Magnify It!

Activity Overview

Students will work together to identify parts of plants (including root structures, leaf shapes, and flower parts) using correct scientific terminology. They will learn the function of these plant parts, and how plants are classified according to shared characteristics.

Science Subjects: biology, botany, environmental science, and life science

Grade Levels: 4th - 12th

There are separate materials for upper elementary/middle school and high school

Time Estimate: 1 hour (4 plants at about 15 minutes each)

Materials

- Magnify it! Cards two versions available depending on grade level.
- Plant samples (4-6 real or artificial). Real plants are best as they have the most detail for students to complete the cards.
- Magnifying glasses as a class set or enough for each group.
- Illustrated plant structures handout

Preparation

Gather enough samples for each group to have one of each of the plants and a flower.

> Flower Plant Suggestion: Potted lily plants or tulips work well.

Download the illustrated plant structures handout and Magnify it! cards (answer keys also available).

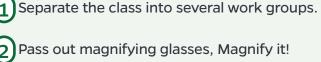
Learning Objectives

- Identify plants' leaf shapes, leaf arrangements, structures, and habits.
- Use scientific terminology to identify plant characteristics.
- Describe why correctly describing plant parts/characteristics helps us to identify plant species.

Key Ouestions

- What characteristics are needed to describe or identify a plant?
- How would you describe various plant characteristics?
- Why is it useful to use botanical terminology?

Instructions



- cards, and the illustrated plant structures handout.

Go over the vocabulary on the illustrated plant structures handout.

Pass out the plant samples to the groups. Examine one of the plant samples with the class and start discussing the plant parts.

- 5 As a class, go through the process of filling out on of the Magnify it! cards identifying: leaf shape, root structures, stem, habitat, and flowers (if applicable).
- Continue filling out the cards as a class or in groups, depending on the grade level.

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CENTER FOR AQUATIC AND INVASIVE PLANTS **TURNING SCIENCE INTO SOLUTIONS**



Woody plan	Herb ts are plants that co	aceous plants a ntain lgnified tiss			,	g woody or woo	od fibers.	
Is the plant (circle answer):	herbaceous	OR woody	•	If it is WOO	dy is it a:	tree	shrub	vine
If it is herbaceous, what is	its habit? (Circle be	st answer)	ascending	climbing	cree	eping	erect	sprawling
If it is a vine Does it climb?	Yes	What does it use	e to climb? _	Twining o	counter	clockwise		
ROOTS: fibrous ta	proot (tuber	s bulk	þ	corm	rhizome (belov	/-ground runner)	stolon (above	-ground runner)
LEAVES: What is the leaf arr	angement (alternat	e, opposite, who	orled, etc.) ?	Alter	nate			
Is there a leaf stalk?	Stalked	Is the leaf simp	le or divided	I?Simpl	е			
If the leaf is simple, what is th	e shape of the:	blade: Ovate/I	Heart	blade tip:	cuminate	blade	corda	te
Is the blade margin (circle ans		smooth	toothed					
Hairs on top of the blade (circ	e answer):	all over	on the v	eins or	n the midvein			
Hairs on the bottom of the bla	de (circle answer):	all over	on the v	eins or	n the midvein			
Measure largest blade: let	ngth =	width =	M	easure smalle	st blade: le	ength =	width	=
If leaf is divided: once divid	led twice divided	three times	divided H	ow many leafl	ets?	Number	of leaflets: ev	en odd
cientific name: Dioscor	ea bulbifera	2		C	ircle one:	native	non-native	





		Herbaceous plants	•	-			Jnivers
	loody plants are plants the second seco	nat contain lignified tis	sues (cells wi	th lignin in them); c	ontaining woody or w	ood fibers.	012 L
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If it is herbaceo	IS, what is its habit? (Cir	cle best answer)	ascending	climbing	creeping	erect spraw	/ling o
If it is a vine Do	es it climb?	What does it us	e to climb?				
ROOTS: fibrous	taproot	tubers bu	lb d	corm rhizo	me (below-ground runner)	stolon (above-ground	runner)
LEAVES: What is	the leaf arrangement (al	ternate, opposite, wh	orled, etc.) ?	Alternat	е		
	?Yes						
	, what is the shape of th				te bla	Acute, 5	Tapered
Is the blade margi		smooth	toothed				
	blade (circle answer):	all over	on the ve	eins on the	midvein		
Hairs on the botto	n of the blade (circle ans	wer): all over	on the ve	eins on the	midvein		
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If leaf is divided:	once divided twice d						
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		Herbace	eous plants	are plants that	at are not "woody."				
Woody	plants are plants		•		vith lignin in them); co	ontaining woody or	wood fibers.		
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f it is herbaceous , wi	hat is its habit? (0	Circle best a	answer)	ascending	climbing	creeping	erect	sprawling	
f it is a vine Does it cli	imb? Yes	Wh	nat does it us	se to climb? _	Twining	stem			
COTO Change	1	tubers	1			ne (below-ground runne	ar) stolon (al	bove-ground runner)	
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					77+0-0			bove-ground runner)	
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Woody plants are plants that of	contain lignified tissues (cells with lignin in them); containing woody or wood fibers.
s the plant (circle answer):	ats You Should Know-Recognition Cards (or Flash Cards) as a reference. erbaceous plants are plants that are not "woody." contain lignified tissues (cells with lignin in them); containing woody or wood fibers. OR woody If it is woody is it a: tree shrub vine best answer) ascending climbing creeping erect sprawling
If it is herbaceous, what is its habit? (Circle b	best answer) ascending climbing creeping erect sprawling
f it is a vine Does it climb?	What does it use to climb?
ROOTS: fibrousfleshy, with tu	uberous swellings corm rhizome (below-ground runner) stolon (above-ground runner)
LEAVES: What is the leaf arrangement (altern	nate, opposite, whorled, etc.)?
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If the leaf is simple, what is the shape of the:	blade: mailto:mailto:mailto:mailto:mailto:mailto:blade blade base:
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Hairs on top of the blade (circle answer):	all over on the veins on the midvein
Hairs on the bottom of the blade (circle answer)	r): all over on the veins on the midvein
Measure largest blade: length =?	width =? Measure smallest blade: length =? width =?
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f leaf is divided: once divided twice divid cientific name: <u>Hemerocallis</u> hy	





					nition Cards (or Flash	
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					joined (at any point, partially o	
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Stamens: how m	any3	how long?	, filament (sta	lk) 1/stamen	anther (pollen sac) 1/stame	en, attached in middle
How does pollen e	xit? Yellc	w and exits	from slits		Pistil (how many stigmas cate	h pollen):
):1			
Aster FAN	ILY: flowe	rs are in cluster	r of several, sma	all flowers (a "f	lowering head")	
Does head h	ave BOTH ray	y and disc flowers	s? Do	es head have on	ly ray flowers? On	y disc flowers?
Does nead in		of petals	Col	or	Length	Width
54.05400000000 AD0000000000000000000000000000	R: Number				How many?	
DISC FLOWE		have bristles or p	apery projections	;?	How many ?	
DISC FLOWE	es tip of fruit				How many ? _ength Width_	
DISC FLOWE	es tip of fruit R: Number	of petals	Color	L		





tuberous sword fern Copyright 2012 University of Florida See Invasive and Non-native Plants You Should Know-Recognition Cards (or Flash Cards) as a reference. Herbaceous plants are plants that are not "woody." Woody plants are plants that contain lignified tissues (cells with lignin in them); containing woody or wood fibers. If it is woody is it a: Is the plant (circle answer): OR woodv herbaceous tree shrub vine If it is herbaceous, what is its habit? (Circle best answer) climbing ascending creeping erect sprawling If it is a vine... Does it climb? What does it use to climb? ROOTS: (fibrous taproot tubers bulb corm below-ground runner) above-ground runner) rhizome Alternate LEAVES: What is the leaf arrangement (alternate, opposite, whorled, etc.)? Divided Yes Is there a leaf stalk? Is the leaf simple or divided? If the leaf is simple, what is the shape of the: blade; oblong/lanceolate blade tip: Bluntly acute to oblique blade base: obtuse Is the blade margin (circle answer): smooth toothe eaflet Information Hairs on top of the blade (circle answer): on the midvein all over on the veins Hairs on the bottom of the blade (circle answer): all over on the veins on the midvein Measure largest blade: length = width = Measure smallest blade: length = width = How many leaflets? ______ three times divided If leaf is divided: twice divided Number of leaflets: even once divided Nephrolepis cordifolia Scientific name: Circle one: native non-native invasive 9 $0 \, \mathrm{cm}$ 1 2 3 5 7 8 10 11 12 13 14 15 16 17 18 19 20



Florida Invasive Plant Education Initiative • http://plants.ifas.ufl.edu/education A Collaboration of the UF/IFAS Center for Aquatic and Invasive Plants and the Florida Fish and Wildlife Conservation Commission / Invasive Plant Management Section