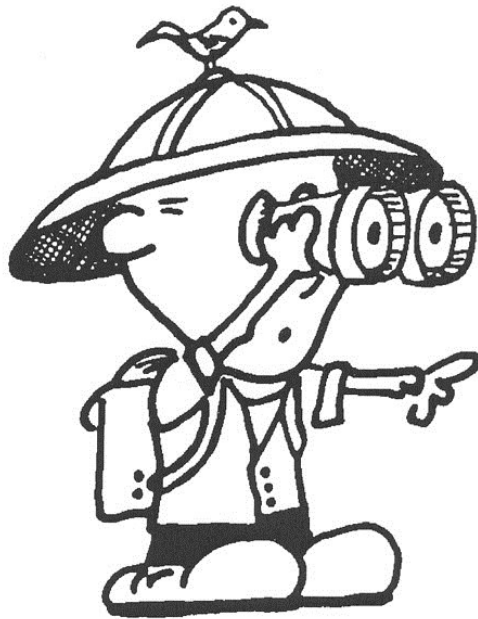


*Wilbur D. May Arboretum & Botanical Garden*

# **WILBUR'S EXPLORER GUIDE**



## **ACTIVITIES FOR KINDERGARTEN**

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## *A Note from a Horticulturist*

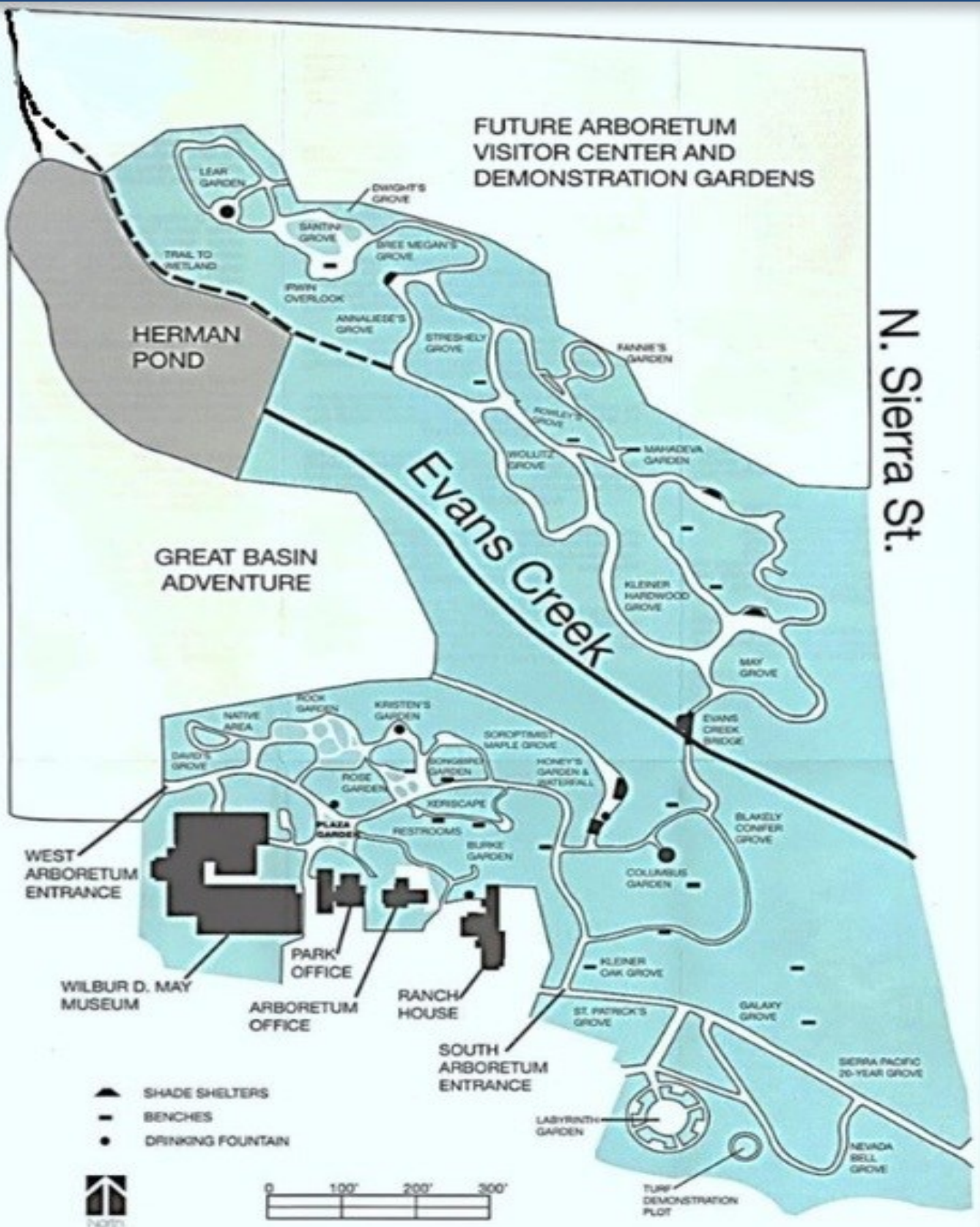
*“The May Arboretum like many public gardens are an expression of the local cultural heritage and social norm. The May Arboretum is multifaceted and serves our community of all ages throughout the season. It is an outdoor environment to teach children and adults about our natural world. It is also a place for solace, reflection and peace. It provides the beleaguered urbanite an environment to surrender their busy schedule under an oak or willow tree in the wetlands or any garden or grove. Walking through the gardens rejuvenates the soul and offers a time and place to have a transcendent moment, unlike a busy parks or trails. The May Arboretum provides all of this and many more intangibles, and what is so unique about it, it is easily accessible.”*

*Working here at the Arboretum is a gift and an honor because not every town has one. It is a pleasure working here because the gardens and groves were built with donated funds and by passionate people. I enjoy coming to work to experience and feel the dynamics of the seasons. I appreciate the diversity of my horticulture vocation; from the scientific aspect of keeping accurate botanical plants records and maps, learning about new plant varieties and botanical knowledge, managing a greenhouse, writing horticulture articles, planting and designing new gardens, educating and teaching the public, meeting with donors and most of all provide direction to this distinctive facility. I enjoy working with volunteers and the flexibility to escape into gardens for a walk or work with staff. It is the most rewarding job I have had in my 33 year horticulture career. But what is most gratifying are the frequent public comments I receive, e.g., “this is such a beautiful place, what a treasure and jewel it is”.*

*-Bill Carlos, Horticulturist*

*Wilbur D. May Arboretum & Botanical Garden*

*2017*



# WILBUR D. MAY ARBORETUM & BOTANICAL GARDEN

# Who was Wilbur D. May?

Wilbur D. May was an explorer! He loved to travel to new places and learn about the plants, animals, and people. Wilbur visited far off regions like Africa, South America, and Asia. He often met with the local people and traded for artifacts.



Wilbur made over 40 trips around the world! He learned how to fly, became an artist, and even wrote a song about pizza! In 1936, Wilbur moved to Reno, Nevada where he bread horses and cattle. Wilbur loved education and sharing with the community. Toward the end of his life, his family worked to create a museum to display Wilbur's findings. They began working with Ed Kleiner to create an Arboretum & Botanical Garden too. In 1986 the Wilbur D. May Arboretum & Botanical Garden opened to the public.



Wilbur D. May  
— A R B O R E T U M —

# What is an Arboretum?

Like many people you may be wondering, what is an Arboretum? Similar to a Botanical Garden, an Arboretum is a collection of plants.

However, Arboretums are different because the collection is trees.



Think of an Arboretum as a tree zoo!



Arboretums are created for scientific research, education, and a place to explore.

## Who takes care of the Wilbur D. May Arboretum?

The Wilbur D. May Arboretum is cared for by dedicated volunteers, maintenance workers, and horticulturists. A horticulturist is someone who takes care of plants and makes sure they grow. This team works very hard together to make sure the trees and plants are doing their best!

## Time to put on your backpack!

Now that you know about Wilbur D. May and what an Arboretum is, grab your backpack and explore! The rest of this guide includes activities for grades kindergarten through fifth. Find your grade, challenge yourself, and discover the adventure that is awaiting you at the Wilbur D. May Arboretum and Botanical Garden!



## Suggestions for Families

There are lots of different options in the backpack for exploration.

- You can create your own Arboretum adventure by using the bird guide, tree guide, magnifying glass, and tape measure while exploring the gardens.
- Use the tape measure to measure tree trunks, and compare to your height!
- Follow the activities in this guide that are appropriate for your child's age.
- Reading the Introduction to each activity will give background information and set you and your explorer up for success!
- All the activities can be modified to be more difficult or less difficult.
- Take your time when walking through the Arboretum and keep low voices to increase your chances of seeing wildlife.
- If you have different aged children, suggest the older children help the younger ones with their activities.
- Ask open ended questions such as:

What do you see?

What do you feel?

What does it remind you of?

What do you wonder?

## Suggestions for Teachers

Wilbur's Explorer Pack is an opportunity to immerse students in the outdoor Classroom under your direction. Each pack has the supplies needed for an enriching field trip such as a bird guide, tree guide, measuring tape, magnifying glass, along with the curriculum in this guide. All of the following activities have been designed around Next Generation Science Standards . The standards corresponding to each activity can be found on page 16. However, you don't have to follow this guide.

When deciding on outdoor classroom activities, be inspired. Give guidelines, and follow the curiosity and wonder of students. Asking lots of open ended questions can encourage discussion and exploration. With diverse gardens, ecosystems, and accessibility, the Wilbur D. May Arboretum is a beacon for education of all ages.



# **KINDERGARTEN**

**-LEARN FROM LEAVES**

**-ARBORETUM  
DETECTIVE**

**- PLANT HOMES**



## Learn From Leaves

**Suggested Gardens:** Native Plant Garden, Rock Garden, Burke Garden, and Plaza Garden .

**Vocabulary:** Arboretum, pattern.

**Introduction:** In the Arboretum, leaves are all around us. In the summer, leaves on trees provide us with cooling shade. In the fall, leaves change from green to red, orange, and brown, providing us with a rainbow of different colors. In the grocery store, we find leaves we like to eat, like lettuce, spinach, and kale. What is your favorite leaf to eat?

Leaves come in a variety of shapes, sizes, and colors, and each of these characteristics helps plants survive. Without leaves, plants would not be able to capture sunlight to create food of their own. Plants may look and behave very differently from you, but both plants and people need food to survive. People and plants satisfy their need for food in different ways; people eat food, including plants and animals, while plants absorb sunlight.

There are thousands of different types of leaves in the world, but if you look closely there are patterns to be found. One pattern is the difference in leaf size between shade plants and sun plants. Plants lose water through their leaves, so leaves come in different sizes to keep some of that water. Plants found in full sunlight and have less water, like the plants that live around us have small leaves. Their smaller leaves lose less water, but are able to catch enough sunlight to make food. Leaves on plants found in full shade where there is more water will have large leaves; these plants are trying to catch as much light as possible to make food, and are not worried about losing too much water.

## Learn From Leaves

### Activity: Leaf Rubbing

1. Find a small leaf.
2. Place it on the clip board under a sheet of paper.
3. Using the side of your pencil, color over the leaf.
4. Draw a sun if your leaf was in the sun, or a cloud if your leaf was in the shade.
5. Find a large leaf (Repeat steps 2-4).

### Thinking Questions:

1. Where did you find the small leaf?
2. Where did you find the big leaf?
3. What is different about the plants, what is similar about the plants?
4. What did the leaves feel like?
5. What do humans need to survive? (food & water)
6. What do plants need to survive? (sunlight & water)
7. How does the amount of sunshine affect the size of a leaf?

**Conclusion:** Now that you have discovered the patterns of small leaves in the sun and large leaves in the shade, see how many you can find at home! Find a plant in the shade and a plant in the sun at your house, and compare the leaves. See if you can find this pattern in places other than the Arboretum!

## **Arboretum Detective**

**Suggested Gardens:** Kleiner Grove, David's Grove, Honey's Garden

**Vocabulary:** Arboretum, environment

**Introduction:** Plants and animals - including humans - are constantly changing their environments to fit their needs. If plants need more stability, they can send out more roots which can crack sidewalks or streets. Animals like beavers will cut down trees to dam creeks and rivers to make a home. People are animals, and we have changed the world to fit our needs. People have built roads across the world to connect to others. People have built homes, reducing forests and wetlands, to have warm places to eat and sleep. People also help their environment by planting native plants or picking up trash.

At the Arboretum, some of the wildlife and plants have made changes to the Arboretum to make it a more comfortable home for themselves. However, these changes have been both good and bad. Make observations to see just how the Arboretum is being impacted by others.

**Activity: Find evidence of a squirrel, tree, and human!**

1. Turn to the Arboretum Detective chart (next page).
2. Explore Kleiner's Grove.
3. Circle the animal, plant, and human changes you see in the garden on your sheet with a dry erase marker.

### **Thinking Questions**

1. Look for holes in the ground, who do you think made these holes? Why?
2. What happened to all the acorns from the oak tree?
3. Take a deep breath, who gives us clean air?
4. How many times did we stand in the shade?
5. Is it easier to walk on dirt or concrete?

## Arboretum Detective

### Arboretum Detective Chart

Look around the Arboretum and find out what squirrels, trees, and people are doing!  
Circle what you see below.

#### Ground Squirrels



Making holes



Eating plants



Moving seeds

#### Trees



Making shade



Cleaning the air



Growing roots

#### People



Making roads  
and buildings



Walking off trail



Tending and enjoying  
the gardens

Exercise 2.0

**Conclusion:** All of this detective work has shown us many changes plants and animals make to their environment that we don't notice when we go on hikes or walk through our neighborhoods. Next time you are going on a walk, see if you notice any changes plants or animals have made. You can also observe how you make changes to your environment.

## Plant Homes

**Suggested Gardens:** Evan's Creek, Kleiner Grove

**Vocabulary:** arboretum, desert, habitat, observation

**Introduction:** Have you ever been outside and looked at a plant and thought, *why did this grow here?* Have you ever wondered why people built the city of Reno in a desert? Plants, animals, and people have the ability to live anywhere as long as their needs are met. Think about your home, a place that fits the needs of your whole family. However, the reason plants and animals are not found everywhere is because all living things have different needs. You and your family don't just live anywhere, you live somewhere that is important to you. Maybe you live near other family members, or close to a parent's job. Maybe the people you live with just like Reno.

Today, you will observe two plants found in completely different habitats; cattails and oak trees. The cattail plant is a water loving plant, and needs a lot of water to survive. Where do you think you would find cattails? An oak tree needs plenty of space for its roots to grow and sun for its leaves to absorb. Where could you find an oak tree?

### **Activity: Plant homes: Creek & Oak Woodland**

1. Turn to the sheet titled "Plant Homes"
3. Explore Evan's Creek for creek habitat and Kleiner Grove for oak woodland habitat
4. Record your observations



### **Thinking Questions:**

1. What kinds of animals live here?
2. Why do you think they choose to live here?
3. What kinds of plants live here?
4. How do the plants survive?
5. How is the wildlife similar/different from the creek to the oak woodland?

## Plant homes

Your house has all the things you need and like. It is unique to you and your family. This is the same for plants and where they live.

Look at the homes of cattails and oak trees.  
What do you see?

<u>Cattail</u>	<u>Oak Tree</u>
 <p data-bbox="228 808 454 850">Wet or Dry?</p>	 <p data-bbox="841 808 1066 850">Wet or Dry?</p>
<p data-bbox="228 1050 451 1092">Hot or Cold?</p>	<p data-bbox="854 1050 1076 1092">Hot or Cold?</p>
<p data-bbox="228 1312 557 1354">How does it smell?</p>	<p data-bbox="854 1312 1182 1354">How does it smell?</p>

**Conclusion:** Take thinking further by asking, how people adapt to living in different environments? How do people adapt to living on water versus land? How do people adapt to areas that receive snow versus areas that are sunny year-round?

## Next Generation Science Standards

### Kindergarten

K-LS1-1	Use observations to describe patterns of what plants and animals (including humans) need to survive.
K-ESS2-2	Construct an argument supported by evidence for how plants and animals (including humans) can
K-ESS3-1	Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live.

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