**

**Center**

**research**

**power**

**World Trade**

**Katrina**

## Which National Education Standards Can Be Addressed Using This Monograph?

### National Science Education Standards Addressed in This Article

National Science Education Standard	Where and How the Standard Is Addressed
Abilities Necessary To Do Scientific Inquiry	Meet the Scientists: Campbell's statement; Methods: Audiotaping interviews, analyzing words by placing into categories; FACTivity: Selecting groups randomly, analyzing and interpreting data; Common Core FACTivity: Social science methods.
Understandings About Scientific Inquiry	What kind of scientists did this research?: Learning about different kinds of scientists; Thinking About Science: Social science and case studies; FACTivity and Common Core FACTivity: Interpreting results, limitations of research.
Regulation and Behavior	Thinking About the Environment: Human behavior in response to a loss.
Diversity and Adaptations of Organisms	Entire article: One way humans adapt to a loss.
Populations, Resources, and Environments	Thinking About the Environment, Findings: How people use natural resources and environments to heal following a tragedy.
Risks and Benefits	Findings, Discussion, FACTivity: Natural resources provide human benefits.
Science as a Human Endeavor	Meet the Scientists, Thinking About Science: How and why humans choose particular scientific topics.
Nature of Science	Thinking About Science: Social science methods.

### Social Studies Education Standards Addressed in This Article

National Curriculum Standards for Social Studies	Where and How the Standard Is Addressed
Culture	Thinking About the Environment: People everywhere appear to plant trees and plants as memorials; Findings: Groups of people create communities of practice.
Time, Continuity, and Change	Thinking About the Environment, Findings: How people cope with tragedy and change.
People, Places, and Environments	Entire article: How natural resources help people heal.
Individual Development and Identity	Figures 2a, 2b: Individuals plant memorial gardens; Findings: Individual responses.
Individuals, Groups, and Institutions	Figures 2a, 2b, and 5: Individuals and groups plant memorial gardens; Findings, Discussion: Communities of practice.
Global Connections	Figures 3 and 5: People from outside of New York City planted 9/11 memorial gardens.
Civic Ideals and Practices	Findings: Communities of practice and groups formed to plant gardens.

#### Answers to the FACTivity Questions

**Quiz 1:** tens, 26, eight-hundredths, >, 3, 3<sup>2</sup>, 5, \$27.20, 11:55 a.m., No

**Quiz 2:** twelve-thousandths, -1, True, 4<sup>3</sup>, ten-thousands, XV, Yes, 6, 5.005, 8 a.m.

Answers to FACTivity Questions from page 24:

The average group scores on the first quiz should be close because group members for each group were drawn randomly. Productivity is a measure of output based on a certain amount of time. The quiz scores are not a measure of productivity. The quiz scores are a measure of math knowledge and ability based on a certain amount of time.

If the green group's average score has not changed or is lower on the second quiz, many things could have affected the scores. It might be that something happened on day 2 that caused students to perform less well, such as an uncomfortable room temperature. It might

be that viewing a photo of a flower distracts students from doing math quizzes.

If the green group's scores for Quiz 2 are higher than the blue group's or higher than the green group's scores for Quiz 1, the photographs may have influenced student performance.

If both the green group and the blue group performed better on Quiz 2, the photographs could not have made a difference. In that case, it could be that Quiz 1 provided practice that helped students perform better on Quiz 2.



# NATURE-ORIENTED PARENTING®

A guide for caregivers to teach children about the natural world

A companion to the *Natural Inquirer*

...Be natural



## Pick The Flowers!

When you visit your favorite nature center, arboretum, or park, signs abound with the phrase "Please Don't Pick The Flowers." This is to ensure the life of that plant so the guests may wonder at the color, composition, and majesty that is a blanket of sunflowers, black-eyed susans, or purple coneflowers. Completely understandable. But what about when these beautiful specimens have shown their color and are in a state of flux and change as the weather cools? Not quite as showy, and for most people, that's the time that the dying stalks get trimmed and thrown in the compost bin. I say: Pick the flowers! Spread the seeds! The heads of those plants are just bursting with new life that holds the key to filling in

your garden around your house. Why buy seeds when you can easily make a family day out of picking the flowers and either collecting the seeds for next season or spreading that new life into your garden to over-winter naturally? In the wild, the seeds would drop and get carried off either by the wind or rainfall or by hitching a ride in the fur of an unsuspecting mammal. The problem is that some of the seeds won't reach their destination due to unforeseen natural dilemmas. So, get outside and go pick the flowers!

– Adam DeWitte – CFAIA Director of Education

The *Nature-Oriented Parenting* newsletter is designed for you to cut it out of the journal and take it home to share with your parents or other caregivers.



## Habitat Spotlight: Prairies

Imagine walking through a sea of golden-hued vegetation, interspersed with dots of maroons, browns, and yellows, all waving in unison to a symphony of wind. Contrary to what most people have heard, several hundred years ago, much of the United States flatlands were covered in native, warm season grasses, wildflowers, and other heat-loving plants. This mixture of sun-worshipping flora made up what was known as the "prairie." What most people don't know is that this beautiful habitat is still alive and well in small pockets around the country and can be grown in your own yard! Big bluestem (*Andropogon gerardi*), little bluestem (*Schizachyrium scoparium*),

and switchgrass (*Panicum virgatum*) are just a few native species that you can find in a grassland habitat—a critical element for bird species such as grasshopper sparrows, bobwhite quail, and bobolink. It's also in this particular compilation of native vegetation that you'd be likely to find incredible artifacts such as arrowheads and potsherds. Grasslands were an important part of the Native American culture as a means of survival. Regular, controlled burning practices of the grasslands kept the woody vegetation out, producing an abundance of the fire-dependent warm season grasses. The grasses, in turn, fed the game animals and provided bedding spots and areas to raise their young. When the tribes needed to hunt, controlled burns were then used to drive the deer from their hiding spots and into the open—perfect hunting conditions for the predator. However, the prairie habitat also boasts many of the most beautiful wildflowers around—sunflowers, prairie doc, and Georgia aster, which also benefit from regular burning. If you're lucky enough to have a nature preserve or park near you that offers a small piece of prairie habitat—run, don't walk, to experience this unique element of history.

– Adam DeWitte – CFAIA Director of Education



## Family Outdoor Activity:

Memorial gardens are areas planted in honor of someone or something special. These gardens are usually (but not always) planted in memory of people or pets that have passed away. A memorial garden can be any size and can include any type of plant. A single tree or flower can be a memorial garden. Some people choose to include other objects in their memorial gardens, such as sculptures. In this activity, you and your family will plant a tree or flowers in honor of someone you know.

To get started, ask your son or daughter to explain memorial gardens to you and then discuss who or what you would like to remember by planting one. You may want to remember a family member or a favorite family pet who has passed away. Once you have determined who the garden will be in memory of, decide what to plant. The flower, plant, tree, or shrub can be a favorite of yours, or it can have significance to the family. If the old family dog loved sleeping in the shade of an oak tree, you could consider planting an oak tree in their memory. Visit your local greenhouse or nursery to pick out the plant. After the plant has been chosen, choose a spot in the yard to place the memorial garden. Be sure to plant your tree where it will have room to grow. Follow the procedure below to plant your tree or flower. You may choose to have each person present say something about the person or animal being remembered, or you may choose to place a sculpture or stone in the garden as dedication to the person. Regardless of what you choose to do, you will now have a place to visit and fondly reminisce.

The following tree-planting procedure is from Kids F.A.C.E.® (<http://www.kidsface.org/pages/plant.html>).

### *Use proper tree planting tree procedures!*

1. Dig the hole as deep as the rootball and twice as wide.
2. Check to see if the soil around the hole is too hard—if it is, loosen it up a bit with the shovel.
3. Remove the container from the rootball. (The roots are like the tree's blood vessels, and they work best if they are not all twisted and knotted up. You might need to straighten them out if they are circling around after having grown in the container.)
4. Place the tree in the hole, making sure the soil is at the same level on the tree as when the tree grew in the garden center. If your tree has burlap around the rootball, place the tree in the hole and then carefully untie the burlap. Leave the burlap lying in the bottom of the hole. (The burlap will simply turn into organic matter over a period of time.)
5. Fill in around the rootball with soil and pack the soil with your hands and feet to make sure that there are no air pockets.
6. Make a little dam around the base of the tree as wide as the hole with left over soil or grass clumps to hold in the water.
7. Give your new tree a good soaking of water to help settle it into its new home.
8. If you would like, name your tree.
9. Need more help? Contact your State or community forester listed in your telephone directory or call your local nursery for help and/or advice.
10. Take care of the newly planted tree by adding water to your tree. The tree will be thirsty after being planted, so deeply water it each week (2 to 3 gallons) for the first year. If Mother Nature happens to water your tree during the week, then don't worry about watering that week. Mother Nature is the best source for water.
11. Give your tree a "mulch blanket." A mulch blanket is a 2- to 4-inch covering of rotten leaves, wood chips, pine straw, or shredded bark that will insulate the ground, decrease the amount of weeds that will grow around your tree, keep moisture around the roots, and provide food for your tree. Make sure that the mulch blanket is not piled up on and touching the base of the tree. There should be a little space between the tree and where the mulch begins. You simply might need to push some of the mulch back from the bottom of the tree.

**"Nature never hurries. Atom  
by atom and little by little she  
achieves her work."**

**—Emerson**

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<http://www.scienceinvestigator.org>





Photo by Chuck Murphy

## What Is the Forest Service?

The Forest Service is a part of the United States Department of Agriculture (USDA). It is made up of thousands of people who care for the Nation's forest land. The Forest Service manages over 150 national forests and almost 20 national grasslands. These are large areas of trees, streams, and grasslands. National forests are similar in some ways to national parks. Both are public lands, meaning that they are owned by the public and managed for the public's use and benefit. Both national forests and national parks provide clean water, homes for the animals that live in the wild, and places for people to do fun things in the outdoors. National forests also provide resources for people to use, such as trees for lumber, minerals, and plants used for medicines. Some people in the Forest Service are scientists whose work is presented in the journal. Forest Service scientists work to solve problems and provide new information about natural resources so that we can make sure our natural environment is healthy, now and into the future.

**Learn more about the Forest Service by visiting <http://www.fs.fed.us>.**

## What Is the Southern Research Station?

The Southern Research Station is part of Forest Service Research and Development. Headquartered in Asheville, North Carolina, the station serves 13 Southern States and beyond. The Southern Research Station's mission is to create the science and technology needed to sustain and enhance southern forest ecosystems and the benefits they provide. Since the beginning of the 20th Century, the Southern Research Station's 130 researchers have excelled in studies on temperate and tropical forests, forest resources, and forest products. These studies provide a wealth of long-term information on the dynamics of tree plantations and natural stands, watersheds, and wildlife habitats.

**Learn more about the Southern Research Station by visiting <http://www.srs.fs.usda.gov>.**

## What Is the Northern Research Station?

The Northern Research Station extends across 20 States, comprising both the most densely populated and most heavily forested portions of the United States. The station is also part of Forest Service Research and Development, and is headquartered in Newtown Square, Pennsylvania. The station envisions a region where trees and natural resources support a high quality of life; wildlife, fish, and plant communities thrive; clean water abounds; and people work together to sustain and restore the health of forests. To achieve this vision, the people and communities of the Northeast and Midwest need high-quality scientific information. The Northern Research Station is dedicated, organized, and staffed to provide that scientific information in a form that people can use.

**Learn more about the Northern Research Station by visiting <http://www.nrs.fs.usda.gov>.**

## What Is the Cradle of Forestry in America Interpretive Association?

The Cradle of Forestry in America Interpretive Association is a 501(c)3 nonprofit organization based out of Brevard, NC. The Interpretive Association strives to help people better understand ecology through recreation and education opportunities. Their projects include:

- Campground and recreation area management
- Educational programs and services, including the *Natural Inquirer*, *Investigator*, and *Nature-Oriented Parenting*
- Sales of forest-related gifts and educational materials
- Workshops, newsletters, and publications
- Partnership with the Forest Service to provide programming at the Cradle of Forestry Historic Site

**Learn more about the Cradle of Forestry in America Interpretive Association by visiting <http://www.cfaia.org>**



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## Student Design Review Board

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