

Curriculum21 New Haven Curriculum Map Template

NEW HAVEN CURRICULUM MAP

Subject/ Course: Science Grade Level: 2 School/ Teacher: Sigsbee Charter

UNIT TITLE: A STUDY OF THE SEA (Sample unit from a STEM elementary in FL)

OVERVIEW – Purposes and Outcomes

Students will use observations and investigations to learn about the basic needs of plants and animals through the study of our local ecosystems.

Big Ideas:

- Water conditions can have a tremendous impact on the health of plants and animals in local environments.
- Humans impact the local ecosystems in harmful and beneficial ways.
- In order to maintain a healthy environment we must work to preserve and conserve our local ecosystems.
- Animals and plants have specific habitats where they are best suited for survival.
- Food chains and food webs represent some relationships between animals and plants.

Essential Questions:

- What are the ideal conditions for life in local habitats?
 - How do relationships between animals impact certain species?
 - What do animals and plants need for survival?
- How has our local environment changed over time?
 - How can people affect the environment?
 - How can we preserve our environment?

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Common Core State Standards

CCSS.ELA-Literacy.RI.2.1 Ask and answer such questions as *who, what, where, when, why, and how* to demonstrate understanding of key details in a text.

CCSS.ELA-Literacy.RI.2.2 Identify the main topic of a multiparagraph text as well as the focus of specific paragraphs within the text.

CCSS.ELA-Literacy.RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.

CCSS.ELA-Literacy.RI.2.6 Identify the main purpose of a text, including what the author wants to answer, explain, or describe.

CCSS.ELA-Literacy.RI.2.7 Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify a text.

CCSS.Math.Content.2.MD.D.9 Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.

CCSS.Math.Content.2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems¹ using information presented in a bar graph.

CCSS.Math.Practice.MP3 Construct viable arguments and critique the reasoning of others

(Florida) State Science Standards

NGSS: Science Performance Expectations(2013), NGSS: Grade 2, 2.Interdependent Systems
Performance Expectations

- 2-LS4-1. Make observations of plants and animals to compare the diversity of life

NGSS: Science Performance Expectations(2013), NGSS: Grade 2, 2.Earth's Systems
Performance Expectations

- 2-ESS1-1. Make observations from media to construct an evidence-based account of Earth's features
- 2-ESS2-1. Compare multiple solutions designed to slow or prevent wind or water erosion
- 2-ESS2-2. Develop a model to represent the shapes and kinds of land and bodies of water

FL: NGSSS: Science, FL: Grade 2 , Nature of Science

BIG IDEA 1: The Practice of Science A: Scientific inquiry is a multifaceted activity involving asking investigable questions, construction of investigations into those questions, the collection of data, and the communication of this evaluation. B: The processes of science frequently involve the use of scientific argumentation. Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the development of scientific knowledge. Scientific knowledge is based on observation and inference; it is important to record and communicate scientific knowledge. Scientific knowledge is based on observation and inference; it is important to record and communicate scientific knowledge. Scientific knowledge is based on observation and inference; it is important to record and communicate scientific knowledge. Scientific knowledge is based on observation and inference; it is important to record and communicate scientific knowledge.

- SC.2.N.1.1
- Raise questions about the natural world, investigate them in teams through free exploration, and construct explanations based on those explorations.
- SC.2.N.1.2

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- Compare the observations made by different groups using the same tools.
 - SC.2.N.1.3
 - Ask "how do you know?" in appropriate situations and attempt reasonable answers when
 - SC.2.N.1.4
 - Explain how particular scientific investigations should yield similar conclusions when rep
 - SC.2.N.1.5
 - Distinguish between empirical observation (what you see, hear, feel, smell, or taste) and
 - SC.2.N.1.6
 - Explain how scientists alone or in groups are always investigating new ways to solve pro
- FL: NGSSS: Science, FL: Grade 2 , Life Science**
- BIG IDEA 17: Interdependence A. Plants and animals, including humans, interact with and basic needs. B. Both human activities and natural events can have major impacts on the e consumers.
- SC.2.L.17.1
 - Compare and contrast the basic needs that all living things, including humans, have for :
 - SC.2.L.17.2
 - Recognize and explain that living things are found all over Earth, but each is only able to

CONTENT

- Ways humans negatively affect local habitats and ways they can mitigate the damage.
- Specific conditions necessary for a healthy animals and plants.
- How water conditions affect life.
- The types of Flora and Fauna that are found in each local habitat.
- The basic needs of animals are air, water, food and shelter.
- The basic needs of plants are air, water, food (nutrients in soil), space and sunlight.
- Coral reefs are located in specific places on earth due to the conditions available in those locations.

SKILLS

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- Locating habitats on maps.
- Identifying flora and fauna in local habitats.
- Using visual media to identify healthy and unhealthy habitats.
- Using scientific tools to measure the pH of water samples.
- Using scientific tools to measure the temperature of water samples.
- Using scientific tools to measure the salinity of water samples.
- Graphing the changes in the coral reef over time.

ASSESSMENT/ EVIDENCE – formative

Walking Trip Journal Entries

Formative: Written: Journal/ Diary

Walking and wading trips around Sigsbee Base. Students will complete biweekly wading trips to study food chains/webs in local marine and terrestrial habitats. Students will be assessed on journal entries completed following the outdoor activity.

<http://www.weebly.com>

Global Connection

Formative: Oral- SKYPE with Port Douglas, Australia elementary school

Recorded Skype session sharing findings and asking questions of a second grade class studying the Great Barrier Reef. We will create comparative charts on our reef and the GBR; the measures being taken to protect; and the attitudes of the children.

<http://Skype.com>

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ASSESSMENT/Evidence- summative -benchmarks

Summative: Oral: Podcast Presentation

Students will use their knowledge of optimal conditions for a coral reef to create a public education podcast providing information on how human are impacting the reef and what can be done to reverse/mitigate or avoid the damage.

(<http://podbean.com>)

Snorkeling/Glass Bottom Boat Field Trip

Summative: Written: Journal/ Diary

Snorkeling/Glass bottom boat trip. Students will participate in a field trip to learn about the local coral reef. Students will be assessed based on information collected and recorded in their science journal.

Guest Speakers

Summative: Written: Blog response Informative

Guest speakers: Students will hear from professional from Reef Relief, FKCC, FWC and Commercial Fisherman and post their responses on our class blog.

Vocabulary- TERMS

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- Sun
- Air
- Water
- Food
- Nutrients
- Space
- Shelter
- Oxygen
- Carbon Dioxide
- Environment
- Conservation
- Preservation
- Conditions
- Characteristics
- pH
- Salinity
- Habitat
- Predator
- Prey Food Chain

Upgrade: <http://www.visualthesaurus.com>

LESSON PLANS/ ACTIVITIES (linked or attached/ organized by EQ)

- Animal research from informational text.
- Participate in shared/ guided reading about the conditions necessary for a healthy ecosystems.
- Create maps identifying where in the world coral reefs are located.
- Researching items that harm the coral reef. (unnatural items in the water, sunscreen, anchors.
- Investigate how the local habitats including the reef has changed over time by: using photographs, interviewing people who have studied the reef over time.
- Snorkeling/Glass Bottom Boat Tour: emphasis on looking for healthy/unhealthy

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reef conditions.

- Create an electronic non-fiction book: select a local habitat's plant or animal and write about how the conditions of the water affect the animal/plant; include information about how humans can increase the severity of or reverse the damage.
- Use ecosystem poster of local habitats to help differentiate and sort animals into different habitats.
- Commercial fisherman guest speaker: students will learn about local fishing in the Florida Keys.
- FWC or FKCC guest speaker: Students will learn about regulations and fishing the Florida Keys.
- Students will watch the short Anderson Cooper 20/20 video on coral reefs in Cuba.

SPECIALISTS (Art, Music, PE):

- Week 1 Inquiry Fish Dissection and Inquiry Investigation as attention getters to introduce the Study of the Sea.
- Week 2 Food Webs/Chains: Students will review vocabulary introduced in class such as food chain/web, habitat in powerpoint. Students will investigate animals from the touch tank and discuss where they belong in local environment's food chains/food webs by making a food web booklet.
- Week 3 Wading Trip: Students will participate in a wading trip to help introduce local plants/animals and learn about their place in the food chain/web of this nearshore habitat (review habitat definition, review food web/chain, show marine pictures of food chain/web). Students will follow up through a wading reflection in class.
- Week 4 Walking Trip: Students will walk to Sigsbee bridge and behind recess area to view the mangrove habitat and investigate the animals/plants that would be present in the food web. Students will complete Food Web Worksheet Mangroves as a follow up in class.
- Week 5 Water Sampling: Students will walk to the local bridge and take samples of the water to learn about salinity, temperature and pH. Students will discuss how these samples can help predict the health of the coral reef. Students will compare tap water to canal water while completing their Water Sampling worksheet with a partner. Students will review investigation and compare data during their follow up class.
- Week 6 Reef Relief guest speaker: Students will learn about the health of our local coral reef. Students will discuss how humans are affecting the coral reef and understand how water samples can help us detect problems. Students will create a class wide illustration of the coral reef in follow up lab.

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- Week 7 Wading Plankton Lab: Students will go wading to collect plankton. Students will discuss what predators plankton have in the ocean. Students will discuss how plankton plays an important role in the ocean. Students will look under brock scopes at plankton and continue this investigation in their classrooms during their follow up lab.
- Week 8 Podcasts: Students will create podcasts on coral reef preservation.
- Week 9 Podcasts: Students will create podcasts on coral reef preservation.

RESOURCES:

[Video Clip: National Geographic – Coral Reef in Florida](#)

[BBC: Wildlife Series– Great Barrier Reef](#)

[Visit to Crane Point](#)

[Florida Keys Nature Center](#)