

NCPTT: Junior Ranger Activity Book

National Park Service
U.S. Department of the Interior
Cultural Resources



Lee H. Nelson, Pioneer in Preservation



Lee H. Nelson (1927-1994), a distinguished National Park Service architect and Fellow of the American Institute of Architects, was a pioneer in preservation and a mentor to many in the field. He joined the National Park Service (NPS) as a summer intern in 1958 and retired as the Chief of the Preservation Assistance Division in 1990.

Lee Nelson perceived the need for a center dedicated to preservation research technology early in his career. Back in 1962, at a preservation meeting in Philadelphia, Pennsylvania, Lee and a number of NPS architects, engineers, and exhibit specialists discussed their desire for a center of this type. Lee understood and endorsed the need for technology to be used as a tool in a preservation context and worked for many years to help establish a center for this purpose.

As a result of a congressional report by the Office of Technology Assessment in 1986, Nelson's desire for a research center was confirmed. The National Center for Preservation Technology and Training was established in 1992 and its offices and research facilities were moved into the renovated Women's Gymnasium, renamed Nelson Hall, on the campus of Northwestern State University of Louisiana.

In an effort to live up to the ideals pioneered by Nelson, the NCPTT advances the application of science and technology to historic preservation. Working in the fields of archeology, architecture, landscape architecture and materials conservation, the Center accomplishes its mission through training, education, research, technology transfer and partnerships.

NPS Mission: *The National Park Service preserves unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations.*



Hi Junior Ranger!
In this book you can learn about NCPTT and
all of the great work they do!
Make sure to have fun!



In this booklet you can learn about the different areas of focus for NCPTT, engage in fun activities, and learn about the Natchitoches, Louisiana area! Your adventure awaits, just remember to be SAFE while exploring and have fun!

How to Earn you NCPTT Junior Ranger Badge:

Inside this booklet you will find 8 different activities. Complete the required number of activities for your age to earn a junior ranger badge. How old are you?

Ages 5 - 9: Complete 4 activities

Ages 10 - 13: Complete all 8 activities

Ages 13 and over: Complete all activities

When you have completed all the activities, return your book to a staff member at NCPTT. You will likely have to inform the staff member of something you learned about during your adventures. After you tell them all about what you have learned, you can earn your badge!

If you cannot complete this booklet during your time at NCPTT, just send a copy of your completed activities to NCPTT and we will mail you a badge for all your hard work! Now get out there and have some fun!

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Archeology & Collections



1716 map of Los Adaes. Photo: British Library, London

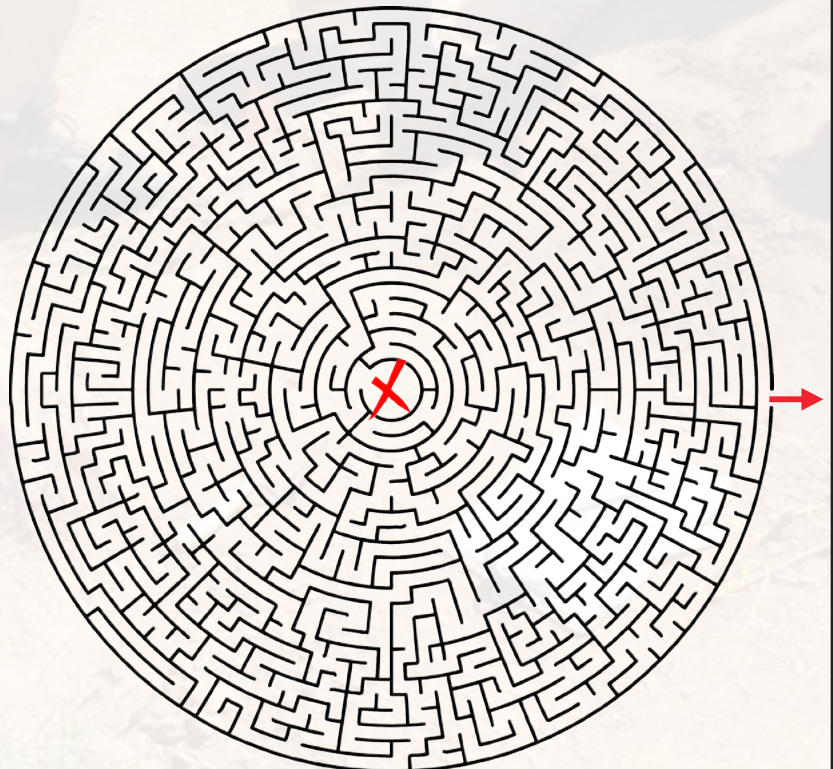
One of the oldest areas in Louisiana is Los Adaes Historic Site. Founded in 1716 by the 13th governor of Coahuila, Marquis de San Miguel de Aguayo, the fort served as the capital of Tejas (Spanish Texas) from 1729 until 1770! It was originally set up to serve as one of the first Spanish missions east of the Rio Grande River. However, after the French had constructed a fort in nearby Natchitoches, de Aguayo order the construction of a new presidio (Spanish for fort) on the site. The new fortifications provided safe haven for 6 new missions to arise in the area around Los Adaes.

During much of the time of its existence, Los Adaes served as an important trade route that brought the Spanish and French cultures together in close proximity. Los Adaes was the northern most point for a lengthy trade route that stretched all the way from Acapulco, Mexico! Using this maze, see if you can navigate the goods from Acapulco (in the center) as they make their way to Los Adaes.

Archeologists study people and places from as recently as 50 years ago to tens of thousands of years ago. Historic sites are those with written records, such as rules and laws, newspapers, announcements, business records, church records, and personal messages. In the United States, this refers to the time after the arrival of Europeans (after 1492). There are all kinds of historic sites - small farms, large plantations, factories, forts, small towns, and large cities. Archeologists use historic documents and old maps to discover how villages and towns were created, how people got their food and goods, and how they lived.



Artists depiction of Los Adaes, circa 1750. Photo: Sergio Palleroni



Archeology & Collections



Museum collections are a great way for archeologists to preserve the artifacts of past cultures and peoples. Collections provide an opportunity for further study and enjoyment, while preventing further degradation of the artifact. Preservation and continued use of museum collections depends on a park's long-term commitment to an ongoing conservation program. NCPTT helps develop technological innovations and applications that enhance the ability of conservationists to preserve materials well into the future.

Search for some of the common terms used in the preservation of museum collections.

Preserve – To keep safe from injury

Conserve – To protect from harm or destruction

Restore – To bring back to a previous state

Stabilize – Make or become unlikely to change, fail, or decline

Inspect – Look at closely

Prevent – Keep from happening

Handle – To use care while touching an object

Treatment – A technique use

G	D	T	C	O	N	S	E	R	V	E	V	R	G	F	G	C	E
V	A	V	R	X	S	D	B	F	N	U	U	D	E	M	M	U	M
Q	F	V	C	E	T	V	U	S	S	G	M	O	Z	W	O	U	T
C	X	W	M	E	A	V	E	P	G	U	N	N	Y	P	M	V	M
D	R	I	F	I	B	T	G	D	Q	A	U	J	O	R	T	Z	Y
U	H	H	P	U	I	A	M	J	R	F	K	J	C	E	F	L	C
L	R	X	J	X	L	P	R	E	V	E	N	T	V	S	F	F	S
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U	G	Z	A	Y	E	I	N	S	P	E	C	T	U	V	Y	Y	F
J	C	V	X	C	P	A	H	A	N	D	L	E	T	E	K	Q	Q
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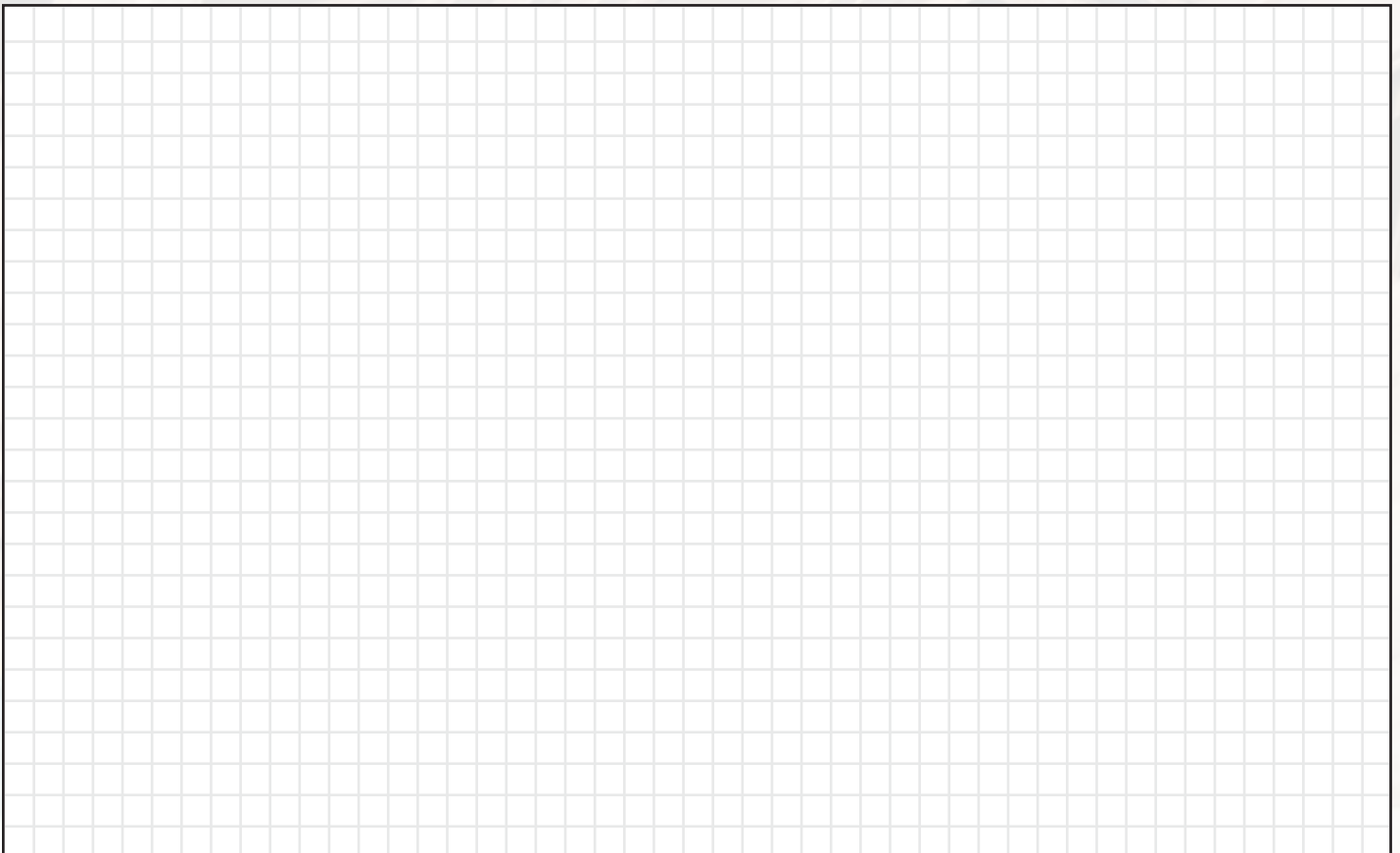
Architecture & Engineering

Historic resources such as buildings, structures, homes, and cabins are irreplaceable parts of the American story. Some tell the tales of important American occurrences, like Independence Hall, where the constitution was signed. Others tell the story influential personalities in American history, like Abraham Lincoln Birthplace National Monument. Other still tell stories of American idealism, like Ellis Island, where thousands of immigrants began their new lives in America.



By documenting these resources with drawings, photographs, and written descriptions they can live on forever for people to learn from and enjoy. The Historic American Building Survey is a tool that can be used to document any resource. The goal of this type of survey is to document where these resources are today. It is a great way to understand the resources you are looking at, as well as capture a moment in its history that can be viewed in the future.

Find an old building, structure, home, or statue and draw a picture of exactly what you see. Use the space below, or your own paper and draw! Draw the entire structure, or a small part of it. Look for unique features, or something that catches your eye



Architecture & Engineering

Have you ever built a fort in your living room, using blankets and furniture? Have you ever played with blocks to build a tower? Have you ever made a sandcastle? If you answered yes to any of these questions, then you have been an architect!



Architecture is simply defined as the practice of designing and constructing buildings. But there is so much more! One of the most widely used architectural inventions is the column. Columns allow for the support of ceilings, without the use of solid walls. Using columns allowed architects to greatly increase the space which was covered by a ceiling, allowing more light and air inside of a building. Here in the south, the use of columns on plantation homes helped to create larger homes with greater air flow. Before the invention of air conditioning, it was one of the best ways to cool a home!

Today, your architecture and engineering challenge is to design and construct a model column, using only two pieces of paper (extra paper is at the end of the book)! Think like an engineer, design like a architect. Use your imagination and create the tallest column you can! Devise ways to build the strongest column you can!

How can you make a **weak** material like paper **strong** enough to stand up? One way is to **change its shape**, like rolling it into a tube, crumpling it, or folding it. You also need to think about different **forces** that are acting on it. The column's **weight** is pulling the column down. The **surface** on which the column is resting is pushing back up. Small **air movements** are also pushing from side to side and can blow the column over. If you build a **wide base** at the bottom, this distributes weight over a wider area and makes the column more **stable**.



Materials Conservation

At the heart of what NCPTT does is science. Science informs how we develop new materials, treatments, and procedures. As scientists, the staff at NCPTT regularly conducts experiments to understand the science behind preservation.

In order to conduct these types of experiments, the researchers use the scientific method to test their theories. The scientific method is an approach to understanding science through a series of steps to learn what is happening. It formalizes the steps you should take to test your experiments and will help you study the world around you. Once learned, the scientific method becomes your constant companion in your approach to understanding things!



The method consists of:

Q = Start with a Question - What do you wonder about? What would you like to know?

H = Form a Hypothesis - A hypothesis is a statement that can be proven true or false.

E = Conduct an Experiment - Set up a test experiment to see if your hypothesis is right or wrong.

C = Come to Conclusion - Decide whether your hypothesis is right or wrong. What were the results?

Dr. Frank Bacon is compiling his scientific findings on graffiti removal into a single volume. He forgot to give titles to the sections of his reports and now they are all mixed up! Use the definition guide above to help Dr. Bacon label the parts of the scientific method in his reports. Decide which step of the scientific method he should have used.

_____ The results of his experiment show that water and cleaner are the fastest method for graffiti removal.

_____ I will test different techniques for graffiti removal to see which is the fastest.

_____ I will use water by itself, and water with a cleaner because I think water and cleaner will be faster.

_____ I wonder what the fastest method is for removing graffiti?

_____ Does using warm water or cold water work better for removing graffiti?

_____ The results showed that warmer water worked faster.

_____ I will use water that is 120°F for the warm water, and water that is 55°F for the cold water.

_____ I think that cold water will be faster than warm water in removing graffiti.



Materials Conservation

In order to conserve materials, scientists need to understand the materials they are trying to conserve. Here at NCPTT we use a variety of laboratory instruments to fully understand materials, and develop innovative ways to conserve them. One instrument is usually found in most laboratories around the world....the microscope!

The use of microscopes allows scientists to see things that are too tiny (microscope) to be seen with the naked eye. Microscopes help scientists unlock mysteries by allowing access to otherwise inaccessible worlds. Using microscopes can help you to uncover many mysteries in your own backyard. Let's take a look at the parts of a microscope and see if you can label them on the microscope below.

Stage - The flat platform where you place your slides. Stage clips hold the slide in place.

Eye Piece Lens - The lens at the top that allows you to look through. There can be one or two eye pieces.

Illuminator - A steady light source. Sometimes can be mirrors or an electric light.

Focus - This dial is used to adjust the clarity, or blurriness, of your sample.

Arm - Supports the tube and connects to the base.

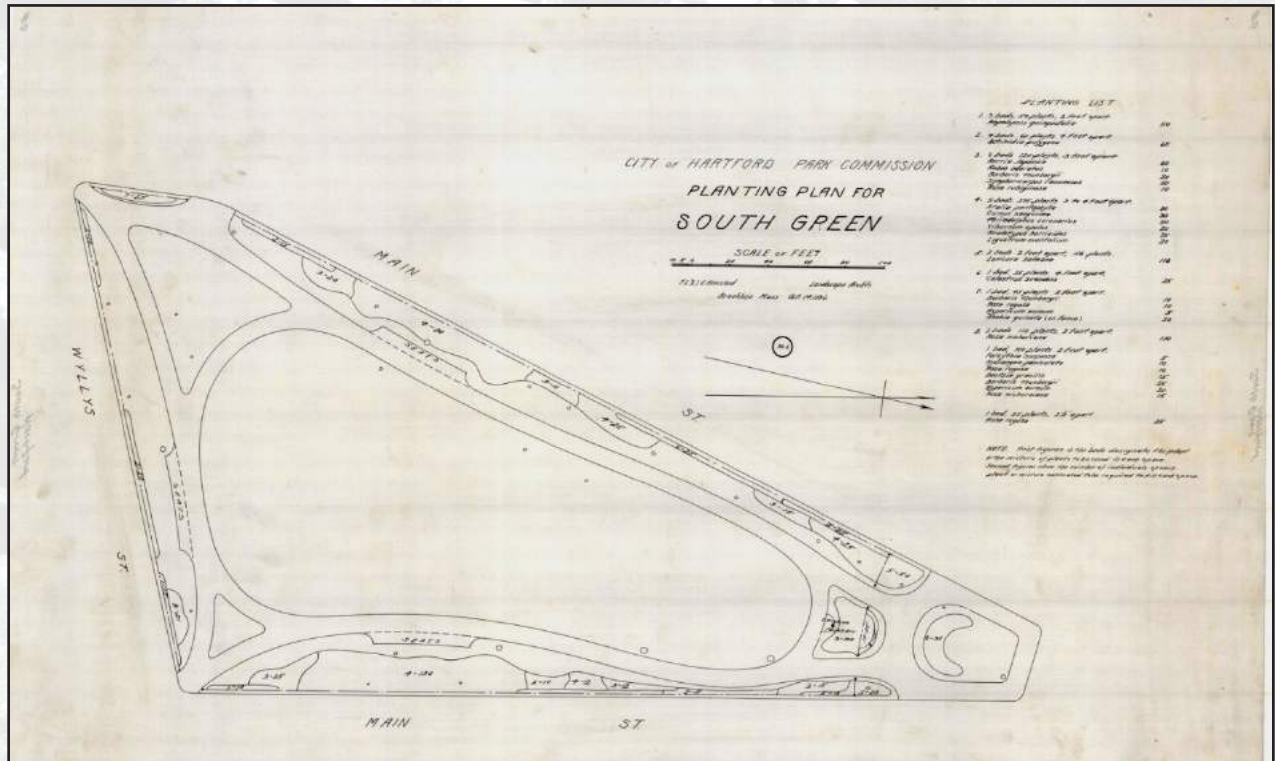
Base - The bottom of the microscope, used for support

Objective Lenses - Usually 3 or 4 lenses that allow for different magnification settings.



Historic Landscapes

Cultural landscapes are geographic areas, including both cultural and natural resources associated with a historic event, cultural activity, or a person or exhibiting other cultural or aesthetic values. Many places like parks, gardens, scenic highways, cemeteries, battlefields, and zoological gardens are all examples of cultural landscapes. These special places reveal aspects of our country's origins and development through their form and features. How they have changed and been used over time can tell us a lot about the people who used them.



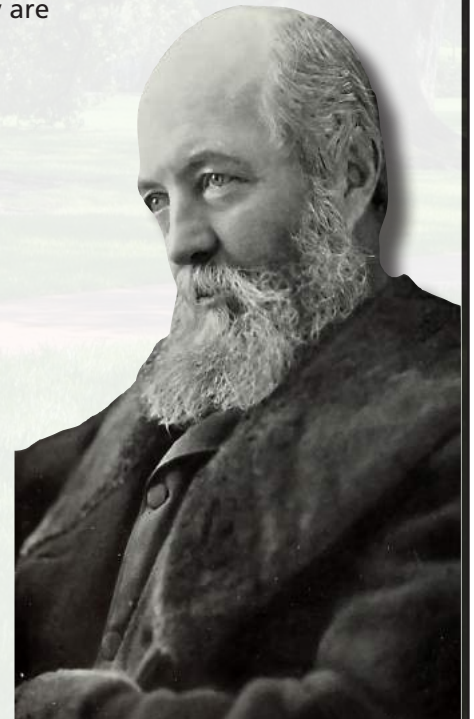
Plan for a park in Hartford, Connecticut. 1896. Image from the archives of Frederick Law Olmsted National Historic Site.

This plan for a park was drawn in 1896. Parks are one type of landscape, and they are designed by landscape architects. Frederick Law Olmsted was a famous American landscape architect. His firm designed many parks, including this one.

People have been enjoying this park for many years. **Since you know the park was created in 1896, can you calculate how old the park is today?**

Look at the aerial photograph of the park on the next page. It was taken from the sky!

Frederick Law Olmsted (April 26, 1822 – August 28, 1903) was an American landscape architect, journalist, social critic, and public administrator. He is popularly considered to be the father of American landscape architecture.



Historic Landscapes



Aerial image of park in Hartford, CT. Image from Google Earth.

Changes often occur to landscapes over time. Historical landscape architects document those changes.

Can you find at least 4 differences between the plan and the photograph of the park?

Circle the changes you see on the photograph.

Landscapes can include many types of features that make them unique places.

Fill in the blanks below to reveal a few of these features.

R _ A _

B _ N _ H

T _ E _

F _ _ NT _ _ N

S I _ _ W _ _ K

B U _ L _ _ _ G

L _ W N

B _ S _

Fountain

Bush

Road

Sidewalk

Lawn

Building

Tree

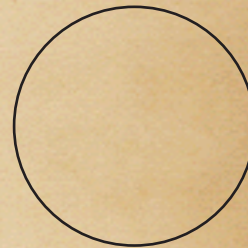
Bench



*As a Junior Ranger, I _____
promise to protect and conserve the
historic aspects of the United States,
and to share what I have learned
about science and preservation with
others.*



Signature



U.S. 8¢



NATIONAL CENTER FOR PRESERVATION
TECHNOLOGY AND TRAINING