

# Maritime Thematic Unit Teacher Guide



## **Aventura Waterways K-8**

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**Principal:**

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## K-5 Maritime Thematic Unit Schedule of Assignments

Due Date	Assignments
April 30 - May 4, 2018	<ul style="list-style-type: none"> <li>• Introduction to curriculum for Maritime Theme projects and discuss, as applicable, project requirements for students (what the end product will be).</li> <li>• Research and discuss the habitats or organisms included in the particular ecosystem of study.</li> </ul>
May 7-11, 2018	<ul style="list-style-type: none"> <li>• Research and discuss the current state of habitats or organisms including statistical data of ecosystem.</li> <li>• Review project requirements and teacher monitors completion of project.</li> </ul>
May 14-18, 2018	<ul style="list-style-type: none"> <li>• Research and discuss the benefits to our environment from thriving ecosystems and how to protect the habitats or organisms of said ecosystem.</li> <li>• Review project requirements and teacher monitors completion of project.</li> </ul>
May 21-25, 2018	<ul style="list-style-type: none"> <li>• K- 5 creates one class project</li> <li>• 6-8 creates individual projects</li> <li>• Send to Media Center for display. (If possible)</li> </ul>

# Maritime Thematic Unit Objectives by Grade Level

## Kindergarten

### K. Marine Ecosystems and the Organisms They Contain

K.1- Students will be able to understand that marine ecosystems include oceans, estuaries (bays), coral reefs, and mangroves.

K.1.1- Students will be able to compare and contrast parts of oceans (deep ocean, costal shorelines, etc.) and estuaries (where fresh water and salt water meet).

K.1.2- Students will be able to investigate what makes up coral reefs and mangroves.

K.2- Students will be able to identify the organisms that make up many marine ecosystems.

K.2.1- Students will be able to identify the plant life and large organisms that live in the oceans and smaller organisms that live in estuaries and bays.

K.2.2- Students will be able to discover the plant life and smaller organisms that live in the coral reefs and mangroves.

K.3- Students will be able to recognize how all the living organisms in the many marine ecosystems depend on each other to survive.

K.3.1- Students will be able to identify how plant life gets its energy from the sun and transfers its energy to other organisms in the marine ecosystem (food chain).

### Web Resources

<http://www.epa.gov/bioindicators/aquatic/marine.html>

<http://www.mbgnet.net/>

<http://www.discoverbiscaynebay.org/>

<http://www.seaworld.org/infobooks/coral/home.html>

<http://www.oceanoasis.org/fieldguide/mangroves.html>

<http://www.epa.gov/nep/kids/>

<http://www.estuaries.gov/>

<http://www.estuaries.org/>

<http://web.vims.edu/bridge/?svr=www>

### Other Recommended Resources

- Discovery Education
- Brain Pop

## First Grade

### 1. Estuaries and Bays

1.1- Students will be able to understand how estuaries and bays are alike and different.

1.1.1- Students will know that estuaries are areas where fresh water from rivers meets and mixes with the salty ocean water, and are protected from the oceans waves and winds.

1.1.2- Students will be able to know that bays are areas of water bordered by land on three sides and usually have calm waters.

1.1.3- Students will be able to understand the differences and similarities between the Atlantic Ocean and Biscayne Bay.

1.2- Students will be able to discover why estuaries are important in the marine ecosystem.

1.2.1- Students will understand that plants and animals need each other to survive (food chain).

1.2.2- Students will be aware that estuaries and bays protect water quality by filtering out pollution.

1.3- Students will be able to evaluate the significance of protecting estuaries in marine ecosystems.

#### Resources

1.3.1- Students will be able to understand that pollution is slowly creating habitat loss in the estuaries and bays.

1.3.2- Students will recognize some ways that people can help protect and conserve our estuaries and bays.

#### Web Resources

<http://www.estuaries.gov/>

<http://www.estuaries.org/>

<http://www.epa.gov/bioindicators/aquatic/marine.html>

<http://www.mbgnet.net/>

<http://www.dep.state.fl.us/coastal/sites/biscayne/info.htm>

<http://web.vims.edu/bridge/?svr=www>

#### Other Recommended Resources

- Discovery Education
- Brain Pop

## Second Grade

### 2. Mangroves

2.1- Students will be able to identify various types of mangroves.

2.1.1- Students will discover similarities and differences between the species of mangroves (red, white, black and sweet).

2.2- Students will be able to understand what mangroves are and how they provide shelter for animals. 2.2.1- Students will examine how mangrove forests begin as prop roots (seeds).

2.2.2- Students will be able to analyze the variety of animals that use the mangroves as a shelter.

2.3- Students will research where the ideal location mangrove forests are found.

2.3.1- Students will be aware that mangroves are found along the coastlines and in abundance around South Florida.

2.4- Students will be able to research the status of mangroves in South Florida.

#### Resources

2.4.1- Students will research how pollution has affected the growth and development of mangrove forests.

2.4.2- Students will identify the ways we can help protect and conserve the many mangrove forests found in Southern Florida.

#### Web Resources

<http://www.oceanoasis.org/fieldguide/mangroves.html>

<http://www.sfrc.ufl.edu/Extension/pubtxt/for43.htm>

<http://www.floridaplants.com/horticulture/mangrove.htm>

<http://mangrove.org/>

<http://www.epa.gov/owow/wetlands/types/mangrove.html>

<http://web.vims.edu/bridge/?svr=www>

#### Other Recommended Resources

- Discovery Education
- Brain Pop

## Third Grade

### 3. Coral Reefs

3.1- Students will be able to identify various types of coral reefs.

3.1.1- Students will discover similarities and differences between the types of coral reefs (barrier, fringing and atoll).

3.1.2- Students will know about the characteristics of different species of corals in a reef (brain, fire, elkhorn, sea fans)

3.2- Students will be able to understand what corals are and what they provide for marine life.

3.2.1- Students will be introduced to how corals are living animals called polyps that live in colonies.

3.2.2- Students will be able to understand the symbiotic relationship between the corals and the algae that grows on them.

3.2.3- Students will be able to discover the variety of marine life that makes coral reefs their home from vertebrates to invertebrates.

3.3- Students will be able to evaluate the current status of coral reefs in South Florida and around the world.

#### Resources

3.3.1- Students will be able to analyze current threats to many coral reefs around the world.

3.3.2- Students will synthesis the ways we can help protect and conserve the many coral reefs found in Southern Florida and around the world.

#### Web Resources

<http://www.seaworld.org/infobooks/coral/home.html>

<http://www.coralfilm.com/about.html>

[http://www.coris.noaa.gov/about/what\\_are/](http://www.coris.noaa.gov/about/what_are/)

[http://www.eoearth.org/article/Coral\\_reef](http://www.eoearth.org/article/Coral_reef)

[http://encarta.msn.com/encyclopedia\\_761572186/coral\\_reef.html](http://encarta.msn.com/encyclopedia_761572186/coral_reef.html)

[http://www.tooprecioustowear.org/resources/Coral\\_Threats\\_Importance\\_000.pdf](http://www.tooprecioustowear.org/resources/Coral_Threats_Importance_000.pdf)

<http://web.vims.edu/bridge/?svr=www>

#### Other Recommended Resources

- Discovery Education
- Brain Pop

## Fourth Grade

### 4. Deep Ocean

4.1- Students will be able understand that there are different Ocean zones (sunlight, twilight, midnight, abyssal, deep sea trench) that reach the ocean floor.

4.1.1- Students will be able to determine how plate tectonics on the ocean floor create the geography of the deep ocean floor.

4.1.2- Students will know the geography of the deep ocean that includes mountains, volcanoes and trenches.

4.2- Students will discover how the exploration of the deep ocean has shown us a world we did not know existed.

4.2.1- Students will be able to learn about the tools and techniques used to explore the deep ocean.

4.3- Students will be able to discover the variety of inhabitants in deep ocean ecosystems.

4.3.1- Students will be able to investigate predator/prey relationships found in the deep ocean ecosystems.

4.3.2- Students will examine the biodiversity of Deep Ocean ecosystems.

4.4- Students will be able to learn about how humans are affecting the Deep Ocean.

4.4.1- Students will understand the benefits and dangers of Deep Ocean drilling.

### Web Resources

<http://www.mbgnet.net/salt/oceans/index.htm>

<http://www.extremescience.com/DeepestFish.htm>

<http://oceanexplorer.noaa.gov/explorations/03mountains/background/education/education.html>

<http://venturedeepocean.org/>

<http://www.naturalsciences.org/education/deepsea/curriculum-download.html>

<http://pubs.usgs.gov/gip/dynamic/exploring.html>

<http://www.deepoceanexpeditions.com/>

<http://www.fathom.com/course/10701050/session2.html>

<http://web.vims.edu/bridge/?svr=www>

### Other Recommended Resources

- Discovery Education
- Brain Pop

## Fifth Grade

### 5. Frozen Seas

5.1- Students will be able to study the areas where the seas are frozen (North and South Poles).

5.1.1- Students will understand that frozen seas are located in the arctic regions of the world.

5.2- Students will be able to discover the variety of marine animals that live in the frozen seas.

5.2.1- Students will be able to classify marine life that calls the sea ice their home, which includes diatoms, arctic cod and hydroids.

5.2.2- Students will be able to classify marine life that calls the water column their home, which includes jelly fish, shrimp and doliolids.

5.2.3- Students will be able to identify physical factors that affect the interrelationships among living things in an Antarctic ecosystem.

5.2.4- Students will be able to identify members of the Antarctic food web and their interrelationships.

5.3- Students will gain knowledge of the human impact on frozen seas.

#### Resources

5.3.1- Students will analyze the reasons why the arctic ice caps are melting and how it will affect the marine life in that area.

5.3.2- Students will synthesis the ways that humans can help conserve the arctic marine life by not over fishing.

#### Web Resources

<http://www.botos.com/marine/antarctic01.html>

<http://www.worldwidelearn.com/northpole/thepole/arctic-wildlife.htm>

<http://www.arctic.noaa.gov/education.html>

[http://www.windows.ucar.edu/tour/link=/earth/polar/arctic\\_marine\\_life.html](http://www.windows.ucar.edu/tour/link=/earth/polar/arctic_marine_life.html)

<http://www.arcodiv.org/> <http://www.buffalonews.com/248/story/580250.html>

<http://web.vims.edu/bridge/?svr=www>

#### Other Recommended Resources

- Discovery Education
- Brain Pop



## Sixth Grade

### 6. Fish, Rays and Invertebrates

6.1- Students will be able to identify various types of fish, rays and invertebrates.

6.1.1- Students will discover similarities and differences between the species of fish, rays and invertebrates.

6.1.2- Students will know about the characteristics and anatomy of various species of fish, rays and invertebrates.

6.1.3- Students will be able to identify the local fish, rays and invertebrates specific to South Florida and the Caribbean.

6.2- Students will be able to discover the biodiversity and interdependence of the fish, rays and invertebrates.

6.2.1- Students will be able to create a food web, showing how the various species of fish, rays and invertebrates all depend on each other for energy.

6.3- Students will be able to evaluate the main factors of decline for fish, rays and invertebrates.

Resources

6.3.1- Students will be able to analyze the impact of the over harvesting of fish, rays and invertebrates.

6.3.2- Students will investigate how other environmental issues like the Red Tide and desert dust from Africa have affected species of marine life in the Caribbean Ocean and Gulf of Mexico.

Web Resources

<http://marinefisheries.org/fishid/>

[http://www.floridamarine.org/features/category\\_main.asp?id=1289](http://www.floridamarine.org/features/category_main.asp?id=1289)

[http://science.nasa.gov/headlines/y2001/ast30aug\\_1.htm](http://science.nasa.gov/headlines/y2001/ast30aug_1.htm)

<http://www.enchantedlearning.com/subjects/sharks/rays/>

<http://www.flmnh.ufl.edu/fish/gallery/Descript/MantaRay/MantaRay.html>

<http://www.cyhaus.com/marine/inverts.htm>

<http://www.seasky.org/links/sealink02.html>

<http://www.nmfs.noaa.gov/pr/species/invertebrates/>

<http://web.vims.edu/bridge/?svr=www>

Other Recommended Resources

- Discovery Education
- Brain Pop

## Seventh Grade

### 7. Marine Mammals

7.1- Students will be able to identify various types of marine mammals, including but not limited to whales, porpoise and seals.

7.1.1- Students will discover similarities and differences between the species of marine mammals.

7.1.2- Students will know about the characteristics and anatomy of various species of marine mammals

7.1.3- Students will be able to identify the local marine mammals specific to South Florida and the Caribbean.

7.2- Students will be able to recognize migration patterns of marine mammals and identify the reasons for the migration.

7.2.1- Students will know that some marine mammals migrate to colder waters to find food and to warmer water to give birth.

7.2.2- Students will learn about the locations where some marine mammals give birth in the Atlantic and Caribbean Oceans.

7.3- Students will know that the preservation of marine mammals is essential to life in marine ecosystems.

#### Resources

7.3.1- Students will be able to conduct research on which marine mammals are on the endangered species list.

7.3.2- Students will investigate the reasons why mammal stranding occurs and how rescue efforts increase survival rates.

#### Web Resources

<http://www.afsc.noaa.gov/nmml/>  
<http://www.marinemammalcenter.org/>  
<http://www.ganesh.org/misc/dolphin.html>  
<http://www.mmc.gov/>  
[http://www.gma.org/marinemammals/whale\\_or\\_fish.html](http://www.gma.org/marinemammals/whale_or_fish.html)  
<http://octopus.gma.org/surfing/ocean/migration.html>  
<http://www.nmfs.noaa.gov/pr/species/esa/mammals.htm>  
<http://web.vims.edu/bridge/?svr=www>

#### Other Recommended Resources

- Discovery Education
- Brain Pop

## **Eighth Grade**

### 8. Human toll on the oceans resources

8.1- Students will be able to examine that there are many resources that we harvest from the ocean and they are important for us exist.

8.1.1- Students will identify the different types ocean resources available: food, transportation, recreation, minerals and drilling for oil.

8.1.2- Students will be able to question and evaluate ways humans benefit from all the thriving ocean resources.

8.2- Students will be able to identify how humans have affected our oceans resources in the past.

8.2.1- Students will be able to understand that many kinds of pollution have impacted directly and indirectly the ocean resources.

8.2.2- Students will analyze how pollution has caused global warming to be one of the biggest threats to our planet as well as the oceans resources.

8.2.3- Students will investigate how transporting certain species of marine life from one place to another have affected the some of the oceans resources.

8.3- Students will explore how we can protect our ocean resources so that we can live harmoniously on this planet.

#### Resources

8.3.1- Students will understand that if people work together on common goals to conserve the ocean and its resources we will all benefit from it.

8.3.2- Students will be able to evaluate and rate the importance of the different ways of protecting our oceans resources.

#### Web Resources

<http://marinebio.org/Oceans/OceanResources.asp>

<http://home.earthlink.net/~boytan/oceans/kids.htm>

<http://www.waterencyclopedia.com/Mi-Oc/Mineral-Resources-from-the-Ocean.html>

[http://library.thinkquest.org/CR0215471/ocean\\_pollution.htm](http://library.thinkquest.org/CR0215471/ocean_pollution.htm)

<http://www.odec.ca/projects/2006/kutp6p2/>

<http://www.eco-pros.com/humanimpact.htm>

[http://seawifs.gsfc.nasa.gov/OCEAN\\_PLANET/HTML/search\\_educational\\_materials.html](http://seawifs.gsfc.nasa.gov/OCEAN_PLANET/HTML/search_educational_materials.html)

<http://web.vims.edu/bridge/?svr=www>

#### Other Recommended Resources

- Discovery Education
- Brain Pop

# Maritime Project by Grade Level

## Kindergarten through Second Grade Class Project Components

Kindergarten through Second Grade will create a class Maritime Project.

- General description of habitats or ecosystems studied.
- Inhabitants of the ecosystems (five minimum).
- Pictures and/or drawings.
- What can we as conservators of the environment do to protect the habitat studied?

Option 1- Classes create a class video. It can include video narratives, slides with pictures or drawings, and music to describe the components of the Maritime Project.

Option 2- Classes can create a class presentation tri-fold board describing the components of the Maritime Project.

Option 3-Classes can create a PowerPoint presentation describing the components of the Maritime Project.

Option 4- Classes can use other presentation platforms to present all of the components needed to complete the project. For example, Discovery Board or Prezi.

Option 5- Classes can create a bulletin board outside of their classrooms depicting all the components of their Maritime theme.

## **Third through Fifth Grade Project Components**

Students, with the involvement and guidance of their Science teacher, are responsible their specific part in creating the Maritime Project. For example- Teacher can break project down into sections and give one section to a small group, allowing them to work together to complete. Then taking the assigned sections and putting them together to create a class project. Using one of the project options listed below:

- General description of habitat or organisms studied.
- Inhabitants of the ecosystems (five minimum).
- Pictures and/or drawings.
- Statistical data of habitat or organisms studied.
- Current global state of habitat or organism studied.
- How do we as humans benefit from the thriving habitats or organisms studied?
- What can we as conservators of the environment do to protect the habitat or organisms studied?

Option 1- Classes create a class video. It can include video narratives, slides with pictures or drawings, and music to describe the components of the Maritime Project.

Option 2- Classes can create a class presentation tri-fold board describing the components of the Maritime Project.

Option 3-Classes can create a PowerPoint presentation describing the components of the Maritime Project.

Option 4- Classes can use other presentation platforms to present all of the components needed to complete the project. For example, Discovery Board or Prezi.

## **Sixth through Eighth Grade Project Components**

In Sixth through Eighth Grade each student is responsible for his or her Maritime Project.

- General information of ocean resources.
- Detailed information on ocean resources (two minimum).
- Pictures and/or drawings.
- Statistical data of human toll on ocean resources.
- Current global state of ocean resources.
- How do we as humans benefit from thriving ocean resources?
- What is the human toll on these ocean resources?
- What can we as conservators of the environment do to protect our oceans resources?

Students may present their products via any of the following: trifold boards, discovery boards, videos, newsletters, PowerPoint, YouTube, Prezi, Flip-Grid, Pow-Toon or any other appropriate and approved medium.