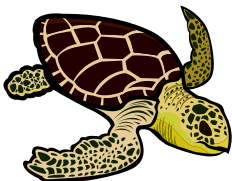




# Junior Ranger Activity Book



Name: \_\_\_\_\_



# How to become a Junior Ranger



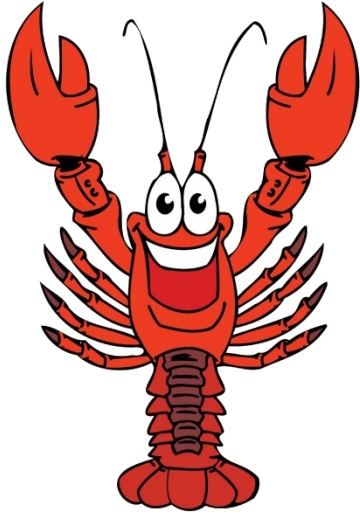
So, you want to become a Buck Island Junior Ranger? To earn your badge, you will need to finish 3 projects.

- 1) Become a Lobster, a Turtle or a Shark! See the next page for details.
- 2) Attend a Ranger-led activity – a tour, a walk, a demonstration.
  - a. Name of program: \_\_\_\_\_
  - b. Ranger's name: \_\_\_\_\_
- 3) Complete a service project. When you finish your project, have your parents or another adult sign this form.
  - a. Re-use something that you have already used in a different way, like reuse your plastic soda bottle as a water bottle
  - b. Create your own brief ranger program to your family
  - c. Pick up 5 pieces of trash (water bottles, paper)
  - d. Create your own original Buck Island service project!
    - i. Name of project: \_\_\_\_\_
    - ii. Adult's signature: \_\_\_\_\_



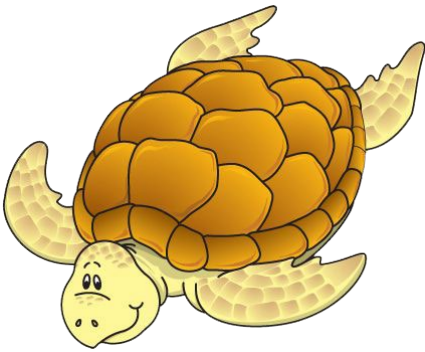
Remember - safety is the most important thing you do. Have respect for the people and places you visit during your Buck Island adventure!

Buck Island Reef National Monument Junior Ranger Program has three different groups. How many of these activities can you finish?



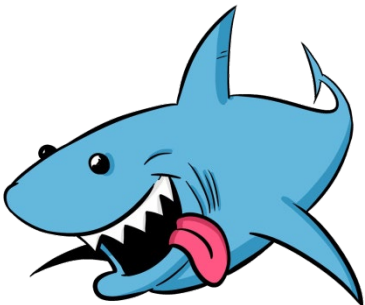
## Lobsters

Complete at least 4 of the activities in this book.



## Turtles

Complete at least 6 of the activities in this book.



## Sharks

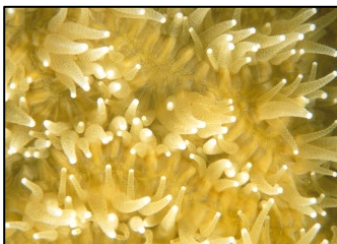
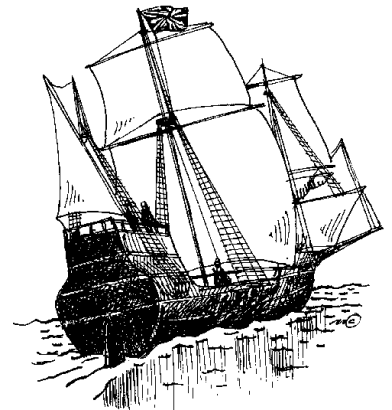
Complete all of the activities in this book.

# Buck Island Reef National Monument

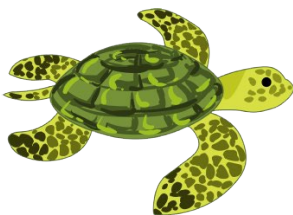


is a very special place. The park was created in 1961 as the very first marine protected area in the **ENTIRE** National Park Service! This means that all of the plants, animals, historical ruins, and archeological sites in the entire park, both on the land and under the water, are protected in a special way. The park is full of amazing coral reefs, sea grass beds, beaches, and tropical dry forests full of wonderful fish, dolphins, crabs, lobsters, lizards, and birds.

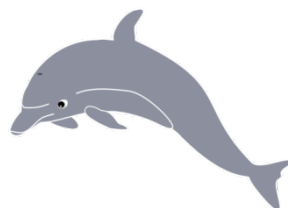
People have been coming to Buck Island for a very long time, as long as there have been people on St. Croix, over 2,000 years! A long time ago they paddled in canoes and camped on the beach, they gathered eggs and birds, and then returned home. In the 1700s and 1800s, Europeans came and chopped down the big trees. Only a few people lived on the island. They watched for arriving ships, and tended goats. Some of these ships crashed on the coral reef and sank. Today, archeologists are studying these shipwrecks under the water.



**A coral reef is made of many small polyps which produce a stony skeleton. The polyp has a tube-shaped body, and feeds at night.**



Did you know that in the 1600s Buck Island was actually called Green Island?





# Life in the Ocean's Cities



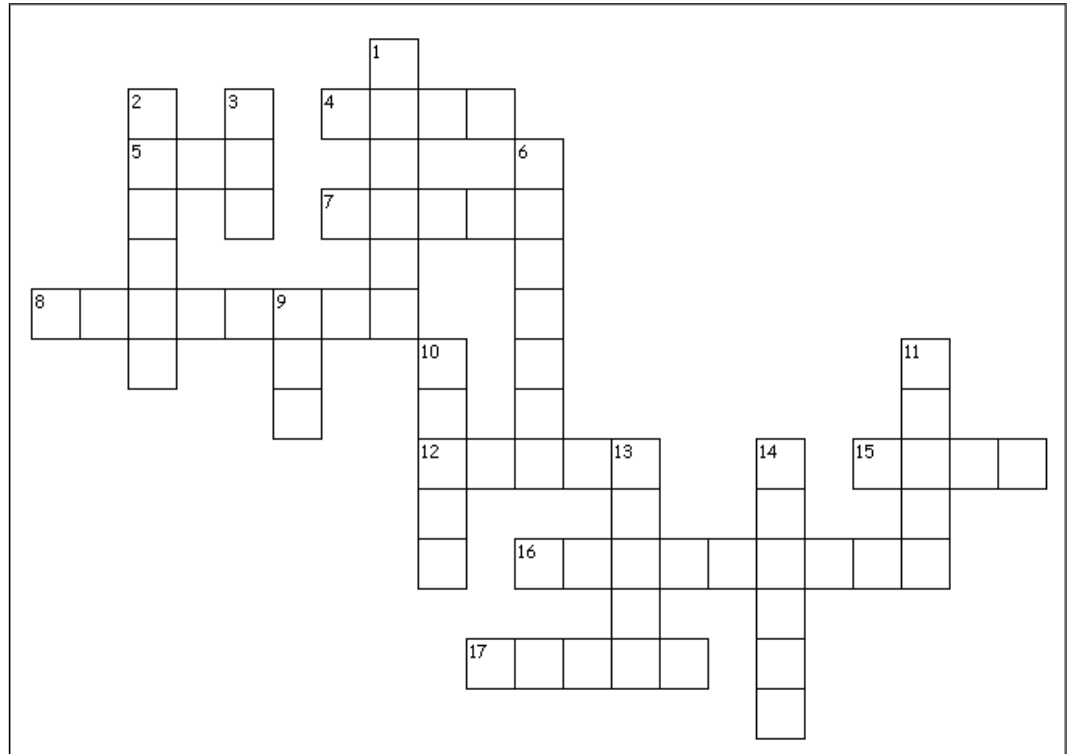
Coral reefs are the second most complex and diverse ecosystems on the entire planet. Many kinds of animals call the reef their home, like the

**Blue Tang, Parrotfish, sharks, spiny lobsters**, and sea urchins. These creatures eat the coral, breaking off tiny pieces that get washed in the surf that end up on the bottom and the beach as sand. **Sea turtles** live among the coral, too, and come ashore to lay their eggs in nests on the beach. The reefs at **Buck Island** have grown over the past 7,000 years, and are made mostly of **elkhorn** coral, but other kinds of coral can also be found there, like **brain** and star corals. Some corals are soft, like **sea fans**. You can see the reef by **snorkeling**.

Corals are very sensitive – they need just the right amount of light, oxygen, and temperature in order to stay healthy. If pollution or dirt blocks the light, the corals may be choked. Water that is too warm may lead to bleaching and disease.

## Across

- 4. beaches are made of this
- 5. sea turtles eat this kind of grass
- 7. \_\_\_\_ coral
- 8. Buck Island Reef National \_\_\_\_\_
- 12. fish breathe with these
- 15. Blue \_\_\_\_, a kind of fish
- 16. the coral reefs have caused many of these kinds of accidents
- 17. this makes the coral skeleton, and it's what starts a coral reef



## Down

- 1. "bird" fish, and it even has a beak that helps it eat coral!
- 2. Buck \_\_\_\_\_
- 3. sea \_\_\_\_\_ - a kind of soft coral
- 6. one way how you can see the reef
- 9. a kind of coral that's not really a horn
- 10. the time of day when corals feed

- 11. a large predator fish found in the reef
- 13. \_\_\_\_ lobster
- 14. a large sea reptile that lays its eggs on the beach





# Turtle Tracks



There are three kinds of turtles that come to Buck Island's beaches every year, to dig nests and lay their eggs – the **hawksbill**, the **leatherback**, and the **green sea turtles**. People used to hunt and kill hawksbill turtles for their shells, which were used to make expensive jewelry and other items; this was called **tortoiseshell**. Because of their endangered and threatened status, today they are protected – it is illegal to kill these animals in the United States.

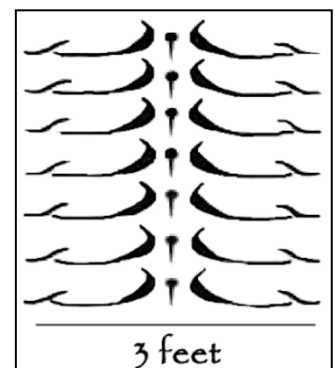
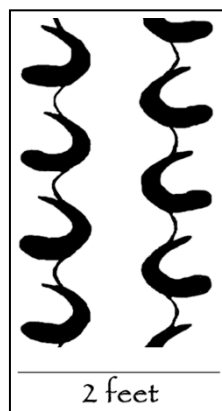
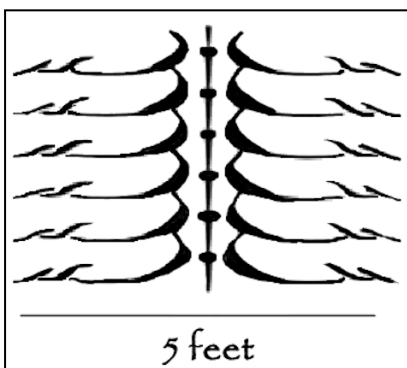
**Leatherbacks** are the world's largest turtle – they can reach up to 8 ft long and weigh over 1,000 pounds! They visit beaches to nest from March until June, and each of their nests can have up to 80 eggs. Leatherback turtles only come to places where there is open sand and no coral reef, so they like really Buck Island's West Beach! Like their name says, their shell is soft, not hard, and is actually made of tough skin that feels like rubber, with lots of bony plates. They eat almost nothing else but jellyfish!

**Green turtles** can be 4 ft long and weigh up to 450 pounds. They are the largest of the hard shell turtles, but smaller than leatherbacks. They nest from August through September, and their nests normally have about 110 eggs. Adult green turtles are **herbivores** (they only eat plants), and they like to feed on the seagrass beds between St. Croix and Buck Island.

The smallest of the turtles at Buck Island are **hawksbills** – they are only a little over 3 feet long and weigh between 95 and 165 pounds. They come to Buck Island all year long to nest, but mostly in the summer. Their nests can have up to 140 eggs. Hawksbills are also able to crawl backwards, which is handy if they get tangled in vines and trees. Hawksbills like to eat sponges, and will live and feed in both coral reefs and mangroves. Their jaws are shaped like a beak, which helps them to reach into the corals to get their food.



See if you can identify who made these turtle tracks - a hawksbill, a leatherback, or a green turtle? Write their names below or next to each set of tracks. (hint: look at their sizes)

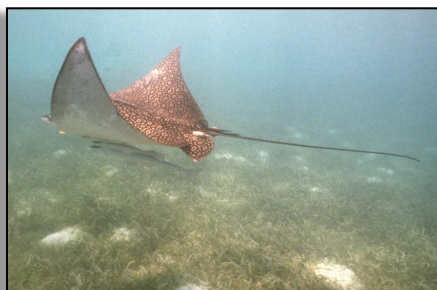




# There's No Place Like Home

A **habitat** is an environmental or **ecological** area where certain species of animals and plants live, or a population. A **population** is a group of living organisms that live in the same place at the same time. Each population has its own habitat, but sometimes there may be more than one population in a habitat. A habitat supplies things that living organisms need to survive – food, water, temperature, oxygen, and minerals; these are called **resources**. If more than one population lives in a single part of a habitat, then they compete for those resources.

Several kinds of habitats make up an ecosystem, which is made up of both living (plants, animals) and nonliving (water, air, rocks) things.



**Seagrass.** Seagrasses grow in lagoons, between the coral reef and the beach. They also grow in bays and estuaries, where they are protected from the surf and can grow into large meadows; an **estuary** is where a freshwater river or stream flows into an ocean. The mix of salt and fresh water is called **brackish water**. A bay, an inlet, and flooded river valleys are all estuaries. But, there are no estuaries at Buck Island.



There are 7 different kinds of seagrasses in the Virgin Islands, but **turtle grass**, manatee grass, and shoal grass are the most common kinds. All of these grasses are important ecosystems – they are nurseries for reef fish, and are food for sea turtles. Other fish, like sharks, barracuda, grouper, snapper, and parrot fish live in both the reef and seagrass beds. The Queen Conch really likes turtle and manatee grass, but they can also be found on sandy bottoms.

You have already read about coral reefs. Who else lives in the reef?



**Did you know that young green and hawksbill turtles will live among the coral reefs and seagrasses for up to 20 years?**





**Dry Broadleaf Forest.** On the land, the hillsides and top ridge of Buck Island are covered in Subtropical dry forest, just like much of St. Croix, but this is a relatively recent development. Prior to the arrival of European colonists, much of the north (**windward**) side of the island would have been covered in **semi-evergreen** rain forest, while the south (**leeward**) side, receiving less rainfall, would have likely consisted of subtropical dry **deciduous** hardwood forests. A deciduous plant loses its leaves, flowers, or fruit when they are no longer needed. Now, you may be thinking – deciduous trees in the Caribbean? Don't they lose their leaves when it gets cold? In the tropics, like the Virgin Islands, the winter is not very cold. Instead, there are dry and rainy seasons. When it is dry these plants will drop their leaves, and regrow them during the rainy season.



Unfortunately, colonists cut down the forests in the 1600s and 1700s for timber to ship to North America and Europe. Today these forests are beginning to recover. You can get an idea about what the forests originally looked like – if you go to the northwest part of St. Croix, you will see giant kapok trees and other plants that once covered the island.



**Beaches.** The open sand beaches of Buck Island are actually made up of the broken down skeletons from algae, pieces of coral reef, and shells! The sand is brought to the shore by tides, currents, and ocean waves. Many animals call the beach home, like crabs, mollusks, and other **invertebrates**, which are food for many kinds of birds, like sandpipers and terns.

**Deep Water.** Between 100 and 6,000 feet below the surface, the sunlight begins to disappear and the temperature drops. But that does not mean that corals don't live there, too. Deep sea corals are also called cold-water corals, and live between 150 and 6,500 feet below the surface. Because they are so far away from sunlight, they do not have a special algae found in other corals. They grow very slowly. Animals who live in these deep, dark waters have **adapted** to their environments. Jellyfish, mollusks, squids, and fish live here. Some animals are **bioluminescent** (they glow), some to attract a mate, and some to attract prey.





What are some other kinds of habitats at Buck Island? Where do different kinds of animals and plants live? Who lives among rocks, or around salt ponds? Think about some answers and match each of the animals listed below to their habitat.



Queen Conch

Ground Lizard

Mangrove Cuckoo

Ghost Crab

Bahama White Cheek Pintail Duck

Sea Urchin

Oystercatcher

Black Grouper

Stingray

Deep Water Shelf Edge

Coral Reef

Sandy bottom

Seagrass Bed

Sandy Beach

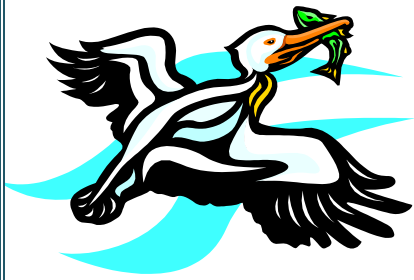
Rocky Shore

Salt Pond

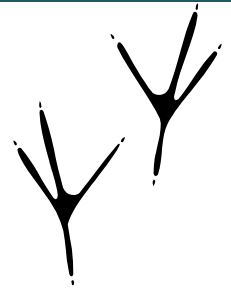
Dry Forest

Mangrove Forest





# Birds of a Feather...



Many birds call Buck Island home; some for only part of the year, while others live there all year long. Some birds, like herons, egrets, and ducks, like to stay near the salt pond, located on the south side of the island. Others, like sandpipers, like to stick close to the beaches and the shore. Bannaquits, hummingbirds, the mangrove cuckoo, and kingfishers live there year round. Least Terns use West Beach as a place to nest during the summer.

When you visit Buck Island, use a bird field guide to help identify the birds you see. Put a check next to the birds you saw, and take notes about what you observe – what were the birds doing? Were they flying in the air, sitting on the beach or in a tree, or on the water? Were they looking for food, or protecting their nests?

- ☐ Least tern
- ☐ Green throated Carib
- ☐ Brown Pelican
- ☐ Sandpiper
- ☐ Egret
- ☐ Blue Heron
- ☐ Bannaquit
- ☐ Osprey
- ☐ Ground Dove
- ☐ Pearlyeyed Thrasher
- ☐ Frigate Bird
- ☐ Yellow Warbler



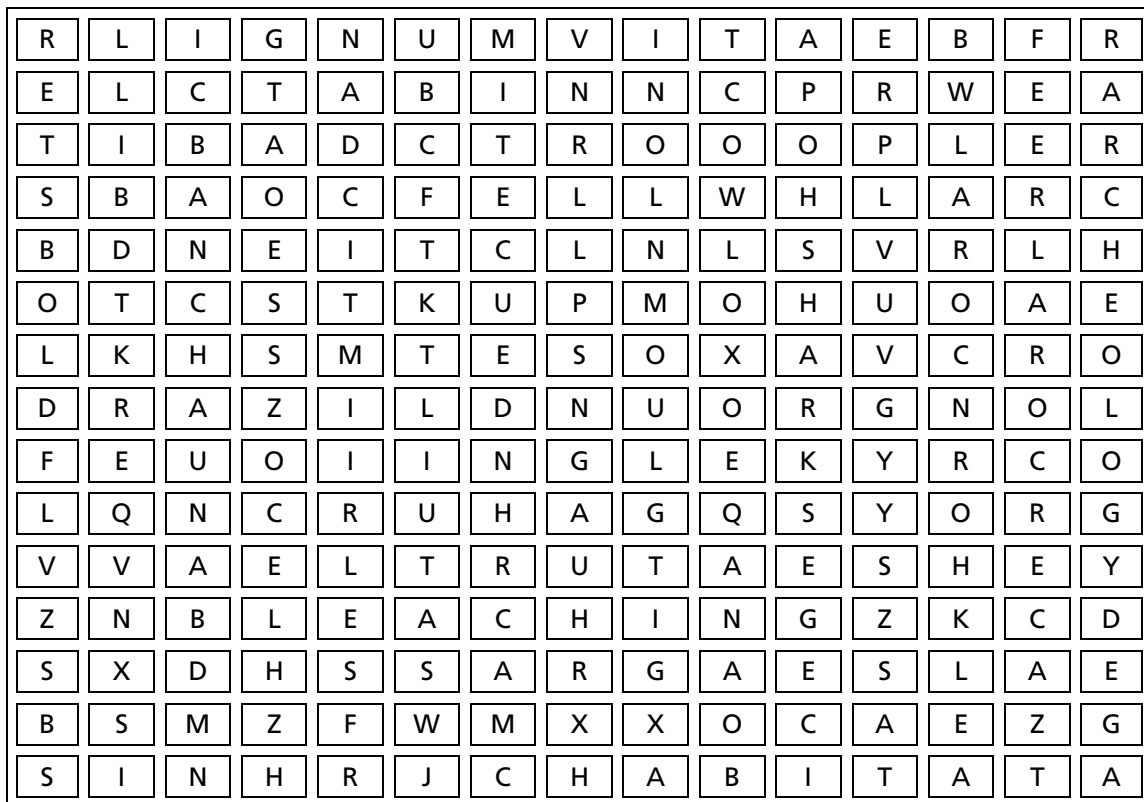
**Did you know that both male and female least terns (*Sterna antillarum*) take turns protecting and incubating their eggs and looking for food?**



# Research and Science



Since Buck Island National Monument was established over 50 years ago, researchers and scientists have conducted many studies of the island's geology, plants, and animals, both on the ground and in the water. Archeologists and historians have also studied the island's history, going back over a thousand years! Find and circle the words from the list below that describe the kinds of things that are being studied at Buck Island.



ARCHEOLOGY	BAT	BLEACHING
BROWN PELICANS	CACTUS	CORAL REEF
ELKHORN CORAL	FISH	GROUND LIZARD
HABITAT	LEAST TERN	LIGNUM VITAE
LOBSTER	POLLUTION	SEAGRASS
SEA TURTLE	SHARKS	



**Do you know what kind of coral this is? (Hint: it is one of the words in the word search)**

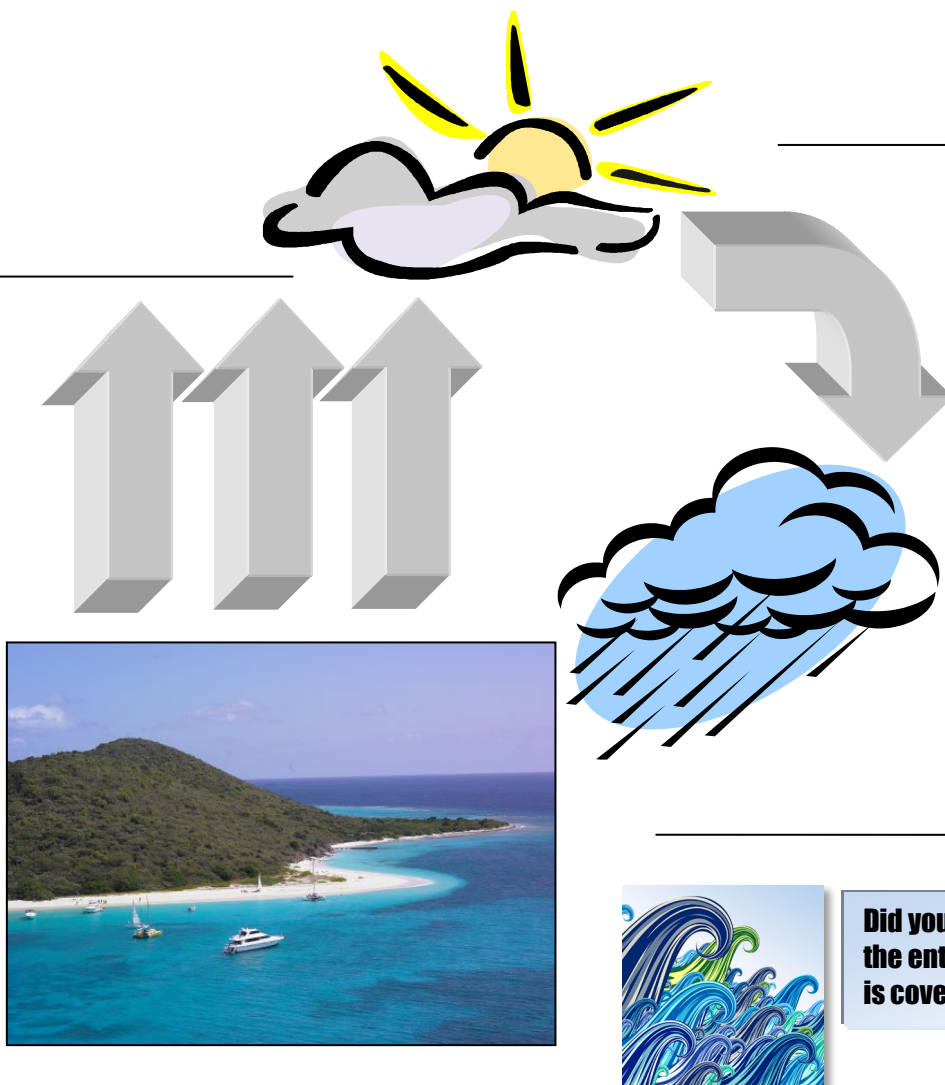


# The Earth's Water Cycle



The water cycle is how living organisms get their water. The cycle is made up of four main parts: **evaporation**, **condensation**, **precipitation**, and **collection**. **Evaporation** is when water is turned to steam or vapor by the sun, and rises from the land, ocean, lakes, rivers, and other places into the air. **Transpiration** is the how plants lose water out of their leaves, kind of like how you sweat when you get hot. When the water vapor evaporates into the air it becomes cold and turns back into a liquid, and makes clouds – this is called **condensation**. When the air is holding so much water that it cannot hold anymore, the clouds get very heavy and the water falls back to earth as rain, snow, sleet, or hail – this is **precipitation**. The water then falls and **collects** in oceans, lakes, rivers, or on the ground, and the cycle starts again.

Label the four part of the water cycle on the image below.



Did you know that over 70% of the entire surface of the Earth is covered by oceans?

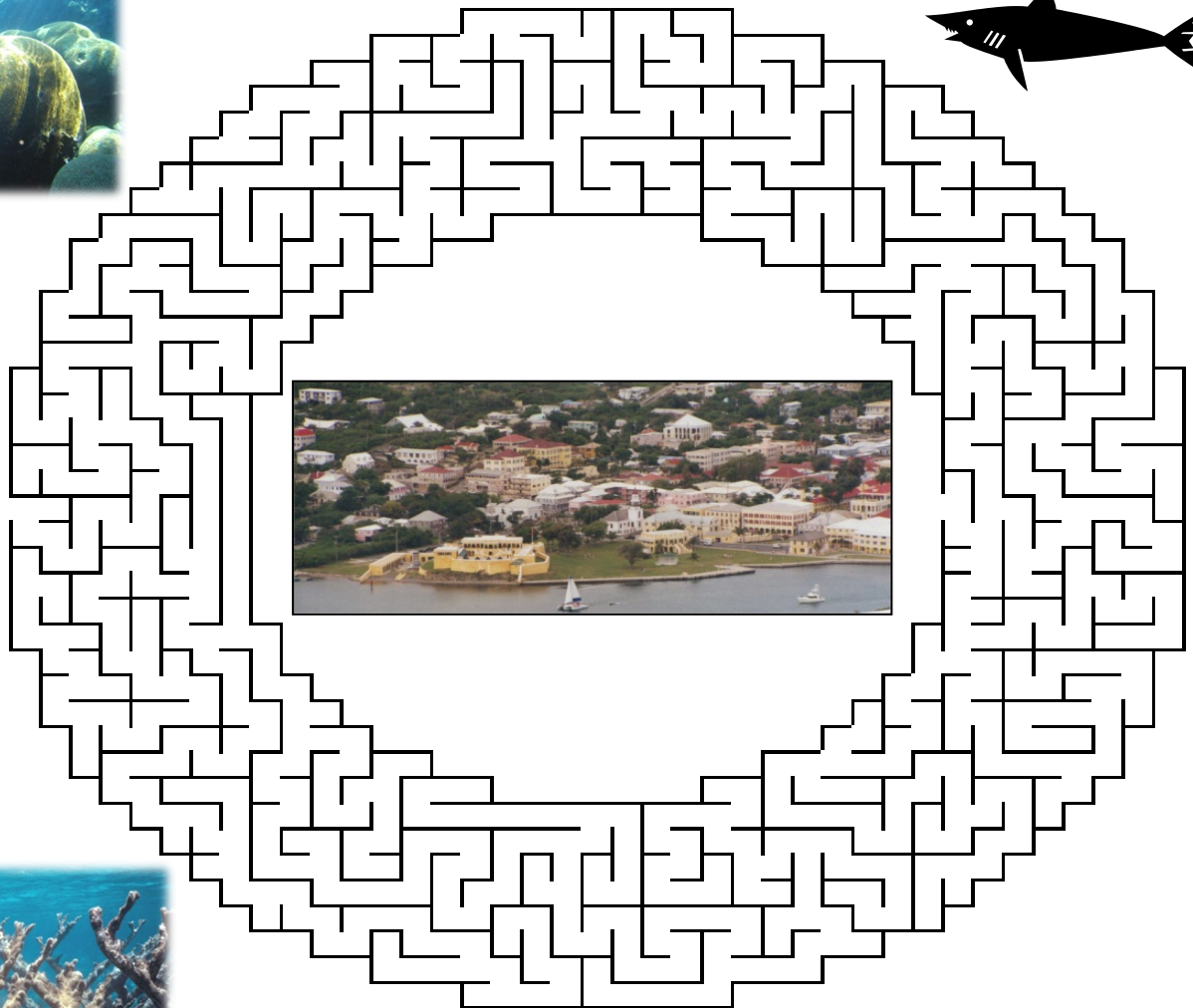
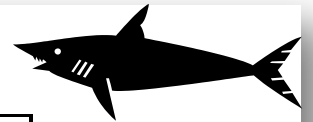


# Navigating Buck Island's Reefs



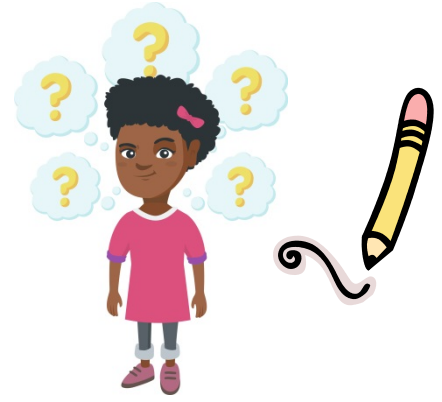
Buck Island's coral reefs are beautiful and full of life, but they also pose some threats. Fire coral, sea urchins, and stingrays can all cause cuts and scrapes. Predators like sharks and barracudas are normally not aggressive, but may swim by and should be treated with respect. The coral itself poses a threat not just to people. Many ships have been wrecked on reefs during storms, and even during calm weather.

You are the signal keeper for Buck Island. Your job is to warn boats approaching St. Croix and Christiansted harbor about the coral reefs that might sink them. Help guide the boat through the coral reef maze to the safe harbor.



# Write a Story

Now that you have read about Buck Island, and either visited the park or our website, think about something that you find interesting and want to learn more about. Maybe sea turtles? Birds? Flowers? Fish? Ask your parents to help you research your topic, and write a short story that includes your item. On the next page, draw a picture that helps to tell your story.

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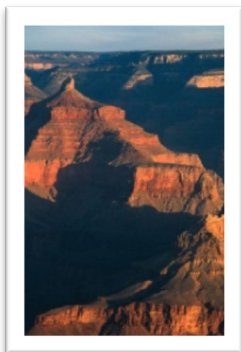
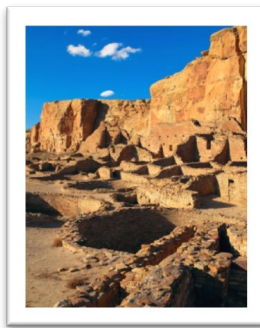




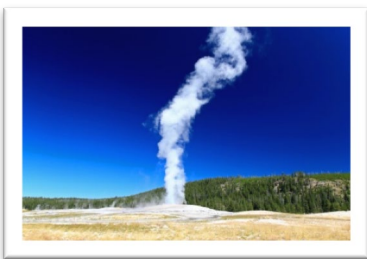
# Just one more step...



**Congratulations!** You are almost done! Now it's time to double check and make sure you've completed all the steps to become a Buck Island Junior Ranger (see page 2). When you are finished, take this booklet to the Visitor Center so a Park Ranger can award you with your official Junior Ranger badge.



**Did you know that there are over 400 other National Parks in the United States, each with their own Junior Ranger program? There's even a national program. See how many badges you can collect!**



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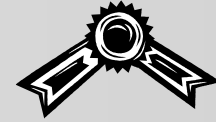
EXPERIENCE YOUR AMERICA

The National Park Service cares for special places saved by the American people so that all may experience our shared heritage.





# The Junior Ranger Pledge



I promise, as a Junior Ranger for Buck Island Reef National Monument, to:

- learn all I can about this and other national parks
- protect the plants, animals, and history of the parks
- protect park artifacts, like arrowheads and pottery, by leaving them where I found them
- share what I learn with my family and my friends

---

Junior Ranger Signature

Date







**All clip art is derived from:**

- Christiansted National Historic Site/Buck Island Reef National Monument/Salt River Bay National Historical Park and Ecological Preserve
- Microsoft Clip Art
- Clip Art Gallery on DiscoverySchool.com
- [www.slaveryimages.org](http://www.slaveryimages.org), sponsored by the Virginia Foundation for the Humanities and the University of Virginia Library
- St. Croix Landmarks Society



FIND YOUR  
**PARK**

