

Lighthouses Through the Ages

Objectives: Students will develop an understanding of the role, construction, and purpose of lighthouses in maritime history and learn vocabulary associated with maritime and lighthouse history.

Materials:

1. Student Handouts
2. Vocabulary Prediction/Confirmation Worksheet
3. Follow-Up Vocabulary Activity Sheet

Procedures:

1. Teacher will introduce lesson topic and gauge student knowledge of lighthouses using *Lighthouses at a Glance* (Attachment #1) prior to reading "*Lighthouses through the Ages*".
2. Students review Vocabulary Prediction/Confirmation worksheet with three headings on it- vocabulary, prediction, and definition.
3. Under the prediction heading, the students will write their predictions of each vocabulary word's meaning.
4. Students will read the "*Lighthouses through the Ages*" text from which the vocabulary words are derived.
5. Using contextual clues, the students will write what they think the definitions are under the definition column. These may be the same as their predictions.
6. The teacher will discuss the purpose of lighthouses, how geography affected maritime trade, and how the U.S. Government responded to the need for safer trade routes to ensure the future growth and sustainability of the United State's maritime industry.
7. The students will check their definitions with a dictionary for accuracy, and make any corrections necessary in the definition heading.
8. Students will be given the Word Search vocabulary review worksheet to complete in class or as homework.

Assessments:

1. *Lighthouses at a Glance*
2. Vocabulary Prediction/Confirmation Worksheet
3. Follow-Up Review Worksheet

Sunshine State Standards:

Language Arts

Strand A: Reading

Standard 1: The student uses the reading process effectively.

Benchmark LA.A.1.2.3.: The student uses simple strategies to determine meaning and increase vocabulary for reading, including the use of prefixes, suffixes, root words, multiple meanings, antonyms, synonyms, and word relationships.

Social Studies

Strand A: Time, Continuity, and Change (History)

Standard 1: The student understands historical chronology and the historical perspective. (SS.A.1.2)

Benchmark SS.A.1.2.3.: The student understands broad categories of time in years, decades, and centuries.

Strand A: Time, Continuity, and Change (History)

Standard 4: The student understands U.S. history to 1880. (SS.A.4.2)

Benchmark SS.A.4.2.5.: The student understands geographic, economic, and technological features of the growth and change that occurred in America from 1801 to 1861.

Strand B: People, Places, and Environments (Geography)

Standard 1: The student understands the world in special terms. (SS.B.1.2)

Benchmark SS.B.1.2.4.: The student knows how changing transportation and communication technology have affected relationships between locations.

Strand B: People, Places, and Environments (Geography)

Standard 2: The student understands the interactions of people and the physical environment. (SS.B.2.2)

Benchmark SS.B.2.2.2.: The student understands how the physical environment supports and constrains human activities.

Strand C: Government and the Citizen (Civics and Government)

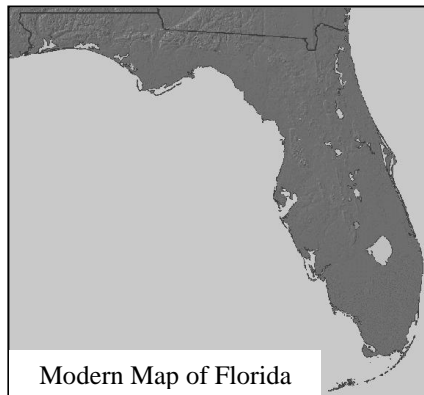
Standard 1: The student understands the structure, functions, and purposes of government and how the principles and values of American democracy are reflected in American constitutional government. (SS.C.1.2)

Benchmark SS.C.1.2.5.: The student knows the basic purposes of government in the United States and knows the basic things governments do in one's school, community, state, and nation.

Lighthouses through the Ages

No one could ever claim that the life of sailor was safe or easy. They lived with the knowledge that their lives depended on the safety of the ship their ability to keep it out of harm's way. Dangerous underwater obstacles like **reefs** and **sandbars** resulted in dozens of shipwrecks every year and cost hundreds of sailors their lives. Storms could blow a ship off course, beat it to pieces with towering waves, and send it and its crew to a watery grave. Early navigational instruments, tools that helped sailors determine direction and measure distances, made traveling over long distances very hard even in the best conditions. Ships at sea were in constant danger and tragedy could strike at any time.

In the early days sailors had to rely on tools like the magnetic compass and map to travel from one place to another. A magnetic compass is a navigational instrument that shows direction using a needle that always points to the Earth's magnetic north pole. Early maps were hand drawn and not very accurate. Look at the map of Florida to the right. Compare it to the modern map of Florida next to it. Do you notice any differences? Which map would you prefer to use if you were responsible for navigating a ship and why?



The threat of wrecking on unseen rocks, sandbars, and reefs increases the closer a boat is to shore. To help prevent shipwrecks from happening, a wide variety of navigational aids were developed to warn sailors of dangerous areas and to guide them safely along the coast. An aid to navigation is any fixed object or structure that is used by a navigator to avoid dangerous underwater

obstacles, determine his position, or plot a safe course from one place to another. The earliest navigational aids included **buoys**, **channel markers**, and bonfires. As time went by, these bonfires were moved to the top of towers called lighthouses.

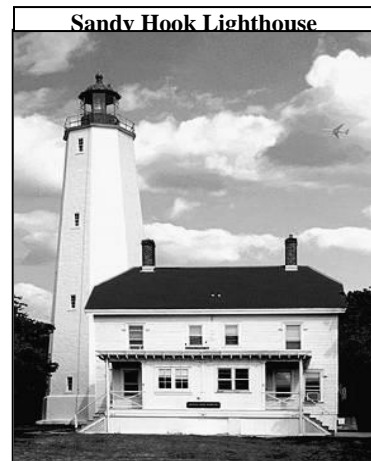
A **lighthouse** is a tower topped with a very bright light called a **beacon** which is used to guide ships at night. Lighthouses come in all shapes and sizes and are often found at the edge of tall cliffs overlooking the pounding surf, on desolate rocky islands, or in the middle of busy **harbors**. Florida lighthouses are commonly found near dangerous **inlets**, on low lying coral or sand islands called keys (cays), and out to sea above hazardous reefs and **shoals** (sandbars). Regardless of its location, the role of a lighthouse is the same around the world, to warn ships of danger and to guide them on their way.



The first recorded lighthouse was built in Alexandria, Egypt shortly after the death of Alexander the Great. The beacon at Alexandria which was named the *Pharos Lighthouse* is believed to have been over 450 feet high and topped with a giant statue of Poseidon, the Greek god of the sea. The *Pharos Lighthouse* was built to guide sailors safely into the harbor at Alexandria. The tower's bonfire beacon, located at the very top of the soaring tower, was said to have been visible by ships over 30 miles away. The Pharos Lighthouse was so big that it was named one of the Seven Wonders of the Ancient World. Unfortunately, this lighthouse fell into the sea in 1326 A.D.

The first lighthouses in North America were built during the British Colonial Period. Of the twelve lighthouses that were built during this time, only the *Sandy Hook Lighthouse* in New Jersey remains.

Following the end of the Revolutionary War, the United States Government realized that better aids to navigation were needed to ensure their nation's future success. Created on August 7th, 1889, the *United States Light House Establishment*



(U.S.L.H.E.) was given the job of building, operating, and maintaining all navigational aids along the nation's **waterways**. August 7th is now known as *National Lighthouse Day* in honor of this historic event.



The Morris Island Lighthouse in Charleston Harbor, SC

The earliest American lighthouses were short towers made of wood or natural stone. Many of these first towers caught fire or fell down after only a few years of service. Of the forty towers that were constructed before 1800, only three survive. Realizing sturdier towers were needed the U.S. Light House Establishment all but abandoned the use of wood and natural stone in its later lighthouses and began building new ones out of brick and cut stone.

The height and shape of a lighthouse was determined by its location. Lighthouses built on tall cliffs in the North were usually much shorter than those built on low lying barrier islands in the South. Keeper's dwellings were often attached directly to the tower so the keeper would not have to go outside in bad or stormy weather to work on the lighthouse. These types of lighthouses were very common in northern states where temperatures often dipped far below freezing during the cold winter months.

Brandywine Shoals Lighthouse

Yaquina Head Lighthouse



New technology played an important role in lighthouse construction as well. The invention of the iron screw pile lighthouse allowed lighthouses to be built in places where they never could have been built before. Anchored to



the sea floor with screw shaped legs, many of lighthouses were built over reefs and sandbars to prevent ships from running into these dangerous underwater hazards.

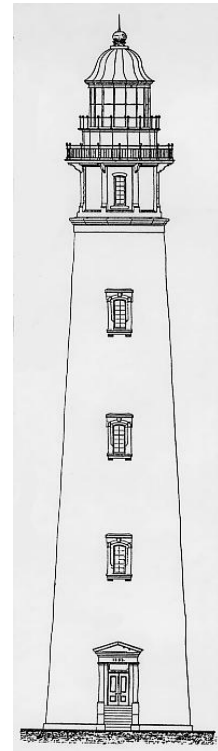


Another type of offshore light was a **lightship**. A lightship is a vessel with a tall mast upon which a light is mounted. Lightships were anchored in areas where traditional lighthouses could not be built. Working on a lightship was a lonely and dangerous job. Many lightships sank during

storms and even a few were sunk by German submarines during World War II. Although they are no longer used, lightships prevented thousands of shipwrecks. This is especially true along the Outer Banks, a dangerous area off the North Carolina coast commonly called the "Graveyard of the Atlantic".

No matter their size or shape, lighthouses have served an important role in keeping the sailors of the world safe for thousands of years. Although modern technologies like the *Global Positioning System (G.P.S.)* and sonar have made the old fashioned lighthouse unnecessary, many of these historic towers are still in use today.

Built in 1887, the Ponce de Leon Inlet Light Station now operates as a private aid to navigation. The Ponce de Leon Inlet Lighthouse is one of the last light stations in the country that still has all of its original buildings. The red tower is 175 feet tall, the tallest in Florida and one of the tallest in the nation. The lighthouse uses a rotating third order *Fresnel Lens* that can be seen over 18 miles out to sea. Still listed as an operational lighthouse, the Ponce de Leon Inlet Light Station is also a museum that provides visitors with the opportunity to learn more about the history of the United States Lighthouse Service, Ponce Inlet, and the local area. Visitors can climb the 203 steps to the gallery deck and enjoy the same spectacular views of Ponce Inlet and the Atlantic Ocean that were once seen by its historic keepers.



Name: _____

Date: _____

*Directions: Write your prediction of the definition of each word in the table below. Read **Lighthouses Through the Ages** and use context clues in the text to revise or confirm your predicted definition. Check the definition of each word using a dictionary and revise if needed.*

Vocabulary Word	Prediction	Definition
navigation		
maritime		
reef		
sandbar		
shipwreck		

harbor		
buoy		
lighthouse		
beacon		
inlet		
waterway		
lightship		

Name _____

Date _____

(Key # 1 - 800270)

Lighthouses Through the Ages

Read each definition and circle the word in the puzzle that agrees with that meaning. Words are written both forwards and backwards in the vertical, horizontal, and diagonal directions. Good luck!

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

Directions: Write the appropriate word from your vocabulary list below its definition. Circle each word in word search puzzle. Additional words related to lighthouses and maritime history can be found in the puzzle. Can you find them? Good Luck.

1. **A light or fire that is used at night to warn ships of dangerous waters or to guide them safely on their journey.**

2. **A river, ocean, or other body of water on which boats or ships travel.**

3. **A tower or structure with a very bright light that guides ships at night.**

4. **An anchored float, often with a bell or light, which is used on a lake or ocean to mark safe passages or to warn ships of danger.**

5. **A sheltered place on the coast of an ocean or lake where ships can come to load and unload cargo; a port.**

6. **Relating to the sea or ocean, and to commerce on the water.**

7. **A ship that serves the same purpose as a lighthouse and is anchored where a permanent lighthouse would be difficult to build.**

8. **A submerged ridge of rock or coral near the surface of the water.**

9. **A narrow strip of water created by a river or bay as it flows into a larger body of water.**

10. **An underwater or exposed ridge of sand formed by currents and waves.**

11. **A damaged, sunk, or beached ship.**

12. **A red or green sign, buoy, or light that is used to mark the entrance to, and the edges of, a navigable channel or waterway for boaters and ships.**

Lighthouses Through the Ages

Read each definition and circle the word in the puzzle that agrees with that meaning. Words are written both forwards and backwards in the vertical, horizontal, and diagonal directions. Good luck!

The grid contains the following circled words:

- HARBOR (horizontal, row 2, col 3-9)
- PHAROS (horizontal, row 2, col 11-17)
- KRAMYAD (horizontal, row 3, col 2-8)
- W (diagonal, row 3, col 10 to row 10, col 1)
- SAEW (diagonal, row 3, col 10 to row 10, col 1)
- TELNI (horizontal, row 3, col 13-18)
- RAAHP (diagonal, row 4, col 3 to row 10, col 9)
- RCEEE (diagonal, row 4, col 3 to row 10, col 9)
- BEACON (horizontal, row 4, col 11-17)
- RIWAERE (diagonal, row 4, col 3 to row 10, col 9)
- EILELR (diagonal, row 4, col 3 to row 10, col 9)
- LESSEV (horizontal, row 4, col 11-17)
- KTESAAOMIHEISM (diagonal, row 5, col 3 to row 11, col 13)
- WINSLOW (horizontal, row 6, col 3-9)
- LEWISS (horizontal, row 6, col 11-17)
- R (vertical, row 5, col 1 to row 11, col 1)
- LIGHTHOUSE (horizontal, row 6, col 3-11)
- BEACH (diagonal, row 7, col 5 to row 13, col 11)
- F (vertical, row 8, col 3 to row 14, col 3)
- ELIPWERC (horizontal, row 8, col 11-17)
- RENIRAM (horizontal, row 9, col 11-17)
- ER (vertical, row 14, col 3 to row 15, col 3)