



Crystal Springs Live!





Thank you for choosing Crystal Springs LIVE!

Crystal Springs Preserve and WaterVentures Florida's Learning Lab are committed to bringing quality environmental education programs to teachers and parents. Our programs are aligned with NGSSS and SNF standards to align with topics taught in classrooms. Each program has been created with the student in mind and conveys important environmental topics in a fun and engaging manner. Additionally, supplemental activities, vocabulary lists, pre/post tests and more are offered to provide an all-encompassing program for students in and out of the classroom.

For those of you unfamiliar with Crystal Springs or WaterVentures, we invite you to explore our websites. (www.crystalspringsfoundation.org and www.waterventures.us). Crystal Springs Preserve is a 530-acre living laboratory that is dedicated to bringing directed learning opportunities to visitors through immersion into the pristine habitat of the preserve. WaterVentures was created to extend this learning throughout the state of Florida. As a high-tech mobile learning lab, WaterVentures brings those same fun and engaging environmental programs to schools free of charge. Both are devoted to inspiring guests to be responsible environmental stewards of Florida's precious natural resources.

We hope you enjoy our virtual programs and please do not forget to check out the offerings of Crystal Springs Preserve and WaterVentures!

Happy learning!

Swamp Sampling Water Chemistry- Dissolved Oxygen Pre/Post Test

- 1) What is dissolved oxygen in the water?
 - a. How much oxygen is dissolved in the water.
 - b. How much oxygen is in the air
 - c. None of the above
- 2) What is a recharge area?
 - a. A place where people can charge their phone
 - b. A place where water can slowly seep into the ground to refill the aquifer
 - c. A place where water runs into the ocean
- 3) What three main things need oxygen to survive in the water?
 - a. Humans, aquatic animals, birds
 - b. Aquatic plants, reptiles, birds
 - c. Aquatic plants, microscopic organism, aquatic animals
 - d. None of the above
- 4) The sun can also have an effect on dissolved oxygen levels in water.
 - a. True
 - b. False
- 5) What temperature of water holds more dissolved oxygen?
 - a. Warm water
 - b. Cold water
- 6) What microscopic organisms break down organic matter and need a lot of dissolved oxygen for energy?
 - a. Algae
 - b. Fish
 - c. Decomposers
 - d. None of the above
- 7) What can put oxygen in the water?
 - a. Aquatic plants
 - b. Fish jumping
 - c. People splashing
 - d. Water flowing over rocks
 - e. All of the above



- 8) What does ppm stand for when used as a measurement?
 - a. Parts per many
 - b. Parts per million
 - c. Parts per mega
- 9) What is considered a healthy dissolved oxygen level for a river in Florida?
 - a. 1-2ppm
 - b. 6-8ppm
 - c. 0ppm
 - d. None of the above
- 10) The dissolved oxygen level in spring water discharging from the ground is _____.
 - a. Very high
 - b. Very low



Swamp Sampling Water Chemistry- Dissolved Oxygen Pre/Post Test Answer Key

1. A
2. B
3. C
4. A
5. B
6. C
7. E
8. B
9. B
10. B

PRE/POST EXHIBIT DATA SUBMISSION FORM

Date of Program	
School name	
Teacher name	
Number of students taking the Pre-test and Number taking Post-test	
Pre-test average percentage *	
Post-test average percentage *	

*Scoring all tests, adding up all scores, and dividing by the number of students that took the test will obtain an average percentage.



Swamp Sampling Water Chemistry- Dissolved Oxygen Vocabulary Words

Air-water interface - A process where splashing water grabs oxygen molecules and mixes it into the water.

Aquatic Plants - Plants that are rooted in the water.

Cypress Tree - An evergreen coniferous tree that thrives living in a wetland.

Decomposers - Microscopic organisms that break down organic matter.

Dissolved Oxygen - Oxygen molecules dissolved in the water.

ppm - Parts per million.

Recharge Area - A place where water is able to slowly seep into the ground and eventually reach an aquifer. Example would be a swamp.

Swamp - A low-lying area of land that holds water and has wetland plants and trees.

Wetland - An area of land that is wet all year or most of the year.



Swamp Sampling Water Chemistry- Dissolved Oxygen Standards

SC.6.E.6.1
SC.6.E.6.2
SC.6.E.7.2
SC.7.E.6.6
SC.8.N.1.1
SC.8.N.1.4
SC.8.N.1.6
SC.8.L.18.4

Swamp Sampling Water Chemistry- Dissolved Oxygen Supplemental Activities- Word Search



Name: _____

Created with TheTeachersCorner.net Word Search Maker

Swamp Sampling Chemistry - Oxygen -

Find the words, then fill in the blanks with the remaining unused letters starting with the first one to discover the hidden message. _____!!

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

SUNSET	CYPRESS TREES	WETLAND
DISSOLVED OXYGEN	RECHARGE AREA	DECOMPOSERS
AQUATIC PLANTS	AQUIFER	FROGS
PARTS PER MILLION		

Swamp Sampling Water Chemistry- Dissolved Oxygen Supplemental Activities- Word Search Answer Sheet



Name: _____

Created with TheTeachersCorner.net Word Search Maker

Swamp Sampling Chemistry - Oxygen -

Find the words, then fill in the blanks with the remaining unused letters starting with the first one to discover the hidden message. -----!!

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

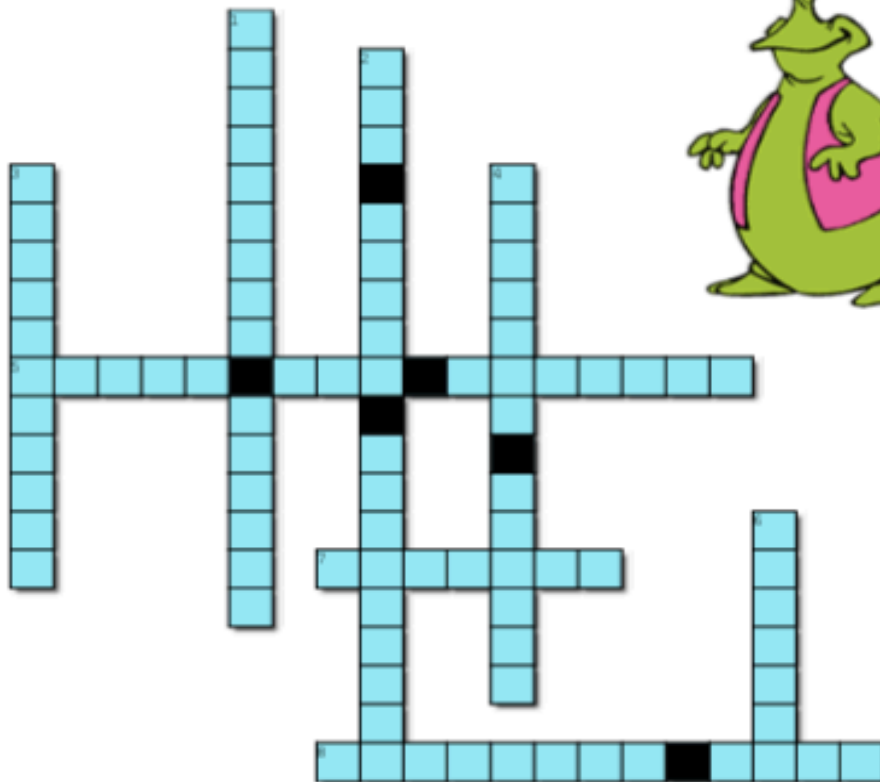
SUNSET CYPRESSTREES WETLAND
DISSOLVEDOXYGENRECHARGEAREA DECOMPOSERS
AQUATIOPANTS AQUIFER FROGS
PARTSPERMILLION

Swamp Sampling Water Chemistry- Dissolved Oxygen Supplemental Activities- Crossword

Name: _____

Swamp Sampling Chemistry - Oxygen -

Complete the puzzle.



Created using the Crossword Maker on TheTeachersCorner.net

wetland aquatic plants aquifer air water interface dissolved oxygen decomposers recharge area parts per million

Across

6. What does ppm stand for when testing water?
7. An area of land that is wet all year or most of the year.
8. A place where water is able to seep into the ground and eventually reach an aquifer.

Down

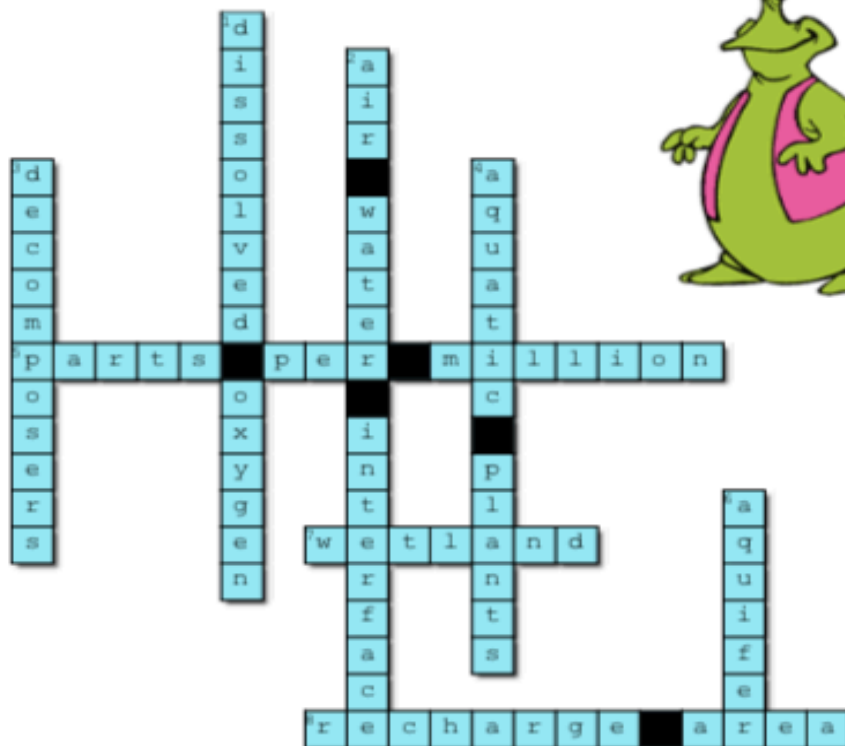
1. Oxygen molecules dissolved in the water.
2. A process where splashing water grabs oxygen molecules and mixes it into water.
3. Microscopic organisms that break down organic matter.
4. Plants that are rooted in water.
6. An underground cave system made of limestone and full of fresh water.

Swamp Sampling Water Chemistry- Dissolved Oxygen Supplemental Activities- Crossword Answer Sheet

Name: _____

Swamp Sampling Chemistry - Oxygen -

Complete the puzzle.



Created using the Crossword Maker on TheTeachersCorner.net

wetland aquatic plants aquifer air water interface dissolved oxygen decomposers recharge area parts per million

Across

- 6. What does ppm stand for when testing water? (parts per million)
- 7. An area of land that is wet all year or most of the year. (wetland)
- 8. A place where water is able to seep into the ground and eventually reach an aquifer. (recharge area)

Down

- 1. Oxygen molecules dissolved in the water. (dissolved oxygen)
- 2. A process where splashing water grabs oxygen molecules and mixes it into water. (air water interface)
- 3. Microscopic organisms that break down organic matter. (decomposers)
- 4. Plants that are rooted in water. (aquatic plants)
- 6. An underground cave system made of limestone and full of fresh water. (aquifer)

Swamp Sampling Water Chemistry- Dissolved Oxygen Supplemental Websites/Videos

STEM Powered Family, 2020

“Water Science Experiments and STEM projects”

<https://www.steampoweredfamily.com/activities/water-projects-for-kids/>

Science for Kids, 2020

“Water Science for Kids”

<https://www.sciencekids.co.nz/water.html>

Project WET Foundation, 2020

“Discover Water: The Role of Water in Our Lives”

<https://www.discoverwater.org/>

MITK12 Videos, 2014

“Dissolved Oxygen”

<https://www.youtube.com/watch?v=oVW5LAzd7Ec>