

FORT WORTH BOTANIC GARDEN

WALK ABOUT - TALK ABOUT

Guide to the Gardens
2011-2012

Fort Worth Botanic Garden
3220 Botanic Garden Blvd.
Fort Worth, TX - 76107
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Welcome to the Fort Worth Botanic Garden!

This guide provides information to improve your experience.

This Garden is for you! You are welcome any time, but we can assist you better if we know you are coming. To learn more about our programs, please call, email, or visit our website, www.fwbg.org.

Thank you for choosing the Fort Worth Botanic Garden! We want your visit to be educational and enjoyable.

Sincerely,
The Education Team
Email us at bgedu@fortworthgov.org

TEKS	K	1st	2nd	3rd	4th	5th
Science						
1	A, B	A, B	A, B	A, B	A, B	A - D
2	A - E	A, C, E				
3	A - C	A				
4	A, B					
5	A, B	A	A	A, B	A, B	A, B
6	A, B, D	A, B	A, C	B	A, C	A - C
7	A, D		A, D	B		
8	A, B	A, B	A, B	A - D	A - C	
9	A - C	A, B	A, B	A, B		A, B
10	A, B	A, C	A, B		A	A
11				A	A - C	A - C
12						A, B

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Our Mission:
“Enriching People’s Lives through Environmental Stewardship and Education”



What's Inside



Tips for Visiting School Groups..... pg. 3
 Map of the Garden..... pg. 3
 Water Conservation Garden..... pg. 4
 The Water Cycle..... pg. 4
 Compost Outpost Quiz..... pg. 5
 Compost Outpost..... pg. 6
 Texas Native Forest Boardwalk..... pg. 7
 What Animals Live Here? pg. 7
 Make Your Own Tracks..... pg. 8
 Exercise Your Imagination..... pg. 8
 Oval Rose Garden/Colonnade.....pg. 9
 Reflection Pond..... pg. 10
 Clouds in the Sky..... pg. 10
 Reflection Pond Study Guide/Map..... pg. 11
 Rock Springs Nature Trail..... pg. 12

The Hollow Pecan Tree..... pg. 13
 Wildlife Watch..... pg. 14
 Children's Vegetable Garden/Fruit Orchard... pg. 15
 What Am I? pg. 15
 Know Your Fruits/Vegetables Crossword... pg. 16
 Trial Garden..... pg. 17
 Bee a Pollinator..... pg. 17
 The Grove..... pg. 18
 Leaf Arrangements..... pg. 18
 Cactus Garden..... pg. 19
 A Prickly Quiz..... pg. 19
 Perennial Garden..... pg. 20
 Plant Parts..... pg. 20
 Monarch Butterflies..... pg. 21



MEASURE IT

The height of a flower



A caterpillar



A petal

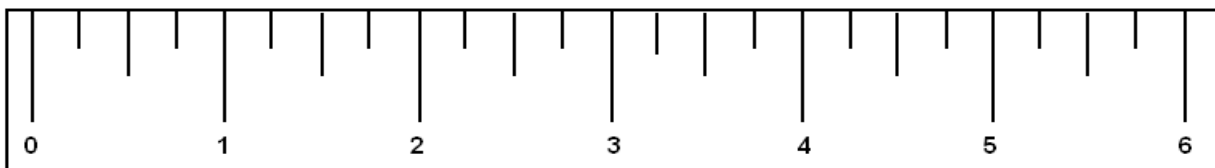


An animal track



A tree trunk

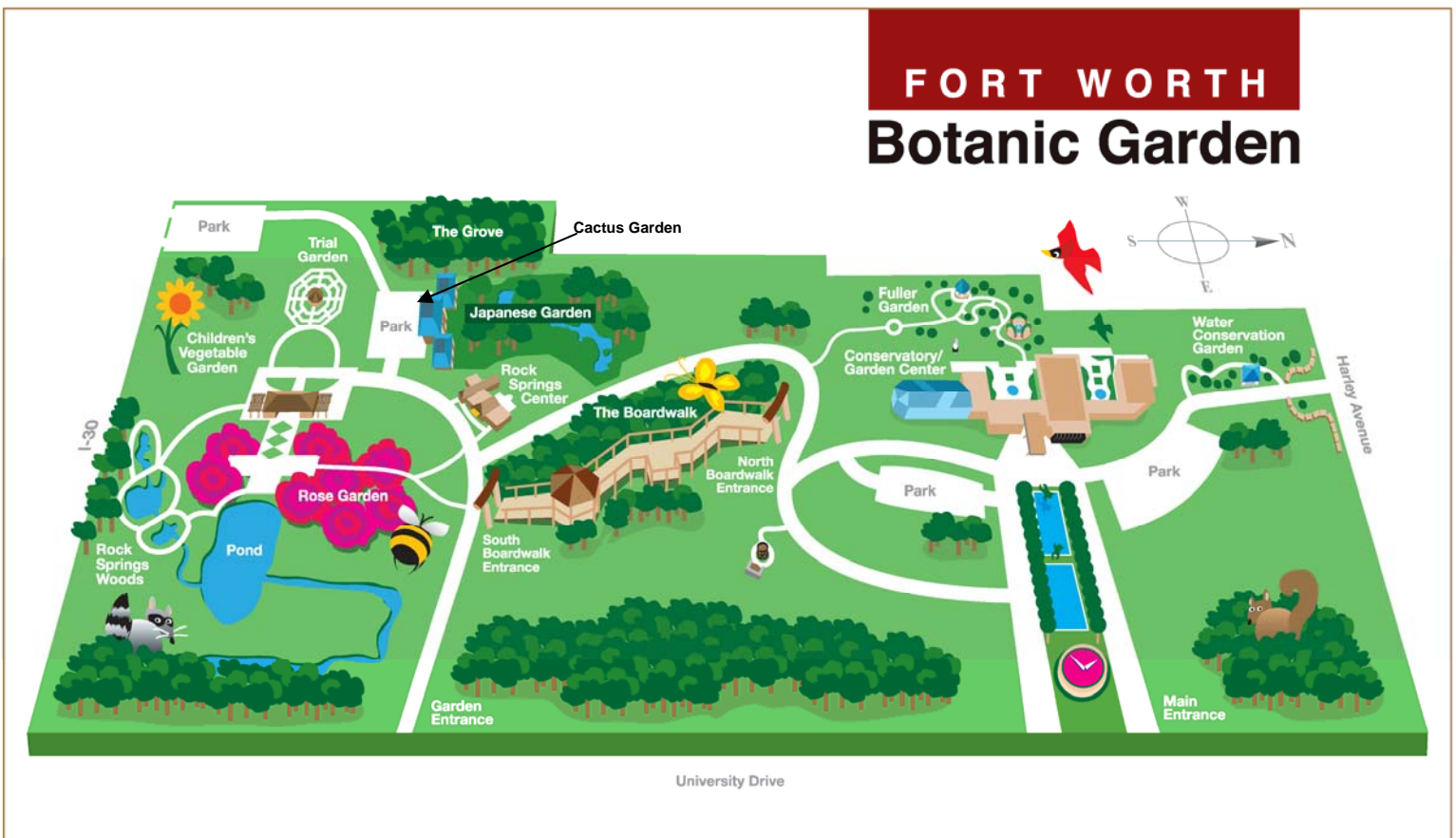
Here is a handy ruler for you.



Tips for Visiting School Groups



We hope you enjoy your visit.
For your safety and the safety of other visitors, please follow these simple rules.



Water Conservation Garden



Shrink and Swell - Desert plants have adaptations for water storage, such as pleats or folds. These surfaces can expand if the plant soaks up a lot of water. Then as drought sets in, they will shrink, and the plant uses the water it has stored.

Little leaves - Desert plants may have small leaves, or no leaves at all. The leaves may be modified into thorns. The smaller or fewer leaves a plant has, the less water is lost during transpiration, because there is less surface area exposed to the sun and wind. Green twigs and stems help to carry out photosynthesis.

Native and adapted plants use little water and are wildlife friendly!
These are some of the ways plants can conserve water. Circle the ones you see.

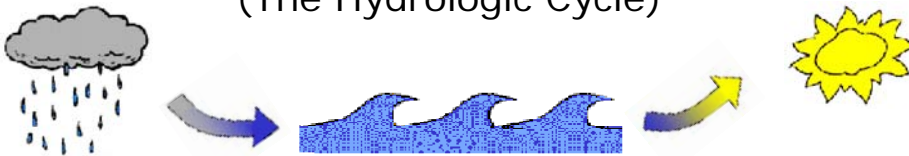
Hide and rest - During the hot part of the day, desert grasses and other plants "roll up" their leaves (hide and rest) to reduce the amount of surface area exposed to sun and wind. Some plants position themselves to expose less to the hot, sunny elements.

Spines - The hairs and spines on plants reduce moisture loss by buffering the wind. They cast tiny shadows on plants. The hairs and spines reflect the sun's rays away from plants.

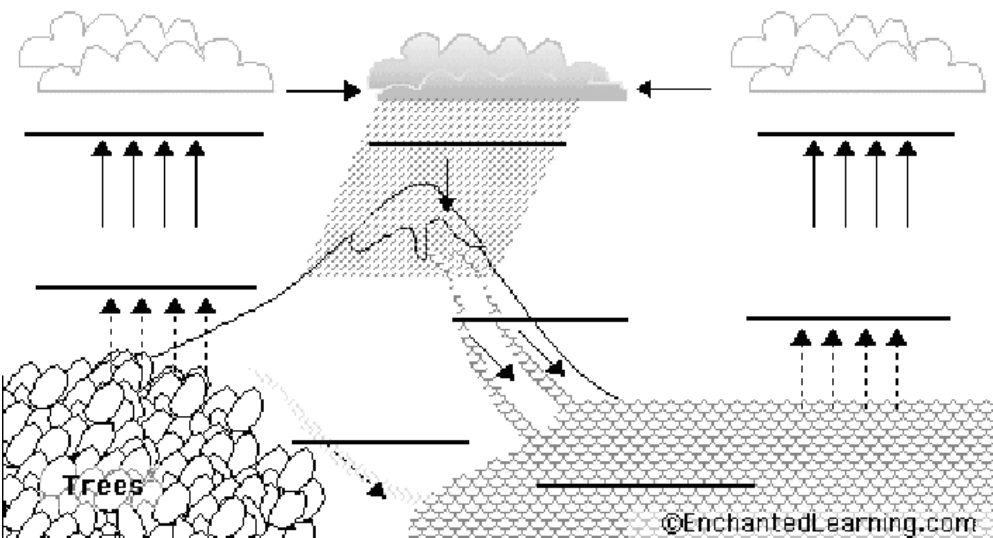
Waxy cover - Plants lose H₂O through their pores. They also lose water through the cell walls on their leaves. The leaves and stems of many desert plants have a thick waxy covering protecting the water inside, while allowing pores to open and absorb CO₂.



The Water Cycle (The Hydrologic Cycle)



Fill in the blanks



Accumulation

The process in which water pools in lakes and oceans.

Condensation

The process in which water vapor (a gas) in the air turns into liquid water.

Evaporation

The process in which liquid water from the earth's surface becomes water vapor.

Precipitation

The process in which water (as rain, snow, or hail) falls from clouds in the sky.

Subsurface Runoff

Water that flows in underground streams, drains, or sewers.

Surface Runoff

Water that flows in surface streams, rivers, or canals.

Transpiration

The process in which water within plants evaporates into the atmosphere.

Compost Outpost



The Compost Outpost is a place where people of all ages can learn about the importance of soil. Discover why compost is not a dirty word!

Healthy soil supports life on Earth. Soil contains the nutrients plants need to grow. Healthy soil has air space. Plants help soil to stay where it is. That's why scientists are concerned about soil erosion and the loss of nutrients caused by plowing, clear-cutting of forests, and urban development.

Dig into this quiz to learn more about the importance of composting.

1. Where does soil come from?

- a) The auto mechanic
- b) A dog that needs a bath
- c) Decomposed organic matter (plants, animals and other formerly living things) and weathered rock.

ANSWER: c – Soil forms over time through the breakdown of rocks, leaves and other organic matter.

2. How many living things inhabit a teaspoon of soil?

- a) About 7 or 8
- b) More than 6 billion
- c) Almost 6,000

ANSWER: b – One teaspoon of soil can contain 6 billion microorganisms. That's the number of people on Earth!

3. Which of the following is true about soil?

- a) It's extremely important for food production.
- b) It has an argumentative attitude and spits dirt when it talks.
- c) It's as deep as the Earth is thick.

ANSWER: a – Healthy soil is essential for growing most of the food we eat – from corn to broccoli to strawberries.

4. Which are soil problems that are happening all over the world?

- a) Mudslides
- b) Dust storms
- c) Loss of growing potential of agricultural lands
- d) All of the above

ANSWER: d – When land loses topsoil, land loses its fertility. Water, wind, and people move soil. Changing land (such as clearing forested hillsides) causes actions such as mudslides and dust storms.

5. How long does it take for an inch of topsoil to be created?

- a) Five hundred years
- b) Ten years
- c) One year


ANSWER: a – That's why it's important to protect our soils! Just think – 1 inch of topsoil has formed since Columbus!

6. Which of the following activities help stabilize soils?

- a) Using more pesticides to kill bugs
- b) Planting trees and ground cover on yards, vacant lots, hillsides, and streamside areas.

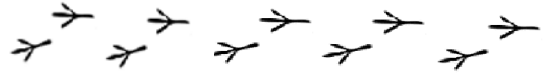
ANSWER: b – Plant roots do a terrific job of keeping soils in their place.



<p>COMPOST OUTPOST</p>	<p>Tad O'Sense </p>	<p>Ima Gardener </p>	<p>Professor B. A. Composter </p>
<p>What is compost?</p>	<p>"Compost is all the stuff for the garden that I didn't bag up and drag to the curb last summer."</p>	<p>"Plants from last year's garden break down to re-supply this year's garden with the elements plants need to thrive."</p>	<p>"Compost is an organic product resulting from controlled biological decomposition of organic matter."</p>
<p>Where does compost come from?</p>	<p>"The compost bin behind the garage, of course."</p>	<p>"My compost tumbler! I throw all my garden waste—leaves, twigs, clippings, etc., into the tumbler, instead of the trash!"</p>	<p>"Strictly speaking, anything organic—anything that was once alive can become compost, but horticulturists prefer compost derived exclusively from the kingdom Plantae."</p>
<p>How is compost made?</p>	<p>"I just put leaves and grass clippings into the compost bin and...shazam! we get finished compost a few months later."</p>	<p>"Easy ! I just chop up all my shrub and tree trimmings and put them in my compost tumblers. The compost cooks all by itself."</p>	<p>"Compost is produced by the biological activity of aerobic microorganisms that utilize oxygen, moisture, and saprophytic nutrition in fecundaceous regeneration, resulting in the decomposition of organic matter. "</p>
<p>Who needs compost?</p>	<p>"Composting saves me work, and it's pretty cool that I am doing my part to help preserve the world's resources - you know, water, soil, landfill space, stuff like that."</p>	<p>"Everybody! We all need compost to help our gardens grow. Compost helps us maintain a healthy balance of biotic and abiotic factors. It helps soil breathe—that's important because plant roots need air!"</p>	<p>"Enlightened persons know every living thing relies upon decomposition. If dead things did not decay, we would be shoveling our way through a giant pile of everything that ever lived - from amoebas and giant trees to <i>Tyrannosaurus</i> and woolly mammoths!"</p>
<p>Why should I care about compost?</p>	<p>"The compost bin speeds yard work, and spreading compost on the flowerbeds decreases weeds, so I can chill out instead of pulling weeds all day."</p>	<p>"Where do I start!? First of all, compost loosens my clay soil, so water soaks in faster. My soil doesn't wash away! My compost-enriched soil is more fertile. I have fewer plant pests and diseases these days!"</p>	<p>"The cost to benefit ratio of incorporating compost into a horticultural regime is phenomenally advantageous. The horticulturist reaps the benefits of a biologically-enhanced environment with decreased exertion!"</p>

Anyway you look at it, composting is a great idea.

Native Texas Forest Boardwalk



The Texas Native Forest Boardwalk is a living outdoor classroom - an elevated boardwalk with viewing platforms and educational features connecting the north and south areas of the Botanic Garden.

East and west presents two habitats- the native plants on the east, and the invasive species on the west. The Boardwalk has three levels of interpretation: BG Squirrel for Kids, interpretive panels, and inspirational quotes.

As you begin your journey through the forest, look for animal habitats. Notice insects along the way and think about their homes. See if you can find and identify a nest in a tree. Look at the leaf litter and imagine what might live there.



As you leave the shelter house, notice the leaf and animal track impressions along the edge of the walkway.

Students may test their motor skills walking on balance beam logs, hopping across tree cookies, and crawling through a fabricated hollow tree. Visit the thirteen knowledge-based stations for interactive learning. Encourage journaling about the inspirational quote panels on the elevated platform.

What Animals Live Here?

Look carefully at the following tracks and write what kind of animal you think made them.



Front Foot



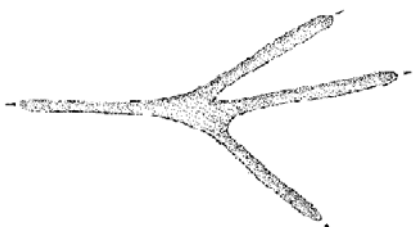
Hind Foot



Front Foot



Hind Foot



Draw your own animal track. Give it a name!

Make Your Own Tracks!

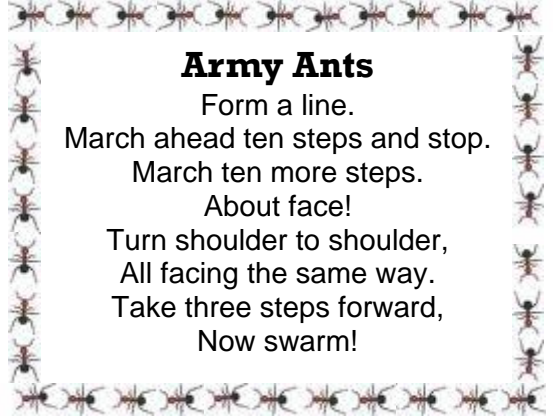
Walk like a...

- Raccoon** (feet flat on the ground)
- Coyote** (on tip toes)
- Tortoise** (shuffle feet slowly)
- Deer** (on toenails- can you do it?)
- Squirrel** (run, stop, run)



Army Ants

Form a line.
March ahead ten steps and stop.
March ten more steps.
About face!
Turn shoulder to shoulder,
All facing the same way.
Take three steps forward,
Now swarm!



Fly like a...

- Bee** (make big circles)
- Dragonfly** (flap alternate arms)
- Butterfly** (flap and glide)
- Fly** (arms in figure 8)
- Bat** (move wrist and wiggle fingers)
- Bird** (hands to shoulders, arms out, arms back, hands to shoulder)

Exercise Your Imagination

The lawn and trees between the Texas Native Forest Boardwalk and Rose Garden offer many wonderful areas for small groups. A chaperone and group of children can find a shady spot, let creative energies flow, and share what they're learning, too!

How would different animals say hello to a tree?

Move slow, move fast.

Be a leaf falling in slow-motion.

Move rhythmically.



Show how you would you fly.

Move "in a mirror."

Enact a story in turn

Pretend to be squirrels getting ready for winter.

Oval Rose Garden/Colonnade



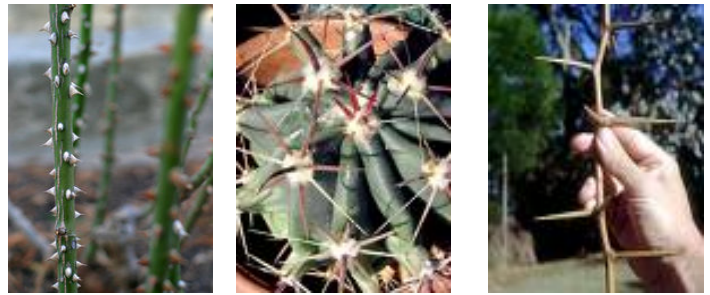
When you hear “rose” do you think of thorns? Most people do, but thorns are modified stems that are round and pointy on the end. Mesquite trees and lime trees are examples of plants with thorns.

Roses have prickles. Prickles are sharp outgrowths from the epidermis (skin) of a plant.

Another type of pokey plant parts are spines. Like thorns, spines are round and pointy on the end, but spines come from leaves, not stems. The prickly pear cactus is covered with spines!

Can you think of reasons why plants would need these pokey appendages?

Can you label which plant has thorns, prickles, or spines?



Sam Houston was twice elected president of the Republic of Texas.



This is a Texas Pioneer Rose, cultivar Sam Houston.

The **Republic of Texas Rose Garden** features roses that grew when Texas was a republic (1836-1845).

This area not only gives us a sense of the history, but also allows us to reminisce about the old garden roses our grandmothers had. These roses are tough and most are fragrant, unlike modern hybrids.

Point out the rough-hewn arbors which are reminiscent of pioneer days. These are held together with bolts.

What would early settlers have used? Rawhide or rope.

Reflection Pond

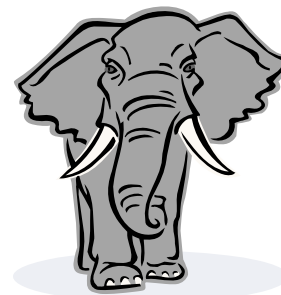


Ever wonder what the difference between a pond and a lake is? In lakes there are areas too deep for light to penetrate. Ponds are shallow enough that light can reach the bottom, allowing plants to grow.

Ponds are diverse. Not only do ponds provide a watering place for animals, but also they are also the breeding grounds for thousands of insects, aquatic invertebrates, and amphibians.

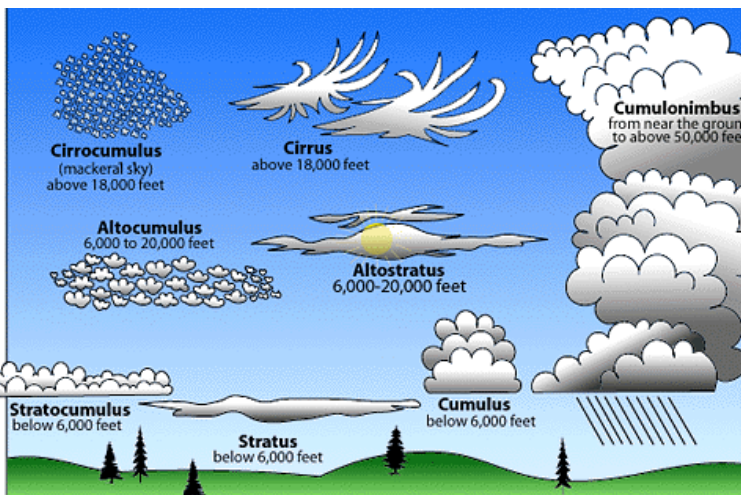
FUN FACT

The pond leaked, so Queen Tut, our zoo's famous elephant, walked up University to wallow and seal the pond.



Is It Clear Or Cloudy?

Look into the reflection pond to determine the direction the clouds are moving.



Create A Cloud Cover Team

Stand back to back with someone, and look up.
How much of your half of the sky is cloudy?
What percent cloud cover does your team estimate?
Do other teams agree in their estimates?



What kind of clouds do you see?
What else do you see in the sky?

Use your imagination!

Look at a cloud and imagine what kind of animal or thing it looks like.

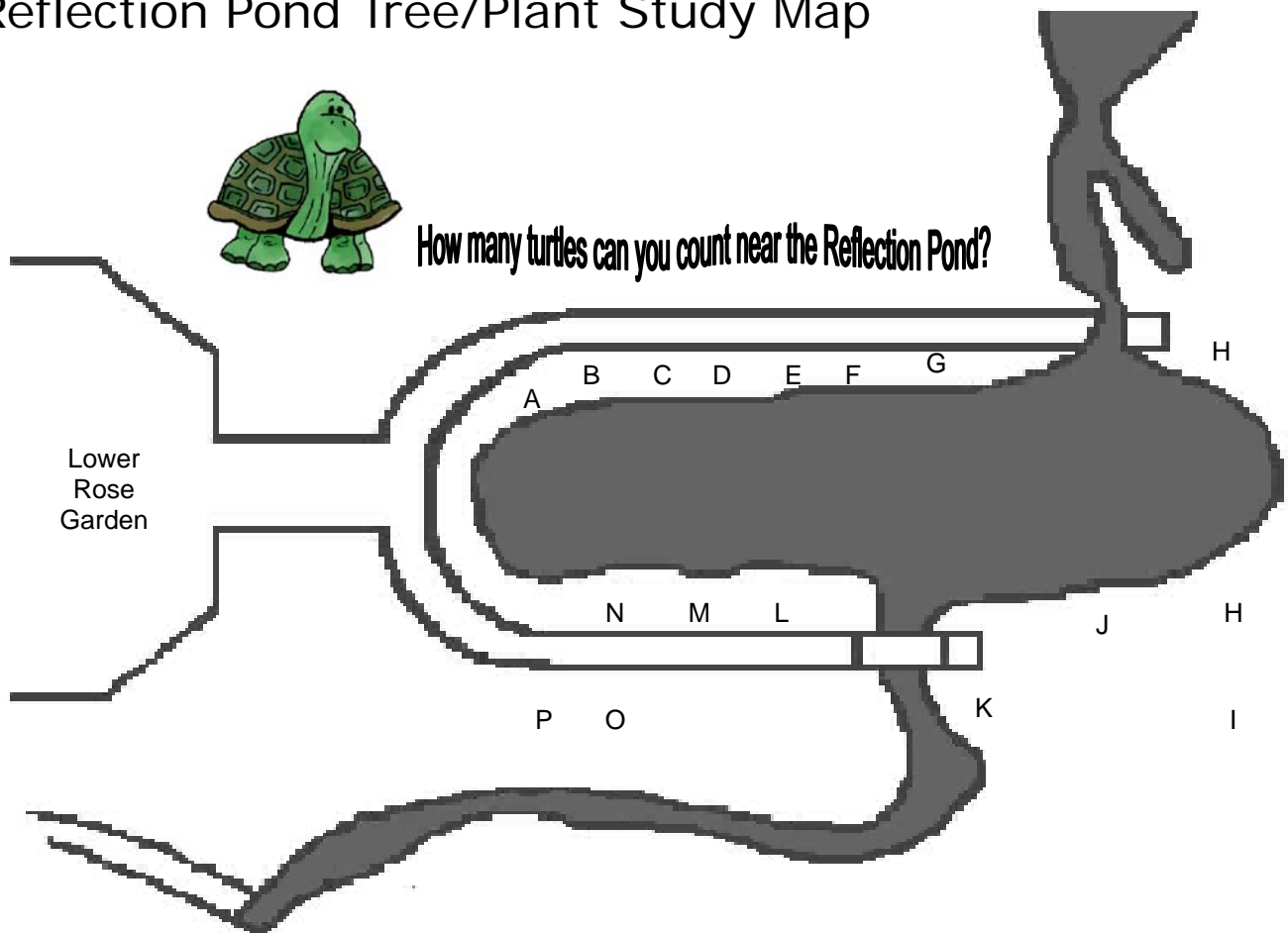
Watch long enough and you will see that clouds are actually in slow-motion - they morph as they move.



Reflection Pond Tree/Plant Study Guide

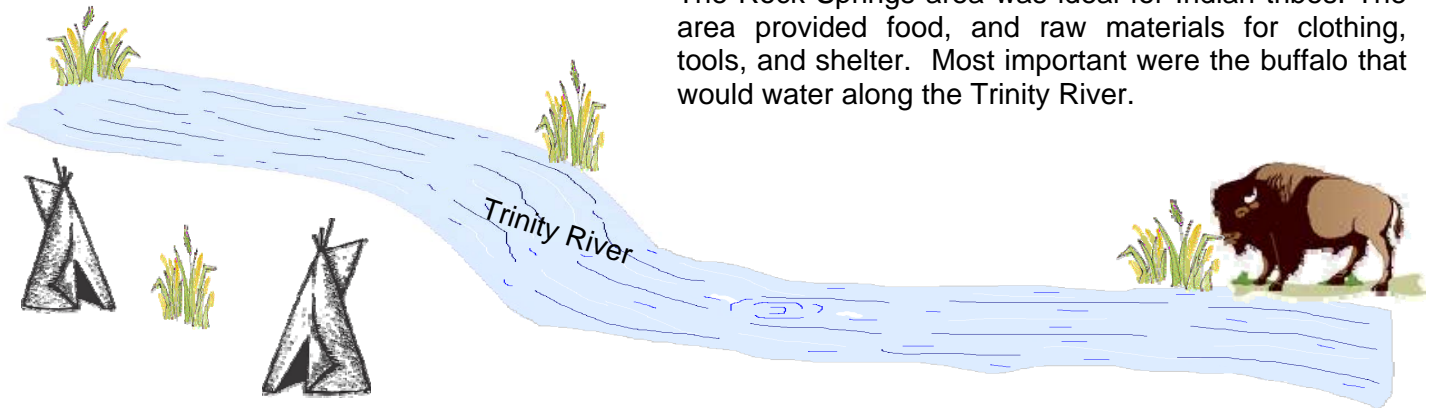
A	Lindheimer's Muhly	Large, bushy, native prairie grass produces long fuzzy flower spikes atop 6-foot stems.
B	Pond Cypress	Skinny trees with reddish, shredding bark and thread-like leaves.
C	Swamp Rose	Lovely red rose native to swamps in the southeastern United States.
D	Buttonbush	Small tree/large shrub that produces round, inch-wide flower balls that attract butterflies.
E	Weeping Willow	Round-crowned tree with long, thin, draping (weeping) branches. Favorite of beavers!
F	Bur Oak	Furrow-barked tree with golf ball - size acorns.
G	Chitalpa	Hybrid tree with long, thin leaves and large pink flowers, rather skinny.
H	Bald Cypress	A lot like pond cypress, but wider at the bottom. Produces non-breathing "knees". Leaves are feather-like.
I	Green Ash	Native tree's trunk texture looks as if it has been hit with a bat. Produces "helicopter" seeds.
J	Weeping Bald Cypress	Rare, weeping form of Bald Cypress.
K	Winter Honeysuckle	Large deciduous shrub from China that has small, fragrant blossoms January-March.
L	Pecan	State tree of Texas with a tasty nut many animals eat.
M	Gregg's Mist Flower	This native perennial grows in the shade of a larger tree and has delicate blue flowers.
N	Tropical Giant Alligator Lily	These plants love the water and have flowers that look like long white teeth!
O	Fruitless Sweetgum	Clone of a naturally-occurring mutant found in North Carolina in the 1930s. No spiky fruits and the leaves have rounded, not pointy, lobes.
P	Sweetgum	Native Texas wet soil-loving tree with star-shaped leaves and spiky, golf ball-sized fruits

Reflection Pond Tree/Plant Study Map



Rock Springs Nature Trails

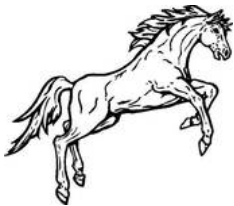
The Rock Springs area was ideal for Indian tribes. The area provided food, and raw materials for clothing, tools, and shelter. Most important were the buffalo that would water along the Trinity River.



EARLY SETTLEMENT



Can you identify these Fort Worth icons?



Cheap land, plenty of timber, and an abundance of water made the area a promising place for families of settlers to start a new life. Soon the settlers began to build small communities with churches and schools like the ones they left behind. While some were farmers and grew crops, others went into business and built syrup and grist mills, opened a trading post as well as other businesses. Together they provided all the necessary services such as horses, mules, beef for meat, and vegetables.

In the 1860's Fort Worth went from a sleepy outpost to a bustling town when it became a stop along the legendary Chisholm Trail. Then the railway came to Fort Worth transforming the city into a premier cattle industry and started an era of astonishing growth. Now Fort Worth is home to more than 600,000 people and many businesses with plenty of skyscrapers dotting the sky. The nature trails at the Botanic Garden still give us a glimpse of what the area was like when the buffalo still roamed the river banks.



A pass-along plant is a cutting or a seed given by a friend or loved one from the pioneer's hometown as the family begins its journey west. It will be planted in the new location, where the settlers will need it.

Pass-along plants may be herbs, favorite flowers, or medicinal plants. They remind the grower of the people and places left behind.

The Hollow Pecan Tree



What happened to the middle of tree?

Just about any “hardwood” tree will start to develop a hollow trunk if the tree grows large enough. This pecan tree is more than 200 years old. That means that this tree was here before Texas won its independence from Mexico!

Only the outer sections of a tree’s trunk are alive. The tree’s core is considered dead wood. Fungus can get into the tree through holes caused by broken branches or animals. Rot removes the dead wood, but as long as the outer wood remains strong, hollow trees can live for a long time.

What else is over 200 years old?

- Banjo
- Library of Congress
- Tin can
- Light bulb
- Filtered coffee pot



Compare the leaf picture here to low hanging leaves.
Make a leaf rubbing in the space below.

Pecan: Look for the husk, which splits into 4 sections (valves). The nut is surrounded by a thick, woody outer wall (**pericarp**). A **nut** is one-seeded fruit with a pericarp. Nuts are eaten by people and animals.



Do you see other kinds of nuts on the ground?

How many nuts can you gather in 60 seconds?

Wildlife Watch

Many people think there isn't any wildlife in the city.
Take a closer look, you may be surprised by what you find.

Circle the wildlife you find on this list. Write down other wildlife you find.



Lizard



Hawk



Dragonfly



Squirrel



Frog



Bee



Ant



Snake



Duck



Butterfly



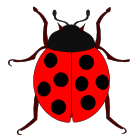
Turtle



Hummingbird



Raccoon



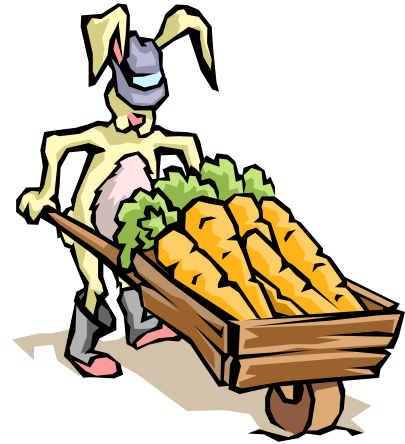
Ladybug



Rabbit

I saw these other animals: _____, _____,
_____, _____, _____,
_____, _____, _____.

Children's Vegetable Garden and Fruit Orchard



We plan to improve and expand this garden marked by a giant sunflower. The Fort Worth Botanical Society and the Tarrant County Master Gardeners are our partners in creating a place for children and adults to see and practice gardening methods, learn about nutrition and other aspects of a fun and healthy lifestyle.

You might see some great people working for a great cause!

We keep the garden secured, or some of our wildlife wouldn't leave any produce for anyone else! The fruit and vegetables harvested in the garden are donated to local charities for the homeless and disadvantaged. We also grow vegetables and flowers in the raised beds outside the Conservation Greenhouse Classroom.

Make a list of things you might see growing in a garden.

Mark them with a *V* (vegetable) or an *F* (fruit).

- | | | | |
|----------|-------|-----------|-------|
| 1. _____ | _____ | 7. _____ | _____ |
| 2. _____ | _____ | 8. _____ | _____ |
| 3. _____ | _____ | 9. _____ | _____ |
| 4. _____ | _____ | 10. _____ | _____ |
| 5. _____ | _____ | 11. _____ | _____ |
| 6. _____ | _____ | 12. _____ | _____ |

What am I?

I am a crunchy vegetable, with a lot of vitamin C and fiber. Some people think I look like a little green tree! What am I?

I come in different colors, like green and red. Before I became raisins, I was a bunch of these. What am I?

I come in long, crunchy pieces and I taste good with peanut butter. I have a lot of fiber and I am green. What am I?

I am a yellow fruit with three of the letter "A" in my name. I have a lot of potassium to help your muscles work better. I am tough on the outside and soft on the inside. What am I?

Many people think that I am a vegetable, but I am actually a fruit. People like to use me to make spaghetti sauce and pizza sauce. What am I?

I am a beautiful red color with a green top. I taste great in smoothies, on cereal, and all by myself. I am sweet and am shaped like a heart. What am I?

Broccoli, Grapes, Celery, Bananas, Strawberry, Tomato

Know Your Fruits & Veggies!



													1	
	2		3					4						
							5							
	6					7								
					8									
													9	
											10			
								11						
					12									

Down

1. This tuber has a wide variety of uses, but tries not to be the couch variety!
2. The leaves of this plant are the main ingredient of a salad.
3. The fruits grow as gourds and are popular at Halloween.
4. This melon has either a sweet red or yellow flesh.
7. This citrus fruit is great for vitamin C.
9. If you like them green or refried, they have been grown since ancient Egypt.
10. It looks like a fruit but it's really a flower, you've probably seen them as a Newton.

Across

5. There is no monkey business going on with this fruit; they are grown in 132 countries worldwide.
6. Without these fruits you couldn't have pizza sauce.
8. This orange tap root is high in vitamin A and is good for the eyes.
11. These bulbs may make you cry, but are still very good in all sorts of dishes.
12. This popular seed has all sorts of uses, ranging from food to the alternative fuel ethanol.

Trial Garden



Here hundreds of perennials are evaluated by our staff and Master Gardener volunteers. To graduate to permanent plantings in the Botanic Garden, these new plants must have improved abilities to survive in the environment. Look for the big bluebonnet that keeps watch over this “living experiment” garden!



The relationship between plants and pollinators such as bees, beetles, flies, moths, butterflies, hummingbirds, and bats is one of the most vital ecological processes on earth and has a major impact on the health of our environment. The number of native pollinators has declined due to the loss and degradation of habitats, the use of pesticides and herbicides, and invasive plant and insect species.

Gardens can provide a safe haven for pollinators - whether a large botanic garden, a small home garden, or your school garden.

Bee A Pollinator!

Divide group into bees, hummingbirds, bats, and butterflies/moths. Then have them look for their flower partners.

BUMBLE BEES

- * Are insects; they have 6 legs and 2 pairs of wings.
- * Visit flowers to obtain nectar and eat pollen. Nectar provides energy for flight and is used to make honey, and pollen provides nutrients for bee larvae.
- * Use their mop-like tongue to sop up nectar.
- * Use their jaws (mandibles) to eat pollen.
- * Collect pollen with their hairy bodies and comb it into baskets on their legs.

BLUE OR YELLOW FLOWERS

BUTTERFLIES & MOTHS

- * Are insects; they have 6 legs and 2 pairs of wings.
- * Have hundreds of overlapping scales on their wings.
- * Use a straw-like proboscis to drink nectar.
- * Are attracted to flowers by color and scent.
- * Collect pollen on their bodies.

*BUTTERFLIES: BRIGHTLY COLORED FLOWERS
MOTHS: PALE COLORS IN THE EVENING*

BATS

- * Are mammals; they are furred and feed milk to their babies.
- * Are the only mammals that truly fly.
- * Visit flowers to feed on the nectar and pollen.
- * Feed using very long, narrow tongues designed to reach deep into the flower to sip nectar.
- * Have wings that are very similar to the human hand; they even have thumbs!

LIGHT COLORED FLOWERS, BATS FLY AT NIGHT!

HUMMINGBIRDS

- * Are the smallest of all birds.
- * Can fly forwards, backwards and, upside down.
- * Have big appetites; visiting up to 1,000 flowers a day.
- * Reach into the flower with their long, narrow beaks and use their long forked tongue to lap up nectar.
- * Collect pollen on their bill and facial feathers.

RED/ORANGE TRUMPET-SHAPED FLOWERS

The Grove



Leaves are food factories!

Through the process of **photosynthesis**, leaves make the tree's food (sugar sap).

Water and minerals in the soil are carried up from the roots.

Carbon dioxide (CO₂) is collected from the air.




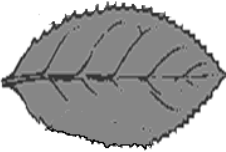





The energy of sunshine is captured.

All this happens inside the leaf with a special green chemical called **chlorophyll**.

Leaves come in a variety of shapes and sizes. Their look is an important identifier of a tree.

Draw a line from the leaf to the tree it comes from.

Can you find these leaf arrangements?

 <p>Simple</p>	 <p>Pinnately Compound</p>	 <p>Alternate Arrangement</p>
 <p>Simple leaf, toothed edge</p>	 <p>Palmately Compound</p>	 <p>Whorled</p>
 <p>Simple leaf, deeply lobed</p>	 <p>Needles</p>	 <p>Opposite Arrangement</p>

Cactus Garden



People use cacti to make a variety of things, from wood frames for homes (saguaro), to needles, to medicines, to this morning's breakfast! That's right; many people in the Southwest and Mexico regularly eat "nopales" and "tunas" (prickly pear pads and fruit).

FUN FACT

Cacti do NOT have thorns. Cacti have spines. Thorns are modified branches; spines are modified leaves!

Cacti are amazing plants! Ranging in size from about an inch to over 50 feet tall, all cacti are New World plants, developing differently from those cactus look-a-likes in Africa and Asia. While most people think of hot, dry, and thorny when you say "cactus," these plants have adapted to life in cool climates, shady areas, and even in fairly wet areas. Some cacti live their entire lives up in a tree!

Our Cactus Garden has a pathway surrounding a circular bed of assorted true cactus. Some are tall and some are small, but they are cacti, one and all! Outside, along the path, a variety of *Yucca*, *Agave*, *Hesperaloe*, and other arid-loving plants fill the beds. They provide good shelter for lizards and are home to many invertebrates.

A Prickly Quiz

What color are the spines on the Devil's Pincushion cactus?

Answer: From gray to red



How many species of cactus are native to the state of Texas?

Answer: More than 70.

What do you call the sections of a prickly pear cactus?

Answer: Pads or cladophylls.



What pollinates the flower of the saguaro, the world's largest cactus?

Answer: Bats!

What shape are the sections of the cholla cactus?

Answer: Sausage shaped.

Perennial Garden

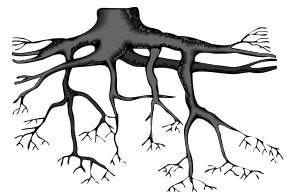


Perennials are plants that live more than three years, but when most people say “perennial,” they mean an herbaceous perennial, which die back every winter, and then grow each spring. Perennials bring wonderful colors and fragrances to the garden. Because perennials flower at different seasons, perennial gardens are always changing. That’s why they’re so interesting!

Plants grow in a variety of shapes and sizes but most plants have similar parts: **roots, stems, leaves, and flowers.** Each of these parts serves as an important function for the plant.

ROOTS

*Absorb and store water and minerals and keep the plant in place
Roots can grow in many shapes and sizes. They can be a thick taproot
or a network of fibers below ground, in the air, or in water.*

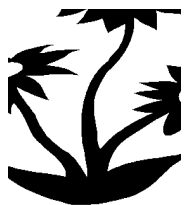


LEAVES

*Make food for the plant through photosynthesis -where light energy transforms
air and water into simple sugars. Leaves can be simple, compound, round,
heart-shaped, pointed, lobed, jagged, smooth, waxy, fuzzy, large, or small.*

FLOWERS

*Help make new plants by producing seeds. Some flowers bloom singly, some
bloom in clusters, some look like stars, some look like bells, and some are so
small you can barely see them. Flowers that are big, showy or fragrant attract
pollinators like bees, butterflies, moths, bats, hummingbirds, flies, and ants.
Smaller, odorless flowers depend on wind pollination.*



STEMS

*Move water and minerals up from the roots and transport food made in the
leaves throughout the plant. Stems support the plant above ground as well as
store water and food. Stems can be short and flexible or tall and stiff.*

Observation Inquiries

Identify the parts of a variety of plants.

Gently feel the leaves of different plants to compare textures.

Carefully look for exposed roots. How might they look underground?

What are the similarities and differences in color, shape, and size of the stems of different plants?

Smell and compare the fragrance of different flowers.

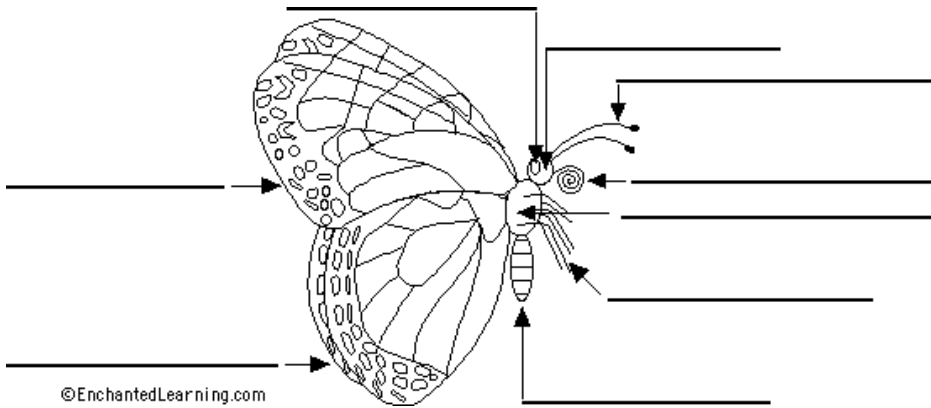
Think about how many different kinds of flowers, stems, roots and leaves you find.

Be still. What do you hear?

The Monarch and other Butterflies

Throughout the garden, you will see butterflies. Some like the sunny open spaces, others prefer the shaded wooded areas. What habitat are you in? What butterflies do you see? What other creatures can you see or hear?

Label the butterfly with the correct body part.



- Abdomen** - Contains the guts!
- Antenna** - On the head, used to smell & taste
- Compound Eye** - See color and motion with eyes made of many hexagonal lenses.
- Fore wing** - Front or upper wings. There are two.
- Head** - Holds the brain, eyes, the proboscis, and antennae.
- Hind wing** - Lower or back wing. There are two.
- Leg** - All adult butterflies have six legs. The two forelegs of the monarch butterfly are tiny.
- Proboscis** - Butterflies sip nectar with this!
- Thorax** - The legs and wings attach here.

In the fall, look for the orange-and-black monarch butterfly. It may be flying to Mexico, drinking nectar, basking in the sun, or resting with its wings closed. Find a butterfly. What is its behavior?

In the spring, monarch butterflies are returning from Mexico. In addition to flying, resting, basking and feeding, spring butterflies court and mate. Look for caterpillars feeding on milkweed leaves.

Remember these dates!

Fall Plant Sale - October 8, 2011

Fall Japanese Festival
October 22 & 23, 2011

Spring Plant Sale - April 21, 2012

Spring Japanese Festival
April 28 & 29, 2012

Become a Botanical Society Member
and come to the pre-sale!

Birds' Christmas Tree
December 3, 2011

Butterflies in the Garden
March 3 - April 8, 2012



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