

# **E. Appendix/Student Workbook**

## **Lighthouse Keeper's Log Book**

### **Introduction**

Use this log book to keep track of the work that you do when studying lighthouses. Your teacher will provide you with instructions about which pages to complete and how you should complete assignments. You may want to bring this log book with you when you visit a lighthouse.



# Lighthouse Keeper's Log Book

## Student Workbook

**Student Name:**

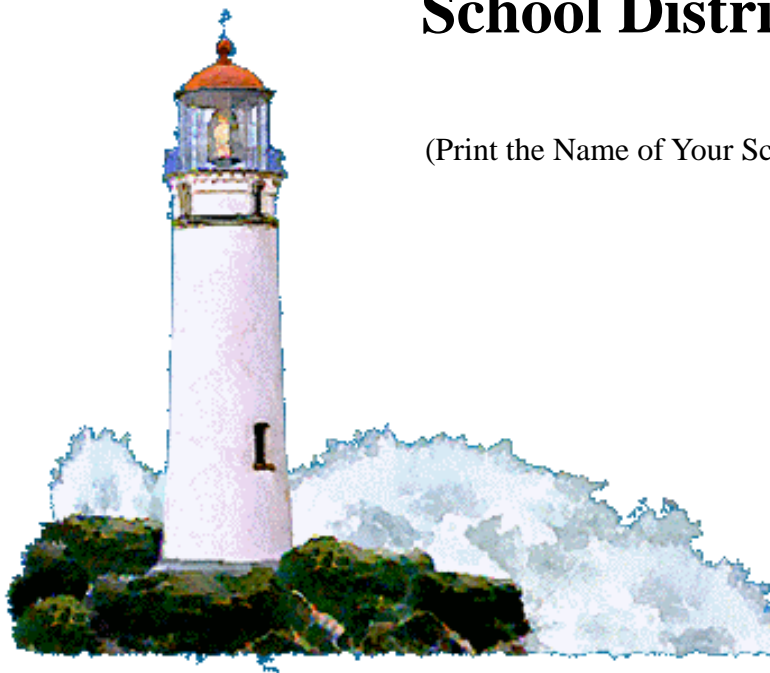
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(Print Your Name)

**School District:**

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(Print the Name of Your School)







## Master List of Materials Needed for the various Lesson Plans

Fog Game Rule Worksheet  
Lighthouse History Packet  
Vocabulary Worksheet  
Diagrams of Lighthouses and Fresnel Lens  
Blindfold

Lighthouse Treasure (optional)  
A Lighthouse or Light Station to Tour  
Research Materials

Various Books on Lighthouses/lighthouse stories. Suggested titles:

Lighthouse Families, by Roberts and Roberts  
We The Keepers Kids, by Fran Carpenter-Platske  
Keep The Light Burning Abbey, by Peter and Connie Roop  
Lighthouse Family, by Behrens and Brower  
A lighthouse Family, by Harold Jennings  
Lighthouse in My Life, by Philmore Wass  
The Lighthouse Keeper's Daughter, by Arielle North Olson  
Three Boys and a Lighthouse, by Nan Agle  
The Lighthouse Activity Book, by Elinor De Wire  
The Ghosts of Black Point, by Penn Mullen  
The Light of Tern Rock, by Julia Sauer  
Tim to the Lighthouse, by Edward Adrizzone  
Living in a Lighthouse, by LuAnne Kozma  
Robert's Tall Friend - A Story of the Fire Island Lighthouse, by Vivian Farrell  
Three Beams of Light - by Norma Engel  
Lighthouse Boy, Down East Books

National Park Service Resources  
Photos of a Variety of Lighthouses  
Glue, tape, paper clips, or any securing material  
Glass jars, bottles, aluminum pie plates,  
foil, paper towel and toilet paper rolls, shoe

boxes, newspaper, magazines, paper bags,  
rubber bands, paper clips, plastic milk contain-  
ers, potato chip canisters, oatmeal boxes, paper  
mache, etc.

Overhead projector  
Overhead map of Ojibwe migration  
Colored dry erase markers  
Student maps for each individual  
Colored pencil  
Log book page  
Rulers  
Clipboards  
String and measuring tape  
Pieces of cloth or cones for crown measurement  
markers  
Student list of activities  
Student list of discussion questions  
Log entry pages  
Calculators  
Paper, pencil, logbook journals (see logbook  
entry)  
Lighthouse floor plans  
Excerpted rules from the book  
Instructions to Light Keepers, 1902  
Edition (on overhead and handouts)  
Large pan or plastic basin (2 for large groups)  
Sand, clay, rocks from the island  
Toothpicks  
Popsicle sticks  
Cardboard boxes (cookies/animal cracker sized)  
Pitcher/water bottle  
Straws  
Ice cubes  
Facts of Light, 3-2-1 Classroom Contact video  
about refraction through a Fresnel lens.



# ***Apostle Islands Bingo***

This activity can be used to help students learn or review lighthouse vocabulary words and to familiarize them with lighthouses and shipwrecks in the Apostle Islands. It can easily be adapted to other areas by changing the list of words used in the game.

## **Rules:**

Photocopy the bingo boards and give one to each student. If you use the blank bingo boards, have the students fill in the spaces with the words from the bingo word list. Words can be placed in any square, but a word may be used only once on a board. The caller should photocopy and cut out the bingo word squares and place them in a bag. They will be pulled from the bag randomly during the game. Use buttons, beans, pebbles, etc. as game board markers. Follow basic Bingo rules for wins across, down, diagonally, four corners, or blackout.

Bingo Words

Copy and cut apart for bingo word game

<b>Lens</b>	<b>Keeper</b>
<b>Foghorn</b>	<b>Shine</b>
<b>Beacon</b>	<b>Lantern</b>
<b>Tower</b>	<b>Flash</b>
<b>Shoals</b>	<b>Prism</b>
<b>Brass</b>	<b>Catwalk</b>
<b>Oil Lamp</b>	<b>Croquet</b>



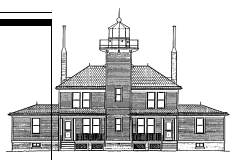
Bingo Words

Copy and cut apart for bingo word game

<b>Sand Island Lighthouse</b>	<b>Lighthouse Inspector</b>
<b>Sand Island Shoals</b>	<b>Finn McCoo Shipwreck</b>
<b>Long Island Lighthouse</b>	<b>Ottawa Shipwreck</b>
<b>Pretoria Shipwreck</b>	<b>Sevona Shipwreck</b>
<b>Raspberry Island Lighthouse</b>	<b>H. D. Coffinbe Shipwreck</b>
<b>Michigan Island Lighthouse</b>	<b>Noquebay Shipwreck</b>



<b>Michigan Island Lighthouse</b>	<b>Fresnel Lens</b>	<b>Bayfield</b>
<b>Prism</b>	<b>Long Island Lighthouse</b>	<b>Light</b>
<b>Noquebay Shipwreck</b>	<b>Beacon</b>	<b>FREE</b>
<b>Lighthouse Inspector</b>	<b>Sevona Shipwreck</b>	<b>Keeper</b>



<b>Shine</b>	<b>Ottawa Shipwreck</b>	<b>Sand Island Lighthouse</b>
<b>Prism</b>	<b>2nd Asst. Keeper</b>	<b>Croquet</b>
<b>Bayfield</b>	<b>Lake Superior</b>	<b>FREE</b> 
<b>Wickies</b>	<b>Catwalk</b>	<b>Storms</b>

<b>Outer Island Lighthouse</b>	<b>Brass</b>	<b>Chequame- gon Bay</b>
<b>Watch</b>	<b>Flash</b>	<b>Lighthouse Inspector</b>
<b>Prism</b>	<b>Wickies</b>	<b>FREE</b> 
<b>Croquet</b>	<b>Navigate</b>	<b>Noquebay Shipwreck</b>




<b>Lens</b>	<b>Keeper</b>	<b>Light</b>
<b>Storms</b>	<b>Beacon</b>	<b>Lantern</b>
<b>Flash</b>	<b>Watch</b>	<b>FREE</b> 
<b>Lake Superior</b>	<b>Prism</b>	<b>Sand Island Lighthouse</b>

<b>Shoals</b>	<b>Noquebay Shipwreck</b>	<b>Fresnel Lens</b>
<b>Keeper</b>	<b>Lighthouse Inspector</b>	<b>Lamp</b>
<b>Light</b>	<b>Watch</b>	<b>FREE</b> 
<b>Shine</b>	<b>Prism</b>	<b>Michigan Island Lighthouse</b>



<b>Chequamegon Bay</b>	<b>Lighthouse Inspector</b>	<b>Finn McCool Shipwreck</b>
<b>Croquet</b>	<b>Washburn</b>	<b>Foghorn</b>
<b>Gardens</b>	<b>Bull's Eye</b>	<b>FREE</b> 
<b>Lantern</b>	<b>Watch</b>	<b>Sand Island Lighthouse</b>

<b>Catwalk</b>	<b>Brass</b>	<b>Wickies</b>
<b>Shoals</b>	<b>Bull's Eye</b>	<b>Prism</b>
<b>Flash</b>	<b>Lighthouse Inspector</b>	<b>FREE</b> 
<b>Tower</b>	<b>Lamp</b>	<b>Outer Island Lighthouse</b>



<b>Chequamegon Bay</b>	<b>Lighthouse Inspector</b>	<b>Finn McCool Shipwreck</b>
<b>Croquet</b>	<b>Washburn</b>	<b>Foghorn</b>
<b>Gardens</b>	<b>Bull's Eye</b>	<b>FREE</b> 
<b>Lantern</b>	<b>Watch</b>	<b>Sand Island Lighthouse</b>



<b>Ashland</b>	<b>Bull's Eye</b>	<b>Gardens</b>
<b>Keeper</b>	<b>Light</b>	<b>Storms</b>
<b>Catwalk</b>	<b>Prism</b>	<b>FREE</b> 
<b>Sand Island Shoals</b>	<b>Sand Island Lighthouse</b>	<b>Long Island Lighthouse</b>




<b>Washburn</b>	<b>Lake Superior</b>	<b>Oil Lamp</b>
<b>Bayfield</b>	<b>Sand Island Shoals</b>	<b>Tower</b>
<b>Ashland</b>	<b>Brass</b>	<b>FREE</b> 
<b>Shoals</b>	<b>Beacon</b>	<b>Devils Island Lighthouse</b>

<b>Lighthouse Inspector</b>	<b>Fresnel Lens</b>	<b>Lake Superior</b>
<b>Keeper</b>	<b>Bull's Eye</b>	<b>2nd Asst. Keeper</b>
<b>Chequame- gon Bay</b>	<b>Prism</b>	<b>FREE</b> 
<b>Washburn</b>	<b>Beacon</b>	<b>Raspberry Island Lighthouse</b>



<b>Noquebay Shipwreck</b>	<b>Lucerne Shipwreck</b>	<b>LaPointe Light</b>
<b>Bull's Eye</b>	<b>Ashland</b>	<b>Gardens</b>
<b>Flash</b>	<b>Lake Superior</b>	<b>FREE</b> 
<b>Lighthouse Inspector</b>	<b>Long Island Lighthouse</b>	<b>Chequame- gon Bay</b>

		<b>FREE</b> 

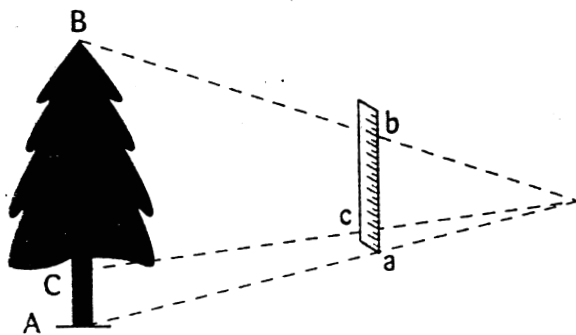
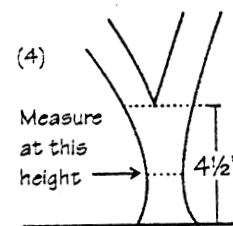
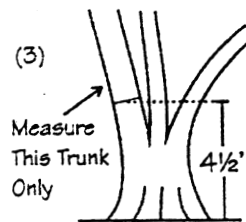
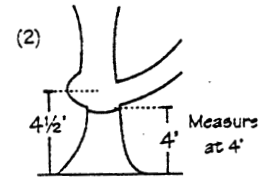
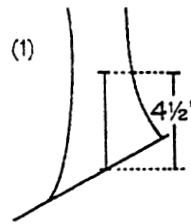




# How to Measure a Champion Tree

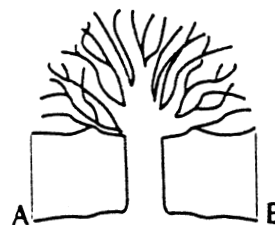
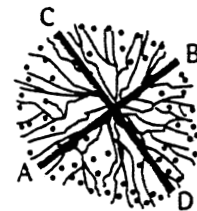


**Circumference Measurement** - Using a flexible tape measure, measure the distance around the trunk of the tree to the nearest inch. This measurement should be taken at 4 ½ feet above ground level. If the tree is on a slope (1) use the midpoint of the tree base to measure 4 ½ feet above ground level. If there is a branch or growth on the trunk at 4 ½ feet (2) measure the circumference just below the obstruction and report the height at which the measurement was taken. For multi-trunked trees that branch below 4 ½ feet (3) report the circumference of the largest trunk at 4 ½ feet. If a multi-trunked tree flares out at 4 ½ feet (4) measure the smallest circumference below 4 ½ feet and report the height at which the measurement was taken.



**Height Measurement** - Take a 12-inch ruler and hold it vertically at eye level, in an outstretched arm. Stand far enough away from the tree so that you can roughly see both the base and the top of the tree between the top and bottom of the ruler. Move forward or backward until the eye sights the base of the tree (A) across the 0-inch gradation (a) and the tip of the crown (B) across the 10-inch gradation (b). Then a sight is taken across the one inch (c) gradation and the corresponding point (C) is marked on the tree by a companion. Using a tape measure, measure the distance from the base of the tree to this point (AC) to the nearest foot and multiply by ten. This is the height of the tree (AB). If a height measuring instrument is available, its use is preferred. Be sure to report your method of measurement and have someone else verify your results.

**Crown Spread Measurement** - Place a marker under the outside edge of the crown that is farthest from the trunk (A) and another directly opposite it at the outer edge of the crown that is closest to the trunk (C) and another at the outer edge of the crown directly opposite it (D). Using a tape measure, measure both the distance from A to B and the distance from C to D to the nearest foot. Add the two measurements together and divide the sum by two to obtain the average crown spread.



**Point Value** - The total point value, according to American Forests, is calculated as follows:

$$\begin{aligned} \text{Total Points} &= \text{Circumference in inches} \\ &+ \text{Height in feet} \\ &+ \frac{1}{4} \text{ of Average Crown Spread in feet} \end{aligned}$$



# How to Nominate a Champion Tree

Complete a DNR Champion Tree Program Nomination Form or record the following information:

**Species** - Species identification, both common and scientific name, including genus, species, and variety or cultivar designation. Refer to a good tree identification book and, if necessary, take a twig and leaf specimen to an authority for positive identification.

**Tree Measurements** - Circumference in inches, height in feet and average crown spread in feet. Note the height at which the circumference was measured if different from

4 1/2 feet. Measurements must be verified by a Big Tree Inspector or professional forester.

**Exact Location of the Tree** - Include county, and municipality or township. In rural areas, report the section number, quarter section, and location in relationship to highways, farmsteads, woodlots or other geographic features. In urban areas report the street address and an indication of the location of the tree on the property, such as backyard or street tree.

**Other Information** - Name and address of measurer, name and address of tree owner, name and address of nominator, date of measurement, comments on the trees condition such as: age, history, health, and/or other relevant information.

## Submitting a Nomination

All measurements must be verified by a Big Tree Inspector or professional forester. Submit the nomination to one of the listed inspectors who covers the area where the tree is located. Once the inspector has checked the measurements and signed the nomination form, submit the form to:

Champion Tree Program, Department Natural Resources, P. O. Box 7921, Madison, WI 53707

## Submitting Updates

If you are remeasuring a tree, submit a letter to the above address listing the exact identity of the tree (as described in this register), the new verified measurements, and any other new information about the trees age, condition, location, owners, etc.





Send completed form to local Champion Tree Inspector for verification or send directly to Department of Natural Resources, Bureau of Forestry, Box 7921, Madison, WI 53707.

1. Species (give genus and species if known)

2. Circumference in inches: inches	3. Total vertical height in feet: diameter in feet:	4. Average crown spread	5. Total points: <sup>1</sup>
Measured at _____ feet, _____ inches above ground level	_____ feet	_____ feet	_____ points

6. Location description detailed enough so someone unfamiliar with the location could find the tree:

7. Measured by:	Date	8. Name of tree owner:
Address		Address:
City, State, Zip Code		City, State, Zip Code:

9. Description of physical condition of tree:

10. Name of nominator	Telephone Number (include Area Code):
Address	Signature of nominator:
City, State, Zip Code	Date signed:

**LEAVE BANK - CHAMPION TREE INSPECTOR'S USE ONLY**

Verification: The measurements of this champion tree nomination as stated above have been verified by myself or other qualified persons known to me.

Signature of Inspector: \_\_\_\_\_ Date signed: \_\_\_\_\_

<sup>1</sup>points = circumference plus height plus one quarter of the average spread (C + H + (.25xS))