

MANGROVES: MANGROVES ON THE ISLAND

Grade 4

ESSENTIAL QUESTIONS: WHY ARE MANGROVES IMPORTANT?

- How do mangrove swamps connect to other environments/ecosystems on an island?

LEARNING GOALS

What should learners know and be able to do by the end of the lesson?

Students will be able to:

- State where mangroves can be found
- Describe the relationship between a mangrove environment/ecosystem and other environments/ecosystems on the island, using a common feature such as water

Approximate Length of Lesson: Two 45-minute class sessions

Approximate Number of Minutes: 90 minutes

BENCHMARKS

Grade 4: Sci.5.4.1 Describe the variety of life forms found in the sea and in fresh water.

SUMMATIVE ASSESSMENT

Illustration with labels showing mangrove in relation to other environments on an island

FORMATIVE ASSESSMENT TOOLS

- Responses to comprehension questions
- K-W-L chart

FOCUSED LANGUAGE FEATURES: VERNACULAR + ENGLISH

Language Functions	Related Sentence Structures / Patterns (Examples)	Vocabulary
State the location	<p>_____ is/are located (at/near/on) _____.</p> <p>The mangroves grow <u>between</u> _____ .</p> <p>_____ live <u>in</u> mangroves.</p> <p>We can find _____ <u>in</u> _____.</p>	<p>environment</p> <p>flooded</p> <p>protect</p> <p>habitat</p>
Describe relationship	Water flows <u>from</u> _____ <u>to</u> _____.	
Describe cause/effect relationship	If _____, then _____.	
Ask and answer questions	Who/What/When/Where/Why questions	

LEARNING SEQUENCE

Lesson: Mangroves on the Island

Activate Prior Knowledge	<ul style="list-style-type: none"> Refer to the Gallery Walk posters from lesson 1 and remind students of the key points discussed and learned: Why are mangroves important to us? What are people doing that is harming the mangroves? What do you think we can do about it? Read aloud the essential questions for this lesson. Give students some time to think about the questions. Ask for volunteers to share their thoughts. Show pictures of different mangroves and complete the “K” (What we know) and “W” (What we want to know/questions) columns of K-W-L chart on mangroves.
Introduce vocabulary	<ul style="list-style-type: none"> Write each key vocabulary on flash card, show each word, and give the definition. Post the words on a wall. Have the class draw pictures to each word and use the key vocabulary to create meaningful sentences related to the picture. Teacher can model first.
Do a picture walk to identify title, author, and ask questions about <i>Our High Island Home</i> .	Read aloud pp. 2 (“Who Lives Where on Our Island?”), 7 (“River”), 8 (“Seagrass Bed”), 9 (“Mangrove Swamp”), and 10 (“Reef”).

Ask comprehension questions for “Mangrove Swamp” (p. 9)

- Answer the following questions:
 - Point to the map and ask: Where do mangroves grow? (“Mangroves grow between _____.”)
 - Point to the illustrations on the right and ask: What can we find in mangrove swamp? (“We can find _____ in mangrove swamp.”)
 - What do mangroves do? (“Mangroves protect the land and animals. Mangrove swamp is a habitat for _____.”)
- Do a word study on the following: similarities and differences between the terms “mangroves” (general term that is used to the mangrove trees), “mangrove swamp” (specifically referring to the habitat/flooded areas with mangrove trees), and “mangrove forest” (specifically referring to an area with mangrove trees and shrubs)
- Have students add to their Gallery Walk posters to reflect new learning from “Mangrove Swamp”
- Add new words to the word wall as needed to describe mangrove swamp (e.g., words for animals and plants)
- Observe students and ask volunteers to share responses as “temperature check”

Ask the following questions on “River”, “Seagrass Bed” and “Reef”

- Point to the map for each of the environment/ecosystem and ask: Where can we find _____? (“_____ is located at/near/on _____”)
- Point to the illustrations on the right and ask: What can we find in _____? (“We can find _____ in _____.”)
- What does _____ do? (“_____ is a habitat for _____.”)
- For “River”: Why do you think some animals found in river can live in both fresh and salty water?
- For “Seagrass Beds”: what important role does seagrass play in the area? (protect young fish; covers reef and lagoon)
- For “Reef”: Why do you think there are more different kinds of animals living in the reef than in any other place in the ocean? (the large structure of the reef provides space for different animals; algae as food source for small animals, and the small animals are food source for larger animals)

Refer to illustrations from *Our High Island Home* and pictures of different mangroves.

Discuss the relationship between a mangrove swamp and other environments on the island

- Where do mangroves grow? (The mangroves are located (at/near/) _____ . The mangroves grow between _____ .)
- How is the mangrove swamp connected to other environments? Refer to the river, seagrass bed, and reef. (water)
- Where does the water come from? Where does the water flow?

Create a model and demonstrate the water flow in and out of mangrove

- Use modeling clay or mud to build “land” with slope, a tray of salty water with sand that connects to “land”. For upper grade students, use clay or small rocks to build a “reef” in the salty water, and create seagrass bed in the salty water using sand and grass.
- Use fresh water and create a “river” going downhill from the top of the slope.
- Ask students
 - What happens to the area where the fresh and salty water meets (brackish water)?
 - What happens when we throw things into water from top of the slope?
 - What happens when soil falls into the water at the top of the slope? (It goes downhill along the river, and becomes sediments.) Add the word “sediment” to word wall.
 - Where would the soil go if the mangrove swamp was not there? (If the mangrove swamp was not there, then the soil would go straight into the seagrass bed and reef)
 - How are the mangrove swamp, seagrass bed, and coral reef connected? (They are major life-supporting systems along the coast and are connected to each other. Different types of animals feed and live in these habitats/environments/ecosystems. Mangrove swamp stops eroded soil from top of the slope and filters sediments to the brackish water. Seagrass grows in and stabilizes the reef. Reef protects mangrove swamps and seagrass beds from waves and currents.) Add the word “coast” to word wall.

Create an illustration that shows how water flows between mangroves and other environments and connects them. Label the illustration using words from word wall (lessons 1 and 2).

Revisit K-W-L chart and answer questions/record new learning.

Essential Questions

Review the essential questions for this lesson. Ask for responses based on what we have learned

RESOURCES

- Flash cards
- UHU
- IREI’s *Our High Island Home* (gr. 3-5)
- Pictures of different mangroves
- K-W-L chart
- Materials to demonstrate water flowing in and out of mangrove swamp: modeling clay, mud, small rocks, tray, salt water, sand, grass
- Paper to create illustration
- Markers