

# Wetland Connections

## Teacher Pre-visit Package

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## **Wetlands Connections**

### **Teacher Pre-visit Package**

#### **Introduction – Overview and Background**

This package is designed to be an overview of the **Wetlands Connections** program which can be used both pre- and post visit to Tampa's Lowry Park Zoo. It provides a preview of the activities the students will undertake while offering further classroom enrichment ideas to help students gain the most from their experience. Additionally, this program is designed to focus the student's mind on the conservation and stewardship of biotic and abiotic (living and nonliving) factors crucial to keeping Florida's ecosystems in balance. By examining the life cycles found in their environment, students will see the interconnectedness between humans and nature as all share in an area's natural resources.

The **Wetlands Connections** program will focus on how creatures meet their needs in the wetland environment and how the Floridan aquifer continuously collects, recharges and disburse a clean water supply to those wetlands. Students will conduct and/or observe a variety of activities that demonstrate how wetland soils filter and cleanse pollutants from water. This information will provide students with the opportunity to see the importance of conserving and protecting wetlands for our environmental health.

#### **The Green Swamp and the Wildlife Preserve**

The Green Swamp, a wilderness area situated on top of the Floridan Aquifer, encompasses the headwaters of several different rivers, including the Withlacoochee,



Peace, Oklawaha, and Hillsborough Rivers. One of the largest wetlands in Florida, the Green Swamp covers an area of more than 850 square miles in parts of Lake, Pasco, Polk, and Sumter counties. Over two-thirds of the Green Swamp is still in its natural state, and has not been drained for development. The prevalent habitats found in this region include cypress domes, blackwater river-cypress swamps, and mixed hardwood hammocks. The most regionally prominent rivers, the Hillsborough and Withlacoochee, are mostly blackwater rivers characterized by the thick tannic acid-stained water.

A very ecologically sensitive area, the Green Swamp Watershed is critical for many reasons. It is a crucial water recharge area providing close to 55 billion gallons of water annually back to the Florida Aquifer, the underlying limestone layer and drinking water supply of Florida, Alabama, Georgia and South Carolina. In Florida alone, it provides seventy percent of all water consumed!

The water in the Green Swamp causes a “potentiometric high”. Essentially, this acts like a cap on the water in the Florida Aquifer. This effect pressurizes the water in the aquifer, causing springs to flow, and forcing saltwater out of the aquifer at lower elevations. The Green Swamp is important in purifying water: the porous limestone acts as a filter, pulling impurities and pollution out of the water as it seeps through and is stored. Limestone in the Green Swamp also serves as a sponge that holds water in during the rainy season, playing an integral role in flood retention. If it were not present, the entire state of Florida would be submerged under a foot of water.



Only about ten percent of the Green Swamp is publicly owned. The remainder of this wetland area is privately held, and much of it is in danger of being drained and developed. Historically, the Green Swamp reached through Pasco County into the Orlando area. Now, with the growth of Orlando, including the insertion of Interstate Four through the heart of the swamp, the Green Swamp has been carved up through urban sprawl and development. Because of its ecological importance and the imposing threat of development, the State of Florida has deemed 504 square miles (322,690 acres) of the Green Swamp an “Area of Critical State Concern,” giving it some protection against reckless development.

The South West Florida Water Management District (SWFWMD) manages over 200,000 acres of the Green Swamp, including the areas where the students will visit. Portions of the SWFWMD property are open for public recreational use including hiking, hunting, biking, canoeing, and horseback riding. Tampa’s Lowry Park Zoo is currently leasing 1,349 acres of land from SWFWMD, an area named the “Wildlife Preserve,” to conduct educational classes and programs as well providing a site for the National Red Wolf Breeding Program. The Zoo is a member of the National Red Wolf Recovery Program, part of the Species Survival Plan (SSP) and is planning to release captive born Red Wolves, bred on site, into the wild on island preserves off the coast of the Florida Panhandle.

By 1980, the red wolf population had become extinct in the wild with only 14 left in captivity. Wrongly feared to be a danger to livestock productivity and a threat to public safety, the red wolf was hunted to the brink of extinction. Rated as one of the rarest



mammals in North America, this canid's numbers have been successfully raised through captive breeding programs to approximately 300 animals. Through the National Red Wolf Recovery Program, there are over 80 wolves that have been released into preserves in North Carolina, Tennessee, Mississippi, South Carolina and Florida. The red wolves found on our Wildlife Preserve have become vital in the SSP's genetic bank, as they are the keys to perpetuating the species existence into the next generation.



## Wetlands Connections Teacher Pre-visit Package

### Instructional Objectives and Sunshine State Standards Corollary

#### Objectives (The students will be able to):

1. Explain the importance of the Wetlands and the Floridan Aquifer in providing life-sustaining water for their daily life.
2. Analyze and give examples of the interconnectedness of life through examination of the life cycles in the environment.
3. Demonstrate how wetlands soils filter and cleanse pollutants from water.
4. Describe the characteristics of wetlands flora and fauna.
5. Define the Species Survival Plan and the role it plays in the conservation of the Red Wolves.

#### Sunshine State Standards:

Writing:	LA.B.2.3.1
Listening, Viewing and Speaking:	LA.C.1.3.1, LA.C.1.3.2, LA.C.1.3.3, LA.C.1.3.4, LA.C.2.3.1, LA.C.3.3.2, and LA.C.3.3.3
Science:	SC.D.1.3.1, SC.D.1.3.2, SC.D.1.3.3, SC.D.1.3.4, SC.D.2.3.1, SC.D.2.3.2, SC.G.1.3.2, SC.G.1.3.3, SC.G.1.3.4, SC.G.2.3.1, SC.G.2.3.2, SC.G.2.3.3, and SC.G.2.3.4
Social Studies:	SS.A.6.3.2, SS.A.6.3.3, SS.A.6.3.5, and SS.B.2.3.6



# Wetlands Connections

## Teacher Pre-visit Package Instructions

### How to use this Packet

Dear Educator,

Thank you for booking a **Wetlands Connections** program at Tampa's Lowry Park Zoo! We look forward to sharing this information with you, and have prepared this teacher packet to help you and your students make the most of your experience.

Please preview all of the **Wetlands Connections** information before your visit, and be sure to go over the included vocabulary definitions and practice activities with students. There are several pre-visit games included that are both fun and informative. These activities serve to enhance your existing classroom curriculum by meeting multiple Sunshine State Standards.

The included "WaterDrops Activity Packet" and "The Hydrologic Cycle" poster are SWFWMD publications filled with more ways to bring water resource/environmental awareness into the classroom. To order additional copies, or to review all of the education materials SWFWMD offers, you may call their toll free number or visit their website, listed on the booklet. The Green Swamp brochure also contains important and interesting information on this vital wetland, and how it directly impacts our community.

We thank you in advance for your participation, and look forward to sharing our knowledge, enthusiasm, and natural resources with you. Together, we can promote our eco-friendly message: *Water Conservation through Education!*

Tampa's Lowry Park Zoo **Wetlands Connections** program



## WETLANDS CONNECTIONS VOCABULARY

1. **AQUATIC** - Growing or living in or upon water.
2. **AQUIFER** – A subsurface formation containing permeable, saturated material that holds a useable supply of water.
3. **BREEDING LOAN** - An animal that is loaned not sold, to another facility for the purpose of reproduction.
4. **BIODIVERSITY** - The variety and number of species in an area.
5. **CAMOUFLAGE** - Marking possessed by an animal that helps it blend in with its surroundings, i.e.: the vertical stripes of the tiger help it blend in with the tall grass
6. **CARAPACE** - The bony plates that make up the upper portion of the turtle's shell. Developed from platelets in the skin called ossicles.
7. **EXTINCTION** - The permanent loss of an animal or plant species.
8. **FAUNA** - The animal life of an area.
9. **FECES** - Excrement from the bowels.
10. **FERAL** - Domesticated animals living in the wild.
11. **FLORA** - The plant life of an area.
12. **FOOD CHAIN** - A food pathway that connects one species with another.
13. **FOOD WEB** - A collection of interconnected food chains.
14. **FOSSIL** - The remains of a living thing that have been preserved.
15. **GROUND WATER** – Water beneath the land surface and in the pore spaces of rock and sedimentary material; also called percolating water.
16. **HABITAT** - An area that provides enough food, water, shelter, and space for an organism to survive and reproduce.
17. **HAMMOCK** – A piece of rich land with hardwood trees growing on it.
18. **HERBIVORE** - Plant-eating organism.
19. **HOME RANGE** - The area in which an animal normally lives, excluding the migration area.
20. **HYDRIC** – Pertaining to water.
21. **INSECTIVORE** - Insect eating organism.
22. **LICHEN** – Any of a large group of moss like plants, consisting of algae and fungi growing in close association in patches on rocks and tree trunks.
23. **LIMESTONE** – A porous rock that absorbs water readily; makes up a large part of the Floridan aquifer.
24. **MARSH** – A wetland characterized by soft, wet, low-lying land; marked by herbaceous vegetation.
25. **MARSUPIAL** - A mammal that develops inside its mother's pouch, i.e.: kangaroos and opossums.
26. **MIGRATION** - Seasonal movement where animals move from one climate or area to another, usually for food or breeding.
27. **MIMIC** - A living thing that imitates another.
28. **MINERAL** - An inorganic compound that living things need.
29. **NICHE** - The role of a species within its community; includes all aspects of life.



30. **NOCTURNAL** - Active at night.
31. **OMNIVORE** - Plant- and meat-eating organism.
32. **PHOTOSYNTHESIS** - A process that uses light energy to make food from simple chemicals.
33. **PLASTRON** - The bottom portion of a turtle's shell.
34. **POLLUTANT** - A substance that contaminates an environment, especially human-made wastes.
35. **POLLUTION** - The disruption of the natural world by the release of chemicals or other agents.
36. **POPULATION** - A group of animals of the same species within a given community.
37. **PREDATOR** - A living thing that kills and eats others.
38. **PRESERVATION** - Involves protection that emphasizes non-consumptive values and uses and restoration.
39. **PRODUCER** - A living thing that uses energy to turn simple substances into food.
40. **RAPTOR** - A bird of prey, usually one belonging to the Order Falconiformes.
41. **RECHARGE** - The addition of water to rivers or aquifers by natural infiltration, that tends to raise the water table.
42. **RENEWABLE RESOURCES** - Living organisms, such as plants and animals, which have the capacity to renew themselves when conditions for survival are favorable, a.k.a. sustainable.
43. **RETENTION** - Holding excess water.
44. **SCUTES** - Living tissue containing nerve endings made up of the protein keratin on turtle shells.
45. **SPECIES** - A group of living things that can successfully breed together in the wild.
46. **SWAMP** - A saturated lowland or seasonally flooded bottomland characterized by trees or woody vegetation.
47. **SYMBIOSIS** - A mode of life where two organisms live in close association with each other. This relationship may be beneficial or harmful to one or both organisms.
48. **TERRESTRIAL** - Living on land.
49. **TERRITORY** - An area defended by an individual or group against intruders.
50. **THREATENED SPECIES** - Any species of indigenous plant or animal that could become endangered in the near future if the factors causing its population to decline are not reversed.
51. **TRIBUTARY** - A stream or river that flows into a larger one.
52. **VITAMIN** - An organic compound that plants and animals need in small amounts.
53. **VOCALIZATION** - Calls, songs or other sounds produced by an animal. May differ with age and sex, but usually similar within a species.
54. **WATERSHED** - The entire land area that contributes surface runoff to a given drainage system.
55. **WEB OF LIFE** - The complete interrelationship between all living things and their place in the natural world.
56. **WETLANDS** - A landform characterized by the presence of water, hydric soils, and hydrophilic vegetation.



### Wetlands Connections Vocabulary Practice- Did you Know...?

Using the following informal definitions, find out how much you know by filling in the blanks, choosing from the words listed below:

1. A turtle's upper shell \_\_\_\_\_; lower shell \_\_\_\_\_
2. Adjective having to do with water \_\_\_\_\_ or \_\_\_\_\_
3. A species "in danger" of becoming extinct \_\_\_\_\_
4. A natural underground area that stores water \_\_\_\_\_
5. Shopping malls and subdivisions are examples of this human activity \_\_\_\_\_
6. A species introduced into a non-native habitat \_\_\_\_\_
7. The Floridan Aquifer is comprised of porous rock called \_\_\_\_\_
8. How many species a given area of land can support \_\_\_\_\_
9. "Who eats who" is a \_\_\_\_\_; several of these interconnected is a \_\_\_\_\_
10. Water found in the aquifer \_\_\_\_\_
11. The Green Swamp is this for the Hillsborough River \_\_\_\_\_
12. In a food chain plants are \_\_\_\_\_; animals are \_\_\_\_\_
13. Four elements of this are: food, water, shelter and space \_\_\_\_\_
14. An animal's home area that he will defend against others of his species is his  
\_\_\_\_\_
15. The responsible use of natural resources is \_\_\_\_\_; their protection  
is \_\_\_\_\_

**Aquifer**

**Aquatic**

**Carapace**

**Carrying Capacity**

**Conservation**

**Consumer**

**Development**

**Endangered Species**

**Exotic**

**Food Chain**

**Food Web**

**Ground Water**

**Habitat**

**Hydric**

**Limestone**

**Plastron**

**Preservation**

**Producer**

**Territory**

**Watershed**



## Wetlands Connections Vocabulary Practice- Did you Know...? Key

Using the following informal definitions, find out how much you know by filling in the blanks, choosing from the words listed below:

1. A turtle's upper shell Carapace; lower shell Plastron
2. Adjective having to do with water Aquatic or Hydric
3. A species "in danger" of becoming extinct Endangered Species
4. A natural underground area that stores water Aquifer
5. Shopping malls and subdivisions are examples of this human activity Development
6. A species introduced into a non-native habitat Exotic
7. The Floridan Aquifer is comprised of porous rock called Limestone
8. How many species a given area of land can support Carrying Capacity
9. "Who eats who" is a Food Chain; several of these interconnected is a Food Web
10. Water found in the aquifer Ground Water
11. The Green Swamp is this for the Hillsborough River Watershed
12. In a food chain plants are Producers; animals are Consumers
13. Four elements of this are: food, water, shelter and space Habitat
14. An animal's home area that he will defend against others of his species is his Territory
15. The responsible use of natural resources is Conservation; their protection is Preservation

**Aquifer**

**Aquatic**

**Carapace**

**Carrying Capacity**

**Conservation**

**Consumer**

**Development**

**Endangered Species**

**Exotic**

**Food Chain**

**Food Web**

**Ground Water**

**Habitat**

**Hydric**

**Limestone**

**Plastron**

**Preservation**

**Producer**

**Territory**

**Watershed**



## Native Inhabitants of a Wetland Word Search

Search for these animals found in wetlands:

(can be vertical, horizontal, diagonal, and backwards)

Armadillo	Gopher Tortoise	Raccoon	Screech Owl
Bat	Great Horned Owl	Rattlesnake	Swallowtail
Box Turtle	Lubber Grasshopper	Red Tail Hawk	Tick
Deer	Otter	Red Wolf	Water Moccasin
Frog	Rabbit	Sandhill Crane	Woodpecker

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



## Native Inhabitants of a Wetland Word Search -KEY

Search for these animals found in wetlands:  
(can be vertical, horizontal, diagonal, and backwards)

Armadillo	Gopher Tortoise	Raccoon	Screech Owl
Bat	Great Horned Owl	Rattlesnake	Swallowtail
Box Turtle	Lubber Grasshopper	Red Tail Hawk	Tick
Deer	Otter	Red Wolf	Water Moccasin
Frog	Rabbit	Sandhill Crane	Woodpecker

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



# WETLANDS CONNECTIONS WHO HAS...?

<p><b><u>WHO HAS...</u></b>  <b>Who has</b> an underground formation that holds a useable supply of water?</p>	<p><b><u>I HAVE PREDATOR</u></b>  <b>Who has</b> a plant-eating organism?</p>
<p><b><u>I HAVE AQUIFER</u></b>  <b>Who has</b> a porous rock that absorbs water readily and makes up a large part of the Florida aquifer?</p>	<p><b><u>I HAVE HERBIVORE</u></b>  <b>Who has</b> a process that uses light energy to make food from simple chemicals?</p>
<p><b><u>I HAVE LIMESTONE</u></b>  <b>Who has</b> a bird of prey, like an owl, hawk, or falcon?</p>	<p><b><u>I HAVE PHOTOSYNTHESIS</u></b>  <b>Who has</b> a hard skeleton that surrounds an animal's body?</p>
<p><b><u>I HAVE RAPTOR</u></b>  <b>Who has</b> a landform characterized by the presence of water, hydric soils, and hydrophilic vegetation?</p>	<p><b><u>I HAVE EXOSKELETON</u></b>  <b>Who has</b> inorganic compounds that living things need?</p>
<p><b><u>I HAVE WETLANDS</u></b>  <b>Who has</b> an area that provides enough food, water, shelter, and space for an organism to survive and reproduce?</p>	<p><b><u>I HAVE MINERALS</u></b>  <b>Who has</b> organic compounds that plants and animals need in small amounts?</p>
<p><b><u>I HAVE HABITAT</u></b>  <b>Who has</b> a community of living things and their environment?</p>	<p><b><u>I HAVE VITAMINS</u></b>  <b>Who has</b> any species of plant or animal that could become endangered in the near future?</p>
<p><b><u>I HAVE ECOSYSTEM</u></b>  <b>Who has</b> a living thing that kills and eats others?</p>	<p><b><u>I HAVE THREATENED SPECIES</u></b>  <b>Who has</b> a wetland characterized by soft, wet, low-lying land marked by herbaceous vegetation?</p>



## WETLANDS CONNECTIONS WHO HAS...?

<p><b><u>I HAVE MIMIC</u></b> Who has a mammal that develops inside its mother's pouch?</p>	<p><b><u>I HAVE BIODIVERSITY</u></b> Who has the seasonal movement where animals move from one climate or area to another, usually for food or breeding?</p>
<p><b><u>I HAVE MARSUPIAL</u></b> Who has the study of the environment and the relationship of organisms to it?</p>	<p><b><u>I HAVE MIGRATION</u></b> Who has the living tissue, made up of the protein keratin, on turtle's shells?</p>
<p><b><u>I HAVE ECOLOGY</u></b> Who has the plant life of an area?</p>	<p><b><u>I HAVE SCUTES</u></b> Who has a mode of life either beneficial or harmful where two organisms live in close association with each other?</p>
<p><b><u>I HAVE FLORA</u></b> Who has a substance that contaminates an environment, especially human-made wastes?</p>	<p><b><u>I HAVE SYMBIOSIS</u></b> Who has an animal active at dawn or dusk?</p>
<p><b><u>I HAVE POLLUTANT</u></b> Who has the complete interrelationship between all living things and their place in the natural world?</p>	<p><b><u>I HAVE CREPUSCULAR</u></b> Who has a saturated lowland or seasonally flooded bottomland characterized by trees or woody vegetation?</p>
<p><b><u>I HAVE WEB OF LIFE</u></b> Who has the animal life of an area?</p>	<p><b><u>I HAVE SWAMP</u></b> Who has calls, songs or other sounds produced by an animal?</p>



## WETLANDS CONNECTIONS WHO HAS...?

<p><b><u>I HAVE VOCALIZATION</u></b> Who has animals active at night?</p>	<p><b><u>I HAVE EXOTHERMY</u></b> Who has the addition of water to rivers or aquifers by natural infiltration, that tends to raise the water table?</p>
<p><b><u>I HAVE NOCTURNAL</u></b> Who has animals active during the day?</p>	<p><b><u>I HAVE RECHARGE</u></b> Who has a stream or river that flows into a larger one?</p>
<p><b><u>I HAVE DIURNAL</u></b> Who has a meat-eating organism?</p>	<p><b><u>I HAVE TRIBUTARY</u></b> Who has markings possessed by an animal that helps it blend in with its surroundings?</p>
<p><b><u>I HAVE POPULATION</u></b> Who has the holding of excess water in an area?</p>	<p><b><u>I HAVE NICHE</u></b> Who has living organisms, which have the capacity to renew themselves when conditions for survival are favorable?</p>
<p><b><u>I HAVE RETENTION</u></b> Who has an animal that is loaned not sold, to another facility for the purpose of reproduction?</p>	<p><b><u>I HAVE RENEWABLE RESOURCES</u></b> Who has a group of living things that can breed together in the wild?</p>
<p><b><u>I HAVE BREEDING LOAN</u></b> Who has animals that cannot produce their own internal body heat, but are dependent upon outside sources of heat to maintain a high body temperature?</p>	<p><b><u>I HAVE SPECIES</u></b></p> <p>(END OF GAME)</p>



# WETLANDS CONNECTIONS

## WHO HAS...?

### TEACHER'S ANSWER SHEET

Please remember to make copies of WETLANDS CONNECTIONS game card sheets before cutting and laminating.

WHO HAS... (ans.- aquifer)

I have aquifer... (ans. - limestone)

I have limestone... (ans. - raptor)

I have raptor... (ans. - wetlands)

I have wetlands...(ans. - habitat)

I have habitat... (ans. - ecosystem)

I have ecosystem... (ans. - predator)

I have predator... (ans. - herbivore)

I have herbivore... (ans. - photosynthesis)

I have photosynthesis...(ans. -  
exoskeleton)

I have exoskeleton... (ans. - minerals)

I have minerals... (ans. - vitamins)

I have vitamins... (ans. - threatened  
species)

I have threatened species... (ans. - marsh)

I have marsh... (ans. - mimic)

I have mimic... (ans. - marsupial)

I have marsupial... (ans. - ecology)

I have ecology... (ans. - flora)

I have flora... (ans. - pollutant)

I have pollutant... (ans. - web of life)

I have web of life... (ans. - fauna)

I have fauna... (ans. - biodiversity)

I have biodiversity... (ans. - migration)

I have migration... (ans. - scutes)

I have scutes... (ans. - symbiosis)

I have symbiosis... (ans. - crepuscular)

I have crepuscular... (ans. - swamp)

I have swamp... (ans. - vocalization)

I have vocalization... (ans. - nocturnal)

I have nocturnal... (ans. - diurnal)

I have diurnal... (ans. - carnivore)

I have carnivore... (ans. - population)

I have population... (ans. - retention)

I have retention... (ans. - breeding loan)

I have breeding loan... (ans. - exothermy)

I have exothermy... (ans. - recharge)

I have recharge... (ans. - tributary)

I have tributary... (ans. - camouflage)

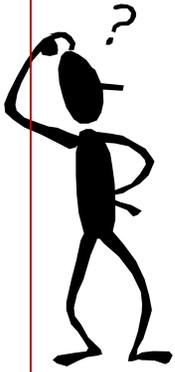
I have camouflage... (ans. - niche)

I have niche... (ans. - renewable  
resources)

I have renewable resources... (ans. -  
species)

I have species... END OF GAME.





# WETLANDS CONNECTIONS

## Win, Lose, Draw

### Objective (Students will be able to):

1. Explain the wetlands vocabulary words listed below through pictures and diagrams.
2. Identify the wetlands vocabulary words listed below using pictures and diagrams.

### Background:

Review the *Green Swamp and Wildlife Preserve* information on pages 3-6 and *Wetlands vocabulary definitions* on pages 9-10.

### Materials:

1. Whiteboard or flip chart
2. Markers
3. Index cards
4. Timer



**Procedure:**

- Write each of the Wetlands Vocabulary words listed below on an index card (one word per card):

Aquatic	Limestone
Aquifer	Marsh
Camouflage	Marsupial
Carapace	Migration
Carnivore	Mimic
Community	Niche
Conservation	Nocturnal
Consumer	Omnivore
Diurnal	Photosynthesis
Ecosystem	Plastron
Endangered	Pollutant
Species	Population
Environment	Predator
Exoskeleton	Producer
Exotic	Raptor
Extinction	Renewable
Fauna	Resource
Feces	Retention
Feral	Symbiosis
Flora	Terrestrial
Food Chain	Threatened
Fossil	Species
Ground Water	Tributary
Habitat	Vocalization
Hammock	Watershed
Herbivore	Web of Life
Insectivore	Wetlands
Lichen	



- Separate the class into two or more teams. Choose one team to start the game.
- One student from the starting team picks an index card and must illustrate the vocabulary word listed on the whiteboard or flip chart without talking. His/her team must guess the vocabulary word to win points.
- Give the students at least one minute to draw.
- If the team has successfully guessed the concept in the time period given, award them points.
- If the student does not know how to illustrate the concept on the card, or his team does not guess correctly, he must pass it on to the next team. That team then has a chance to identify the concept through the same process.





# WETLANDS ENERGY FLOW

## Objective (The students will be able to):

1. Construct an energy pyramid
2. Demonstrate the energy flow through a wetland community using an energy pyramid.

## Background:

Using a wetlands habitat as your model, follow the energy flow through the wetlands community. Review the Wetlands Vocabulary on pages 9-10.

*Decomposers* reduce both plant and animal matter into nutrients that support plant growth. This material, along with energy from the sun is converted into chemical energy by plants (producers). The energy is then distributed to different organisms (primary, secondary and tertiary consumers). Humans at the top of the pyramid, complete the energy flow cycle.

## Materials:

Markers and whiteboard  
List of organisms  
Blank pyramid handouts (optional)  
Transparency (optional)

## Organisms List:

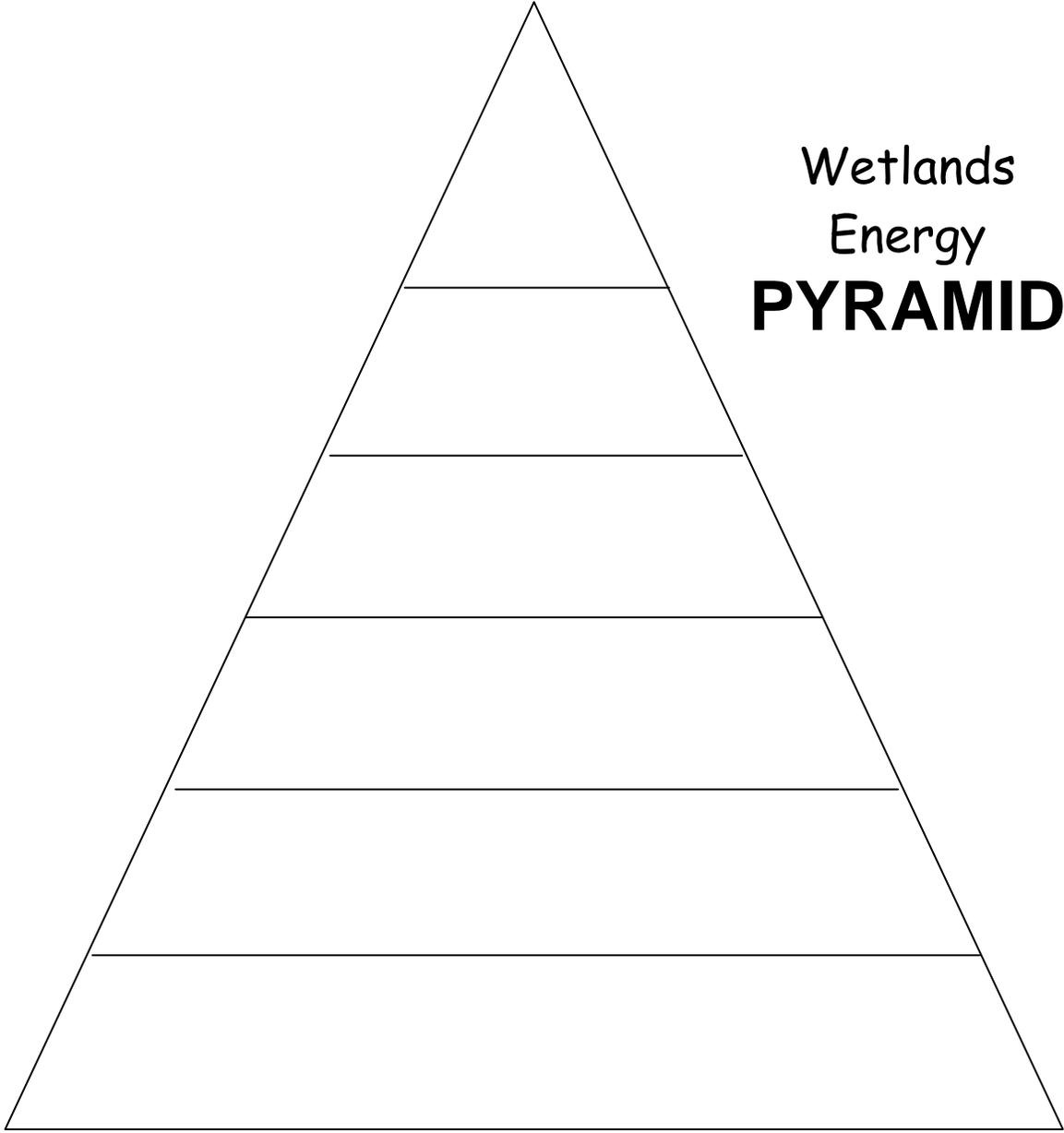
- |                          |               |               |
|--------------------------|---------------|---------------|
| 1. Aquatic<br>vegetation | 8. Flies      | 16. Moss      |
| 2. Eagle                 | 9. Red Wolf   | 17. Acorn     |
| 3. Bat                   | 10. Fish      | 18. Earthworm |
| 4. Deer                  | 11. Alligator | 19. Termite   |
| 5. Crickets              | 12. Fungi     | 20. Rabbit    |
| 6. Grasshopper           | 13. Mosquito  | 21. Turtle    |
| 7. Humans                | 14. Clover    |               |
|                          | 15. Grasses   |               |



**Procedure:**

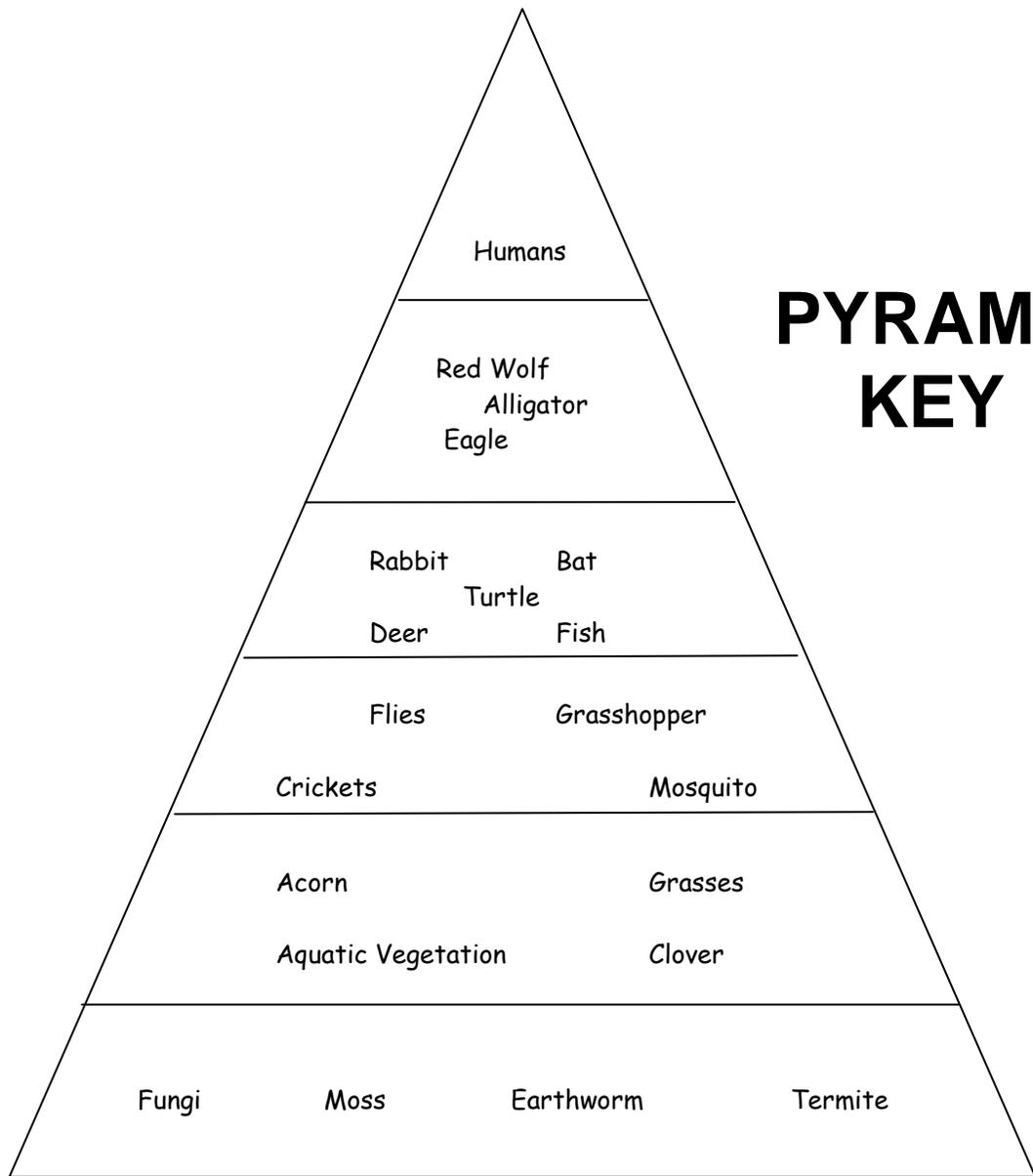
1. Go over the background information and Wetlands vocabulary to make sure the students understand the process of energy flow through a community. Discuss the roles and cycles of decomposers, primary and secondary producers and consumers.
2. Write the Organism List on the board or an overhead transparency for students to use during the activity.
3. Have students work in groups of two or three to complete the energy flow pyramid. Tell them that they should be prepared to defend their pyramid.
4. Remind them that the organisms in an energy pyramid eat the plants/animals in the levels below it, but not necessarily all of them. The students will see that humans are at the top of the energy flow pyramid.
5. Use the chalk board or overhead projector to fill in the pyramid and put the organisms list on the board. You may use all or some of the organisms from the list. You can also ask the students to add some organisms of their choice.





Wetlands  
Energy  
**PYRAMID**





# PYRAMID KEY





# Wetlands *BINGO!* Instructions

## Materials:

1. Wetlands *BINGO!* Boards
2. Wetlands Vocabulary
3. Plastic chips or pieces of paper to cover bingo squares

## Procedure:

- Pass out one bingo board per person
- Students fill each square with a vocabulary word in random order and fill in one space (of their choosing) as a “free” space.
- The teacher calls out the definition of one word (also in random order), and the students raise their hands and try and figure out which vocabulary word the teacher is defining (remember, don’t tell them the word).
- Whoever has that word on their board should cover up that square.
- The first person to cover six squares in a row (horizontal, vertical, or diagonal) should yell out “*BINGO!*”
- The student should read back the six words just to check if he/she has really won.

Variations: Instead of yelling “*BINGO!*” have student say “*I love \_\_\_\_\_*” (*their favorite Wetlands animal*). If you play a second time, have them say something else, like “*C is for Cookie, that’s good enough for me*” or a phrase from a favorite movie.





# WETLANDS BINGO!

1. Fill each square with a vocabulary word from your Wetlands Vocabulary list and one square as a "free" space.
2. As your teacher calls out the definition, cover the square of the corresponding vocabulary word.
3. Yell BINGO! When you have six squares in a row.

