
Tropical House Plants

— Denise Godfrey —
Olive Hill Greenhouses

Introduction

Why Houseplants?

Escape to Nature ...
after hours



Biophilic Needs

Deeply love of nature
and natural things



Benefits of Plants & Gardening

- ❖ Physical Health & Wellness
 - ❖ Social & Emotional Growth
 - ❖ Mental Relaxation -
Appreciation of Nature &
Natural Processes
 - ❖ Problem Solving & Critical
Thinking
-

**Solution to
Nature Loving
+ Indoor Dwelling
= House Plants!**



Selecting a Quality House Plant

Foliage
Roots



To the Root of the Matter

Indoor Plants: What do I look for?

Roots! = Durability

Soil - Good Aeration & Structure

Leaves - Nice, Clean, Healthy

Beauty

Interior landscape ready?

Attention to detail



Which Houseplant should I start with?

Match a plant with your interests and level of engagement

Characteristics to Consider

- ❖ Watering needs
Moist to dry or frequent?
 - ❖ Light needs
Bright or tolerates low light?
 - ❖ Care needs
Easy or susceptible to pests & disease?
 - ❖ Pet Friendliness
 - ❖ Geographic origin
Equatorial tropical plants
-

Toxicity Concerns?

Research before bringing a plant home

North Carolina
Extension Gardener

[https://plants.ces.ncsu.edu/
find_a_plant/](https://plants.ces.ncsu.edu/find_a_plant/)

Poisonous to Humans:

Poison Severity:

Medium

Poison Symptoms:

If the leaves or stems are eaten or chewed, swelling of the lips, tongue, and mouth can occur. It may also cause mouth pain and drooling.

Poison Toxic Principle:

Calcium oxalate

Causes Contact Dermatitis:

Yes

Poison Part:

Leaves

Stems

Landscape:

Problems:

Contact Dermatitis

Problem for Cats

Problem for Children

Problem for Dogs

Plant Parent?!?

Plant parent - a personal relationship with plants



houseplantjournal • Following ...
Toronto, Ontario

The oldest leaves (lowest ones along a vine) are the first to die off. I don't try to prevent it as it is a reality of life: every leaf I had on Day 1 was gone by Day 1744.

-

More complex leaves (with more fenestrations) will come out with favorable conditions:

- Good light: the diagram in [2](#) gives a visual explanation of these light observations - my light situation here was 200-400 foot-candles most of the day plus about 2 hours of late evening sun. "Bright indirect light" doesn't mean avoid the sun entirely, it means avoid *prolonged* exposure - two or three hours is totally fine for a monstera.
- Vines affixed to a trellis: look closely



25,502 likes

5 DAYS AGO

Add a comment...



Post

Plant Parent Personality Quiz

[https://growingjoy
withmaria.com/
personality](https://growingjoywithmaria.com/personality)



DRUMROLL PLEASE...

Your Plant Parent
Personality™ is...

Design Based - element of interior design



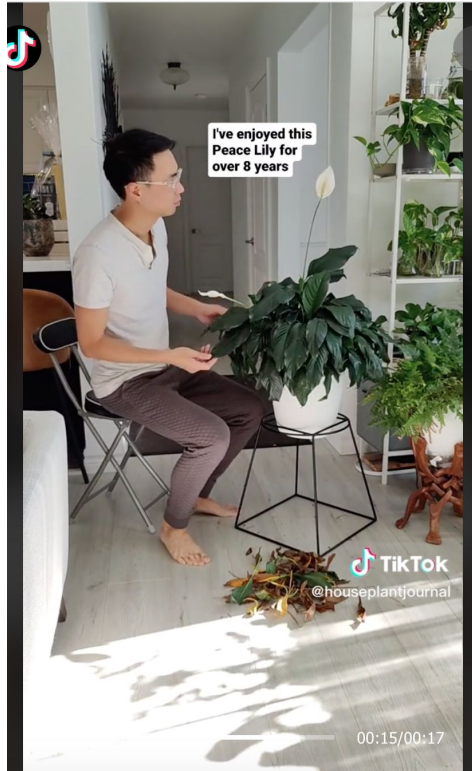
Hilton Carter

<https://www.tiktok.com/@theplantstylist>

[Hilton Carter \(@hiltoncarter\)](#) • [Instagram photos and videos](#)

Video link: <https://www.instagram.com/reel/CqAl9xOjdLq/?igshid=Mzc1MmZhNjY%3D>

Curious Collector - scientific minded



[Darryl Cheng](#)
[\(@houseplantjournal\)](#) •
[Instagram photos and videos](#)

[https://www.tiktok.com](https://www.tiktok.com/@houseplantjournal)
[/@houseplantjournal](#)

[Plants with Summer Rayne Oakes](#)
[\(@homesteadbrooklyn\)](#) •
[Instagram photos and videos](#)

[https://www.tiktok.com/](https://www.tiktok.com/@flockfingerlakes)
[@flockfingerlakes](#)

Mindful - highly interactive with plants



Crazy Plant Guy

[Christian \(@crazy.plant.guy\) | TikTok](#)

[Christian Esguerra \(@crazyplantguy\) • Instagram photos and videos](#)

[Niyya 🌱 and sometimes Lily 🍵 \(@thebloomjourney\) • Instagram photos and videos](#)

Also check out:
Phileodendron
Plantkween

Urban Farmer - plants with a purpose



<https://www.instagram.com/humanswhogrowfood/>

<https://www.instagram.com/epicgardening/>

[Tara Ratcliffe \(@gardeningwithtara\)](#) • Instagram photos and videos

Low Key - thrives on neglect and a busy schedule



** If you
encounter a
suggestion ...
please let me
know

What you should know
about your plant ...

Common House Plants

Araceae
Aroids

inflorescence is a spadix
usually enclosed by a spathe



Identify Your Plant



Aglaonema



Alocasia



Anthurium



Philodendron

Araceae Family
Air - aye - sea



Monstera



Syngonium



Spathiphyllum

Identify Your Plant



Araceae Family
Genus: Pothos, Philodendron

Durable however can be toxic
if ingested or an irritant.
Handle with care



Pothos

Identify Your Plant



Stromanthe



Maranta



Calathea

Marantaceae Family

Sensitive to salts, do not let dry out



Identify Your Plant



Croton



Dracaena



Ficus



Fern Asplenium



Sansevieria



Schefflera

Identify Your Plant



Colorful options (more
pet and child friendly)

Begonia

Hoya

Peperomia

Pilea





Long lasting flowering plants
Bromeliaceae - Orchidaceae

Begonia

Named for the 17th century
amateur French botanist
Michel Bégon



- ❖ Water - Evenly moist, well drained soil
 - ❖ Light - Bright light
 - ❖ Care - Medium
Susceptible to mildew on leaves
 - ❖ Not Pet Friendly
Low toxic severity
Soluble calcium oxalates
 - ❖ Geographic origin
Central & South America,
Asia, sub-Saharan Africa
-

Croton Codiaeum

Malaysian name for the plant

Codebo



- ❖ Water - evenly moist, do not let dry out
 - ❖ Light - bright light
 - ❖ Care - Medium
Susceptible to spider mites
Likes humidity & bright light
 - ❖ Pet Friendly
Low toxic severity
Contact dermatitis when exposed to sap
 - ❖ Geographic origin
Moluccan Islands between the Philippines and New Guinea
-

Dracaena

Dragon Tree

Drakaina “dragon” for red sap
of *Dracaena draco*



- ❖ Water - Moist to dry
 - ❖ Light - Medium to Bright Light
 - ❖ Care - Easy
 - ❖ Not Pet Friendly
 - ❖ Geographic origin
Subtropical Africa, Canary
Islands, southern Asia,
northern Australia
 - ❖ Shown by NASA to remove
indoor air pollutants
-

Hoya

Named for 18th century
English gardener & botanist
Thomas Hoy



- ❖ Water - Moist to dry, good drainage, likes humidity
 - ❖ Light - Medium to bright light
 - ❖ Care - Medium
Watch for mealybugs
 - ❖ Pet Friendly
 - ❖ Geographic origin
Tropical Asia, Pacific Islands,
Australia
-

Maranta

Prayer Plant

Named for Bartolomeo Maranta
16th century Italian botanist



- ❖ Water - Moist
 - ❖ Light - Medium to bright light
 - ❖ Care - medium
 - Salt sensitive - don't let soil dry out
 - ❖ Pet Friendly
 - ❖ Geographic origin
Tropical America
-

Peperomia

Greek Peperi “Pepper”

Homoios “resembling”



- ❖ Water - Moist to dry, good drainage
 - ❖ Light - Medium to bright light
 - ❖ Care - Easy
 - ❖ Low toxic severity to some animals if eaten
Alkaloids in leaves
 - ❖ Geographic origin
Florida and the Caribbean
-

Philodendron

Philen “to love”
dendron “tree”



- ❖ Water
Regularly - evenly moist
 - ❖ Light - Tolerates medium light
 - ❖ Care relatively easy
Susceptible to pests
 - ❖ Medium toxic severity
contains calcium oxalate
crystals
Contact Dermatitis
 - ❖ Geographic origin
Rainforests of Central and
South America
-

Pothos (Epipremnum)

Pothos Greek for “longing”

Epi “upon” Premnon “stump”



- ❖ Water - Moist to dry, good drainage
 - ❖ Light - medium to bright light
 - ❖ Care - Easy
 - ❖ Not Pet Friendly
Medium toxic severity
contains calcium oxalate crystals
Contact Dermatitis
 - ❖ Geographic origin
Tropical forest of China,
Himalayas, Southeast Asia,
Australia, & western Pacific
-

Sansevieria

Named for 18th century Italian
scientist & inventor
Raimondo di Sangro,
Prince of San Severo



- ❖ Water - keep on dry side, do not overwater
 - ❖ Light - tolerates lower light
 - ❖ Care - Easy
 - ❖ Not Pet Friendly
 - ❖ Low toxic severity
 - ❖ NASA found it is a clean air plant that removes pollutants, improving air quality
 - ❖ Geographic origin
Tropical western Africa
-

Schefflera

(Heptapleurum)

Named for 18th century
physician & botanist

Johann Peter Ernst von Scheffler



- ❖ Water - Moist, good drainage
 - ❖ Light - Medium to bright light
 - ❖ Care - Easy
 - ❖ Not pet friendly
 - ❖ Low toxic severity
contains calcium oxalate
crystals; Contact Dermatitis
 - ❖ Geographic origin
Taiwan, South China,
Australia
-

Syngonium

Greek words syn-, -gonada and refers to the fused ovaries of female flowers



- ❖ Water - evenly moist
 - ❖ Light - Medium to bright light
 - ❖ Care - Easy
 - ❖ Not Pet Friendly
Medium toxic severity
contains calcium oxalate
crystals
Contact Dermatitis
 - ❖ Geographic origin
Central & South America
From Mexico to Ecuador
-

Spathiphyllum

Peace Lily

Spathe “blade” Phyllon “leaf”



- ❖ Water
Frequently - keep moist
 - ❖ Light - tolerates lower light
 - ❖ Care - Easy
 - ❖ Medium Toxic
contains calcium oxalate
crystals
 - ❖ Geographic origin
Tropical America, Malaysia,
and Western Pacific
 - ❖ Shown by NASA to remove
indoor air pollutants
-

Why this plant?

What is special about it?

Where will it live?

How does it make you
feel?

Photo of my New Plant

*(Snap a photo or draw and
insert photo here)*

Kind of Houseplant:

Nickname:

Today's Date:

How to Care for my Plant

Watering Frequency:

Light:

Fertilizer:

Student Name:

Teacher:

*(Snap a photo or draw and
insert photo here)*

Photo of my Plant 30 Days Later

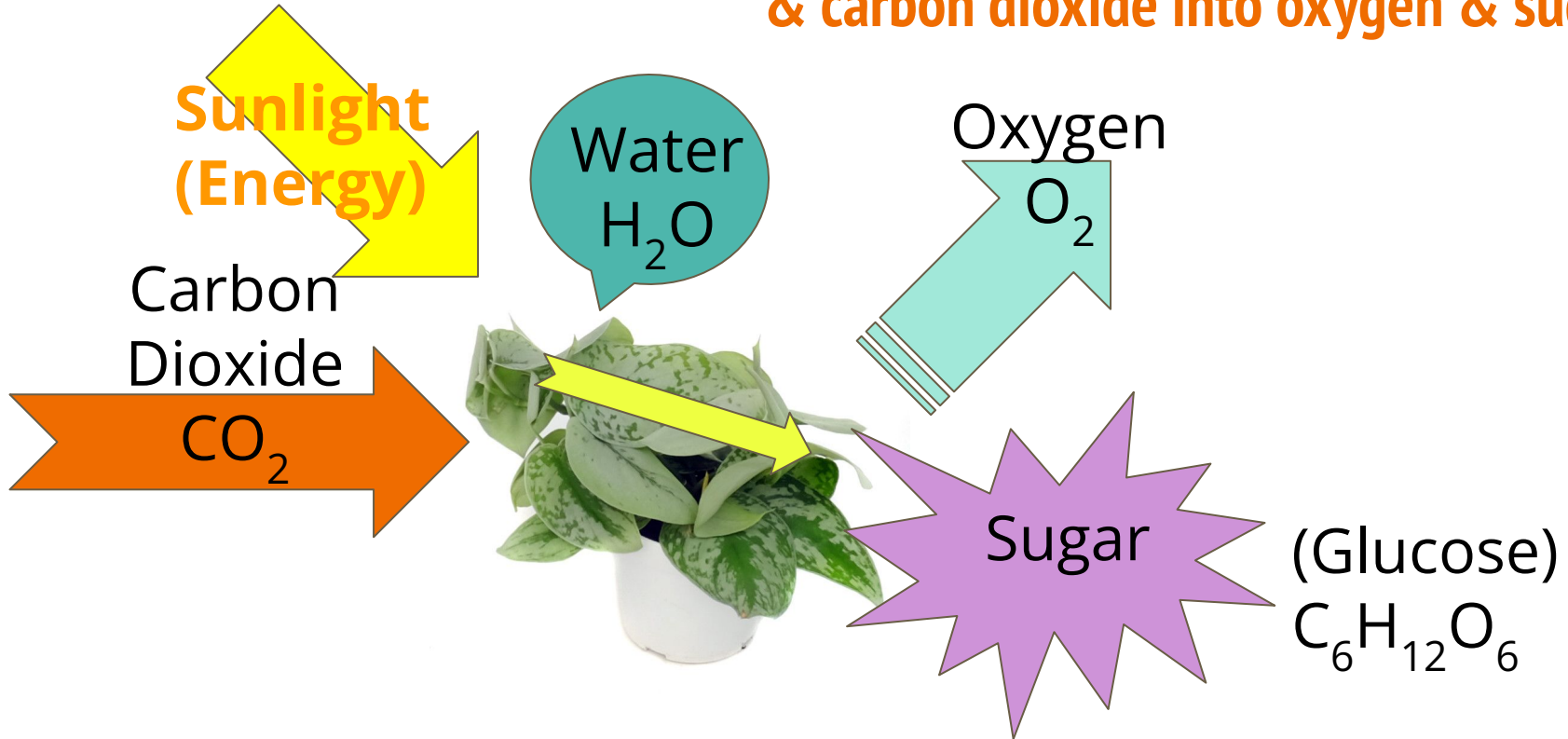
Date:

My New Houseplant

Why are plants
important?

Photosynthesis

Energy from sunlight transforms water & carbon dioxide into oxygen & sugars



Sugar Transformations within the plant

These sugars may be transformed into:

- Cellulose - an element of the plant cell walls
the building structure that give the plants rigidity
- Fructose - an element that makes fruit sweet



Brainstorm...

What does the simple sugar become within the plant?

How do we utilize these sugars / carbohydrates in our human lives?

In other words, where are all the places that we encounter plant products in our daily lives?

Brainstorm ...

Plants are

- Directly consumed by humans
- Feed to animals which yield eggs, milk, meat
- Utilized for fibers that we wear, we use in our homes or use as rope
- Harvested for wood
- Enjoyed in the landscape

Plants also consume VOCs in the atmosphere

VOCs are Volatile Organic Compounds

Volatile = evaporates at room temperature

Organic = composed of carbon

**These compounds easily move within the atmosphere
because they are made of carbon, the plant can easily metabolize them

Like carbon, these are metabolized and used to make compounds the plants needs to grow

Brainstorm ...

What are different types of volatile organic compounds?

Where do they come from?

When you are exposed to chemicals, how do they physically make you feel?

The effects on Humans after VOC removal

- Improved creativity and productivity
- Less sick days
- Less sick building syndrome - dry throat, dry eyes
- Improved return to health during hospital stays

More about plants ...

Origin & Care Tips

Where do Houseplants Come From?

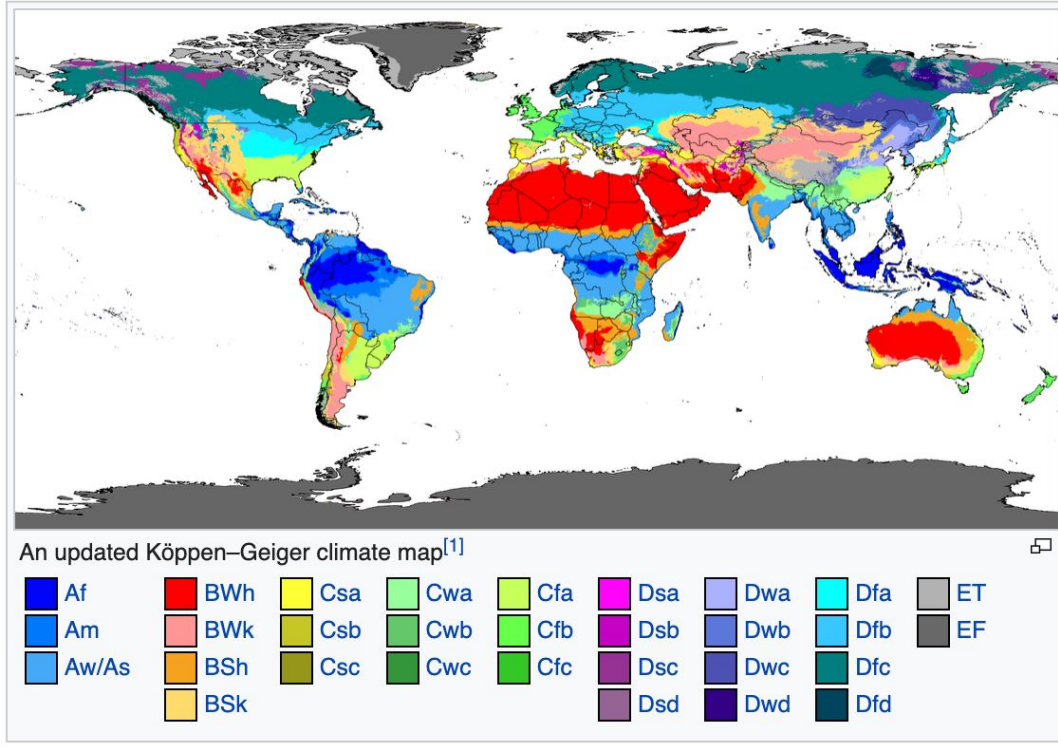


Indoor Environment

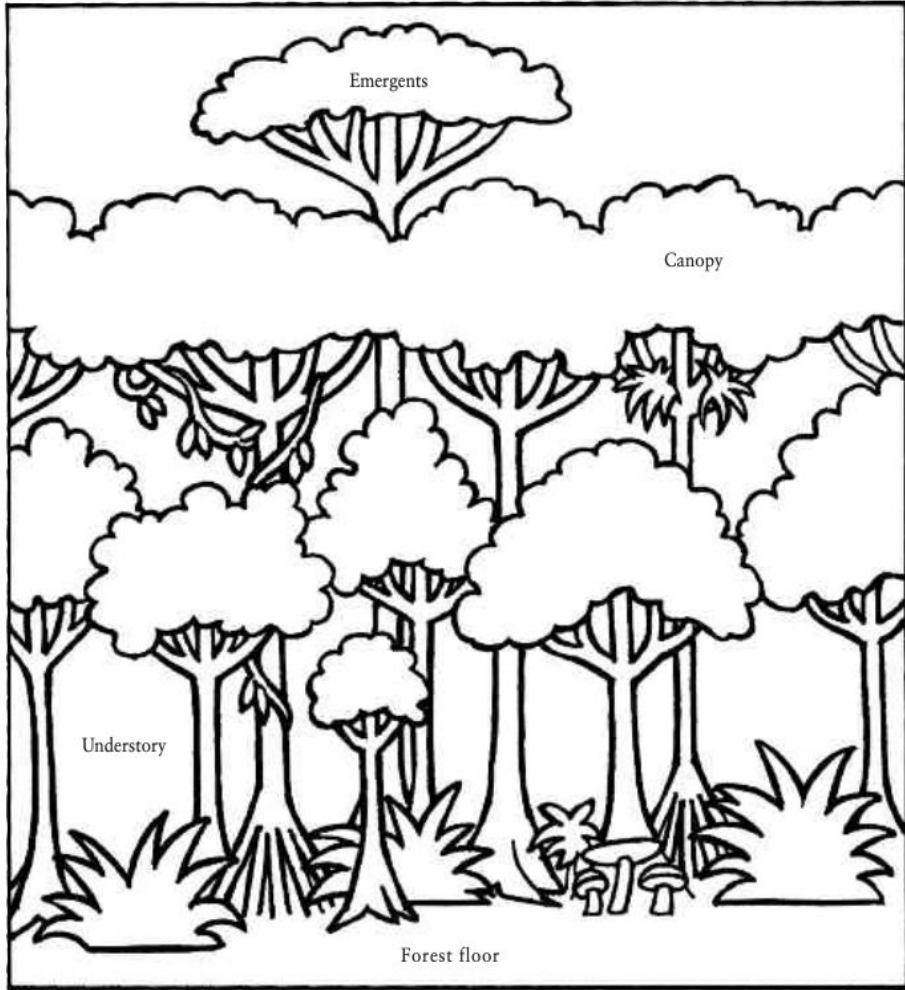
- Light - indirect filtered
- Temperature - warm, stable
- Humidity - not too dry, not too wet

Similar climate?

Houseplants = Plants from the Tropics



Group A
Tropical
Climates



Rainforest Structure

Houseplant Attributes



- Very active photosynthesis
= able to make sugars in low filtered light
 - Durable and long lived
 - Compact growth habit
 - Resistant to disease and pests
 - Easy to maintain
-

Care Tips!

Environment?

Think “The Tropics”



#1 Light!

Bright, diffused, indirect light

Moderate temperatures

Mid 60s to high 80s

Average humidity

Air circulation without drafts

Good water - neutral or slightly acidic, a light fertilizer regiment

Space! Light and good air circulation to the leaves

Are you comfortable? The plant probably is also.

Watering

Common Error: overwatering
Goal: Moist to Dry



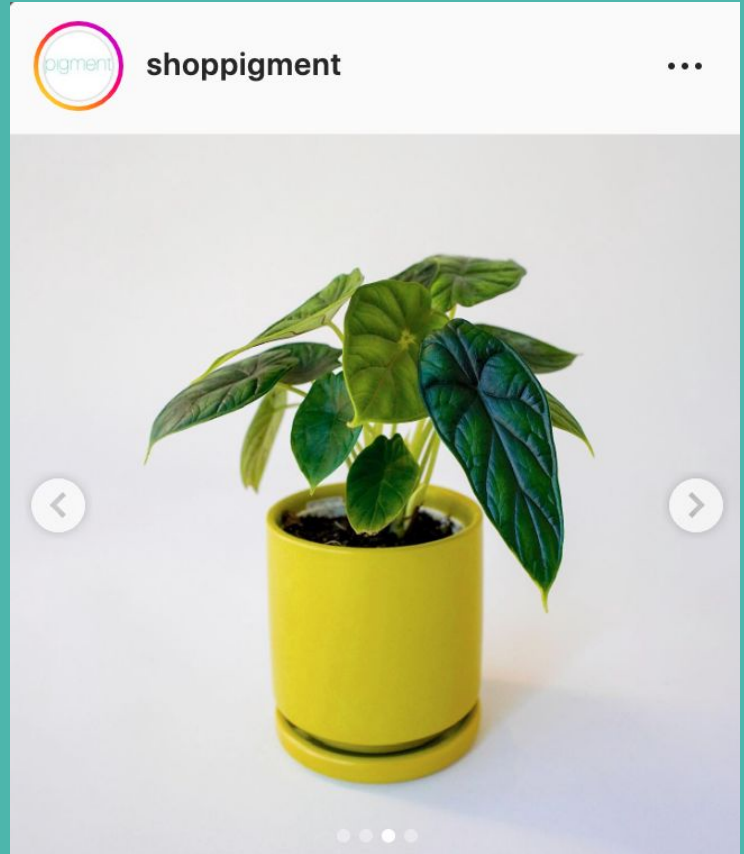
- + Actively growing, more photosynthesis = more water
 - + Warm environment = higher water loss
 - + Thin leaves or larger leaf surfaces
 - + Container porosity
 - Soil has good water holding capacity
 - + Large plant in a small pot, time to replant if pot bound
-

Stylish Container Upgrade?

Watering a plant in a sink will cause the soil to leach valuable nutrients

Have the grower pot sit in a saucer or non-draining pot and add a bit of water every few days

Don't leave plants sitting in water over 30 minutes



Light

Bright, indirect light is preferred



More light

= more active growth

= less susceptible to overwatering

Leaf temperature is important

South and West facing windows produce warmer light and may scorch leaves

Correcting Watering Issues



Overwatering

Remove plant from pot

Let root ball sit on newspaper overnight

Trim dark colored or slimy roots

Water quality

Letting water sit overnight gives chlorine and other chemicals a chance to escape as gas

Plants suffering ... Make a change to the environment



New Growth = Happy with Home

No New Growth?

Option #1

Add things to make the
environment more ideal

Option #2

Move them to a more
ideal environment

Outdoor Tropical plants?



- Gradual transition - protected from sun & wind
 - Low light chloroplasts - thin layers & thin leaves
 - Bring in when outside temps near 55F
 - Checklist transitioning back inside:
 - Soil - ants, earwigs, earthworms
 - Leaves & Stems - pests
 - Soil - leach if there is salt build up
 - Clean outside of pots
-

Dead Leaves?

The Circle of Life



Leaf loss occurs to
improve air circulation
& light exposure

Trimming tips?

Don't cut on green, cut where the
leaf tissue turns brown

Repotting Signs



- Little or no new growth or stunted growth
- Roots coming out of the pot
- Top heavy foliage causes plants to fall over
- Chronically thirsty
- Salt deposits forming even after flushing

Examine yearly

Remember:

To the Root of the Matter

Indoor Plants: What do I look for?

Roots! = Durability

Soil - Good Aeration & Structure

Leaves - Nice, Clean, Healthy

Beauty

Interior landscape ready?

Attention to detail



Ready for more plants?
Propagation

Propagation

pro "forth" (see pro-)
pag- "to fasten"

Definition:

: the act or action of propagating:
such as

a: increase (as of a kind of organism)
in numbers

b: the spreading of something (such
as a belief) abroad or into new
regions

<https://www.merriam-webster.com/dictionary/propagation>

<https://www.etymonline.com/word/propagation>

Brainstorm...

Have you attempted to propagate a part of a fruit or vegetable?

What did you do? Were you successful?

What are some ways in which a plant may be propagated?

Are some means of propagation faster than others?

Sourcing Commercial Plant Material

Global Market
Year Round Production
Time Intensive

Seeds

Cuttings, Microcuttings, &
Airlayers

Plant Divisions

Tissue Culture

Seeds



- Foliage plants do not always produce flowers at a juvenile stage (sometimes decades before flowering)
 - + Able to produce interesting hybrids
 - Seedling variation, do not get uniform growth of seedlings
 - Not all seed is viable & some seeds require germination tricks (simulating fire, stomach acid, mechanical damage)
-

Leaf Cuttings & Plant Division



- + Uniform, heterogeneous material
 - + Quick to establish
 - + Only means for plants that do not easily produce seed
 - + Less expensive
 - Bulky plant material to ship
 - Short term storage
 - Viral infections can spread
-

Guatemala Cuttings

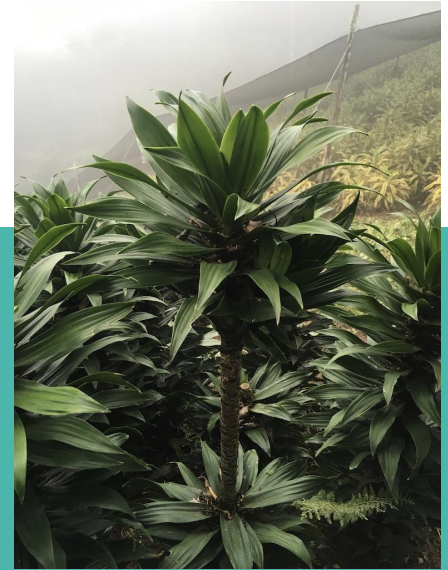


Maranta
Lemon Lime



Pothos
Neon

Costa Rica Dracaena Cuttings



Dracaena
Lemon Lime

Dracaena
Janet Craig type

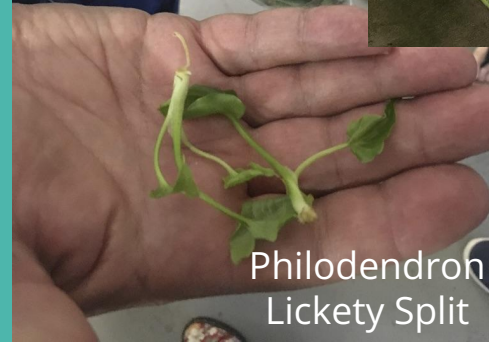
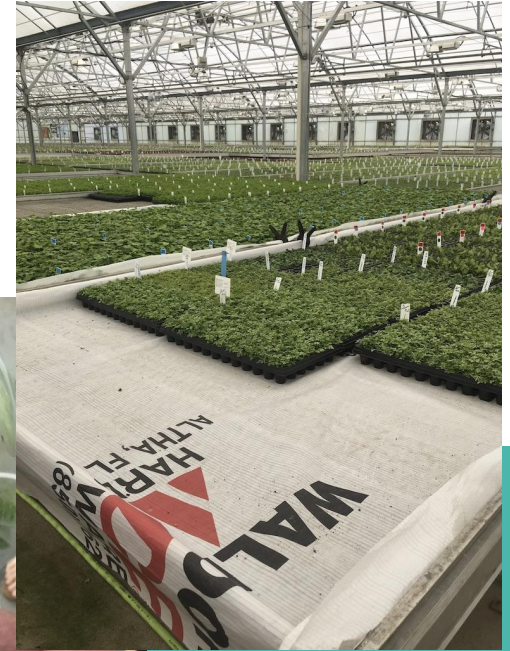
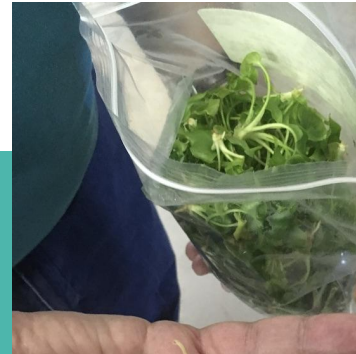
Tissue Culture



Medium contains nutrients for growth and development

- Mineral salts
 - Sugar
 - Vitamins
 - Growth regulators auxins cytokinins
-
- + Uniform
 - + Virus free potential
 - Requires a laboratory and is a slow process to start plants
 - + Once established, can quickly multiply numbers
-

Oglesby Plants Intl Altha, Florida Tissue Culture



Philodendron
Lickety Split

Anthura B.V. • The Netherlands

Anthurium Microcutting



anthurabv • Following



anthurabv Wist u dat de (anthurium)pluggen gedurende vier maanden worden opgekweekt in bijvoorbeeld een 7 cm pot? Na drie maanden heeft de plant een maat van ongeveer 10-18 cm en is de plant sterk genoeg om in de uiteindelijke pot (groter dan 14 cm) te telen. #anthurium #youngplants

109w



115 likes

DECEMBER 15, 2018

Add a comment...

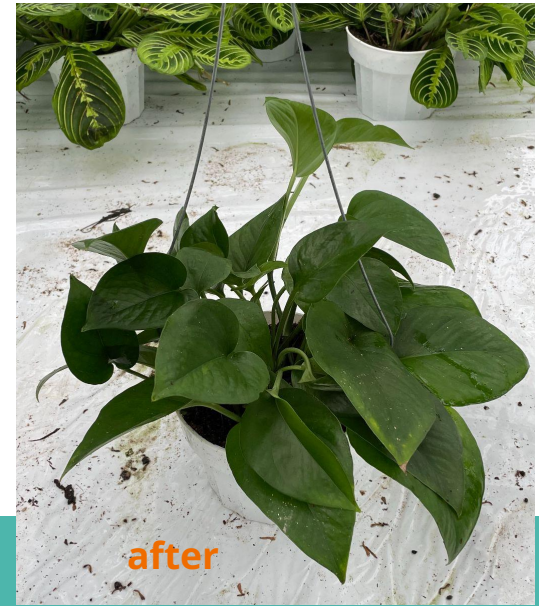
Post

Class Activity

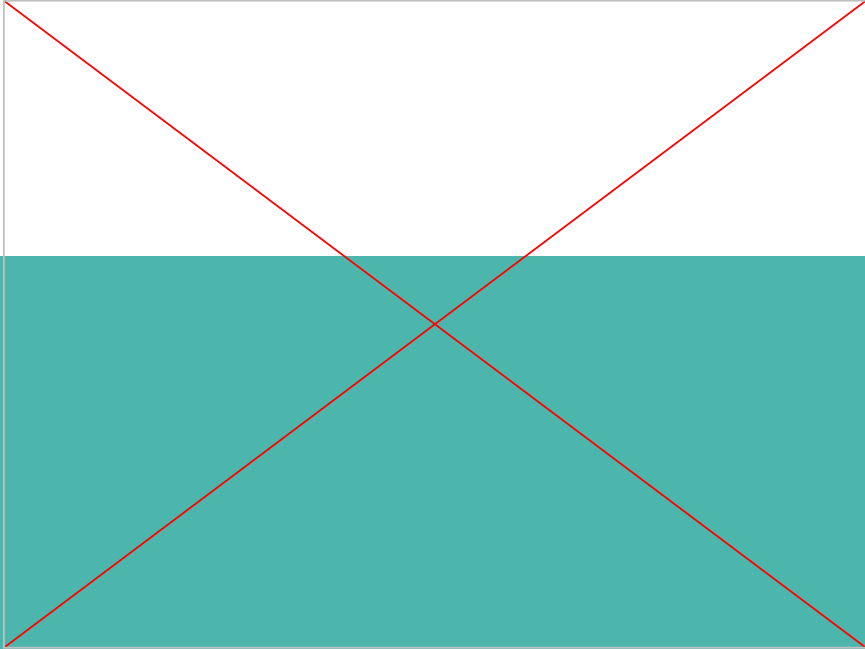
Plant Propagation

Cuttings - Pothos

Cuttings are harvested from the hanging plant and the leaf and stem are used to make new plants

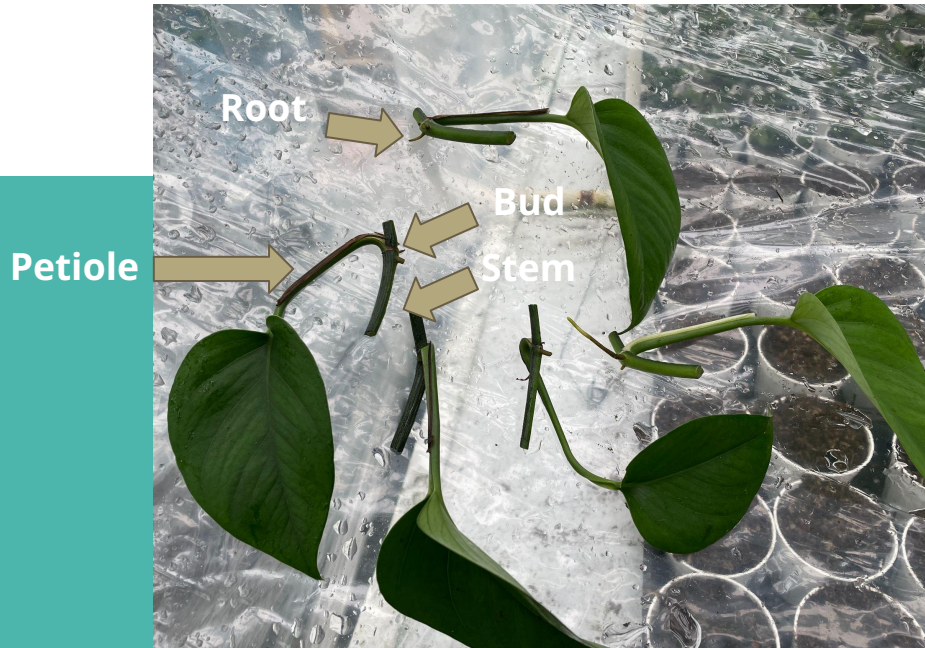


Cuttings



Why cuttings?

Leaves are connected by a vine, the new growth starts at the bud where the petiole meets the stem



New leaves arranged in the pot

Cutting stuck so root is level with the soil

above



side



Plant Division - Sansevieria



Why division?

Plants connected via rhizomes below the soil surface



Rhizome
from older
growth



New plant
developing

Common Pests

Mealybugs



- Feeding habit
 - Leaf midribs, stem axils, undersides
 - Preventative
 - Clean plants material that is totally void of mealybugs
 - Clean the leaves with:
 - Cotton swab & rubbing alcohol
 - ★ Alternative Countermeasure -
toss infested plants
Extremely difficult to eradicate,
1 female can lay 200 to 600 eggs
-

Two Spotted Spider Mite



Biocontrol - Phytoseiulus persimilis

- Feeding Habit
 - Undersides of leaves
 - Preventative
 - Multiply rapidly on weak plants
 - Manage plant stress by making sure getting enough light and water
 - Clean the leaves with:
 - 1 Tablespoon dishwashing liquid
 - 1 Tablespoon veggie oil
 - 2 Quarts water
 - Biocontrols available
-

Thrips



- Vectors for plant disease
 - Feeding habit
 - Feeds on flowers or foliage
 - Non feeding stage in the soil
 - Preventative
 - Blue sticky cards can be used to see if you have a growing population
 - Control is difficult
-

Aphids



- Feeding habit
 - Leaves, stems, roots
- Biocontrol - Aphidoletes



Fungus Gnats



- Feeding habit
 - On & in soil
 - Preventative
 - Frequently happens with poor soil inputs or poor sanitation
 - Clean source of plants or soil
 - Dry out the soil between waterings
 - Gnats need constant moisture
-

Sooty Mold



- Environmental or pest stress causing the honeydew to exude from the leaves and mold to form
 - Does not invade leaf tissue
 - Preventative
 - Minimize stress
 - Don't let water stand on the leaves overnight
 - Clean leaves with
 - Soft cloth dipped in soapy water
-

Why Plants?

Best Reasons for Purchasing Plants



Psychological - Mental Well-Being

Educational

Social

Relaxation & Emotional
Well-Being

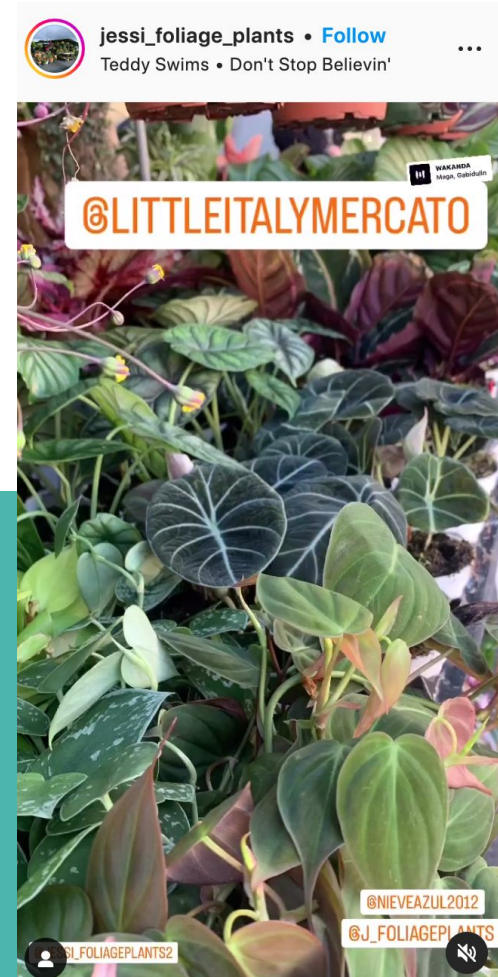
Physiological & Physical
Well-Being

Aesthetic - Beauty

Continue the Journey...



3 locations - North Park, Liberty Station, Del Mar
In person classes & Educational clips on Instagram



Jessi Foliage
Various San Diego
Farmers Markets

Thank you & enjoy your plant journey! Follow-up Questions?

Denise Godfrey
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Olive Hill Greenhouses - Make N' Take - Adopt a Houseplant

Kind of Houseplant

Plant Origin / Interesting Fact

[Google Doc Presentation](#)
[Adopt a Houseplant](#)

Nickname

Meaning of Scientific Name



Discovery

Why this plant?

What is special about it?

Where will it live?

<https://growingjoywithmaria.com/personality>

How does it make you feel?



Observations

Plant habit -

trailing, upright, climber, clump

Leaf shape / morphology -

venation, margin, arrangement, variegation

Leaf Texture -

thin, tough cuticle, smooth, fuzzy / hairy, drip tip

Leaf arrangement -

lateral or axillary

Internodes and Petioles -

petiole length, thickness of stems, texture

Flowers and fruit -

attachment location, shape

Root Structure -

taproot vs fibrous roots, aerial roots, thickness

Any other notable structures or features -

Types of Plant Parents

Design Based - element of

interior design

Mindful - highly interactive with plants

Curious Collector - scientific minded

Urban Farmer - plants with a purpose

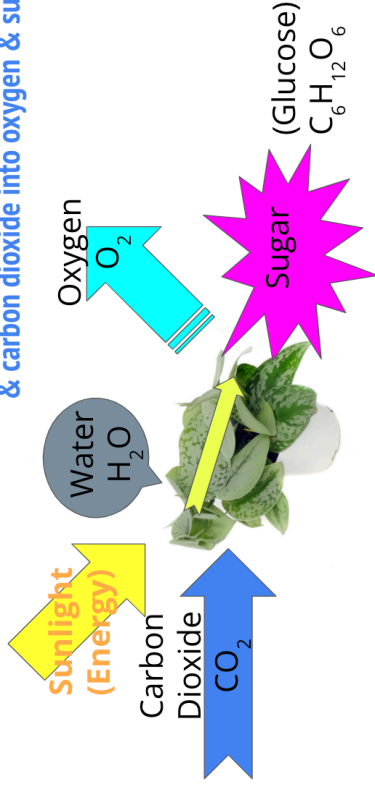
Low Key - Thrives on neglect and a busy schedule

[Leaf Morphology - Wikipedia](#)



Olive Hill Greenhouses - Make N' Take

Photosynthesis
Energy from sunlight transforms water & carbon dioxide into oxygen & sugars



Brainstorm...

What does the simple sugar become within the plant?

How do we utilize these sugars / carbohydrates in our human lives?

In other words, where are all the places that we encounter plant products in our daily lives?

Plants also consume VOCs in the atmosphere

VOCs are Volatile Organic Compounds

Volatile = evaporates at room temperature

Organic = composed of carbon

Brainstorm ...

What are different types of volatile organic compounds?

Where do they come from?

When you are exposed to chemicals, how do they physically make you feel?

The effects on Humans after VOC removal

- ❖ Improved creativity and productivity
- ❖ Less sick days
- ❖ Less sick building syndrome - dry throat, dry eyes
- ❖ Improved return to health during hospital stays

Benefits of plants

- ❖ Psychological - Mental Well-Being
- ❖ Educational
- ❖ Social
- ❖ Relaxation & Emotional Well-Being
- ❖ Physiological & Physical Well-Being
- ❖ Aesthetic - Beauty

Watering

Common Error overwatering

Goal: Moist to Dry

- + Actively growing, more photosynthesis = more water
- + Warm environment = higher water loss
- + Thin leaves or larger leaf surfaces
- + Container porosity
- Soil has good water holding capacity
- + Large plant in a small pot, time to replant if pot bound

Dead Leaves?

The Circle of Life

Leaf loss occurs to improve air circulation & light exposure

Trimming tips?

Don't cut on green, cut where the leaf tissue turns brown

Light

Bright, indirect light is preferred

- ❖ More light = more active growth = less susceptible to overwatering
- ❖ Leaf temperature is important
South and West facing windows produce warmer light and may scorch leaves
If it does get scorched, move it further away from the light / heat source