

Zilker Botanical Garden

2nd Grade Educational Program

Last Edit: Matthew Gaston April 17th, 2022



What A Plant Wants, What a Plant Needs

- Learning Objectives:
 - Students will be able to explain the function of a botanical garden.
 - Students will be able to describe the basic needs of a plant.
 - Students will be able to identify that environmental factors affect plant growth.
- TEKS Standard:
§112.13. Science, Grade 2
(g) Organisms and environments. The student knows that living organisms have basic needs that must be met for them to survive within their environment. The student is expected to:
 - (A) identify the basic needs of plants and animals.
 - (B) identify factors in the environment, including temperature and precipitation, that affect growth and behavior such as migration, hibernation, and dormancy of living things
- Expected Duration: 50 minutes
- Materials: Poster paper, markers, living plant or a picture of a plant, Plant picture hand-outs (cut out 1 set per groups, such that each group has 8 plant picture cut-outs)
- Required Knowledge: Plants are living organisms that have roots, stem, and leaves.

1. Engage (10 minutes)

Teacher **talking points in bold** with *notes in italics*

Hello Class! We have a field trip soon to a place called Zilker Botanical Garden! But first we need to get partners. *Teacher assigns students into groups of two. Does everyone have a partner?*

Point to your partners. *Students point to a partner; all students should have a partner.*

Now that we have partners, do you know what a botanical garden is? What do they do? What do they have? With your partner spend two minutes discussing what a botanical garden is, what they do, what they have. *Teacher displays "what is a botanical garden? What do they do? What do they have?" on the board.*

With your partner discuss:

What is a botanical garden?

What do they do?

What do they have?

Teacher walks around listening to groups and providing scaffolding to groups that might be stuck. 'garden' is derived from the old French word 'jardin' meaning 'yard', so a botanical garden is a yard with plants. After 2 minutes, get the class attention.

Would anyone like to share with the class what they think a botanical garden is? *Students share, provide positive affirmation for being courageous to share. Keep asking groups until there is a consensus that a botanical garden is a place where they grow lots of interesting plants from around the world.*

Would anyone like to share what a botanical garden does? *Botanical gardens grow plants for many reasons: public enjoyment, conservation, and scientific study.*

We sort of discussed this earlier, but all together what do they have? *Students should say plants. Hold up a whole living plant (complete stem and leaves with roots in a pot or bare roots) or a picture of a plant with stem, leaves, and roots.*

2. Explore (20 minutes)

Here is a plant! Now each pair is going to find another pair, so each team should be four people. *Walk around ensure that all students are in groups 3-5 depending on how many students are present. Distribute piece of poster paper/group and markers. Then get student attention & hold up the plant.*

In your groups, we are going to spend 5 minutes drawing a plant on the poster paper. Work together to make sure you include all the important parts of the plant, remember the plant is both above ground and below ground.

Students will likely draw a stem with leaves and a single flower on top. The goal is that students work together to draw a plant with roots, stem, and leaves. Walk around and if groups are forgetting the roots, be sure to provide a reminder. After 5 minutes or after groups have a plant with roots, stem, and leaf, continue.

Now it looks like everyone has drawn some beautiful plants. Our big question of the day is what does a plant need to live? I will be passing out 8 pictures of plants, and you and your group will determine if the plant needs it to survive. If the plants need it to survive, add it to your group's drawing. At the end each group will share with the class what they think plants need to live and where it gets each of these things. Pass out the images of "Plants with _____" and "Plants without _____". Try to give two to each student in the groups if the numbers work out. This component can be extended or shortened based on the time remaining in the class. 10 minutes is the recommended time. Teacher displays "What does a plant need to live?" and "How does it get these?"

What does a plant need to live?

How does it get these needs met?

3. Explain (10 minutes)

Let's have groups stand up and explain their drawing and what plants need to live based on the pictures your group has. Try to let all groups spend about a minute describing their work.

Across all the groups, it looks like there were some similarities! What were they?

Have students share, the conclusion should be Light, Water, Air, & Nutrients (sometimes students will call it food like how we say fertilizer is "plant food")

4. Elaborate (5 minutes)

Let's review each of the pictures from each your group. Review Light, Water, Nutrients, and Air pictures. Ask for volunteers to explain what they see.

Outside, the light come from the sun! So, if there isn't a lot of sun, then there isn't a lot of light. Water from rain, rives, and lakes, so if there isn't rain, rivers, or lakes, then there isn't a lot of water. Nutrients come from the soil, so if the soil isn't healthy with bugs and worms and animals, then there isn't a lot of nutrients. Air is all around, but if you have too much water, the plant can't get air and it dies. The

plant needs to breathe too! Fun Fact! The plant uses air to make sugar and the light is the energy.

5. Evaluate (5 minutes)

I thank you all for participating! I am passing out an exit ticket with three short questions. Please fill them out and turn it in to me before you leave. Then when we go to the botanical garden you can share what you know with the people there! *See appendix for premade exit tickets.*

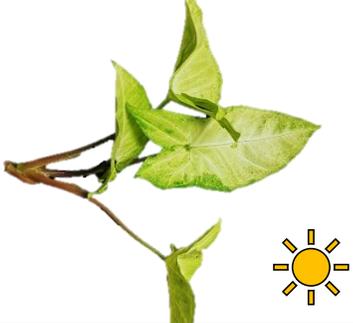
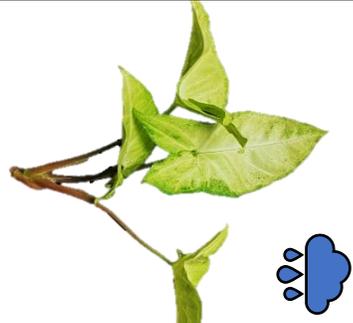
What is a botanical garden?

List the four main things a plant needs to live.

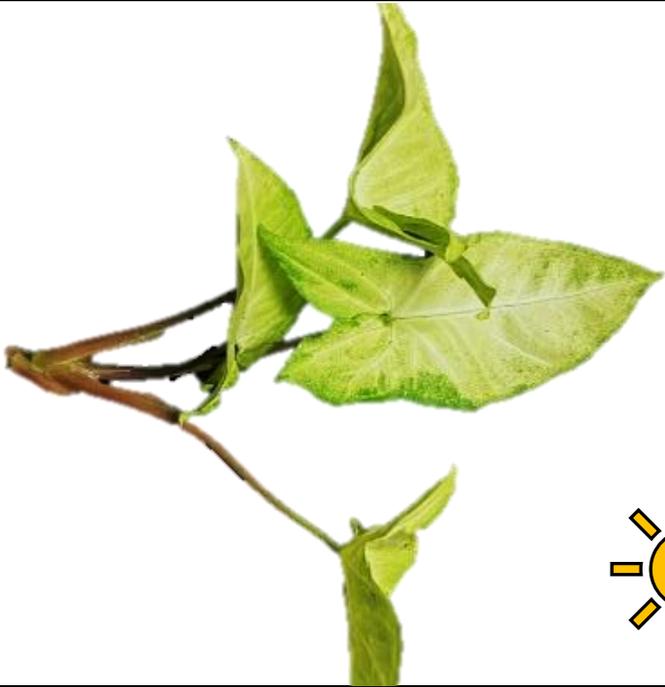
What is one environmental factor that affects plants?

On the appendix page are the 8 plant pictures to be distributed to each group. If a group has 4 students, it would be good to give 2 to each student, then they all must collaborate to complete the drawing. This gives each student agency and involves all group members. There are big and small versions. Use them as you feel is appropriate, but the big ones might be better if laminated, while the small ones are fine without.

Appendix:

 <p>Plant with Light</p>		 <p>Plant without Light</p>	
 <p>Plant with Water</p>		 <p>Plant without Water</p>	
 <p>Plant with Air</p>		 <p>Plant without Air</p>	
 <p>Plant with Nutrients</p>		 <p>Plant without Nutrients</p>	

Plant with Light



1

Plant without Light



2

Plant with Water



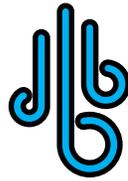
3

Plant without Water



4

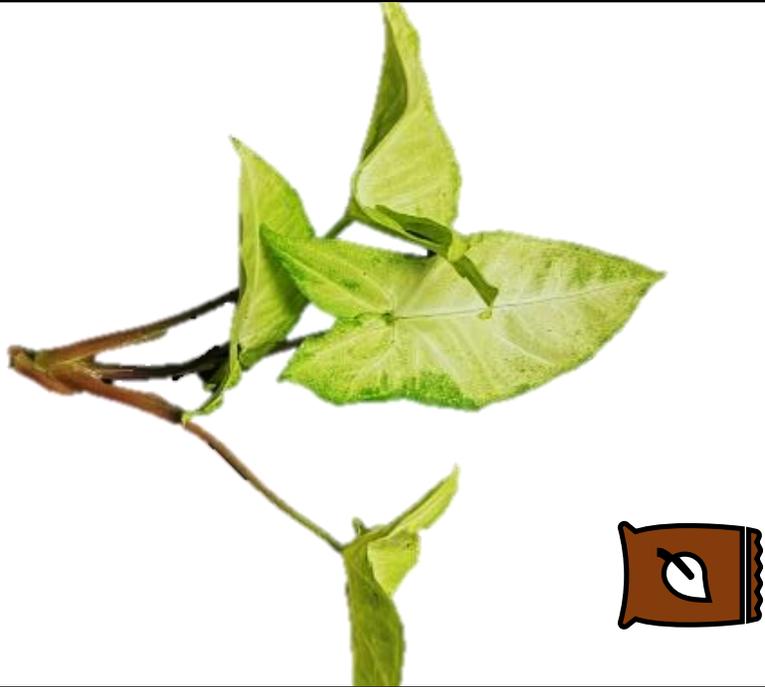
Plant with Air



Plant without Air



Plant with Nutrients



Plant without Nutrients



Name: _____

Date: _____



1. What is a botanical garden?

2. List the four main things that plants need to live:

1. _____ 2. _____

3. _____ 4. _____

3. What is one environmental factor that affects plant growth and how?

Name: _____

Date: _____



1. What is a botanical garden?

2. List the four main things that plants need to live:

1. _____ 2. _____

3. _____ 4. _____

3. What is one environmental factor that affects plant growth and how?

