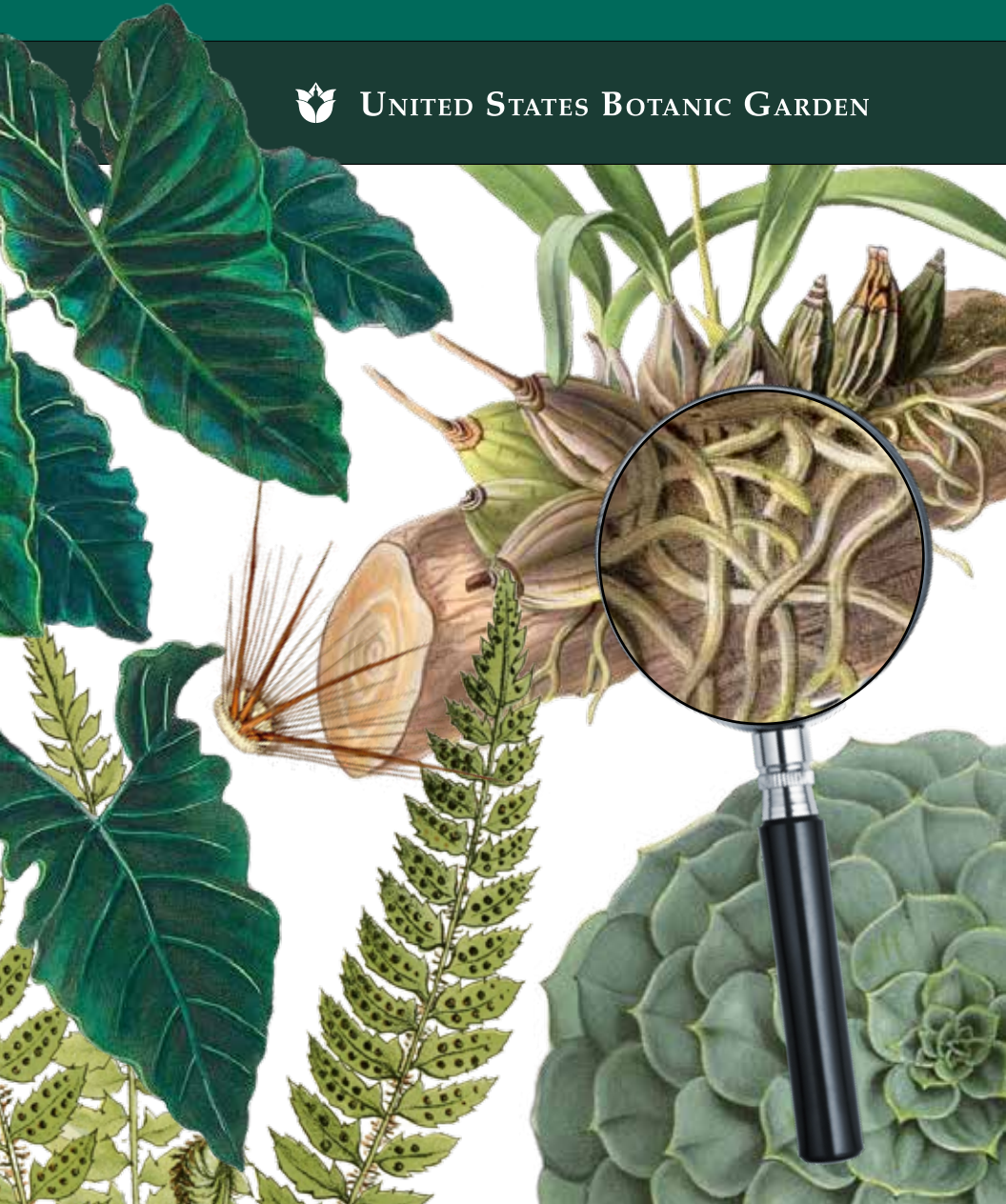


ADAPTATION

A SCIENTIST'S GUIDE TO PLANT FORM & FUNCTION



UNITED STATES BOTANIC GARDEN



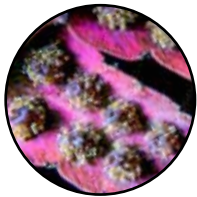
WELCOME, SCIENTISTS!

Form

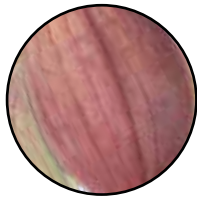
Form is a word scientists use to describe the physical characteristics of a plant and its parts. Observe the plants around you. What forms do you see? What shape and size are they? What color? Are they rough or smooth?



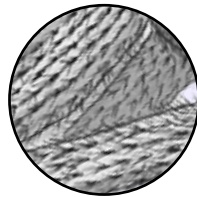
SHAPE



SIZE



COLOR



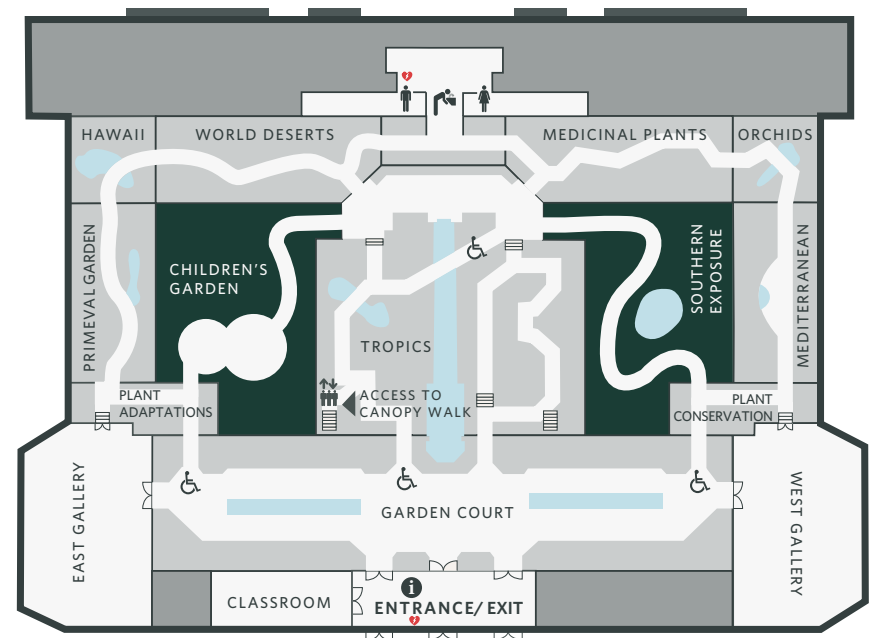
TEXTURE

Function

Plant forms often have important functions - ways they help the plants survive. For example, a specific plant form could help a plant repel insects, reproduce, absorb water, or access more sunlight.

Your challenge today is to explore the Conservatory to investigate different plant forms and think about how those forms might function. How could they help the plants survive?

For help finding the rooms highlighted in this guide use this map.



As you explore the Garden, you can help keep our plants safe. Please stay on the paths and do not touch the plants.



Ficus elastica

Rainforests are places where it rains more than 70 inches (177 cm) a year! Leaves that are too wet can grow mold or moss. How do you think having leaves with pointed tips helps these plants survive in a humid rainforest?

Draw, discuss, or describe your ideas.



Philodendron speciosum

Notice the air in this room. Can you feel the moisture?

**Look around. Find some leaves with pointed tips.
What do you notice about the direction of points?**

Look for other leaf forms that could have a similar function. How many can you find?



*Cephalocereus
senilis*

WORLD DESERTS

Notice the air in here. Does it feel different than the room you just left?

Look for some plants with fuzzy hairs. What do you notice about where the hairs are located?

Deserts are sunny places with a wide range of temperatures and very little water. How do you think having fuzzy hairs would help a plant survive in a desert?

Draw, discuss, or describe your ideas.



Parodia scopa

*Phlebodium
areolatum*



Before plants evolved flowers and seeds, they had spores. What do you think these spores are for?

Draw, discuss, or describe your ideas.

PRIMEVAL GARDEN

Using only your eyes, find some ferns with patterns on the undersides of the leaves. What do you notice about the color and texture of these patterns?

These lines, dots, and zigzags are called sori and contain millions of tiny spores.



*Asplenium
serratum*

Nepenthes sanguinea



Look at the different types of carnivorous plants. How do you think each plant traps insects?

Draw, discuss, or describe your ideas.

PLANT ADAPTATIONS

The leaves of carnivorous plants trap and digest insects to absorb nutrients, but they do this in different ways.

Find some carnivorous plants in this room. Using only your eyes, what do you notice about the shapes and textures of the leaves?



Dionaea muscipula



Aeonium sp.

MEDITERRANEAN

Find some plants with thick, fleshy leaves. Using only your eyes, what do you notice about the texture of these leaves?

Mediterranean climates tend to have hot, dry summers. How do you think having thick leaves helps these plants survive the driest season?

Draw, discuss, or describe your ideas.



Crassula ovata

*Epidendrum
parkinsonianum*



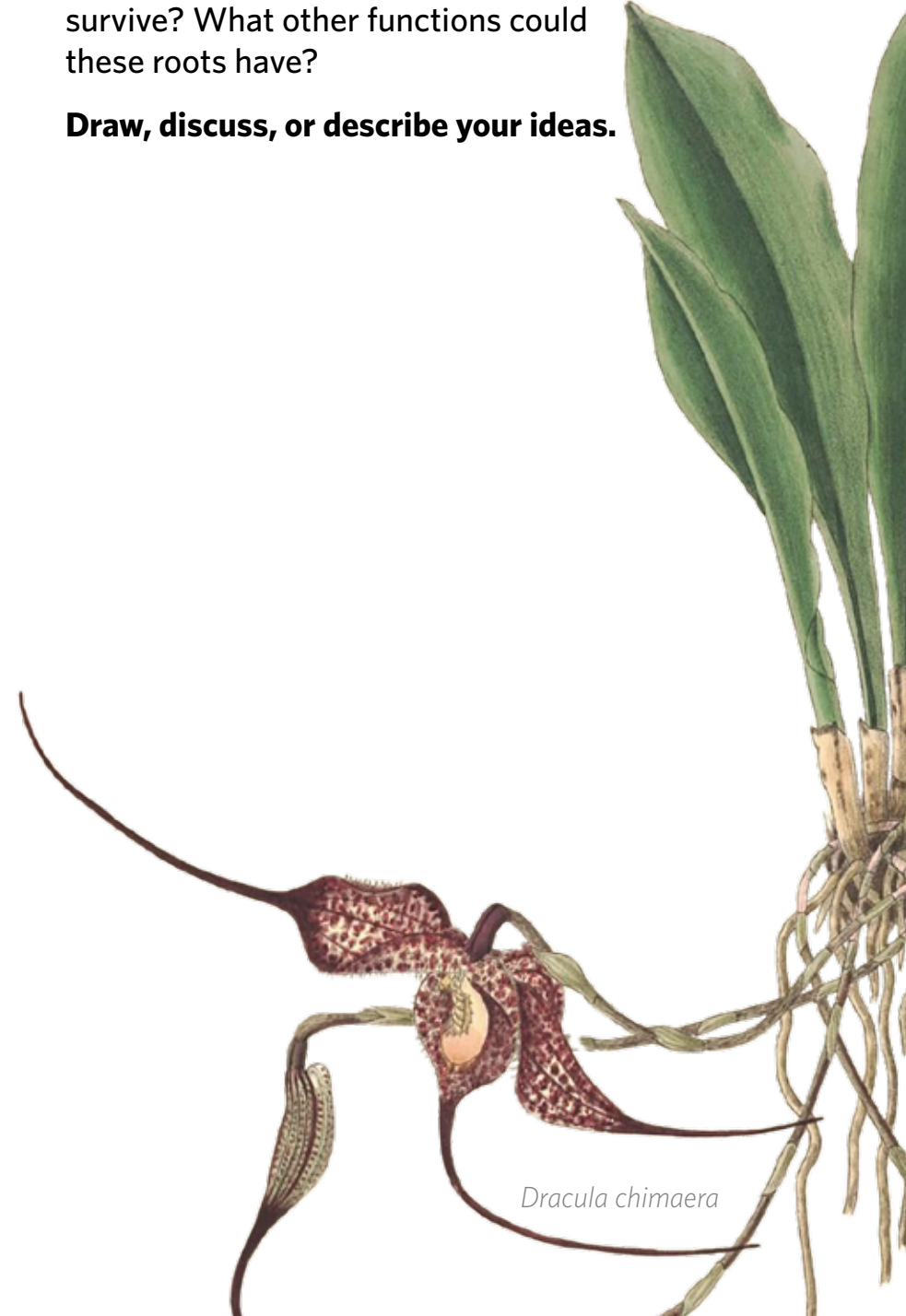
ORCHIDS

Can you find any plants growing in unexpected places? Look up! What do you notice about the roots of plants up above?

Some plants don't need to have roots in the soil!

How do you think plants with their roots in the air get the water and nutrients they need to survive? What other functions could these roots have?

Draw, discuss, or describe your ideas.



Dracula chimaera

EXPLORE!

Choose another room in our Conservatory. Find a plant that interests you. What do you notice about the plant's forms (shapes, sizes, colors, and textures)?

What could be the functions of the forms you see? Could they help the plant repel insects? Absorb water? Access sunlight? Something else?

LEARN MORE

Scan this code to see how Garden experts answered the questions in this guide!



*Tectaria
trifoliata*



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