

# Florida Citrus Activity Book



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# **UF** | **IFAS Extension** UNIVERSITY of FLORIDA

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Cover Design by Kathy Snyder**

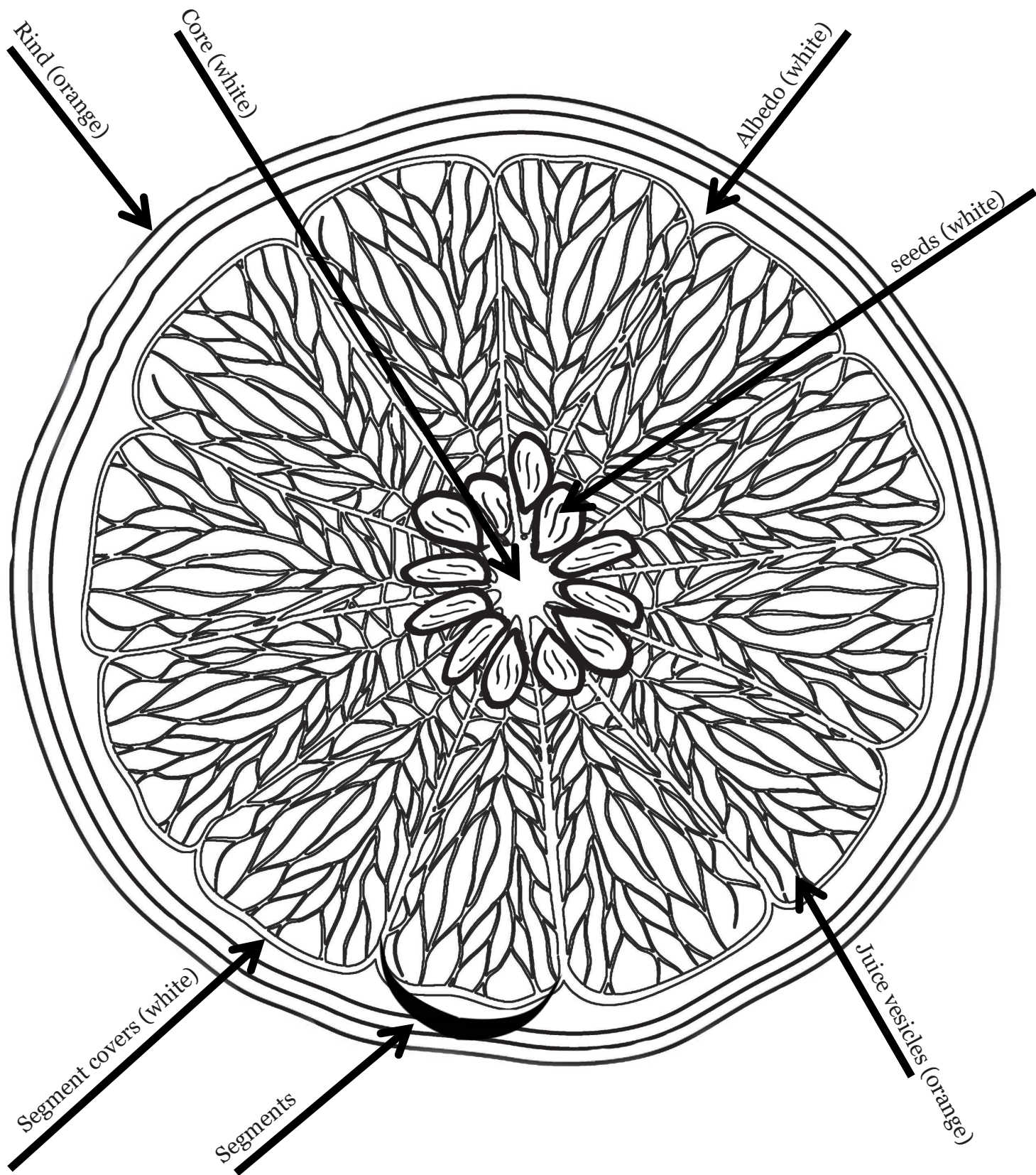
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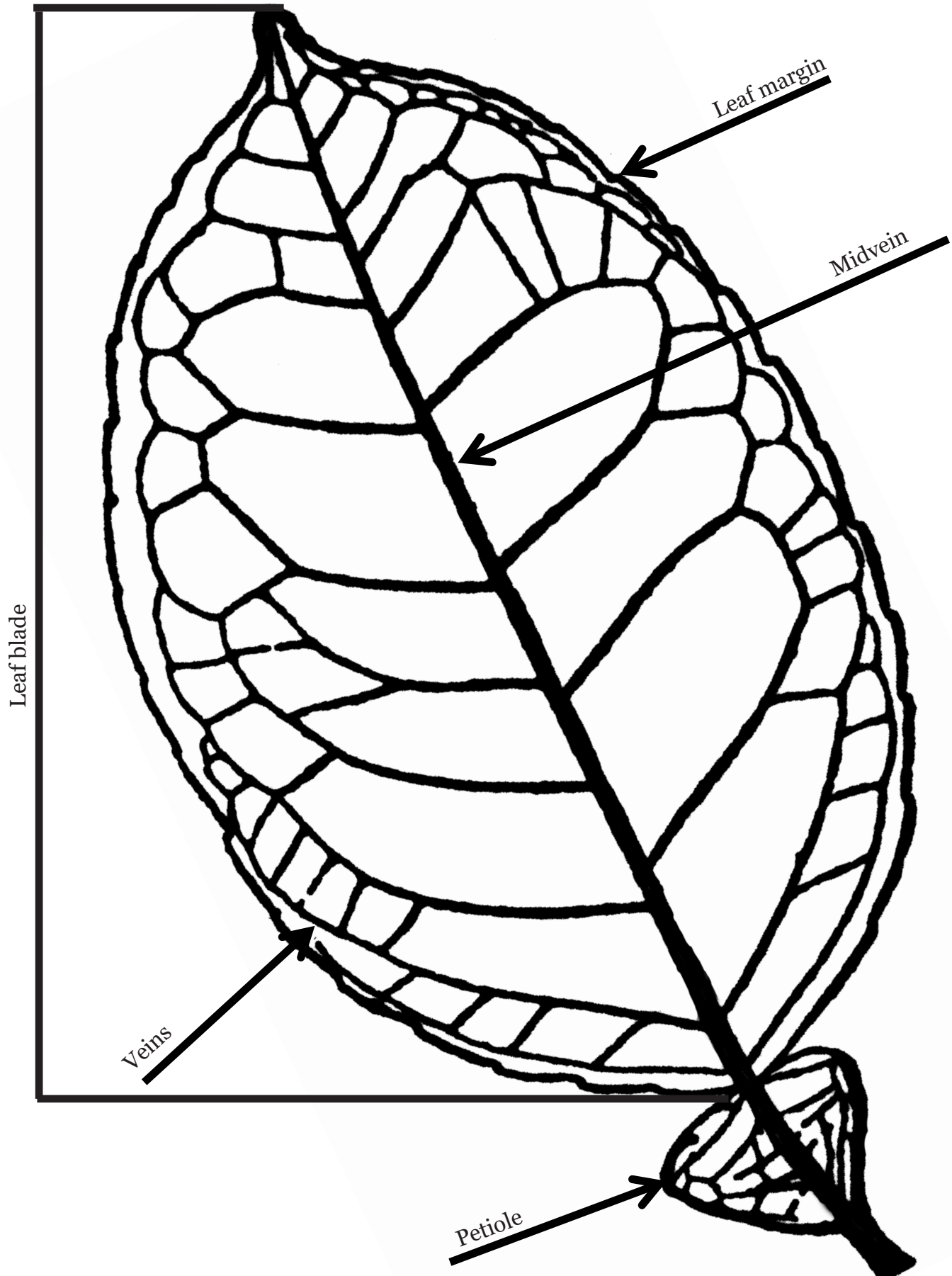
# Parts of an Orange

Directions: Color the parts of the orange.



**FUN FACT:** Citrus fruit are modified berries.

# Parts of a Citrus Leaf



**FUN FACT:** Leaves are the primary site for food manufacturing in plants through the process called photosynthesis. Color the leaf green.

# Parts of a Citrus Tree

**Directions:** Label the parts of the tree and color.

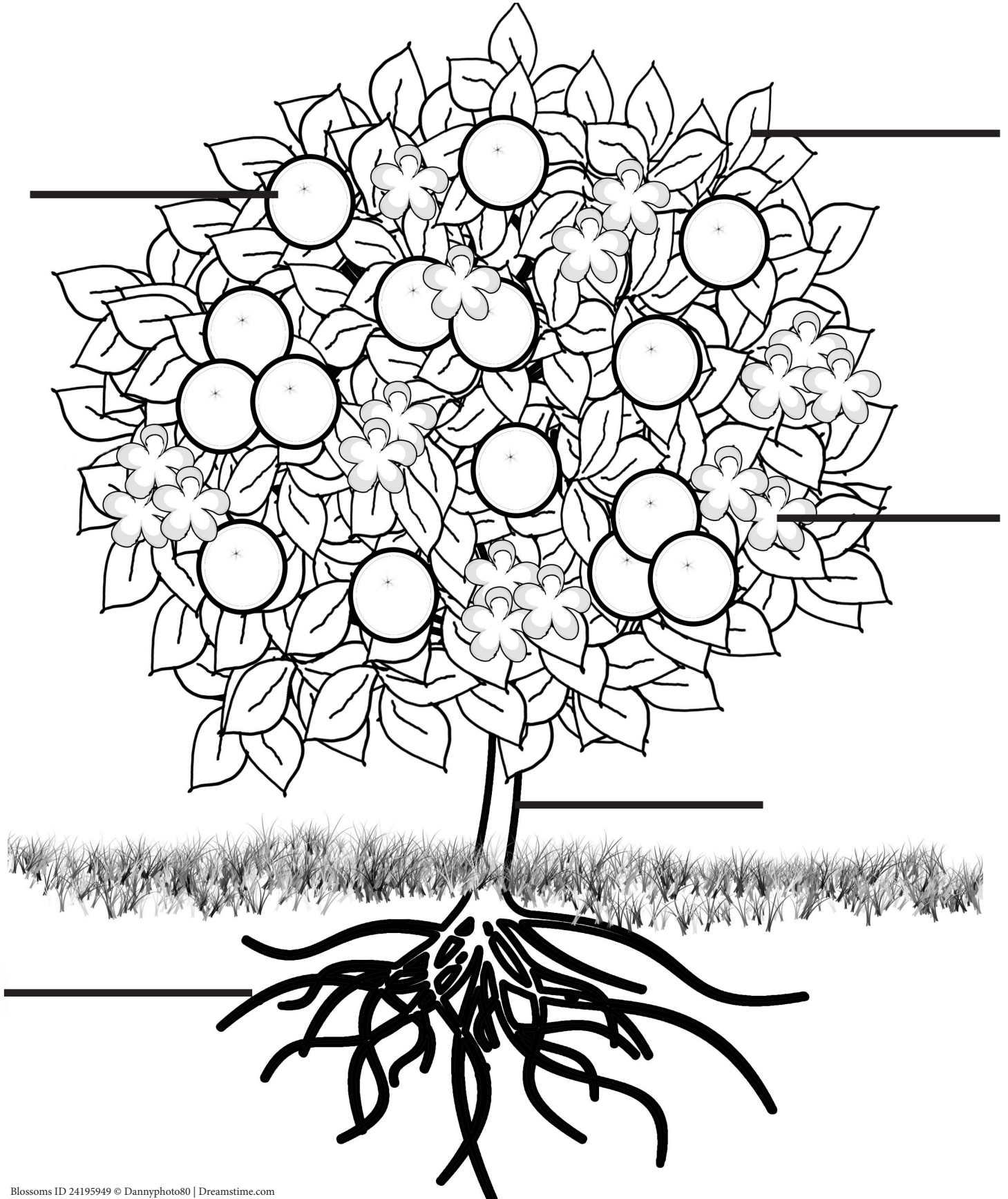
**Roots**

**Leaves**

**Fruit**

**Trunk**

**Flower (Blossom)**



Blossoms ID 24195949 © Dannyphoto80 | Dreamstime.com

**FUN FACT:** Valencia orange is one of the few varieties that can carry two crops of fruit at one time.

# Citrus Varieties

Below is a list of major Florida citrus varieties and their typical harvest period.

## Oranges

Navel (October–January)  
Hamlin (October–January)  
Parson Brown (October–January)  
Valencia (March–June)

## Grapefruit

Duncan (December–May)  
Thompson (December–May)  
Flame (November–May)  
Ruby Red (November–May)

## Lemons and Limes

Meyer Lemon (November–March)  
Bearss Lemon (July–December)  
Tahiti Lime (June–September) Key  
Lime (All year)

## Tangerines and Tangelos

Murcott Tangerine (January–March)  
Sunburst Tangerine (November–December)  
Minneola Tangelo (December–February)  
Satsuma (September–November)

## Miscellaneous

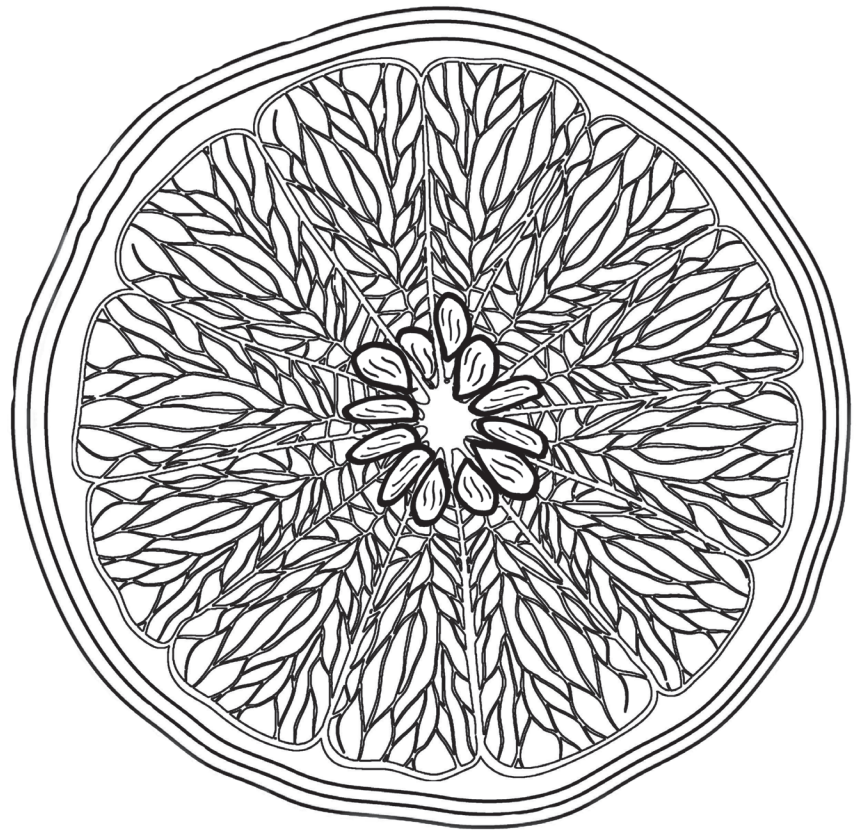
Calamondin (November–April)  
Nagami Kumquat (November–April)  
Tavares Limequat (November–March)  
Nakon Pummelo (December–February)

## DID YOU KNOW?

- **In Florida citrus, the term seedless means zero to six seeds. Although the Navel orange is considered seedless, you may find a few seeds.**
- **The Minneola Tangelo's nickname is the Honeybell because it is very sweet and in the shape of a bell.**
- **The majority of Florida's oranges are squeezed into juice.**
- **Grapefruit from Florida is shipped to Japan by boat.**
- **You can eat an entire Kumquat, even the peel.**
- **Satsuma is one of the earliest tangerine varieties and grows best in north Florida.**

**Directions:** Count the number of seeds in the orange.

Number of seeds: \_\_\_\_\_



What is your favorite citrus fruit? \_\_\_\_\_

# Citrus Diseases

Citrus trees can get sick just like people. There are three causes of diseases: fungi, bacteria, and viruses.

## Bacterial Diseases

Citrus Canker  
Citrus Greening

## Fungal Diseases

Greasy Spot  
Citrus Scab  
Alternaria Brown Spot  
Melanose  
Citrus Black Spot  
Phytophthora Root Rot  
Brown Rot

## Viral Diseases

Tristeza  
Exocortis



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**Directions:** Below is a list of common citrus diseases. Using the lists above, identify their cause of disease. Write “B” for bacterial, “F” for fungal, and “V” for viral.

\_\_\_\_\_ Exocortis

\_\_\_\_\_ Alternaria Brown Spot

\_\_\_\_\_ Brown Rot

\_\_\_\_\_ Greasy Spot

\_\_\_\_\_ Citrus Black Spot

\_\_\_\_\_ Melanose

\_\_\_\_\_ Citrus Canker

\_\_\_\_\_ Phytophthora Root Rot

\_\_\_\_\_ Citrus Greening

\_\_\_\_\_ Tristeza

\_\_\_\_\_ Citrus Scab

# Citrus Canker

Citrus canker is a very contagious disease for citrus trees. It does not harm people. It makes oranges, grapefruit, lemons, and tangerines look very bad. Although it is not pretty on the outside, you can still eat the fruit.



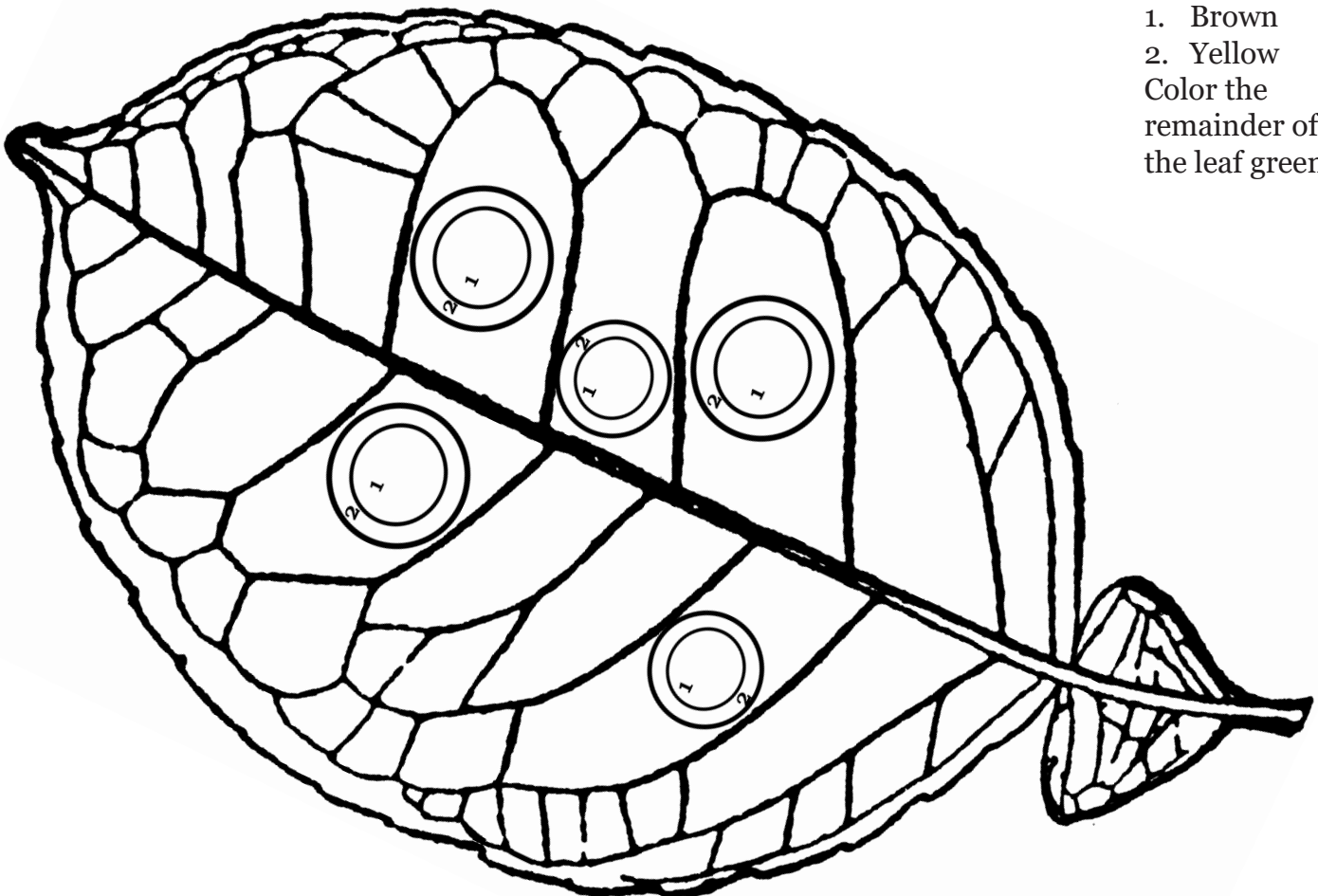
Citrus canker lesions (spots) are usually tan when first formed. As the lesions get older, they form a yellow circle around the tan lesion. This is called a yellow halo or yellow ring. You can see the same symptoms on both leaves and fruit. The yellow halo is commonly seen when identifying canker.



The lesions feel rough and are raised. They are not smooth like the leaf. As the lesions get older, they turn dark brown to black. You can sometimes see a sticky substance oozing out of the lesion. This is where the bacteria lives and, when the wind blows, it spreads the bacteria.

## Color By Number

1. Brown
  2. Yellow
- Color the remainder of the leaf green.

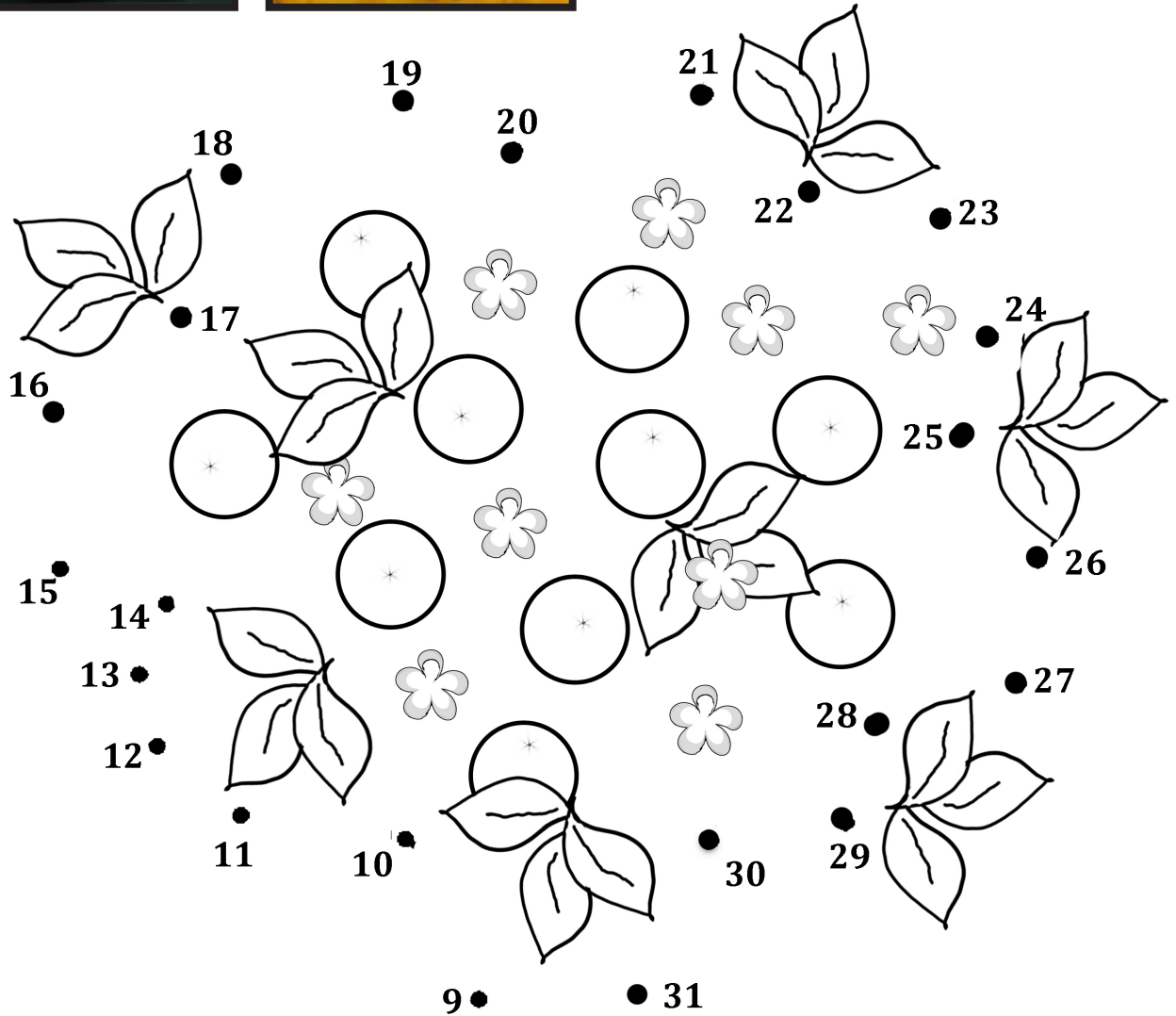




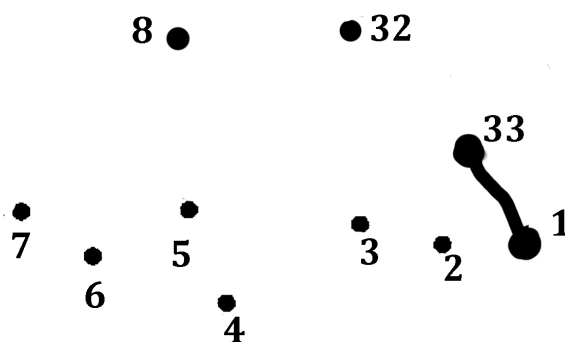
# Citrus Black Spot



Citrus black spot is a fungal disease that causes various types of spots on the fruit. The most common type is hard spot. It is round and sunken. If you look inside the circle, you can see little dots. The little dots are the fungal structures.



**Directions:** Connect the dots and color the picture.



# Fungal Diseases

Fungal diseases reproduce well in moist and humid conditions. Florida has the perfect conditions for fungal diseases. The most common fungal diseases are greasy spot, scab, melanose, and alternaria. Citrus fruit infected by fungal diseases may look bad, but it does not harm the inside of the fruit. You can still eat the fruit!



**Greasy Spot**

Looks like dust on fruit surface



**Melanose**

Feels like sandpaper



**Citrus Scab**

Looks like warts



**Alternaria Brown Spot**

Looks like craters

**Directions:** Fill in the crossword puzzle with the common citrus fungal diseases found in Florida.

**Greasy Spot**

**Scab**

**Melanose**

**Alternaria**

**D**

**I**

**S**

**E**

**A**

**S**

**E**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Citrus Greening

Citrus greening is a bacterial disease. Its official name is Huanglongbing (HLB). The leaf symptoms have a blotchy mottle pattern. It causes fruit to be lopsided and small; the rind does not color properly. The fruit may taste bitter and sour. It affects oranges, grapefruit, tangerines, tangelos, lemons, and limes—all citrus varieties!



Blotchy mottle pattern



The curved central core inside of a grapefruit

**Directions:** Circle the words in the puzzle below.

BACTERIA

CITRUS

FRUIT

GRAPEFRUIT

GREENING

HLB

HUANGLONGBING

LOPSIDED

MISSHAPEN

ORANGES

PHLOEM

PSYLLID

SMALL

TANGERINES

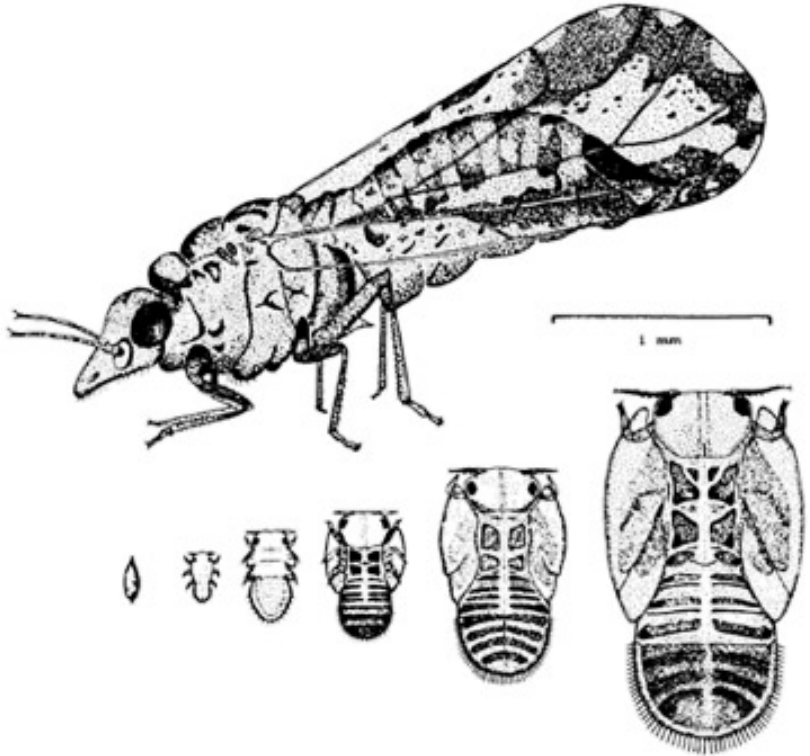
S S G R B T L F B E G Z M T D  
H U A N G L O N G B I N G A E  
B C I I S R S P X J M F S N D  
D D I X R E A W A I T F R G I  
X L J T G E R P S M E I U E S  
P L T N R I T S E V M H X R P  
H R A I R U H C G F K E K I O  
L R Q R F A S G A S R H M N L  
O X U R P G E M N B U U M E Y  
E F U E G N I N E E R G I S W  
M I N P S Y L L I D B E I T Q  
T L L A M S V R V M P L Y T U  
R U A X Z H T M I K E V H O D  
W M W N X B G E T I G A A M A  
D Q V O D G N F K W P N A R M

# Asian Citrus Psyllid

The Asian citrus psyllid is the insect responsible for spreading the bacteria that causes citrus greening. It is a small insect, about 3-4 millimeters in length (smaller than a grain of rice).

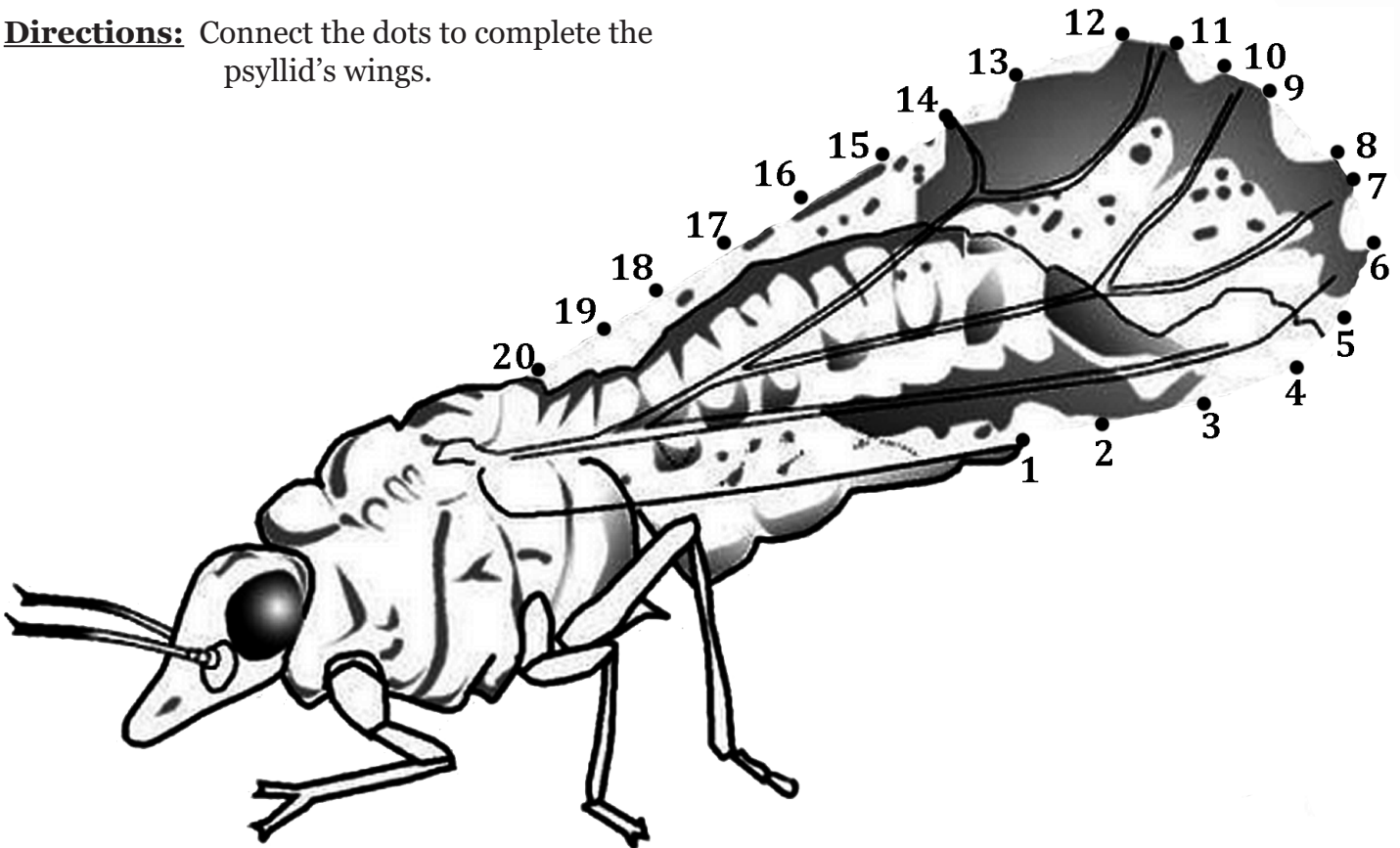


The female psyllid lays the eggs on the new flush (new leaves) of citrus trees. It takes about 14 days for the eggs to hatch. The psyllid nymphs then go through 5 stages before becoming an adult.



Psyllid egg and the 5 nymph stages

**Directions:** Connect the dots to complete the psyllid's wings.



# Citrus Leafminer

Leafminer is a very small moth, but the larvae stage can cause severe damage on citrus leaves. The larvae tunnels underneath the leaf's skin (cuticle), eating the nutrients. It then grows while leaving a trail before finally emerging as an adult.



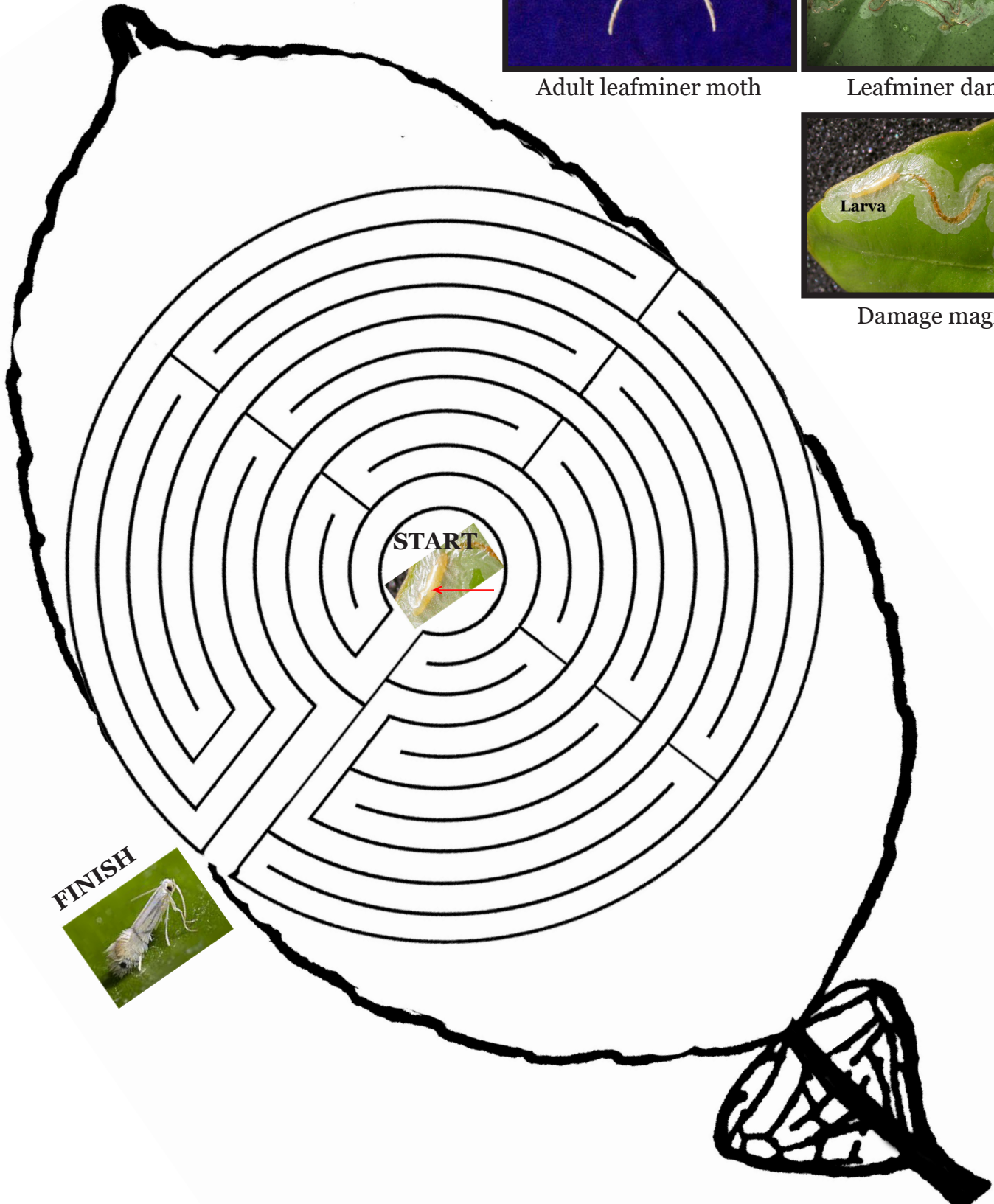
Adult leafminer moth



Leafminer damage



Damage magnified



**Directions:** From start (larvae) to finish (adult moth), help the larvae grow into an adult.

# Weeds

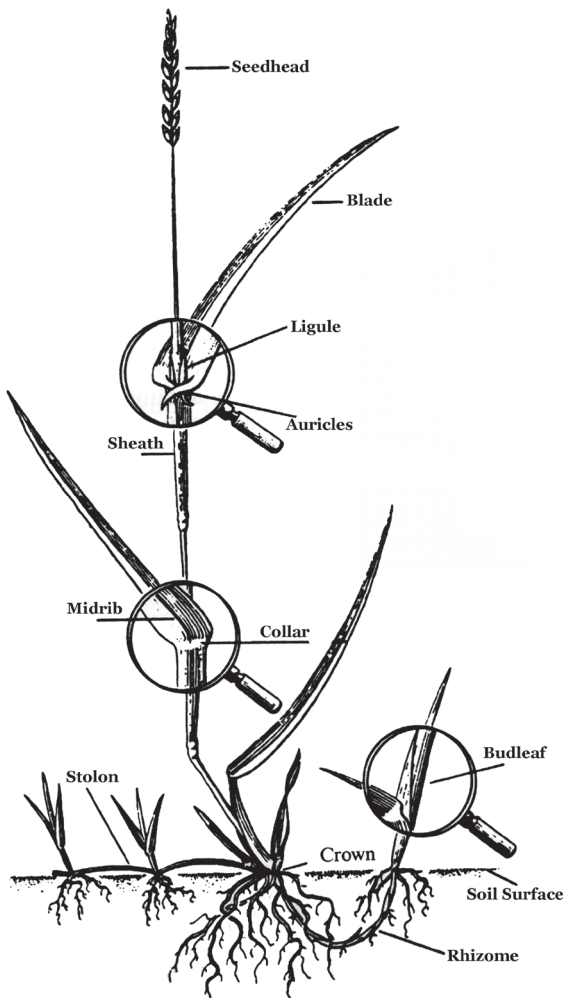
Citrus pests and diseases play a major role in citrus care but weeds compete for water, nutrients, sunlight, and space for growth; therefore, weeds are an important part of plant care too. Weeds act as substitute hosts of insect pests and diseases. Weeds are super abundant seed producers; some weeds such as Spanishneedles can produce as many as 5,000 seeds per plant per year! Weeds reproduce through seeds or through sprouting from rhizomes, stolons, and bulbs found under the soil. Weeds can be a grass, a broadleaf, or a sedge.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26

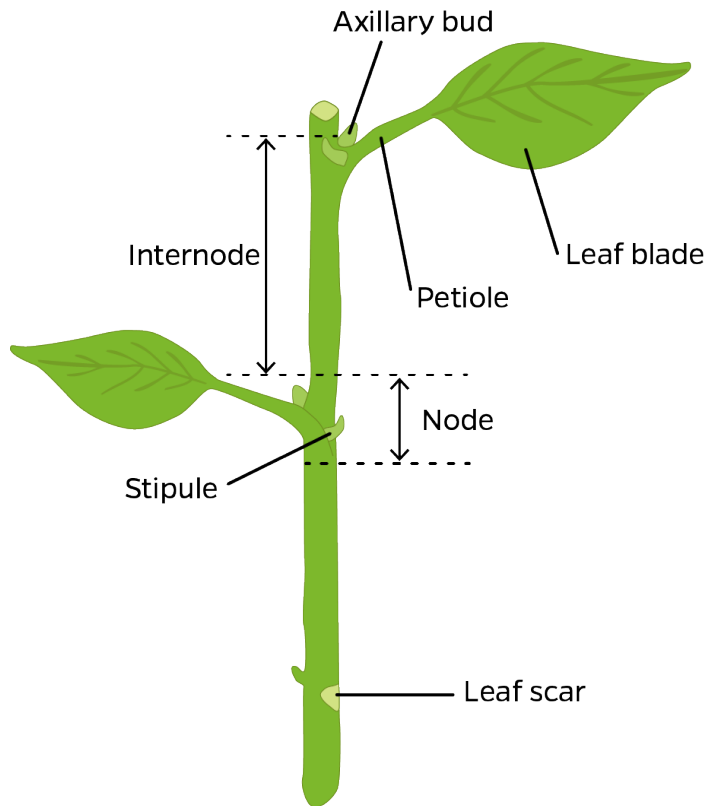
23    5    5    4    19    1    18    5    21    14    23    1    14    20    5    4

**Directions:** Using the key above, complete the statement by matching the numbers and filling in the corresponding letter.

## Parts of Weeds



***Grass weed***



***Broadleaf weed***

# Recipes

Always remember to check with an adult before starting!

## Honey Grapefruit Delight

### Ingredients

- 2 Florida grapefruit
- 2 tablespoons honey
- 3 tablespoons sliced toasted almonds

### Yogurt Sauce:

- 1 cup nonfat plain yogurt
- 2 tablespoons honey
- 1/4 teaspoon grated grapefruit peel
- 1/4 teaspoon almond extract

### Steps

1. Peel and slice grapefruit into 1/2" thick rounds.
2. In a large bowl, combine grapefruit and honey; toss lightly to coat.
3. Cover and chill until ready to serve.
4. In a small bowl, mix sauce ingredients; stir well.
5. Divide grapefruit slices among 4 individual dishes.
6. Top with yogurt sauce; sprinkle with almonds.

Serves 4.

## Florida Sunshine Shake

### Ingredients

- 1 cup orange juice
- 1/2 cup grapefruit juice
- 1 ripe banana
- 1/2 cup lowfat vanilla yogurt
- 1/2 teaspoon vanilla

### Steps

Combine all ingredients in a blender until smooth. Pour into glasses and serve immediately.

Makes two 8-ounce servings.

## Orange Tango

### Ingredients

- 3/4 cup frozen orange juice concentrate, thawed
- 2 large mangos peeled and chopped or two 8 ounce bags chunked frozen mango
- 2 cups lemon sherbet
- 1 1/2 cups milk or almond milk
- 1 teaspoon vanilla

### Steps

1. In a blender, combine thawed concentrate and mango chunks.
2. Cover and blend until mixture is smooth.
3. Add sherbet, milk, and vanilla.
4. Cover and blend until smooth.

Pour into glasses and serve immediately.

Makes five 8-ounce servings.

## Orange Juice Cake

### Ingredients

- 1 package (2 layer size) yellow cake mix
- 1 4-ounce package lemon instant pudding mix
- 4 eggs
- 3/4 cup corn oil
- 3/4 cup orange juice

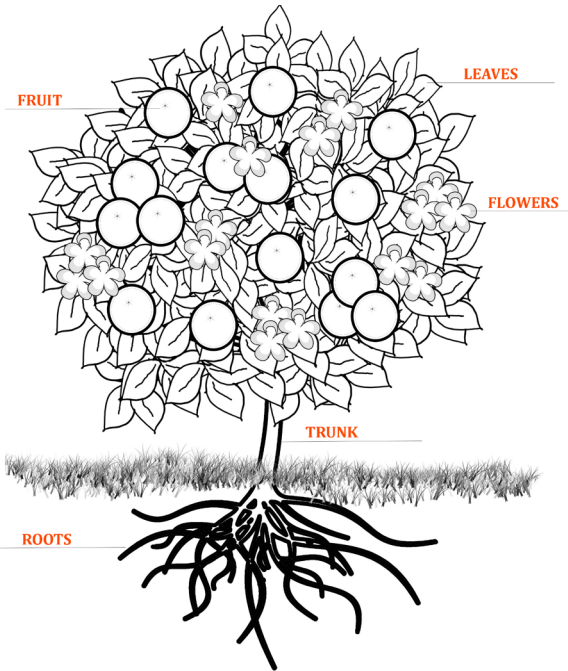
### Steps

1. Combine the cake mix, pudding mix, eggs, corn oil, and orange juice in a mixing bowl.
2. Beat at low speed for 2 minutes, scraping the bowl constantly.
3. Spoon the batter into a greased and floured tube pan or 9 x 13-inch cake pan.
4. Bake in preheated 325 degree oven for 45 minutes.
5. Cool completely before frosting or enjoy without.

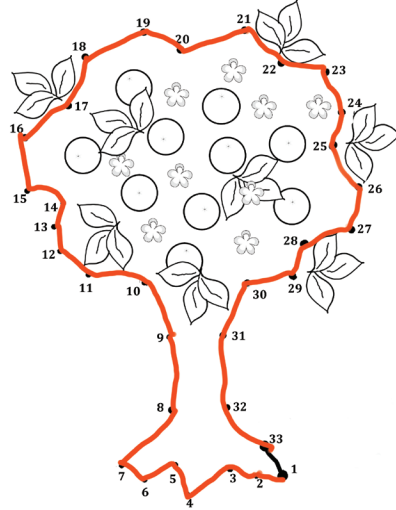
Makes 10 servings.

# Answer Key

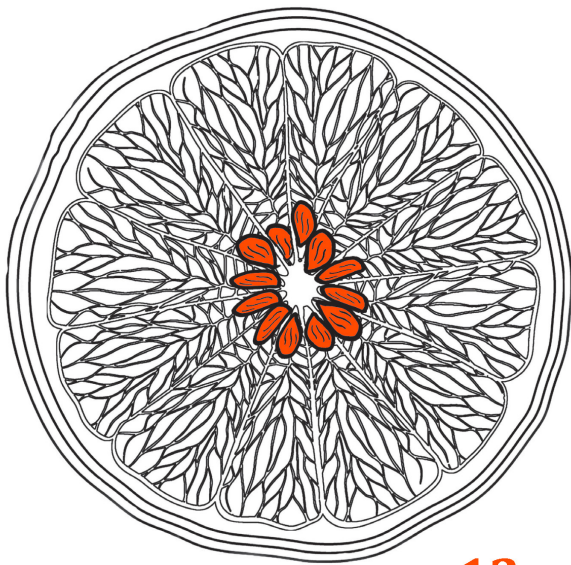
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Number of seeds: **12**

Page 10

**D**  
**I**  
**S** **C** **A** **B**  
**G** **R** **E** **A** **S** **Y** **S** **P** **O** **T**  
**A** **L** **T** **E** **R** **N** **A** **R** **I** **A**  
**S**  
**M** **E** **L** **A** **N** **O** **S** **E**

Page 11

S S G R B T L F B E G Z M T D  
H U A N G L O N G B I N G A N D I S  
B C I I S R S P X J M F S A N D I S  
D D I X R E A W A I T F R G E S  
X L J T G E R P S M E I U R I S  
P L T N R I T S E V M H X R P O  
H R A I R U H C G F K E K I L  
L R Q R F A S G A S R H M N L  
O X U R P G E M N B U U M E Y  
E F U E G N I N E E R G I S W  
M I N P S Y L L I D B E I T Q  
T L L A M S V R V M P L Y T U  
R U A X Z H T M I K E V H O D  
W M W N X B G E T I G A A M A  
D Q V O D G N F K W P N A R M

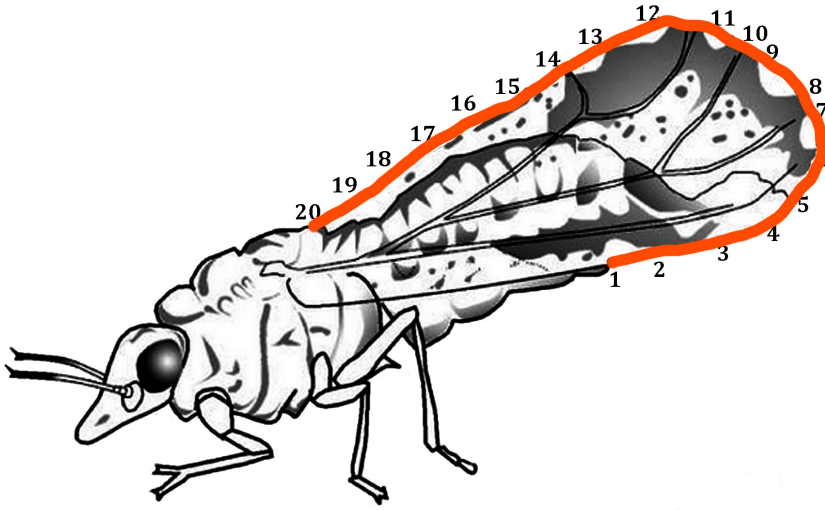
Page 7

<u><b>V</b></u> Exocortis	<u><b>F</b></u> Alternaria Brown Spot
<u><b>F</b></u> Brown Rot	<u><b>F</b></u> Greasy Spot
<u><b>F</b></u> Citrus Black Spot	<u><b>F</b></u> Melanose
<u><b>B</b></u> Citrus Canker	<u><b>F</b></u> Phytophthora Root Rot
<u><b>B</b></u> Citrus Greening	<u><b>V</b></u> Tristeza
<u><b>F</b></u> Citrus Scab	

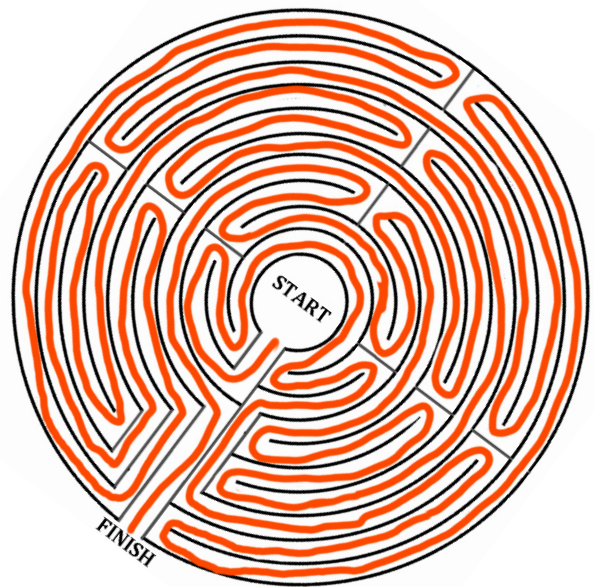


# Answer Key

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Page 14

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26

W   E   E   D   S   A   R   E   U   N   W   A   N   T   E   D  
 23   5   5   4   19   1   18   5   21   14   23   1   14   20   5   4

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*Oranges* DigitalJuice Juice Drops No. 31 Food Fusion 3104\_JuiceDrop  
*Leaves* ID 7883689 © Waivefamiso|Dreamstime.com

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*Tree (leaves, fruit, trunk, roots, and grass)* Katherine M. Snyder, UF/IFAS CREC  
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*Question mark* ID 30493170 © Alexyndr|Dreamstime.com  
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*Orange with lens* ID 852963 © Johanna Goodyear|Dreamstime.com

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*Canker leaf and fruits* Jamie D. Burrow, UF/IFAS CREC  
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*Simulated canker lesions (circles) on leaf* Katherine M. Snyder, UF/IFAS CREC

## Page 9

*Citrus black spot* Megan M. Dewdney, UF/IFAS CREC  
*Tree outline (leaves, fruit, and trunk)* Katherine M. Snyder, UF/IFAS CREC  
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## Page 10

*Greasy spot* Megan M. Dewdney, UF/IFAS CREC  
*Citrus scab* Megan M. Dewdney, UF/IFAS CREC  
*Melanose* Jamie D. Burrow, UF/IFAS CREC  
*Alternaria* Jamie D. Burrow, UF/IFAS CREC

## Page 11

*Blotchy mottle pattern* UF/IFAS CREC  
*HLB infected grapefruit* Jamie D. Burrow, UF/IFAS CREC

## Page 12

*Adult Asian citrus psyllid* Michael E. Rogers, UF/IFAS CREC  
*Adult female and nymphal instars of Asian citrus psyllid* Drawing by Division of Plant Industry. <http://entnemdept.ufl.edu/creatures/citrus/acpsyllid.htm>  
*Connect the dot activity* Drawing by Division of Plant Industry. <http://entnemdept.ufl.edu/creatures/citrus/acpsyllid.htm>. Modified by Katherine M. Snyder, UF/IFAS CREC

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*Adult leafminer moth* Photograph by Jeffery W. Lotz, Florida Department of Agriculture and Consumer Services, Division of Plant Industry. [http://entnemdept.ufl.edu/creatures/citrus/citrus\\_leafminer.htm](http://entnemdept.ufl.edu/creatures/citrus/citrus_leafminer.htm)  
*Leafminer damage* UF/IFAS CREC  
*Leafminer damage magnified* UF/IFAS CREC  
*Magnified larva (maze starting point)* UF/IFAS CREC  
*Adult leafminer moth (maze finishing point)* Photo by Jack Kelly Clark [http://cizr.ucr.edu/citrus\\_leafminer.html](http://cizr.ucr.edu/citrus_leafminer.html)  
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## Page 14

*Grass weed* North Carolina State University. [https://content.ces.ncsu.edu/extension-gardener-handbook/6-weeds#section\\_heading\\_7497](https://content.ces.ncsu.edu/extension-gardener-handbook/6-weeds#section_heading_7497)  
*Broadleaf weed* UF/IFAS Communications

## Page 15

*Honey Grapefruit Delight recipe* FDOC FG0002 10/98 IMM, Honey & Florida Grapefruit – Sweet & Healthy (brochure)  
*Florida Sunshine Shake* Florida Department of Citrus, 1998  
*Orange Tango* Florida Department of Citrus, 1998  
*Orange Juice Cake* Simply Florida: A taste of Flavors from the Sunshine State, Florida Extension Association of Family and Consumer Sciences, University of Florida, Gainesville, 2007, pg. 121

## Back Cover Page

*Trunk and roots with grass* Katherine M. Snyder, UF/IFAS CREC  
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*Oranges* DigitalJuice Juice Drops No. 31 Food Fusion 3104\_JuiceDrop  
*Leaves* ID 7883689 © Waivefamiso|Dreamstime.com



# Eat Florida Citrus!



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