Build Your Own Lighthouse

Lesson Designed by the Ponce de Leon Inlet Lighthouse

Objective: Students will develop an understanding of the purpose, architectural design, and role of lighthouses as aids to navigation. Students will demonstrate their knowledge by constructing a lighthouse of their own.

Materials (per student):

1) One 3½" diameter cardboard tube cut to 12" in length. (Home improvement and carpet stores are a good source for heavy duty cardboard tubes which are discarded after the carpet is sold. A cardboard packing tube, available in most craft stores, will also work well.)
2) One 6" diameter cardboard circle (see attachment #1)
3) One 4" diameter cardboard circle (see attachment #2)
4) One 9 once clear plastic Solo tumbler cup (item # SOLTP9)
5) Half of a 2½" diameter Styrofoam or cardboard ball
6) Glue (Elmer's or Low-Temperature Hot Glue)
7) One black permanent marker (wide tip works best)
8) Paints, markers, crayons, and other assorted art supplies.

Pre-Lesson Preparation:

1) Cut out one 6" and one 4" diameter cardboard circle for each student. See attachments #1 & #2 for templates.
2) Cut 2½" diameter Styrofoam or cardboard balls in half
3) Cut cardboard tubes into 12" segments (a hand saw or hack saw works well)

Time Needed for Activity:

Two days due to the number of steps and drying time.

Prior to Lesson:

1) Discuss the purpose, location, and function of lighthouses along the nation's coasts and navigable waterways.
2) Hand out copies of the Lighthouse Anatomy worksheet (Attachment #3a, 3b, & 4a) to each student and examine, discuss, and label key architectural elements found in all conical lighthouses.

3) Define the term Day Marker. Using the Day Marker overhead (Attachment #4), discuss how a lighthouse's day mark, which included color, shape, height, and design, were used to distinguish one lighthouse from another. Compare the three lighthouses and identify similarities and differences.
4) Define the term Beacon. Discuss how a lighthouse's beacon appeared differently than the beacons of other lighthouses to help mariners distinguish one lighthouse from another at night.
5) Define the term Characteristic. Discuss how the appearance of a lighthouse's beacon differed from the beacons of other lighthouses in both color (common beacon colors were red- for danger, green- for safe, or white) and flash pattern (how often a light flashed in a specific period of time).

Lesson Procedures:

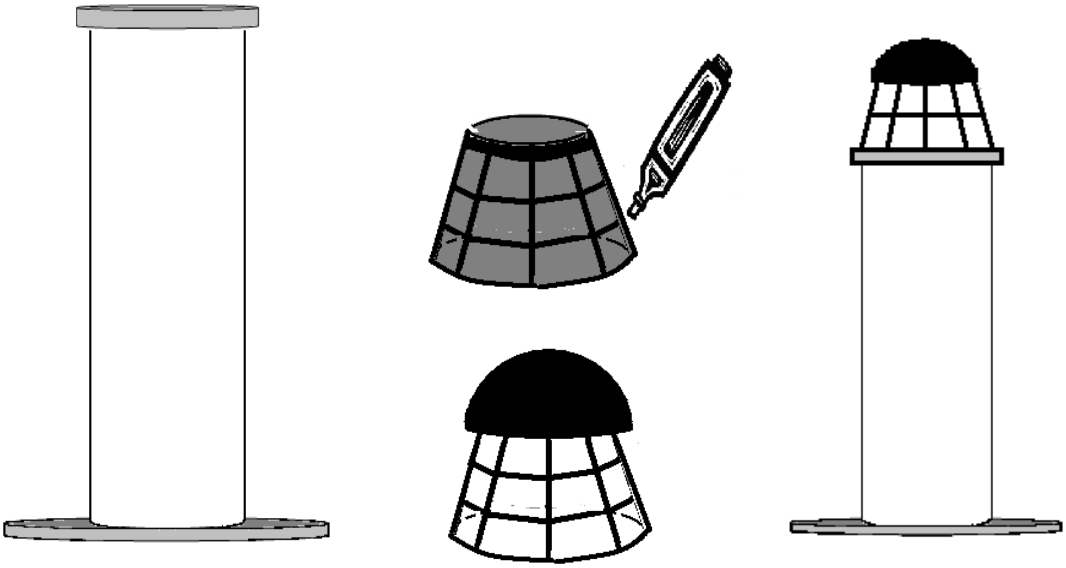
1) **Distribute the following to each student:**
    - One 6" diameter cardboard circle for lighthouse base
    - One 4" diameter cardboard circle for lantern room floor
    - One cardboard of Styrofoam hemisphere for lantern room roof
    - One 12" long cardboard tube
    - One 9 oz. clear plastic cup
    - Glue
    - Art supplies
    - Wide-tipped black permanent marker

2. **Construct Lighthouse:**
    2.1 Glue 6" diameter cardboard circle to one end of the cardboard tube. Make sure tube is centered on circle. Set aside to allow glue to dry.
    2.2 Using a black permanent marker, draw windows on plastic cup.
    2.3 Using markers or paints, color 4" diameter cardboard circle and lantern room roof (also known as the cupola). Students may choose any color that they wish although black, red, or white were the most common colors used on actual lighthouses.
    2.4 Center the lantern room floor on the other end of the cardboard tube and glue in place. Set aside and allow glue to dry.

2.5 With the plastic cup lying upside down on a flat surface, center the lantern room onto the bottom of the cup and glue in place. *Special Note: Although white glue will work, low temperature hot glue will work the best.* **Students should not handle hot glue gun themselves due to the risk of burning themselves.**

2.6 Center the lantern room onto the lantern room floor and glue in place. *Note: Although white glue will work, low temperature hot glue will work the best.* **Students should not handle hot glue gun themselves due to the risk of burning themselves.**

2.7 Allow time for glue to set before proceeding to step 3.

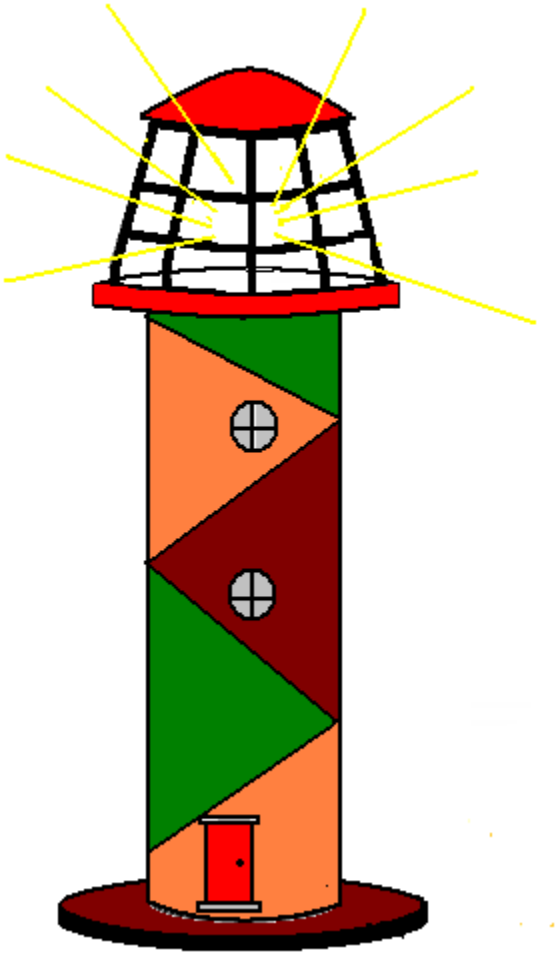


3. Create a unique day mark for your lighthouse.

3.1 Color or paint an entrance at the bottom of the lighthouse using markers and/or Tempera paints.

3.2 Color or paint the lighthouse in a color and pattern of their choosing using markers and/or Tempera paint. Common patterns used on lighthouses included solid colors, horizontal and spiral stripes and horizontal bands. Rectangular, circular, or square windows can also be drawn on the side of the lighthouse to make it look more authentic.

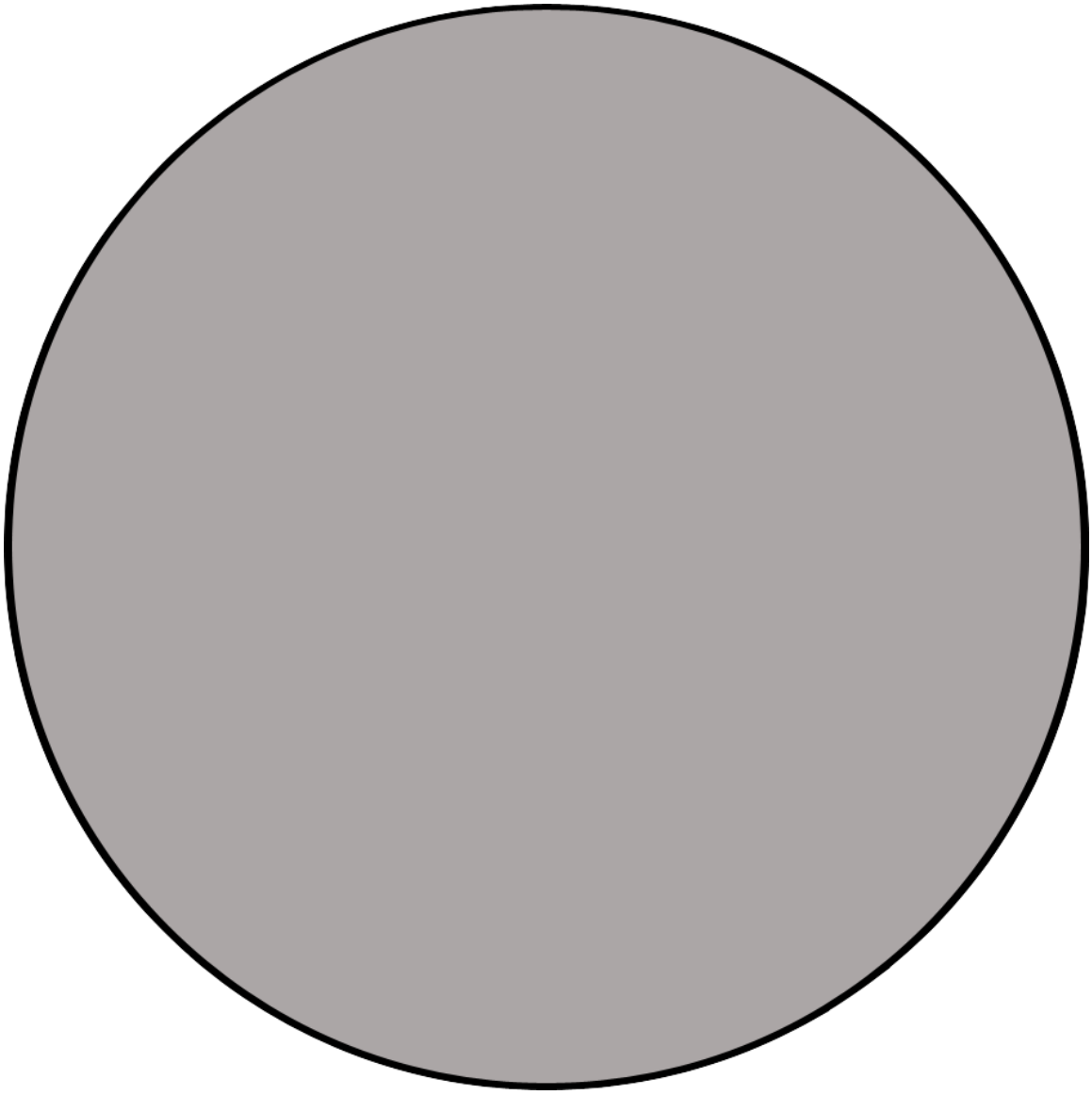
3.3 Paint the base green to simulate grass. Sidewalks leading up to the lighthouse's entrance and around the base of the lighthouse can also be added to make the lighthouse appear more realistic.



Follow-Up Activities:

1. Complete additional educational activities related to the Ponce Inlet Lighthouse and maritime history available online at www.ponceinlet.org.

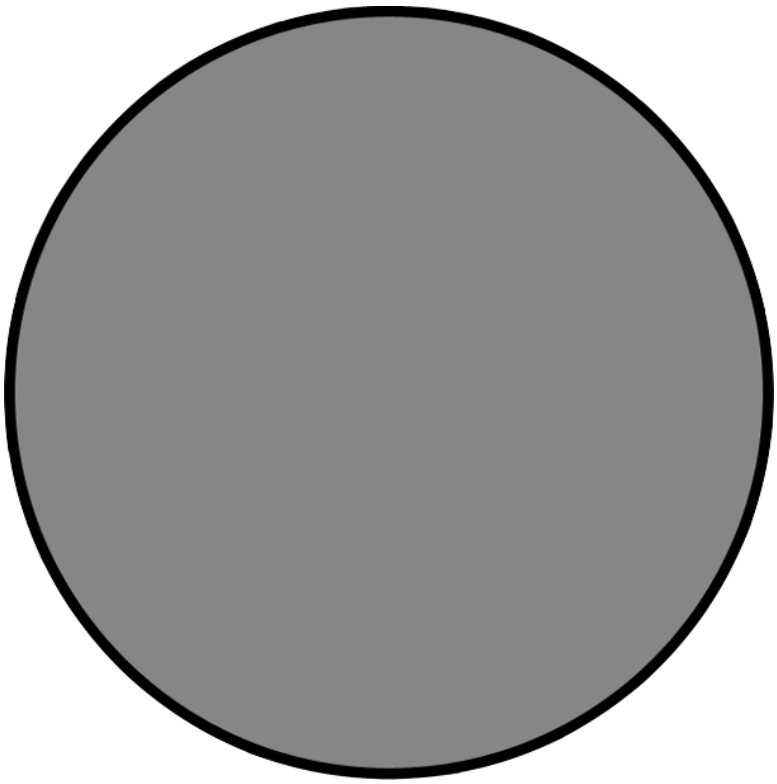
Attachment #1



Lighthouse Base Instructions

1. Copy 5" diameter circle onto heavy card stock paper.
2. Cut out circle to use as template.
3. Trace circle onto cardboard and cut out using heavy sheers.
4. Hand out completed lantern room floors to students.

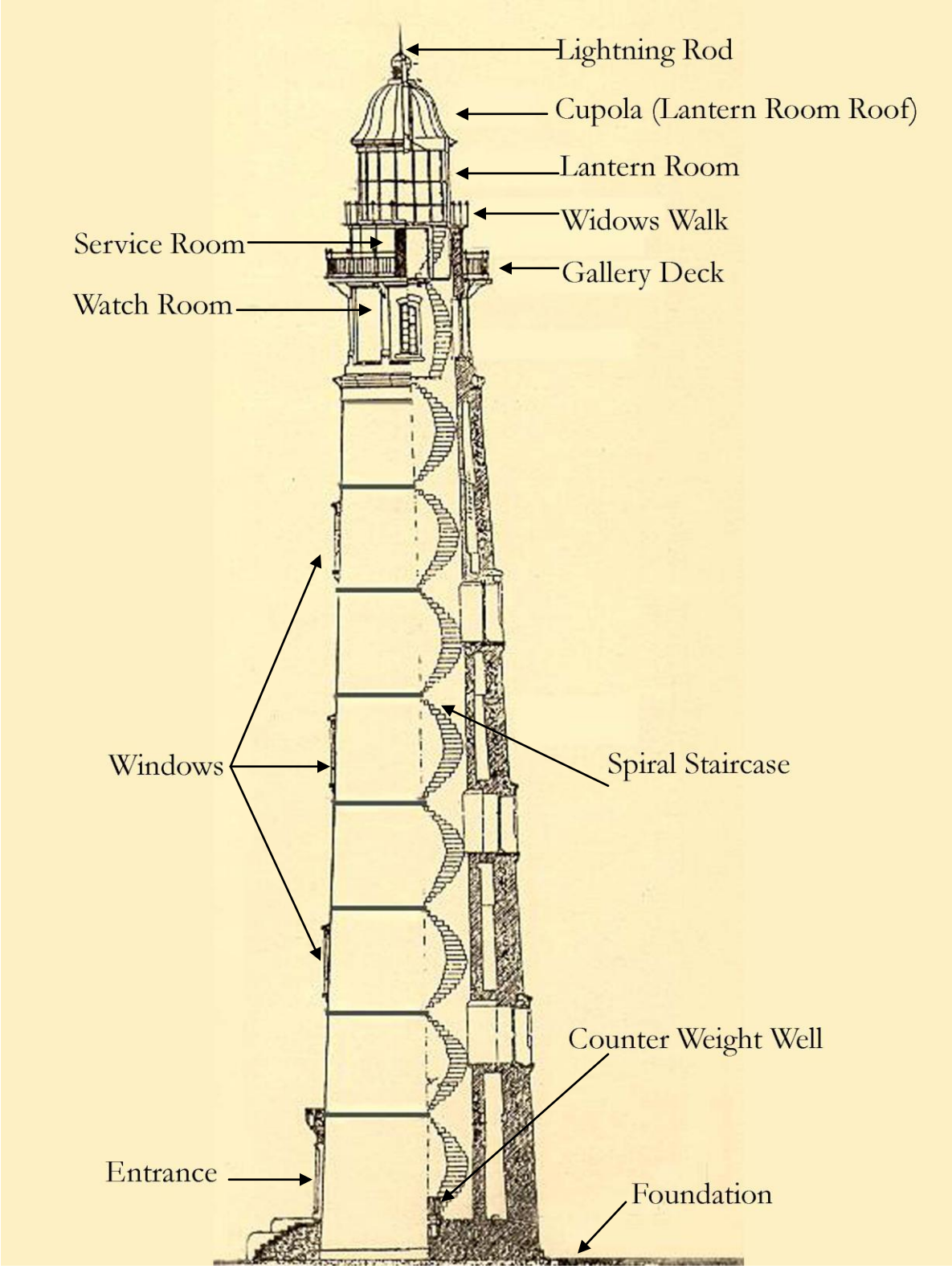
Attachment #2



Lantern Room Floor Instructions

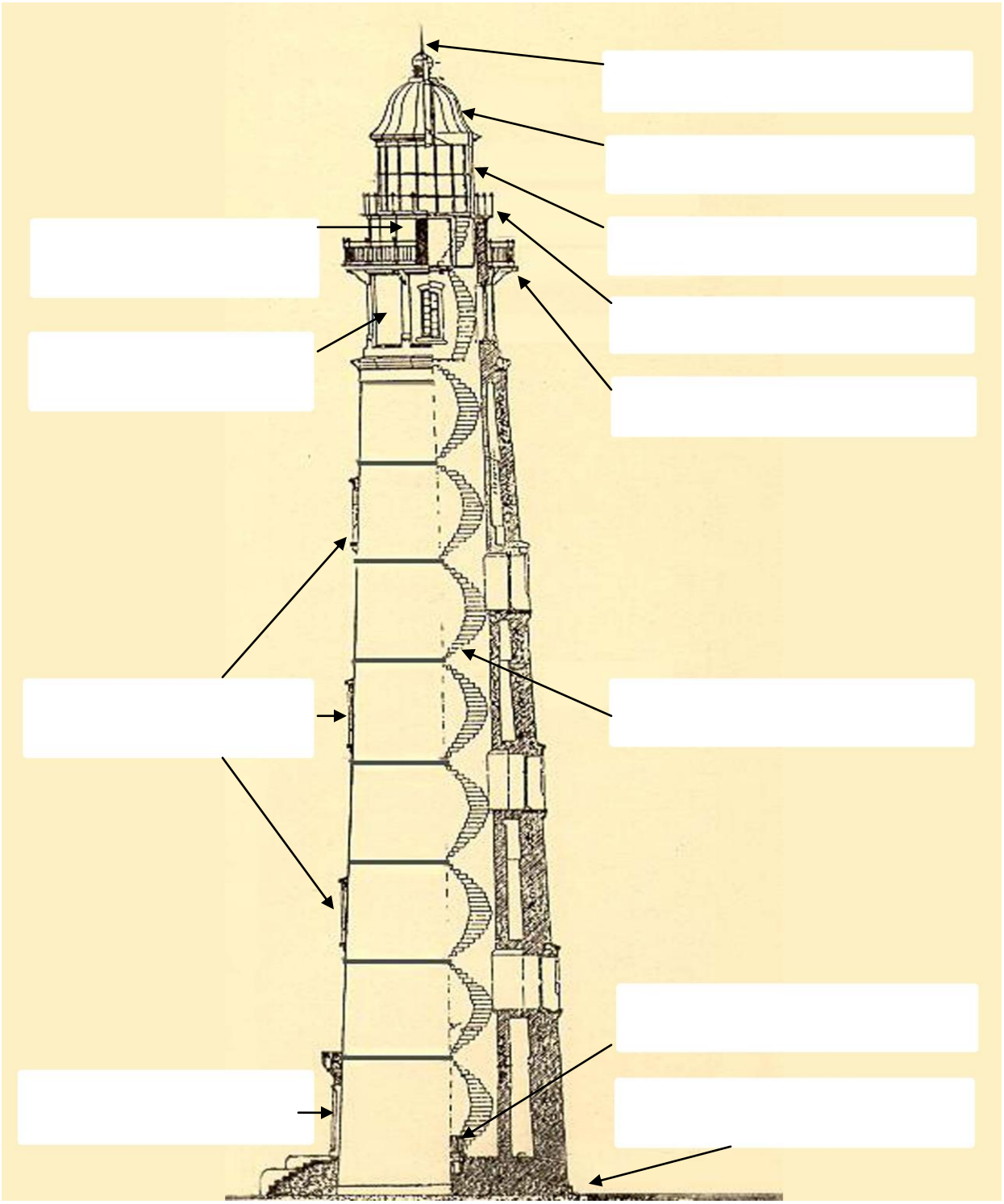
1. Copy 4" diameter circle onto heavy card stock paper.
2. Cut out circle to use as template.
3. Trace circle onto cardboard and cut out using heavy sheers.
4. Hand out completed lantern room floors to students.

Attachment 3a



Attachment 3b

Student Name: _____ Date: _____



Attachment 4a

Explanation of Lighthouse Anatomy Terms

1 **Lightning Rod:** Lighthouses are struck by lightning a regular basis. Metal poles called lightning rods are attached to the tops of lighthouses to help minimize the damage created by lightning strikes. A lightning rod is attached to a thick copper wire that runs from the top of the lighthouses down to the ground. When lightning strikes the tower, it enters through the lightning rod, travels down the wire, and goes into the ground where it can cause less damage.

2 **Cupola:** The cupola is the roof of the lantern room. Because temperatures inside the lantern room can often soar well above 110 degrees, a metal ball at the top of the cupola provides ventilation and allows the heat to escape.

3 **Lantern Room:** The lantern room is the most important room in a lighthouse because that is where the lighthouse beacon (or light) is located. The walls of the lantern room are made of glass so the light can be seen at night.

4 **Widow's Walk:** Named after the wives of sailors who watch for the return of their husband's ship from the top of their house, the widow's walk is a narrow platform that provides access to the outside of the lantern room.

5 **Gallery Deck:** The gallery deck is a platform that circles the tower just below the lantern room. You can access the gallery deck from the service room through a heavy iron door. Lighthouse keepers would watch the weather and scan the horizon for approaching ships from the gallery deck.

6 **Service Room:** The service room is the room just below the lantern room where keepers would store cleaning equipment, spare parts for the beacon, and tools for working on the lighthouse.

7 **Watch Room:** The watch room is where keepers kept their log. A log is a kind of journal that keepers wrote brief descriptions of daily events, weather conditions, and notes in. Additional items used by keepers while on watch or while working at the top of the lighthouse were stored in this room as well.

8 **Windows:** Most lighthouses had windows to cool the tower and provide light.

9 **Spiral Staircase:** Most lighthouses have a long circular staircase leading from the bottom of the tower to the top. Landings are located about every 15 feet.

10 **Counterweight Well:** Before electricity, lighthouse beacons were turned using a system of gears powered by weights that hung down the center of the tower. The counterweight well would catch any weights that broke loose.

11 **Entrance:** Every lighthouse has a door leading into it.

12 **Foundation:** A lighthouse's foundation keeps it from falling over.

Lighthouse Day Marker

Lighthouses look a lot alike when seen from very far away. This could be very confusing to sailors as they passed by far out to sea. Lighthouses were painted differently to make them easier to tell apart. The shape of the lighthouse as well as the color and pattern in which it was painted were the most common way to make one lighthouse different from another. Look at the pictures of the three lighthouses below. How are they alike? How are they different?

Cape Canaveral Lighthouse

Ponce de Leon Inlet Lighthouse

Saint Augustine Lighthouse