

# First Class First Year: Map and Compass III



# *Map and Compass II*

- **Learning Objectives**

- As a result of this experience, each participant should be able to:
- Complete advancement requirement F2
- Measure the height and width of objects using several different methods.
- Complete and orienteering course.

- **Materials Required**

- • One dish of muddy water.

- **Discovery**

- Ask scouts to measure the height of some object around the area. If you don't know the height of the object for sure, measure it in advance using one of the more accurate methods. Allow the patrol about five minutes to accomplish the task. See how close they came.

- **Teaching-Learning**

- I. How can we accurately measure the height of something
- A. Pencil Method
- B. Tree Felling Method.
- C. Muddy Water Method.
- D. Shadow Method.
- II. How can we measure the width of something?
- A. Salute Method
- B. Step Method.
- C. Compass Method.

- **Application: Measuring**

- Now have the scouts go out and measure the heights and widths of some things around the meeting place. Again, try to make these things that are known, or you can measure accurately. Do an orienteering

# Map and Compass II



## FIRST CLASS Rank Requirements

Effective January 1, 2010

Leader initial and date

<input checked="" type="checkbox"/>	1. Demonstrate how to find directions during the day and at night without using a compass. (Pages 368–371)	
<input checked="" type="checkbox"/>	2. Using a map and compass, complete an orienteering course that covers at least one mile and requires measuring the height and/or width of designated items (tree, tower, canyon, ditch, etc.). (Pages 346–351, 372–374)	
<input type="checkbox"/>	3. Since joining, have participated in 10 separate troop/patrol activities (other than troop/patrol meetings), three of which included camping overnight. Demonstrate the principles of Leave No Trace on these outings. (Pages 247–250)	
<input type="checkbox"/>	4a. Help plan a patrol menu for one campout that includes at least one breakfast, one lunch, and one dinner, and that requires cooking at least two of the meals. Tell how the menu includes the foods from the food pyramid and meets nutritional needs. (Pages 102–105, 316–317, 320)	
<input type="checkbox"/>	4b. Using the menu planned in requirement 4a, make a list showing the cost and food amounts needed to feed three or more boys and secure the ingredients. (Pages 321–323)	
<input type="checkbox"/>	4c. Tell which pans, utensils, and other gear will be needed to cook and serve these meals. (Page 324)	
<input type="checkbox"/>	4d. Explain the procedures to follow in the safe handling and storage of fresh meats, dairy products, eggs, vegetables, and other perishable food products. Tell how to properly dispose of camp garbage, cans, plastic containers, and other rubbish. (Pages 328–329)	
<input type="checkbox"/>	4e. On one campout, serve as your patrol's cook. Supervise your assistant(s) in using a stove or building a cooking fire. Prepare the breakfast, lunch, and dinner planned in requirement 4a. Lead your patrol in saying grace at the meals and supervise cleanup. (Pages 325–327, 342)	
<input type="checkbox"/>	5. Visit and discuss with a selected individual approved by your leader (elected official, judge, attorney, civil servant, principal, teacher) your constitutional rights and obligations as a U.S. citizen. (Pages 70–72, 81–82)	

Downloadable requirements checklists for all ranks and videos to guide you through the First Class rank requirements may be found on the Handbook Web site, [www.bsahandbook.org](http://www.bsahandbook.org).

<input type="checkbox"/>	6. Identify or show evidence of at least 10 kinds of native plants found in your community. (Pages 212, 215)	
<input type="checkbox"/>	7a. Discuss when you should and should not use lashings. Then demonstrate tying the timber hitch and clove hitch and their use in square, shear, and diagonal lashings by joining two or more poles or staves together. (Pages 386–387, 392–398)	
<input type="checkbox"/>	7b. Use lashing to make a useful camp gadget. (Pages 392–401)	
<input type="checkbox"/>	8a. Demonstrate tying the bowline knot and describe several ways it can be used. (Pages 388–389)	
<input type="checkbox"/>	8b. Demonstrate bandages for a sprained ankle and for injuries on the head, the upper arm, and the collarbone. (Pages 156, 157–161)	
<input type="checkbox"/>	8c. Show how to transport by yourself, and with one other person, a person <ul style="list-style-type: none"> <li>• From a smoke-filled room</li> <li>• With a sprained ankle, for at least 25 yards (Pages 154, 172–175)</li> </ul>	
<input type="checkbox"/>	8d. Tell the five most common signals of a heart attack. Explain the steps (procedures) in cardiopulmonary resuscitation (CPR). (Pages 164–166)	
<input type="checkbox"/>	9a. Tell what precautions must be taken for a safe trip afloat. (Page 194–195)	
<input type="checkbox"/>	9b. Successfully complete the BSA swimmer test.* (Pages 190–191)	
<input type="checkbox"/>	9c. With a helper and a practice victim, show a line rescue both as tender and as rescuer. (The practice victim should be approximately 30 feet from shore in deep water.) (Page 199)	
<input type="checkbox"/>	10. Tell someone who is eligible to join Boy Scouts, or an inactive Boy Scout, about your troop's activities. Invite him to a troop outing, activity, service project, or meeting. Tell him how to join, or encourage the inactive Boy Scout to become active. (Page 17)	
<input type="checkbox"/>	11. Describe the three things you should avoid doing related to use of the Internet. Describe a cyberbully and how you should respond to one. (Page 51, 61)	
<input type="checkbox"/>	12. Demonstrate Scout spirit by living the Scout Oath (Promise) and Scout Law in your everyday life. Discuss four specific examples (different from those used for Tenderfoot requirement 13 and Second Class requirement 11) of how you have lived the points of the Scout Law in your daily life. (Page 30)	
<input type="checkbox"/>	13. Participate in a Scoutmaster conference. (Page 34)	
<input type="checkbox"/>	14. Complete your board of review. (Page 53)	

NOTE: Alternate requirements for the First Class rank are available for Scouts with physical or mental disabilities if they meet the criteria listed in the Boy Scout Requirements book.

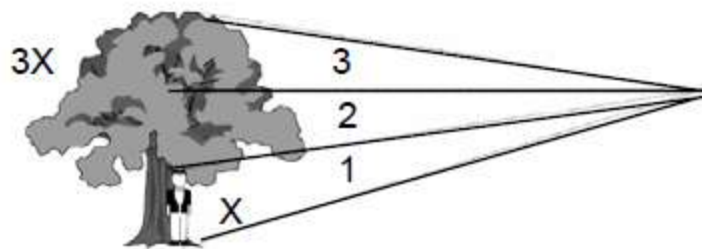
\*See the Aquatics chapter for details about the BSA swimmer test.

RANK REQUIREMENTS

# ***First Class 2– Determining Height***

## **Pencil Method**

Have a friend (whose height is known) stand beside the object to be measured or you may use your own height by standing beside it and marking your height on the object using a rope or chalk. Hold a pencil or stick at arm's length you. With one eye closed, sight through the pencil or stick so that the tip of the pencil or stick seems to touch the known height (your friend or your marker), while the bottom of the stick touches the base of the object. Move your pencil or stick up and see how many pencil or stick you will need to cover the entire height of the object. Multiply this by the known height. The product is a rough estimation of the object's height.

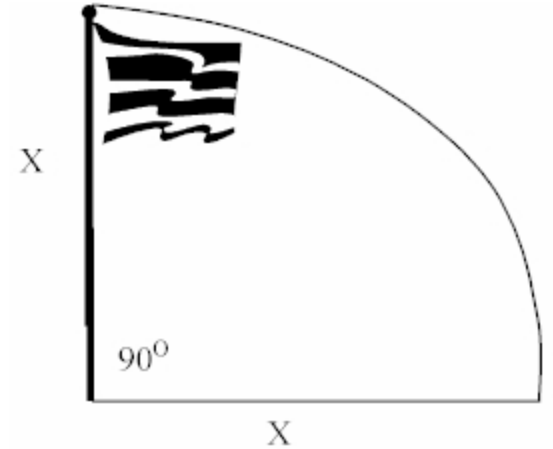


# ***First Class 2– Determining Height***

## **Tree Felling**

Hold a pencil or stick at arm's length. Move back so that the top of the pencil or stick seems to touch to top of the object to be measured and the bottom of the pencil or stick seems to touch the base of the object to be measured. Swing the pencil or stick 90° keeping the bottom of the pencil or stick in its place as if touching the base of the object. Note where the top of the pencil or stick seem to touch the ground perpendicular to the object being measured. All you have to do is the measure the distance between the base of the tree to that point on the ground that

you have marked in your mind. That distance is an estimation of the height of the tree.

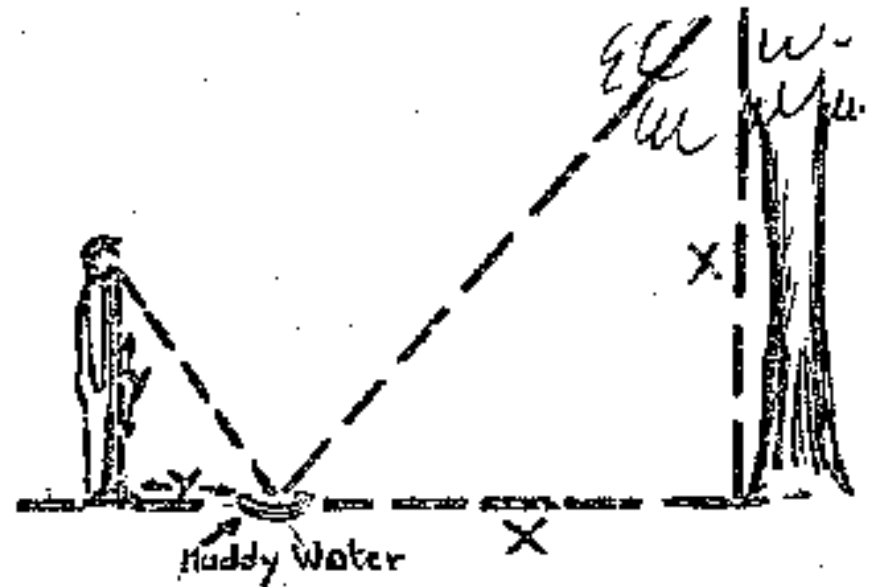


# ***First Class 2– Determining Height***

## **Muddy Water Method**

Place basin with muddy water on the ground between you and the tree. Step back from the basin a distance equal to that from your eyes to the ground.

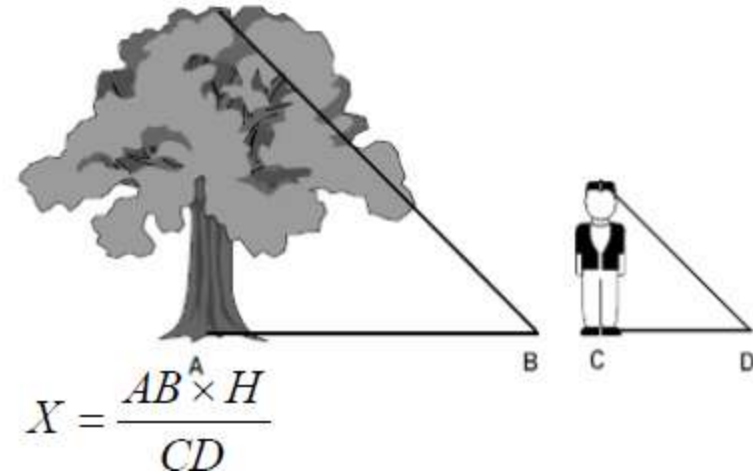
You should now see the top of the tree reflected in the water. If not, move basin and yourself. Distance from basin to foot of tree is the tree's height.



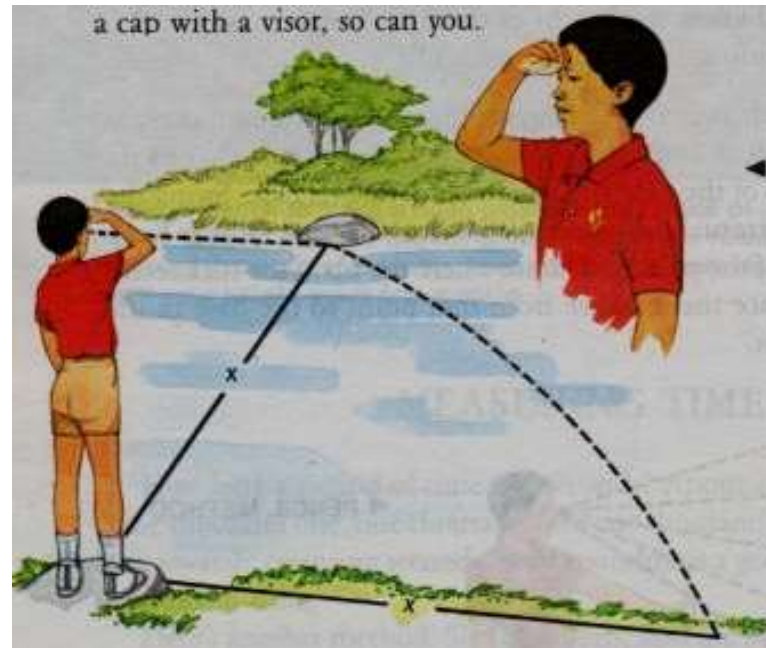
# First Class 2– Determining Height

## Shadow Method

This method can only be used whenever the sun is able to cast a shadow. First, we measure the shadow cast by the object to be measured (from its base to the tip of its shadow). We label this length as  $AB$ . We then measure the shadow cast by someone or an object of known height ( $H$ ), we label the shadow as  $CD$ . We then solve for the unknown. Note that the shorter the shadow cast by the sun (the closer it is to noon), the less accurate the estimate will be.



# ***First Class 2– Determining Distance***



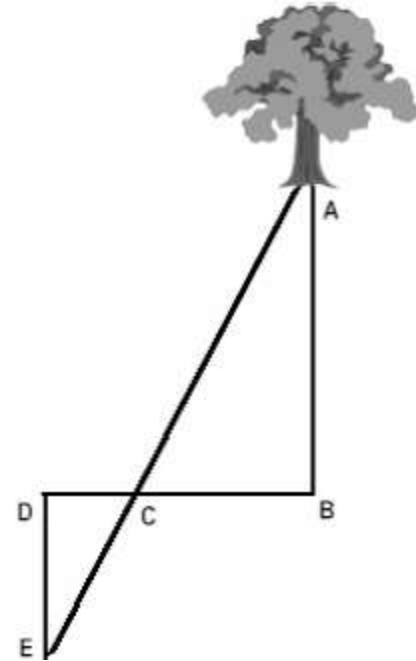
## **Salute Method**

To measure the width of a narrow river for example, stand straight on your side of the river looking towards the other side. Stoop your head down until your chin rests on your chest and place your hand across your line of sight as if executing a military salute. Position the edge of your hand in such a way that it is as if touching the opposite shore. Turn 90 degrees and note the distance where the edge of your hand seems to be touching on this new direction. The distance between the marker to your position is an estimate of the width of that river.

# ***First Class 2– Determining Distance***

## **Step Method**

Select an object on the opposite side of the river, such as a tree and we mark it as A. Mark the point directly in front of the object on the opposite side of the river, mark it as point B. Take at least 50 paces to point C, so as to form line BC. Note that line BC should be perpendicular to line AB. Mark point C with a stick or another person. Again, pace another distance to point D. The distance CD is half the distance of BC. From point D, pace another distance to point E. Line DE is parallel to line AB. Point E is marked on a location wherein you can see point C forming a straight line with point A. Meaning when you look at the stick on point C, it somewhat blocks your line of sight to point A. The distance AB is twice the distance DE.  $AB = DE \times 2$ . We can alter the method a bit. Instead of having distance CD half the distance between BC, we can make it equal to each other. Do the same method to find point E. Using this alternative,  $AB=DE$ . This is more accurate.



# ***First Class 2– Determining Distance***

## **Compass Method**

Locate an object on the other side of a river. Stand on your side and point the direction-of-travel arrow towards the object. Align the magnetic needle to 45° indicator of the compass housing. Pace the line BC while pointing the direction-of-travel arrow towards the object all the time. Point C is marked when the compass is oriented (magnetic needle is directly above the orienteering arrow).

The distance BC is an estimate of distance AC. You have just formed a 45-45-90 triangle.

