George W. Bush Presidential Center

Native Texas Park Scavenger Hunt—Spring

PARENT/TEACHER GUIDE

Background: *Blackland Prairie used to dominate the Dallas region, but by the mid 1920's almost 80% of it was lost to farming. The building of cities reduced the amount of remaining prairie. Today only 1% of original Blackland Prairie remains in the state of Texas. After World War II, housing was developed here, and this site was almost entirely paved.*

The Bush Center's grounds are designed to give visitors an opportunity to experience the native Texas landscape once predominant in the area. This 15-acre park is a unique feature among presidential libraries and reflects President and Mrs. Bush's love of the native Texas landscape and their belief that the Center should contribute to the everyday life of nearby communities.

Objective: *This landscape contributes to the Presidential Center's ambitious sustainability objectives by increasing biodiversity, restoring native habitat, reducing the need for irrigation, and employing an organic maintenance program. The children's scavenger hunt touches upon each of these. TEKS standards are also addressed.*

Introduction: *Lead in by telling students they are about to go on a hike. Include hike length (total hike should take 30 minutes on site) and general hiking rules and expectations (stay on gravel or grass trails, no running ahead, do not pick or take anything with you, etc.). Photos are allowed. Students are encouraged to try to identify their personal photos by using online or published resources at school or at home.* ***WARNING: Be on the watch for FIRE ANT mounds****—they love our prairie, too!*

For Individuals: *Give each child a scavenger hunt handout. The scavenger hunt includes items discussed on the adult tour, so both adults and children can walk together.*

For School Groups: *Have the students work in small groups, each with a chaperone. Nature is a new adventure for most children who have grown up in an urban environment; for them to get the most out of this hike they'll need your guidance. For groups we recommend one adult for every 5-10 children. Provide each student with the scavenger hunt handout and each chaperone with this guide.*

Procedure: *Students can each take an item and read aloud the description, while the chaperone guides them toward it. This guide will help the adult orient the students toward the items. A map is included with arrows pointing out a path. The map is numbered to correspond with each item. Items were chosen to give students the experience of an historically native blackland prairie, the latest environmental techniques in sustainability and rainwater run-off management, and a close-up look at the plants and animals that make up the prairie eco-system. Once an item is located, the chaperones should ask the provided "Let's talk about it" conversation starters that will connect the students' experience at the Native Texas Park to their daily lives.*

NOTE: *The park is a dynamic environment. Everything on the scavenger hunt list may not be found in one visit. Encourage the students to revisit the park with their parents to show what they've learned and maybe check off a few more items. We're open year-round from sunrise to sunset and admission is always free! We offer both Spring and Fall versions of the scavenger hunt.*

 *Stop #1—the bike racks near the entrance. Then head down the gravel path to the left toward the Great Lawn (on the right) for Stop #2.*	**1. Bike Racks**—Biking in the urban environment is becoming very popular as both an alternative form of transportation and good exercise. President Bush likes to bike for fun and for exercise on the trails at his Prairie Chapel Ranch. *TEKS Social Studies: §113.15 (b)(17)(B). Citizenship—In addition to this project of creating a native Texas park at the local level—a form of historic preservation—President Bush has a service project that involves biking. His Institute sponsors and he rides in the Warrior 100 K Ride, a 3-day mountain biking trek at his ranch in Waco. Each year he invites up to 20 wounded warriors, chosen via application, to ride with him.*	**Let's talk about it:** What are some of the problems we need to solve in order to make biking to school and to work easier? *Guidance: More and better bike paths, educate drivers to show respect to cyclists, etc.*

Stop #2: The Great Lawn is all Habiturf. Take time to study the turf here, then start heading down the stone path toward SMU...

2. Habiturf—This mix of native grasses, used throughout the grounds and Great Lawn, was developed by Texas researchers in order to conserve the natural resource of water. It is drought-resistant, needs little fertilizer, and needs mowing only 3-4 times a year!

TEKS Social Studies: §113.15 (b)(20)(B-C). Science, technology and society (Famous Inventors)– Texas scientists are continually working on ways to save water in agricultural practices such as lawn care. Mark Simmons, an ecologist and Director of Ecosystem Design Group of University of Texas at Austin Lady Bird Johnson Wildflower Center, developed the Habiturf used here.

Let's talk about it:
Sit down and examine this lawn. How does it differ from your lawn at home?

Guidance: It's not super green, it may be rougher, it has an uneven surface, etc.

Stop #3: Take the grassy path, and look to your right to view the seep. Stay in this area because #3 and #4 are also nearby.

3. Seep—This wall of stacked limestone serves as a barrier that keeps stormwater from the lawns and parking lot from rushing into the swale below. Instead, the water slowly trickles out joints in the wall for days after a rain. The seep's micro climate supports shade and moisture-loving plants such as Maidenhair Fern, Wood Fern, Spider Lily, Buttonbush, and Spicebush.

TEKS Science: §112.15 (b)(8)(B).Earth and space (Water Cycle)—water from the parking lots and lawn move from the surface into the ground and drips out through the seep is part of the water cycle of the park.

Let's talk about it:
Look and listen! Can you see standing water? Can you hear it trickling?

Guidance: Only certain joints in the seep are open. You may see water dripping from them. Try to point some out.

Stop #4: There are a few cottonwoods between the seep and the path. The sycamore (#4) is across the path from the seep.

4. Cottonwood Tree—This tree is a type of poplar that grows in moist areas. The Spanish word for poplar is "alamo" —named after the Alamo river where these trees were first seen by Spaniard explorers. When pioneers saw a cottonwood tree, they knew that water was near.

TEKS Social Studies: §113.15 (b)(2)(A). History (Early Texans way of life)—The Alamo fort in San Antonio was named after these trees that grew along the river. When coming up with place names settlers often found names in geographical features.

Let's talk about it:
Why isn't the ridge a good place for cottonwood trees to grow? What do we have down here that their habitat requires?

Guidance: The ridge is too dry. This tree needs the moisture of the lowland in order to grow.

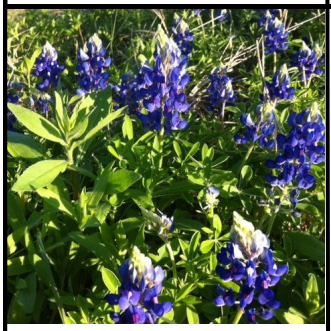
Stop #5: This tree has very noticeable peeling bark, another is located further up the path. Continue around on the grassy path...

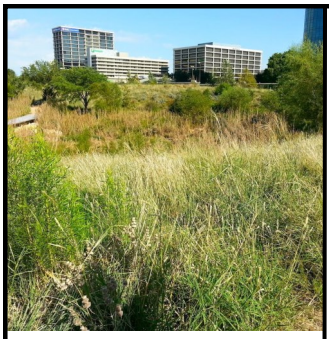
5. Sycamore Tree—The sycamore tree is a fast growing tree. It's easy to identify by its unique peeling bark that is mottled with greenish-white, gray, and brown. You should be able to find a few sycamores in the area by the seep.

TEKS Science: §112.15 (b)(10)(A).Organisms and environment (Adaptations)— Bark of trees in dryer regions is thicker to prevent loss of moisture. The sycamore has thicker bark than the river birch, but thinner bark than oaks. It is found in areas of Texas that have more water.

Let's talk about it:
What do you think causes a young sycamore's bark to peel like this?

Guidance: Since sycamores are fast growing trees, their bark can't expand as quickly as needed and it breaks and peels off. Similar to how a snake sheds it's skin.

 *Stop #6: As you leave the seep area, look for them up high in trees or on light poles. Head toward the bridge in the distance. On the way there ...*	**6. Mockingbird**—The Northern Mockingbird is the state bird of Texas. It likes to perch up high and sing. Its song is a medley of the songs of several other birds. An individual mockingbird can have as many as 25-30 songs in its repertory. Can you see any other birds today? *TEKS Science: §112.15 (b)(1)(B).Scientific investigation and reasoning (Conservation)— Mockingbirds sing many types of songs. It's important to keep cats inside so they don't hunt and kill all our beautiful songbirds.*	**Let's talk about it:** Find a place to sit and listen to the mockingbird's song. How often does it repeat? Try to imitate the song by whistling. *Guidance: Help the kids locate and listen to the mockingbird. Be sure to point out any other birds you may see as you walk the grounds.*
 *Stop #7: There are several bioswales in the park. The one from the seep is on your right. Soon, you'll cross the bridge over it. Take a look.*	**7. Bioswale**— Rainwater from the landscape and parking lots flows into these above-ground channels in the land, called bioswales. They prevent erosion during heavy storms. Contaminants are filtered out by plant roots and soils and large boulders slow the flow of the water as it moves toward the Wet Prairie—the center of our cutting-edge hydrology system. *TEKS Science: §112.15 (b)(7)(B).Earth and space (Weathering and Erosion)— This may look like a creek with weeds, but the plants around this creek are important for minimizing erosion of valuable soil.*	**Let's talk about it:** Why is rainwater management a good idea? *Guidance: Uncontrolled rainwater causes erosion and rather than going into the groundwater where it fell, it travels into the storm drains and is piped to areas of Dallas that may not need it—often resulting in flooding.*
 *Stop #8: All bridges are made of locust wood. Stop here and look at the bioswale's rocks and plants; then head toward the wildflower meadow.*	**8. Locust Bridges**—All of the bridges in the park are made from Black Locust wood. It is naturally very durable and won't rot in the ground. It is a sustainable U.S. alternative to tropical hardwoods whose harvest often contributes to the decline of South American rainforests. *TEKS Social Studies: §113.15 (b)(9)(C). Geography (Impact of man on the environment)– This bridge was made from a forest certified by the US Forest Stewardship Council. They ensure that wood from their forests is harvested in a responsible manner.*	**Let's talk about it:** Why do you think Black Locust wood would also be better to use rather than chemically treated wood? *Guidance: Black Locust uses no chemicals that would leach into the soil. These chemicals are what gives outdoor wood a greenish color.*
 *Stop #9: You'll see bluebonnets, along with several other prairie flowers. Stop on the grassy path crossing the meadow for #10.*	**9. Texas Bluebonnet**—The Texas state flower! In the spring, the wildflower meadow is covered with bluebonnets. After they're done blooming, the field is mowed to encourage new growth for the next year. In early winter, look for their new, green, growth in the wildflower meadow. You may also see Pink Evening Primrose, Indian Painbrush and Engelmann's Daisy. *TEKS Science: §112.15 (b)(9)(A).Organisms and the environment (Producers, consumers, and decomposers)— The bluebonnet is a producer in that it uses photosynthesis to make food from air, water, and light.*	**Let's talk about it:** Have you ever read "Little House on the Prairie" by Laura Ingalls Wilder? What other books have you read that are set in the prairie? *Guidance: The Legend of the Indian Paintbrush, The Legend of the Bluebonnet, Sarah, Plain and Tall, The Prairie Thief, The Prairie that Nature Built.*

 *Stop #10: Some days are quieter than others, as the trees grow it will get quieter. Continue walking, turn left onto the bridge and stop at...*	**10. The City**—Notice how, even though the park is right next to busy North Central Expressway, the traffic sounds aren't as loud as usual? The noise is buffered to allow you to hear the birds and the wind through the trees and grasses. *TEKS Social Studies: §113.15 (b)(9)(C). Geography (Impact of man on the environment)– Both Native Americans and settlers learned about the value of the natural resources of Texas. Even though most of us live in cities, we still have to learn about how to take car of our natural resources like air, water, and soil.*	**Let's talk about it:** What do you think is helping to absorb the traffic sounds? *Guidance: The trees, rocks, and mounds of earth are all sound absorbers.*
 *Bonus Stop: From the bridge, look south at the circular, green or brown area (depending on rainfall) and the plants around it. Is it filled with water today?*	**BONUS! Wet Prairie**—Water from all over the property eventually ends up here, where it slowly infiltrates into the cistern (an underground storage tank that can hold 250,000 gallons of water). We reuse 90% of our stormwater run-off. The grasses and sedges here adapt to both saturated and extremely dry conditions. When it has water below, it will be green. If dry, it will be brown. Wet prairie plants include Little Bluestem, Bushy Bluestem, Inland Sea Oats, and Cherokee Sedge. ***NOTE: You'll walk by the Forebay and Amphitheater on the way out of the park. See info about them below*** *TEKS Science: §112.15 (b)(7)(A).Earth and space (Properties of soil) — Different plants live in dry and wet soils. Plants that live in wetter soils have adaptations so their roots don't drown or rot.*	**Let's talk about it:** Where do you think the rainwater run-off from the building and parking lots would go if we didn't have a wet prairie and cistern to keep it on our grounds? *Guidance: The water would run through the city storm-water drains and away from our land where it is reused.*

Did you love your experience at the Native Texas Park? We encourage you to write a "Thank-you" letter to President and Mrs. Bush about your experience. Please send all correspondence to:

President and Mrs. Bush

P.O. Box 259000

Dallas, TX 75225-9000

OTHER SITES YOU WILL SEE IN THE PARK :

*As you continue following the granite path toward the building, you'll pass some things the students may ask about: (1) The **FOREBAY** (rocky area to the right, beneath a bridge) is another component to our hydrology system. Water from the service areas and building flows here through underground pipes (remember—bioswales are above ground). Sediment and litter are filtered out by the grasses and soil before it heads into the bioswale and on to the cistern. The best time to appreciate the hydrology system here is after a rain (2) At the end of the path, on the right, is the **AMPHITHEATER**. You may want to rest here for a while, if you have time, before heading to the museum or back to school. (3) Also, our **GRANITE PATHWAYS** are porous and allow the water to be absorbed into the ground.*

OTHER TEKS APPLICABLE TO YOUR PARK VISIT TODAY:

Physical Education: §116.6 (b)(3)(F). Students take advantage of an opportunity for physical activity out in the community.
English Language Art and Reading: §110.15 (b)(18)(B). Students will translate their experience to the form of a Thank-you note.

******** SPECIAL NOTICE ********

Please have the students check their shoes for gravel or debris before entering the museum.

Your consideration is appreciated!