STAPLE HERE

Cover Photo: Giant sequoia tree (*Sequoiadendron giganteum*) in Yosemite National Park, California, May 2006.
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SummerReads Set E are on the Blue step on TextProject's Staircase of Automaticity

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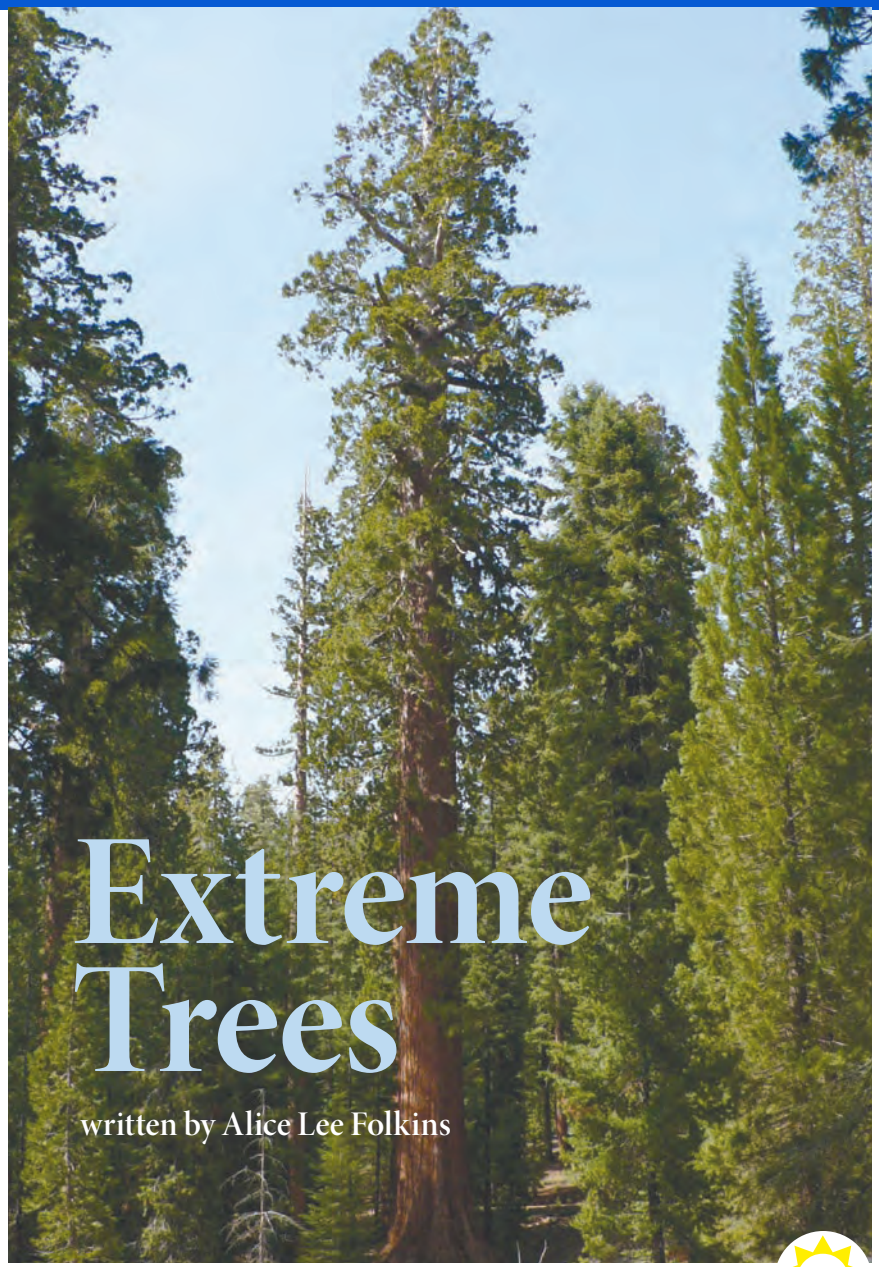
May 2015 edition

TextProject Product Innovations
www.textproject.org

Blue Step
Set E

Nature in Summer



Extreme Trees

written by Alice Lee Folkins

SummerReads™

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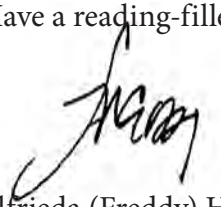
Dear Student,

I am a teacher who has studied how children learn to read well. What I have learned has been used to write SummerReads and programs like QuickReads® and Ready Readers.

The best way to be ready for the new school year is to read every day of the summer. You can choose to read a chapter or a book from SummerReads. But be sure to read it at least three times on the same day. Here's how to use SummerReads:

1. Start by reading it yourself. Mark the words that you don't know.
2. Next, ask someone to read with you. Get that person to help you with any words you don't know. You can even go to the computer to www.textproject.org and hear a recording of the books.
3. Last, you're going to read by yourself to answer the questions at the end of the book. You can go to the computer to find the answers.

Have a reading-filled summer!



Elfrieda (Freddy) Hiebert, Ph.D.
Inventor of the TExT model

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Extreme Trees

Photo: Sugar maple tree (*Acer saccharum*) at Morton Arboretum, Lisle, Illinois, May 2007.
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Introduction

Extreme Trees

Summer is a time when the leaves are out on the trees in North America. Trees bring beauty to the streets of towns and cities. But trees are important in the summer for more than their beauty. The shade from trees helps to keep buildings and houses cooler. Trees are also homes for birds and other small animals.

When you look out of your window, it may seem that trees look very much like one another. Most have brown trunks and green leaves. But, as you'll learn, there is great variety among trees. Some trees are so unusual that they can be described as extreme. Some of these trees can be found in nature. Others are unusual because of people's actions. Reading stories about extreme trees may get you to start a garden this summer. Your first project won't produce an extreme tree. But you might find that you like to grow plants.

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Clone Trees

Most trees start from a seed. Some seeds like that of the double coconut tree are huge. The seed of the double coconut tree weighs up to 50 pounds. The seeds in an apple are much smaller than that of a coconut but even a single seed can produce an apple tree.

The quaking aspen is a tree that produces seeds but it can also reproduce through its roots. The roots of the quaking aspen spread out underground. In places where the soil and sunlight are right, a root sends out a stem. This stem forms a new quaking aspen. Over time, the roots of the new quaking aspen do the same thing.

When new trees grow seeds, they may differ from the parent trees in different ways. However, when a quaking aspen forms a new tree from its own roots, the new tree is exactly the same as the parent tree. These trees are clones of one another.

In Utah, there is a grove of quaking aspen trees that is called Pando. Pando means "I spread" in Latin. Today, there are 47,000 trees in the Pando grove in Utah. Each tree is a clone of a quaking aspen tree that started as a seed 80,000 years ago.

You probably won't see a tree this summer that is a clone of a tree that began 80,000 years ago. But look at the trees in your neighborhood. Many were growing long before you were born. What needs to happen so that they will be still be growing many years from now?

Photo: Grove of quaking aspen (*Populus tremuloides*) in Fishlake National Forest, Utah, October 2005.
Taken by Mark Muir. Released into the public domain by the USDA Forest Service.

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Circus Trees

One day on his farm, Axel Erlandson noticed two trees that had grown together into a strange shape. Erlandson wondered if he could get trees to grow into interesting shapes. For his first try, he planted four trees in a square. As the trees grew, he trained their tops together. He called it the Four-Legged Giant.

The Four-Legged Giant was the first of 74 trees that Erlandson shaped. No two trees were the same. He gave them names that described their shapes such as heart, zig zag, and bird cage. People began to call them circus trees.

Exactly how did Axel Erlandson get trees to grow into these strange shapes? He began with a design on paper. Next, he planted trees in certain places. Then he tended the trees in three ways. First, he cut or pruned the trees in exactly the right places. Second, he bent branches to grow in certain directions. Finally, he grafted parts of trees together. Grafting is a way of taking one tree and making it grow on another.

Over 80 years later, the four-legged giant and 23 other circus trees are still living in a park in California. The basket tree in the picture is one of these. It began as six trees that Erlandson pruned, bent, and grafted together.

You probably won't see trees as strange as these this summer. But look carefully at the trees in your neighborhood. They may not be as extreme as Axel Erlandson's circus trees but branches and trunks of trees can make interesting shapes as they grow.

Photo: Axel Erlandson's Basket Tree at Bonfante Gardens near Gilroy, California, October 2005.
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Bonsai

Think of going into a forest where the tallest trees reach only to your knees. Each tree is perfectly shaped but none is higher than one foot. There really is not a forest like this anywhere but there are places where you can find small trees.

There are tiny trees that grow in nature such as the dwarf willow. The dwarf willow is about two inches tall. But there are also trees that gardeners have worked hard to keep tiny. If these trees were left in nature, they would grow tall like other trees. But these trees are kept tiny by the skills of the gardener. Gardeners with these skills are practicing the Japanese art of bonsai.

Bonsai comes from the Japanese words bon (meaning pot) and sai (meaning plant). A gardener who practices bonsai makes certain that a tree does not grow too tall or wide. The trunk and branches are trimmed a little at a time. Tiny trims are necessary so that the tree does not die. Too much trimming, or cutting of an important branch or root, can hurt a plant.

Bonsai gardeners work for years to prune and shape each tree. A bonsai that is carefully tended can grow for hundreds of years. The bonsai is passed from one gardener to another. It takes many years to develop the skills of a bonsai gardener.

You won't be able to develop these skills this summer. But you can see if you like to garden as a hobby by taking care of a plant inside or outside your home.

Photo: A grove of bonsai trees.
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Extreme Trees

Rate your thinking and reading

✔ Put a check each time you read one of the chapters of the book.

★ Give yourself a star for Sharing if you told someone about something you learned from reading the chapter.

✚ Give yourself a + if you can tell that your reading is getting smoother.

	1st Read	2nd Read	3rd Read	Sharing	Smoother
Introduction					
Clone Trees					
Circus Trees					
Bonsai					

Comprehension questions

Clone Trees

1. True or false? The aspens in the group of trees known as Pando are all clones of the same aspen tree.

☐ true ☐ false

2. Clone trees are _____.

☐ trees that are exactly the same as the parent tree
☐ trees that grow by sending out its stems underground
☐ trees that are connected to each other by a common root system
☐ all of the above

Circus Trees

3. Describe at least two ways in which Axel Erlandson formed his circus trees into interesting shapes.

4. Grafting is a technique that gardeners and farmers use _____.

☐ to grow really tall trees
☐ to grow more trees
☐ to combine different kinds of trees to make a new tree
☐ to kill trees they don't want anymore

Bonsai

5. True or false? Gardeners trim their bonsai trees so that they are small.

☐ true ☐ false

6. Why do bonsai trees need a lot of care?

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