
RIGHT PLANT,
RIGHT PLACE
1
LANDSCAPING PRINCIPLES FOR
FLORIDA-FRIENDLY YARDS

UNIT 1: Introduction and Right Plant, Right Place

In-Class Activity: Placing Plants

You will be assigned the task of placing plants in their designated zones on the map of Florida based on their descriptions.

Example: "I am a red mangrove tree. I enjoy the sun and the sand and like to watch the tides change. I provide a habitat for oysters and other creatures. Where do I live?"

In small groups, become **plant ecologists** and place the plant species within the proper vegetation type/habitat and hardiness zone on the map.

Why do you need to know where plants should go? Proper plant placement helps to make sure that plants will grow! Florida has four different climate-dependent growing regions called hardiness zones. The "hardiness" of a plant is the ability of the plant to survive a given period of cold weather. A lower zone number means lower temperatures. The farther south you travel, the higher the zone number gets!

As a scientist, you have to recognize that there are a variety of landforms in Florida, such as coastlines, dunes, rivers, and lakes, and understand that different plants require different climates to thrive in these areas.

Take a look at the topographical map of Florida that is in your workbook on page 38. What do you notice about the map's geographic features? Can you point out any of the habitats we discussed? Then, look at the questions below. Each question describes a plant that needs to be placed properly. See if you can place plants both according to their habitat and hardiness zone (map provided on page 39 of workbook). Can you identify the plants based on your current knowledge and their descriptions? Hint: Look at the photos of the plants. Their visual characteristics might help you identify their habitat and/or hardiness zone.

Find each plant on *The Florida-Friendly Landscaping™ Guide to Plant Selection and Landscape Design* or in the Plant Guide app (https://ffl.ifas.ufl.edu/plants/) and write the plant's name on the map in the spot where you think it would most likely be found. Don't worry if there is more than one answer. Sometimes, plants are found in more than one geographic location!

1. I am a Red Mangrove tree. I enjoy the sun and the sand and like to watch the tides change. I provide a habitat for oysters and other creatures. Where do I live?

2. I am a Two-Winged Silverbell. I can tolerate freezing temperatures. I live in sandy soil and can tolerate some sun but prefer shade. My bell-shaped small white flowers appear before my leaves. Where do I live?

3. I am a Cocoplum. I do not like the cold, but I do like animals. Sometimes I like the sun, but other times, I enjoy the shade. I produce a plum that is sweet to the taste, even though I really like salt. Where do I live?

4. I am a Floss-silk Tree. I grow very fast but don't like the cold. I grow in any well-drained soil, but I don't like salt. Where do I live?

5. I am a Royal Palm. I love warm weather and hate when it's cold. I don't like tons of salt. Where do I live?

6. I am a Loblolly Bay. I do best in moist areas and am not very drought tolerant. I don't like salt. I can be in the sun, but prefer partial shade. Where do I live?

7. I am a Gumbo Limbo Tree. When I grow up, I am really tall—about 40 feet! I like mostly warm, sunny weather and salt. My leaves fall off as it gets colder. Where do I live?

8. I am a Florida Maple. I like freezing temperatures and very acidic soil. I am very drought tolerant but don't like salt. Where do I live?

9. I am an Inkberry. I love the salt and dry conditions like those found in sand and loam. I do well in the heat and full sun. Where do I live?

10. I am a Fringetree. I don't mind cold weather. I will tolerate sun but prefer a little shade. I also don't mind when it gets windy but don't like salty conditions. Where do I live?

Home Activity: Plant Placement Scavenger Hunt

Use *The Florida-Friendly Landscaping™ Guide to Plant Selection and Landscape Design* or the Plant Guide web app and the checklist on the next page to find plants around your home or school. Score points for each plant you find, up to the total number of possible points. This activity can be competitive or noncompetitive. For competitive scavenger hunts, the individual or team with the highest point total wins.

If you live in an area where there is not a lot of vegetation, see what you can find around your school, library, or local park. Bring your *Florida-Friendly Landscaping™ Guide to Plant Selection and Landscape Design*, and be safe and go with a parent!

Plant or Item	Possible Points	Points Awarded
Large Trees		
Red maple (p. 32)	10	
Sand pine (p. 34)	5	
Live oak (p. 36)	5	
Medium Trees		
Japanese blueberry (p. 39)	10	
Crape myrtle (p. 40)	5	
Swamp bay (p. 41)	10	
Small Trees		
Loquat (p. 45)	10	
Olive (p. 47)	5	
Podocarpus (p. 47)	5	
Large Shrubs		
Agave (p. 50)	10	
Pawpaw (p. 51)	10	
Beautyberry (p. 52)	5	
Small Shrubs		
Aloe (p. 64)	5	
Rosemary (p. 66)	10	
Vines		
Trumpet creeper, trumpet vine (p. 67)	10	
Morning glory (p. 68)	5	
Passion vine (p. 69)	10	
Wildlife		
Butterfly	5	
Hummingbird	10	
Bird	5	
Other Florida-Friendly Plants or Wildlife from Guide		
	10	
	10	
	10	
	10	
	10	
Point Total (out of 200)		

Further Florida-Friendly Activity

Be a Plant Detective

In this unit you learned about habitats and types of plants that live in different places. If you would like to learn more about habitats, go with an adult and record your observations.

Become a **plant detective** and ask yourself the following questions: What do you notice about the geography? What animal life can be found there? Are any of the plants you learned about present in that habitat? If you are in a park or natural area, you may want to ask a naturalist, park staff member, or volunteer to tell you more about the type of habitat you visited.

See Your Reflection

What was the most challenging part of this unit?


WATER
EFFICIENTLY
2
LANDSCAPING PRINCIPLES FOR
FLORIDA-FRIENDLY YARDS

UNIT 2: Water Efficiently

In-Class Activity: Water Managers

Water management districts adopt rules and programs that help the Department of Environmental Protection do its job of managing water quality and quantity. Choose a water management district and study what they do. Do you think the water needs and uses in each area of Florida are similar or different? Why or why not? Create a visual plan for your chosen water management district and then explain your plan to the rest of the class.

Water Management District Review

Which water management district did your group choose to study?

What are the needs that are specific to the water management district?

What are the major ideas that your groups water management plan includes?

Home Activity: Water, Water Everywhere

Survey the sprinklers you have in your yard. Are all the sprinkler heads the same? If they're not, classify them by how they distribute water, how far they distribute it, and whether they are in the ground or above the ground when they are off.

Keep track of the amount of water the **grass** is fed and rainfall amount for an entire week using your rain gauge or shallow tin cans. Record this information below.

Classification of Sprinkler Heads

Number of each type:

_____

How far is the water projected from each type of sprinkler head?

_____

Length of water application in minutes for one watering event:

_____

Location of each type when not running (In-ground, Aboveground, or Both):

_____

Day	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Sprinkler Amount (collected from grass area)							
Rainfall Amount							

Common Sprinkler Guide

Left: This is a "rotor" sprinkler. The head pops up, then spins in a circle that you determine through adjustments.

Right: This is a "sprayer" sprinkler called a "pop-up" sprinkler. The sprinkler head (or top of the sprinkler) pops up and down when water is turned on but does not spin or move from side to side. The shape of the spray is determined by setting a small screw on top. You might need help from an adult or groundskeeper.

Draw the most common type of sprinkler you see.

Further Florida-Friendly Activity

Irrigation Interview

In previous activity you learned about residential sprinklers. If you would like to learn more about irrigation practices, go with an adult to your nearest golf course and ask the greenskeeper if he or she can show you the kinds of sprinklers and timing for golf course irrigation.

You may also choose to visit a landscaped city or county park and ask the landscape supervisor how its landscape is irrigated.

Be sure to prepare yourself with a list of questions prior to interviewing the landscape professional.

See Your Reflection

What have you learned about landscape irrigation?

Why is it important to conserve water when watering the lawn?

What did you learn about observing and recording data?


FERTILIZE
APPROPRIATELY
3
LANDSCAPING PRINCIPLES FOR
FLORIDA-FRIENDLY YARDS

UNIT 3 Fertilize Appropriately

In-Class Activity: Plants and pH

Dig a hole near your classroom in the landscape with a trowel. Add a trowelful of dirt to a cup, then add two times more distilled water than dirt. Mix thoroughly. Dip the litmus paper into the water to take the pH reading. Repeat two more times in different areas a fair distance apart. What Florida-Friendly plants can live in the three locations?

	pH Reading	Ideal Plant
Hole 1		
Hole 2		
Hole 3		

Home Activity: Learning with Marigolds

Do you know what happens when you fertilize a plant? During this activity, you will see what happens when you fertilize a plant with the recommended amount of fertilizer and what happens when you apply more fertilizer than recommended. Do you think it will grow faster?

Get three marigold plants from your leader. Water one with distilled water, one with the recommended amount of fertilizer, and the final one with 3 times the amount of fertilizer. Do this once a week for two more weeks. Water with tap water once a day until damp in between fertilizer applications. Keep a record of plant heights, number of flowers/buds, color of plants, and characteristics each day. At the end of 3 weeks, which plant do you think will be the healthiest?

Week One—Observations on Height, Blooms/Buds, and Appearance							
	Day 1—fertilizer application	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
None							
Recommended Rate							
3x Recommended Rate							

Week Two—Observations on Height, Blooms/Buds, and Appearance							
	Day 8—fertilizer application	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14
None							
Recommended Rate							
3x Recommended Rate							

Week Three—Observations on Height, Blooms/Buds, and Appearance							
	Day 15—fertilizer application	Day 16	Day 17	Day 18	Day 19	Day 20	Day 21
None							
Recommended Rate							
3x Recommended Rate							

Further Florida-Friendly Activity: Dr. Dirty Soil

Have you ever wondered what kind of soil you have? Try the activity below to determine the soil type.

Fill a clear container, such as a glass canning jar, two-thirds full of water, and add soil from anywhere in your yard until it nearly fills the jar. Add a pinch of laundry detergent (dry or liquid) to help the layers separate. Put on the lid and shake the jar to mix all ingredients together. Put the jar aside in a place where it won't be touched or moved for several days.

Over the next several days, the mixture will begin to separate into layers. The sand particles drop to the bottom because they are the largest and heaviest. The next layer is silt. The layer closest to the top is the clay layer. In fact, if your water is still murky it means that some of the clay hasn't yet settled into a layer, which is why the mixture needed to sit for several days. Organic matter will float to the top.

Next, measure the height of all three layers. Then, measure the height of each layer separately. Divide the individual layer height with the total height of all three layers. Do this for all 3 layers and multiply by 100, and you will have the percentage of each texture present in the sample.

See Your Reflection

Explain how soils can be different.

What did this unit teach you about fertilizing appropriately?


MULCH
MULCH
4
LANDSCAPING PRINCIPLES FOR
FLORIDA-FRIENDLY YARDS

UNIT 4 MULCH

In-Class Activity: Many Mulches

You will learn about the different types of mulch through the senses of sight and smell. You will be asked to inspect mulch (texture, color, etc.) and identify its source.

Examine the mulches provided to you and compare and contrast the samples. Record this information below.

A **mulch**:

- Is any material applied to the soil surface to protect or improve the covered area.
- Helps reduce evaporation of water from the soil surface.
- Holds back weeds from growing when mulch is weed-free and applied deeply enough to prevent germination.
- Maintains soil temperature and improves water absorption and percolation.
- Reduces erosion and improves appearance.
- Adds organic material to soil as it decomposes.

	Hypothesized Mulch Type	Visual Description (Texture, Color, etc.)	Description of Smell	Organic or Inorganic Mulch	Actual Type of Mulch
Mulch 1					
Mulch 2					
Mulch 3					
Mulch 4					
Mulch 5					

Home Activity: There Is So Mulch to Plant!

Everyone will receive a potted plant. The group will be divided into an experiment group and a control group. The experiment group will receive mulch with their plant; the control group will not receive mulch. As a class, hypothesize about what will happen to the plants that receive mulch. Write your hypothesis as an "if-then" statement (i.e., If ___ is done, then ___ will happen.)

You will record the lighting conditions, the location of your plant, the type of soil in which it was planted, and the amount of water given to your plant. This information will all be given to you by your instructor. Because this is an experiment, it is important that you follow the instructions very carefully. You will be asked to record the progress of each plant by examining the plant itself (height and color), the soil moisture, and the presence of weeds for a specific period of time. Make sure to water and place your plant according to the information given by your instructor. The progress of each plant will be recorded and discussed with your entire group at a later time.

Please circle one. **My group is the control/experiment group.**

Group hypothesis:

_____

_____

Lighting conditions of my plant: _____

Location of my plant: _____

Soil type: _____

Water given: _____

Do results support/fail to support your class hypothesis? Why or why not?

_____

_____

_____

Day	1	2	3	4	5	6	7
Plant Description							
Soil Moisture Description (Moist, Wet, or Dry)							
Weeds (Yes or No)							
Height and Color							

Further Florida-Friendly Activity: Mulch Ado about Watering

You will plant three small plots (each measuring 1 sq. ft) with two plants each. Everything planted will be the same species, age, and height, with the same number of leaves. The soil in which the six plants are planted will also be identical. One plot will have no mulch, one plot will have organic mulch (eucalyptus mulch, pine mulch, or pine bark), and one plot will have inorganic mulch (stones). You will apply 1.5 gallons of water (or an appropriate amount in smaller planting areas) to each pair of plants, but then no more. Record the plants' behavior every morning and afternoon until all but one has died from lack of moisture. Remember to write down your hypothesis before doing this experiment!

See Your Reflection

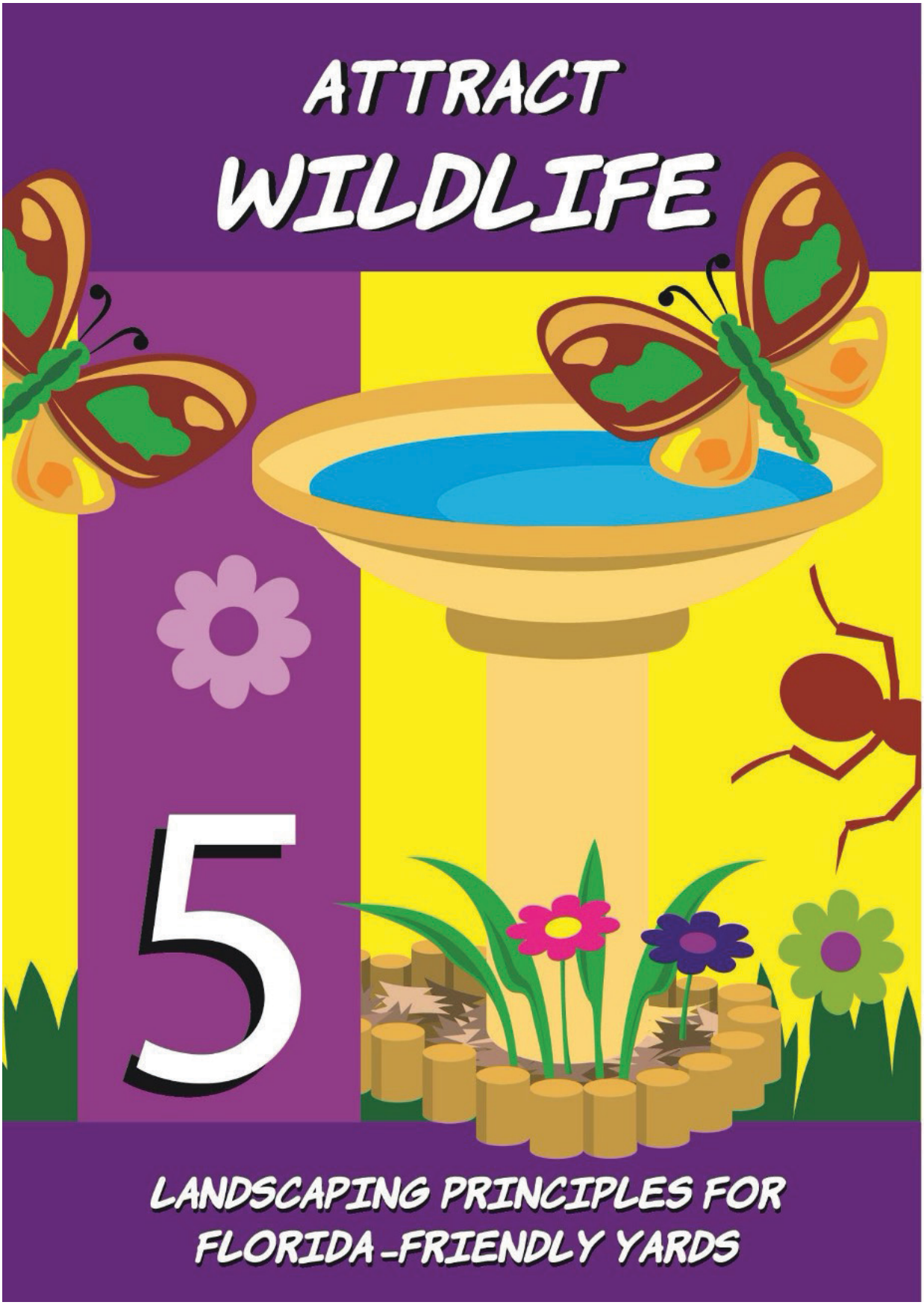
What is mulch?

Explain the difference between inorganic and organic mulch.

How can mulch be beneficial?

What did you learn about the scientific method from the mulch unit?

Which plant lived for the longest after you stopped watering? The one planted in organic or inorganic mulch?


ATTRACT
WILDLIFE
5
LANDSCAPING PRINCIPLES FOR
FLORIDA-FRIENDLY YARDS

Unit 5 Attract Wildlife

In-Class Activity: A Yard of Design Goes a Long Way

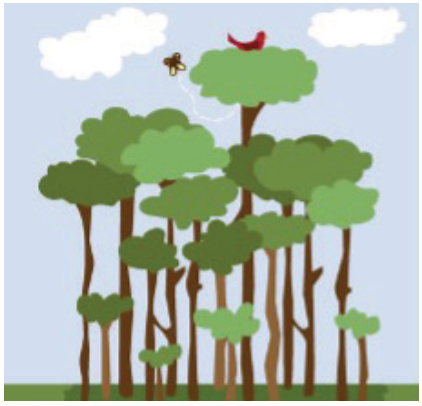
You will be asked to design a wildlife-friendly backyard, based on the following items: (1) food, (2) water, (3) shelter, and (4) a place to raise young. You can use the map and symbols in Appendix E to practice and the materials brought by your instructor to design your wildlife habitat. Following this activity, each group will present its design to the class.

Investigate and discuss whether limiting factors (food, water, shelter) can affect wildlife population in a particular area. How do humans impact wildlife?

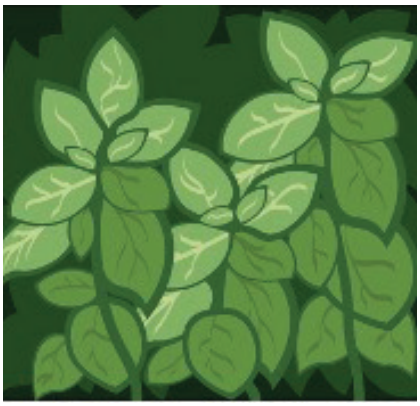
If you wish, using the yard design template and symbols (Appendix E, workbook page 42) practice mixing and matching overstory, canopy, understory, shrub, and groundcover layers with colors and plant purpose. Use the materials brought to your class by the instructor to design a wildlife habitat. Choose appropriate plants from *The Florida-Friendly Landscaping™ Guide to Plant Selection and Landscape Design*, and label your layers. Identify the benefit the plant provides to wildlife (e.g., pollen, nectar, shade, fruit, etc.). Draw in other important factors that deal with shelter, food, and water like bird baths or feeders.

Landscaping Key

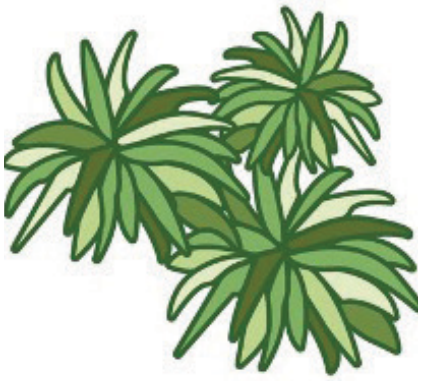
OVERSTORY



CANOPY

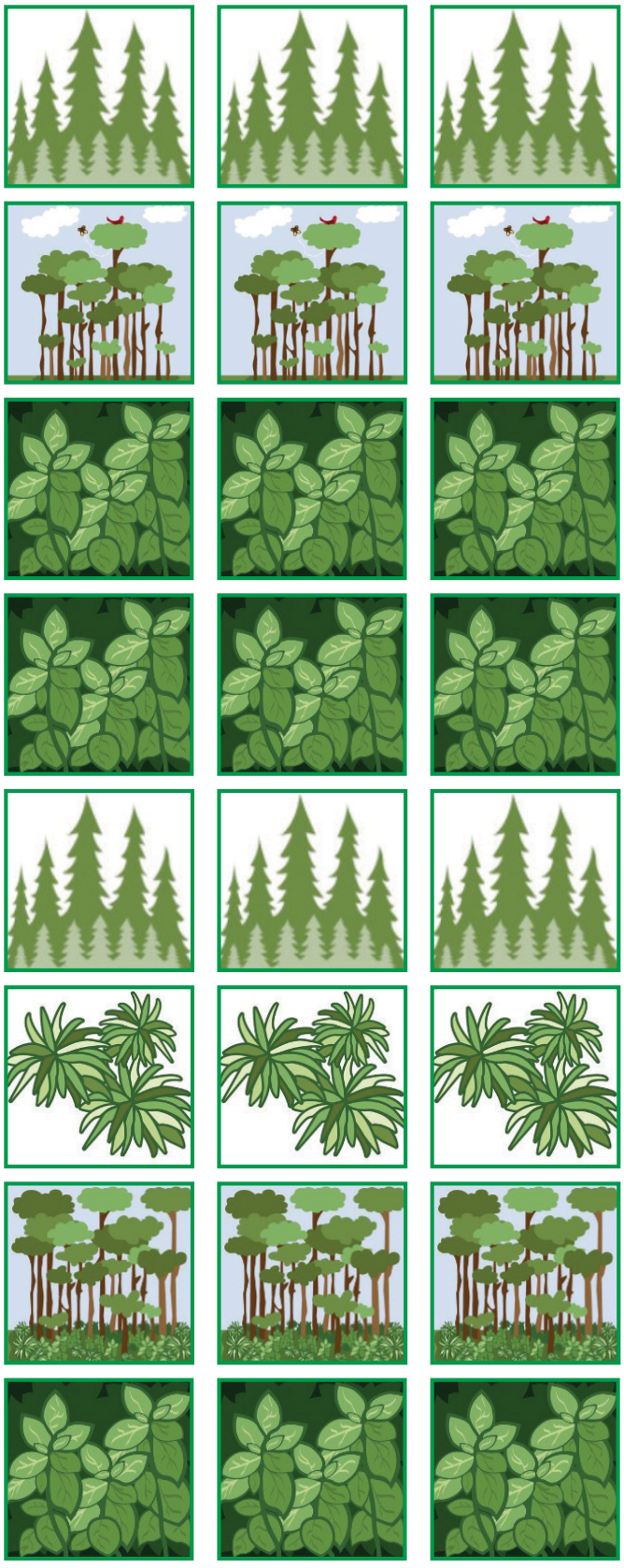


GROUNDCOVER



SHRUB

UNDERSTORY



Directions: Use these items to practice mapping out your wildlife-friendly yard. Make sure to label your plants on your final design.

Home Activity: This Feeder Is for the Birds!

For this activity, you will assemble your own bird feeder using a pinecone, peanut butter, and birdseed. Before you put out the bird feeder, explain which local birds you expect to be attracted to your space. Observe and record the type of birds that are eating at your feeder for the next five days.

Day	1	2	3	4	5
Bird Species or Descriptions					

Further Florida-Friendly Activity: Hummingbird Happiness

Find "Hummingbird Happiness" at home. This may also be a good group project at a school yard, park, community garden, or Extension office.

Purchase two hummingbird feeders and follow directions to set them up. One feeder will be set up on the east side of your house or another structure and the other on the west. Also, purchase plants with red, tubular, native flowers, if you do not already have these at home. Firebush (*Hamelia patens*) is a good example of a native plant with that description. One feeder will be surrounded by the plants with red tubular flowers, and the other will have none. The plants can be planted in the ground or left in pots.

Use a field journal or notebook to keep records. Measure "nectar" levels in the feeder twice a day, at 6:30 a.m. or earlier, and again between 6:30 and 7:00 p.m. Compare results between the feeders. Before placing the feeders in your yard, hypothesize whether the levels of nectar will be the same or different and provide reasons why any differences or similarities might occur. In what other ways could this hypothesis be tested?

Discuss the needs of hummingbirds as outlined in *Hummingbirds of Florida* (https://edis.ifas.ufl.edu/publication/UW059), and come up with a hummingbird-friendly landscape design.

See Your Reflection

What can you do to make your yard a better home for wildlife?

What are the main groups of animals you want to attract to your yard? Why?

List and discuss three of the top ten tips to make your landscape more wildlife friendly.


MANAGE
YARD PESTS
RESPONSIBLY
6
LANDSCAPING PRINCIPLES FOR
FLORIDA-FRIENDLY YARDS

Unit 6 Manage Yard Pests Responsibly

In-Class Activity: Is It an Insect?

All insects are arthropods, but not all arthropods are insects. In this activity, you will watch a presentation that teaches you how to identify whether a bug is an insect or only an arthropod.

After the presentation, you and a small team will receive cards with bugs and two buckets, one labeled "insects" and one labeled "arthropods only." You will have a relay race to put the cards in the correct buckets. The first team to finish and get them all right wins!

Home Activity: "Bye-Bye Bug Blend"

Now that you know the difference between good and bad bugs, it is important to learn how to manage yard pests responsibly. To combat yard pests, you use a labeled insecticidal soap.

Use your knowledge of experimental design to hypothesize what will happen to the plant and pests when you use the spray. Remember to tell what your results support or fail to support. Record this information on the worksheet.

1. Choose two different plants that are attracting an insect. One you will mark as A (test) and the other as B (control). Only apply insecticidal soap to plant A only.
2. Record the number of insects on each plant prior to applying the bug blend and each day for up to 5 days.

Hypothesis:

Observation of Test Plant:

Observation of Control:

Conclusion:

Further Florida-Friendly Activity: Don't Let the Bad Bugs Bite!

You saw a presentation in class today filled with both "good" (beneficial) bugs and "bad" (pests) bugs. Along with your instructor, you talked about the name of each bug, whether it is good or bad, and what it does to other bugs or plants.

Next, look at page 27 in the workbook with pictures of good and bad bugs. With parent permission, take a walk in your yard to see if you can find any of these bugs. In a notebook, record which bugs you saw and in what type of habitat you saw them. Was it in the soil or on a plant?

See Your Reflection

Describe a few of the ways arthropods differ from insects.

What percentage of insects are actually pests? What is your reaction to this information?

What is integrated Pest Management, and why is it important?

What are responsible and safe methods for control of pests?


RECYCLE
7
LANDSCAPING PRINCIPLES FOR
FLORIDA-FRIENDLY YARDS

Unit 7 Recycle

In-Class Activity: Choosing Compost Components

It is no secret that humans have had an impact on the Earth. Deforestation, erosion, and desertification can all be attributed to human actions. Because of this, it is important to give back whenever possible. Giving back includes recycling used plant matter and items for use as compost. Composting is a natural way to dispose of food and yard wastes while depositing minerals and essential nutrients into the soil. In this activity, you will be asked to identify which items are appropriate for composting and which are not.

Think further: How would you convince someone who does not believe composting is important to compost? How would you tell him or her that only certain items can be composted?

Directions: Use the magazines provided by your instructor. Cut out items that can and cannot be composted. Put the items that can be composted into your group's "compost" bin. Discuss both the items that were kept out and put in the compost bin.

Home Activity: Creating Compost

In the previous activity you learned that only certain items should be composted. For this activity, create your own compost pile! Use items from in and around your home or classroom to make your compost pile at home. You will record the items used in your compost pile, take the temperature of the pile daily, and discuss the results of using the compost on plants as well as people's reactions to composting. Record your efforts in a field guide or notebook.

If you want to help others in your community, ask for the help of a trusted adult and start a compost pile as a community service project to make a landscape in need more Florida-Friendly. List the items you place in the compost bin and observe and record the decomposition process.

Further Florida-Friendly Activity: Worm Farming for Better Gardening

Assemble a small worm farm so you can add worms to your Florida-Friendly Landscape (a process known as vermicomposting). Prior to creating your worm farms view the "Promote Global Worming" presentation (http://www.ppt-sharing.com/ppt-presentation/vermiculture-promote-global-worming). Learn more about vermicomposting in "Vermicomposting" (https://sfyl.ifas.ufl.edu/lawn-and-garden/vermicomposting/).

See Your Reflection

Define the term "compost."

In addition to its definition, what did you learn about compost from this unit?

Discuss what you learned about items that should or should not be composted. How are recycling and composting similar?


REDUCE
STORMWATER
RUNOFF
8
LANDSCAPING PRINCIPLES FOR
FLORIDA-FRIENDLY YARDS

Unit 8 Reduce Stormwater Runoff

In-Class Activity: Rain Garden

One of the biggest problems in Florida is nonpoint source pollution. Nonpoint source pollution creates a large concentration of pollution in streams and lakes, which in time becomes harmful to fish, animals, and the environment. Become a landscape design artist and help reduce nonpoint source pollution and nutrient leaching by making your very own rain garden located in north Florida. Split into small groups and design your rain garden using construction paper. Then, prepare an oral presentation to share in front of your class explaining your design. Remember to communicate clearly between one another and create the best design for the scenario.

North Florida Rain Garden Plants:

(taken from https://sfyl.ifas.ufl.edu/media/sfylifasufledu/st-johns/horticulture/pdf/Hort-6--Rain-Gardens.pdf)

Perennials for North Florida Rain Gardens

- Blue Flag Iris—*Iris virginica*
- Swamp Sunflower—*Helianthus angustifolius*
- Scarlet Hibiscus—*Hibiscus coccineus*
- Stokes Aster—*Aster Laevis*
- Swamp milkweed—*Asclepias incarnata*
- Tickseed—*Coreopsis leavenworthii*
- Blue-eyed Grass—*Sisyrinchium angustifolium*
- Climbing Aster—*Aster carolinianus*
- Cinnamon Fern—*Osmunda cinnamomea*

Shrubs for North Florida Rain Gardens

- Beautyberry—*Callicarpa americana*
- Virginia Sweetspire—*Itea virginica*
- Summersweet—*Clethra alnifolia*
- Buttonbush—*Cephalanthus occidentalis*

Trees for North Florida Rain Gardens

- Dahoon Holly—*Ilex cassine*
- Yaupon Holly—*Ilex vomitoria*
- Sweetbay Magnolia—*Magnolia virginiana*

Home Activity: Rain Harvester

It's time to put your writing and speaking skills to the test! Write a one-page persuasive paper that establishes and develops a controlling idea about the importance of stormwater runoff reduction. Gather detailed evidence by researching stormwater runoff on your own and develop supporting arguments to discuss the importance of stormwater runoff. Be sure to cite your sources. Finally, you will create a multimedia presentation or presentation board, along with your speech, to share at the next meeting.

Further Florida-Friendly Activity: Runoff Ranger

Become a **Runoff Ranger** by surveying your neighborhood with an adult. Observe at least one linear mile and note the following:

1. The number and condition of storm drains
2. The number of storm drains that are blocked by debris
3. The number of storm drains that have obvious signs of pollutants
4. The distance of the storm drains to canals or other bodies of water

Record this information on a piece of notebook paper and bring to your next class or club meeting.

See Your Reflection

Name some ways to harvest rainwater.

What is a rain garden?

How is a rain garden design different from that of a garden used to attract wildlife?

Why is it important to reduce stormwater runoff?


PROTECT THE
WATERFRONT
9
LANDSCAPING PRINCIPLES FOR
FLORIDA-FRIENDLY YARDS

Unit 9 Protect the Waterfront

In-Class Activity: Erosion Simulation

Erosion is the negative process where the Earth's surface is worn away by water, glaciers, winds, and waves. Watch the instructor as they demonstrate a simulation of erosion. Record your observation on the worksheet.

	Sandy	Topsoil	Sod
Observations:			

At-Home Activity: Design a Yard

Go to the Florida-Friendly Landscaping™ webpage at https://ffl.ifas.ufl.edu/homeowners/nine_principles.htm and review the *Nine Principles of Florida-Friendly Landscaping™*. Then use *The Florida-Friendly Landscaping™ Guide to Plant Selection and Landscape Design* to choose plants for the zone that you live in. Take this and everything you have learned in Units 1–9 to draw your own landscape design using the template in Appendix G. Make sure that you include at least two FFL principles in your design. You can include more if you like.

Be prepared to present your landscape design to the rest of your class at the next meeting time.

Further Florida-Friendly Activity: Edgy Designer

Ask a trusted to adult to help you design a small planting at the edge of a pond, a stream, or a small water feature. **DO NOT** work near canals.

First, work with the adult(s) to examine the shoreline, the extent to which a littoral shelf exists, and the depth of the water in the pond. Use *The Florida-Friendly Landscaping™ Guide to Plant Selection and Landscape Design* as well as regional guides for Zone 8 (https://edis.ifas.ufl.edu/ep436), Zone 9 (https://edis.ifas.ufl.edu/ep437; https://edis.ifas.ufl.edu/ep438) and Zone 10 (https://edis.ifas.ufl.edu/ep439) to identify the most appropriate submerged, floating or floating-leaved, and emergent plants that will serve to stabilize the shoreline. Please use the following guidelines:

Designing Your Waterfront Landscape

Determine the average water level (shoreline) fluctuations (high and low) on a yearly basis. This is especially important in stormwater retention and detention ponds because water levels may vary dramatically.

Measure maximum water depth in areas to be planted. Pay special attention to the shoreline and shallow areas where most work will take place. Without proper measurements, it is hard to determine the quantity and types of plants that will be required.

Consider increasing the size of planting zones. Soil and rocks removed to deepen one area can be used to create shallow areas elsewhere or incorporated into landscaping around the pond. Deepening the margins around the edge of a pond can help prevent undesirable plants, such as non-native torpedograss, from invading the water.

Develop a detailed planting plan that includes types and numbers of plants needed. The level of detail and accuracy of your measurements will play a key role in the planting plan. For ease in planning, divide the wetland into the three major zones: shoreline (marginal plants), shallow water (emergent and submersed plants), and deep water (floating-rooted plants).

Have a maintenance-free zone on the bank adjacent to the shoreline. Florida-Friendly Landscaping™ recommends a zone of at least 10 feet without cutting, pesticides, and fertilizers.

See Your Reflection

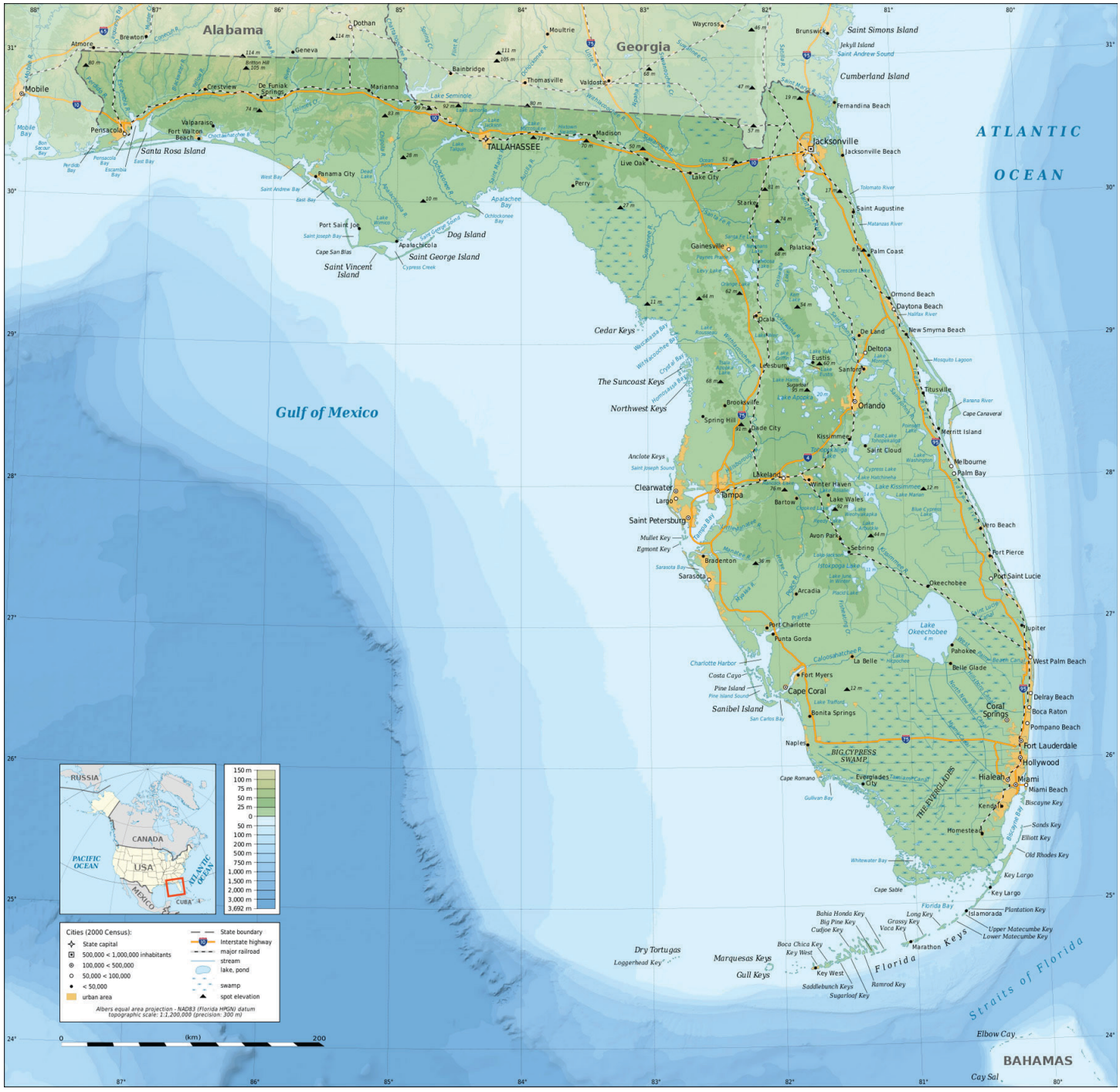
What was the most important piece of information you learned from Units 1–9?

How has this curriculum changed your view of the environment?

What was the most challenging part of Florida-Friendly Landscaping™?

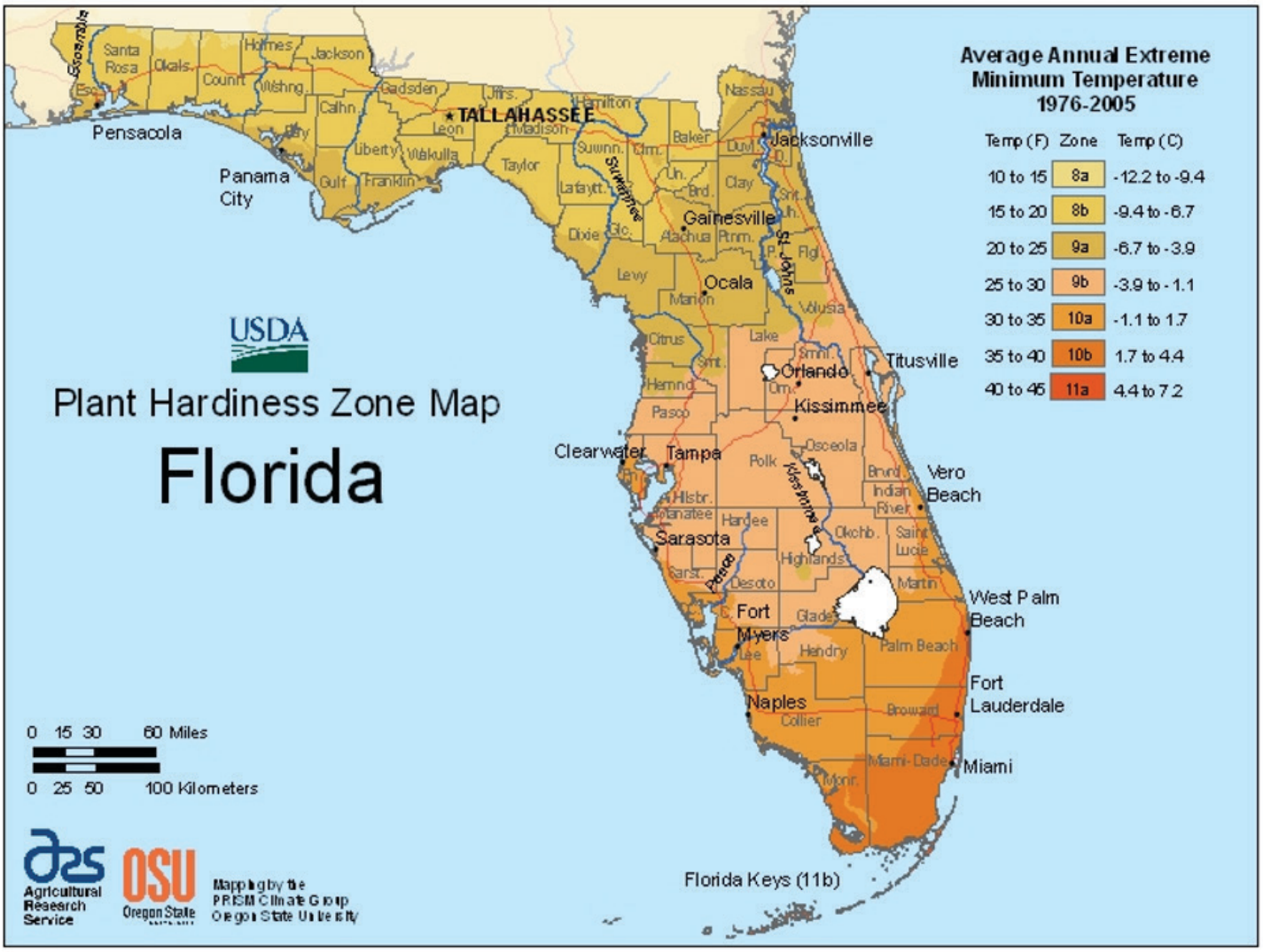
What have you done differently after learning about Florida-Friendly Landscaping™?

Appendix A – Florida Topographic Map

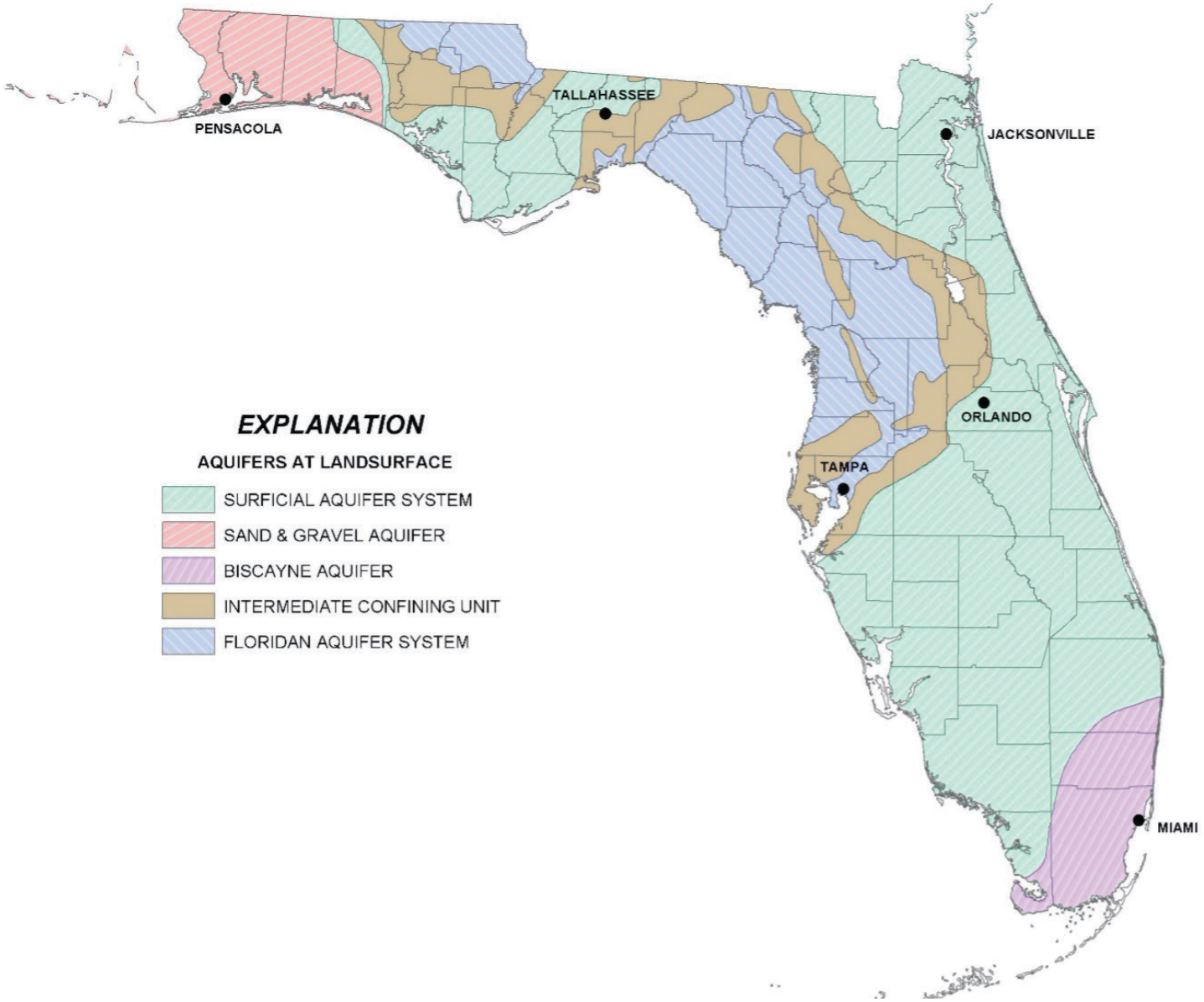


http://www.mapsof.net/uploads/static-maps/Florida_topographic_map.jpg

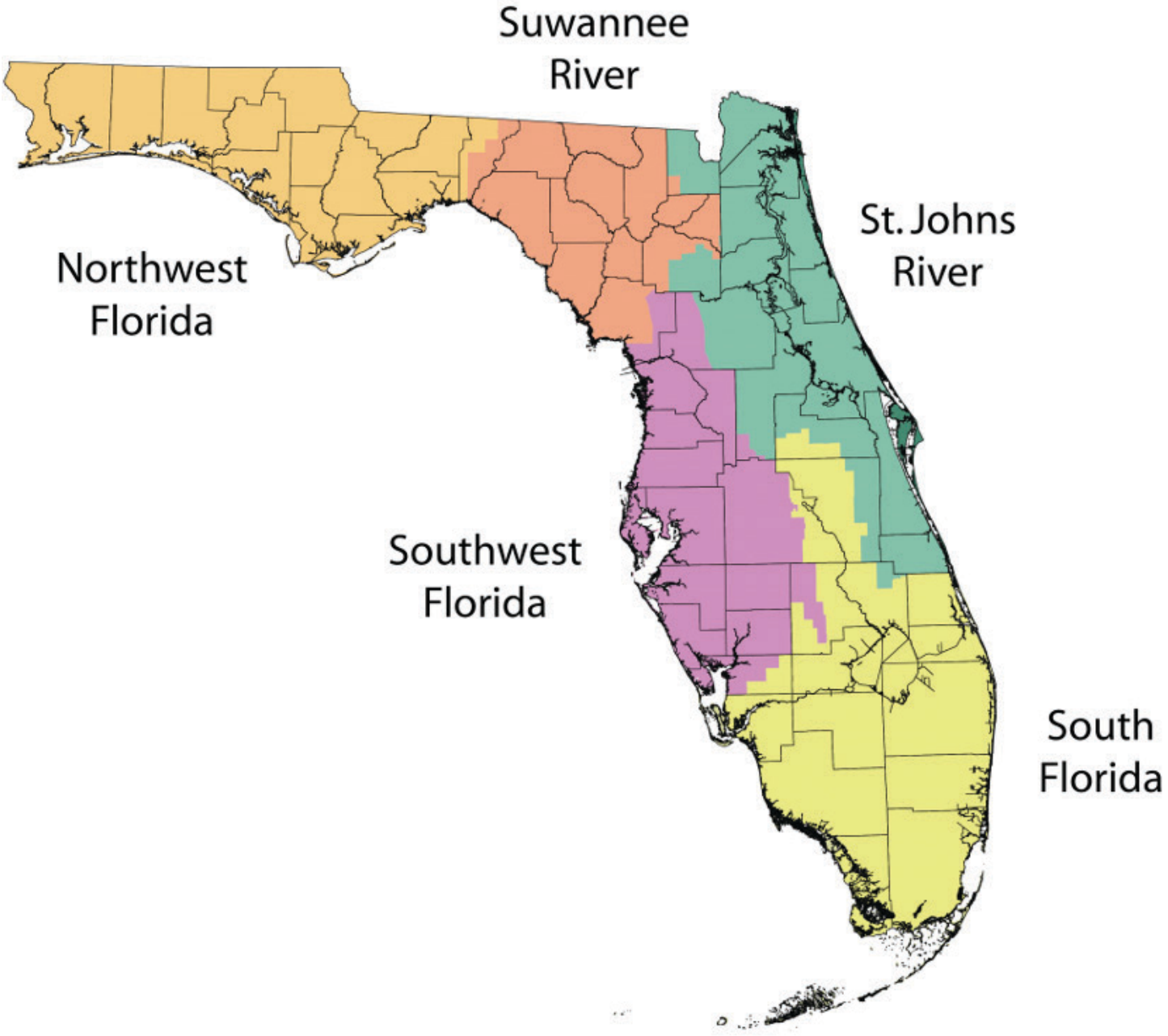
Appendix B – Plant Hardiness Zone Map



Appendix C – Florida Aquifers



Appendix D – Water Management Districts



Water Management District Websites:

Northwest Florida Water Management District: https://www.nwfwater.com/

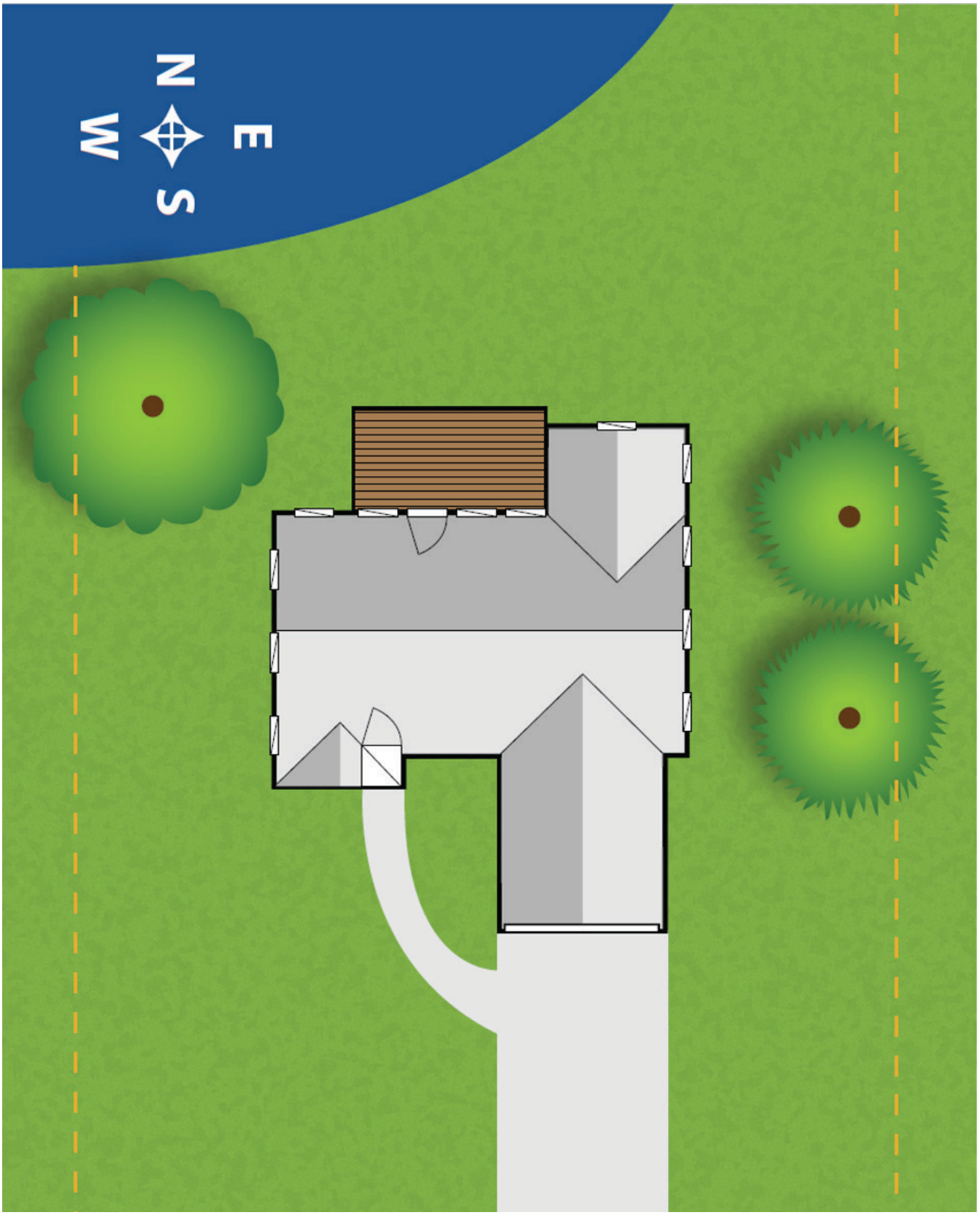
Suwanee River Water Management District: http://www.srwmd.state.fl.us/

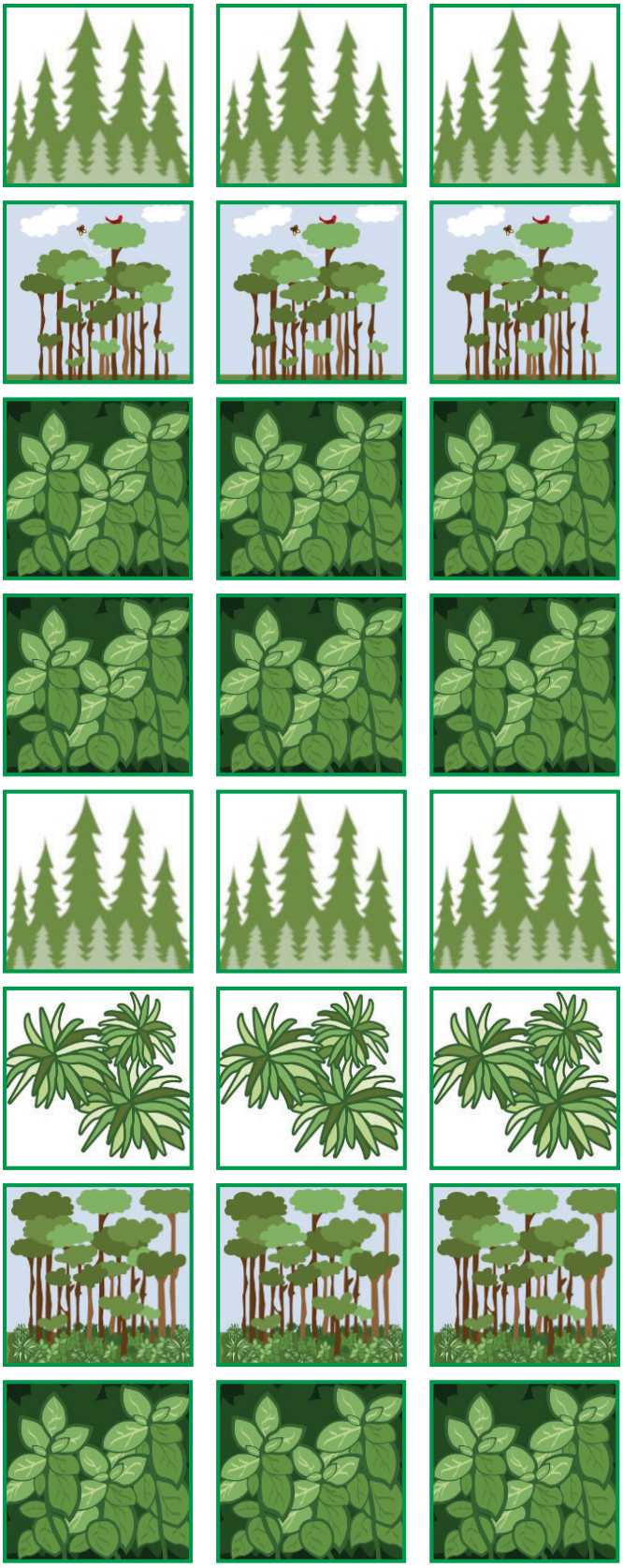
St. Johns River Water Management District: https://www.sjrwmd.com/

Southwest Florida Water Management District: https://www.swfwmd.state.fl.us/

South Florida Water Management District: https://www.sfwmd.gov/

Appendix E





Appendix F

European Honeybee

Lady Beetle

Assassin Bug

Ambush Bug

Praying Mantis

Lacewing

Big-Eyed Bug

Ficus Whitefly

Aphid

Gall Wasp

Sri Lanka Weevil

Hornworm

Mealy Bug

June Beetle Larva

Millipede

Centipede

Sow Bug

Pill Bug

Banana Spider

Scorpion

Wolf Spider

Appendix G (not to scale):