

The Smith College Botanic Garden Teacher's Observational Activities

The purpose of these activities is to engage and develop observational skills — to find what might go unnoticed without careful attention. Experimenting with your own observational skills will enable you to help students make their own important discoveries in the greenhouses.

Be aware of the following throughout the entire Lyman Conservatory complex:

1. Temperature changes
2. How the plants are growing — are they in pots, in the ground, on other plants?
3. Smells
4. Humidity
5. Light levels
6. Colors
7. Size, shapes, and textures
8. Plants that are familiar to you
9. Unusual plants

SUCCULENT HOUSE

In the Succulent House are different types of plants that have adapted to dry environments. These plants need to store and conserve water, and have adapted in a variety of ways to be able to survive in harsh desert environments. The room is divided so that plants from the Americas are on the north side of the greenhouse and plants from Europe, Africa, and Asia are on the south side of the greenhouse (side closest to outdoors).

Make a list of the adjectives that describe the different plants in this room:

- Texture?
- Structure?
- Color?
- Size?

How do these plants look different from other plants in the other greenhouses?

What are some of the visible ways these plants protect themselves?

Why do they need protection?

Name three plants you might have missed if you were not looking carefully.

SHOW HOUSE

Fragrant plants are displayed here, many with culinary uses. They may attract pollinators or repel predators through smell and color.

Does this greenhouse feel different from the Succulent House? How?

How are the plants here different from those in the Succulent House?

Notice how these plants give off their scent or project their color:

- Is it from a flower?
- Is it from a leaf?
- Is it from a fruit?

Describe some of the fruits you see in this room.

FERN HOUSE

The fern house is home to the Earth's oldest plants. Some go back as far as 300,000,000 years — before flowering plants and even dinosaurs. What colors do you see in this room?

There are many differences between ferns and the other plants, some are subtle and some quite obvious. Ferns do not reproduce through seeds like other plants, they use spores. Spore cases are sometimes visible on the underside of fern leaves (called fronds), looking like small dots or brown dust. How many different arrangements of spore cases can you find?

The plants hanging on the walls are epiphytic ferns — they grow on another plant, usually a tree, which they use for support only (they are not parasitic). *Watch out for other epiphytes as you go through the greenhouses. Why might they have developed this habit?

Fern fronds come in many shapes and sizes. Sketch a fern frond and take notes on the size of the plant. Also sketch some spore cases.

PALM HOUSE

The Palm house is often called the Jungle Room, because it houses plants found in the tropical rainforest and simulates the feeling of the rainforest. Notice the change in temperature and humidity level as soon as you walk into the room, as well as light levels. The plants here are some of the tallest you will see throughout the greenhouses. Think about growing habits and habitat in the rainforest. The rainforest gets about 9 feet of rain a year, and plants adapt to the moist environment in many ways.

Leaf sizes and shapes here are really dramatic. Sketch different leaves — how are they different from the leaves you've seen so far? Why do you think that is? Write down some words to describe the look and feel of leaves in this room.

Take a look around and find a part of a plant visible in this room that you have not seen in other rooms. Make a sketch.

STOVE HOUSE

The stove house is home to a collection of epiphytes and aquatic plants, including many orchids and bromeliads (members of the pineapple family). The tank in the middle and the hanging baskets are used to simulate the plants natural environments. Epiphytic plants would normally grow on another plant; they are not parasitic, but rather use their roots to cling to the bark for support. Notice how the roots are anchored.

Orchids have some of the most architecturally beautiful flowers. What are some differences between orchids and other flowering plants?

- Thickness?
- Color?
- Shape?
- Roots?

Can you find any pitcher plants in this room? Pitcher plants are carnivorous. What is different about these plants?

WARM TEMPERATE HOUSE

This house is home to plants that are often grown for their ornamental features. We have collected plants that show different leaf colors, patterns, and shapes. Which is your favorite leaf? Why?

Some of these plants may be familiar because they are common house plants. Make a list of ones you have seen before, perhaps in someone's home. List some unfamiliar ones as well.

This room is home to more aquatic plants. What are some different aquatic plants you see here? Do any look familiar?

Can you find the cotton plant? Describe the shape, texture and color of the cotton on the plant.

COOL TEMPERATE HOUSE

The plants in this room are sub-tropical. Since they cannot withstand the cold Massachusetts winters, they are not planted outside, but they need less heat and humidity than tropical plants. The room is divided into “four corners” of the world: Africa, Australia/New Zealand, Latin America, and Asia, and includes many economically important plants from each of those places. Notice the light in this greenhouse and how it compares to the other houses; notice sounds.

What are some different shapes and sizes and colors of plants in each part of the world?

Since this room has many trees it's great for noticing different types of bark.

- What are some colors of bark?
- What are some textures?

Make connections — some of these plants are similar to other plants grown outside here. What are some similarities? Differences?

CAMELLIA CORRIDOR

This room was constructed to be reminiscent of a classical *Orangerie*, housing a collection of camellias, citrus, and ivy. An *Orangerie*, similar to a greenhouse, was used mainly from the 17th to 19th centuries for the wealthy to keep citrus growing all year round. All of these plants are potted and resting on the floor or hanging, easy to move.

Many of the plants here are very fragrant. Notice the variety of flowers. Describe what you smell.

What are some fruits found in this hallway? Describe their colors, shapes, textures.

Do any fruits look familiar to you? Which are common for us to see in food stores and which are uncommon?

How do the ivies hanging on the wall differ from one another? Sketch some different leaf shapes.

Take note of the different ways stems grow — this is a good room for examples. Make note of vines and upright stalks. Are there any epiphytes?