



# Orienteering 3

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## Program Purpose

The purpose of this course is to teach students how to determine bearings using a map and compass, and to use the topography of the land to navigate a course on Blackhawk Island. \*\*Students must have completed Orienteering 2 before participating in Orienteering 3.

## Length of Program

2 Hours

## Ages

Grades 7<sup>th</sup>-12<sup>th</sup>

## Maximum Number of Participants

16

## Objectives

After completion of this course students will be able to:

- Interpret landform changes using a topographic map.
- Use a map and compass to find their way through the woods without adult supervision.
- Use a compass and protractor to determine bearings with which to navigate a course through the woods.

## Preparation

Before the class arrives:

- Copy a blank map for each group.
- Find the four "Color" courses and "Color" course key in the Orienteering 3 box.
- Get the Suunto 20-compass kit from the work room.
- Make sure the four 2-way radios are charged and functioning.
- Make sure all radios are on channel 7.

## Basic Outline

- I. Introduction (5 min)
- II. Plotting a Course (20 min)
- III. Equipment (15 min)
- IV. Depart for Island (10 min)
- V. Final Instructions (5 min)
- VI. Course Work (60 min)
- VII. Depart for Mainland (10 min)

## Materials

- 6 Blank Maps
- 1 Blank Master Map
- 10 Compasses
- Wet Erase Markers
- 6 Protractors
- 6 Rulers
- 4 Radios (Charged)

## Introduction

Introduce yourself and the class. Explain that in this class, the students will be working in teams to plot a course between points on Blackhawk Island. The bearings and paces will not be provided for them as they were in Orienteering 2. They will be learning how to determine bearings, paces and tallies using a map, compass, protractor, and ruler. If the students are not in groups of four, put them into groups of 4 before passing out the equipment. Each team should get a "Color" course map, a marker, a ruler, 2 compasses, and a protractor. Emphasize that they will be charged for each piece of equipment lost or broken during class.

## Plotting a Course

To plot a course you need two things, a starting point and a destination. For this class your starting point is point number one. To find the bearing you need to travel

to get from point one to point two, you need to:

- I. Draw a straight line from point one to point two. You should make the line go a couple of inches past point two.
- II. Place your protractor on the map with the center of the protractor on top of point one.
- III. Rotate the protractor until 360 degrees is on top and the protractor cross hairs are aligned with the north-south line on the map.
- IV. Read the bearing where the line going to point two passes through the protractor.

You now need to figure out how far you need to travel. To determine your paces and bearing you need to:

- I. Lay the ruler on the map and measure the distance from point one to point two in centimeters.
- II. The scale for our maps is one centimeter = seventy meters. Add up all of the meters and break it down into tallies and paces (one tally = seventy paces and one pace = two steps).
- III. Add ten percent to the final pace count to compensate for the stride difference between an Army recruit and a 8<sup>th</sup> grader.

The groups should determine their bearing and number of paces to get from point one to point two. Check their answer to see if it is correct. If there is no major error, have them determine the bearings and number of paces from point two to point three, and so on. If the group is having difficulty, help them determine the bearing again until they get close to the correct answer.

## Equipment

On the island, the students will have with them compasses, a map, and a radio.

- Compass. Each team will have 2 compasses. The purpose of having two is that two people must agree that the group is traveling in the correct direction before the group can depart.
- Map. The map shows where the posts are (indicated by the black dots). The students will notice that the posts are not numbered. The reason for this is that the groups need to find them and radio them in.
- Radio. The rules for radio usage are the same as in Orienteering 2. Each team will have one radio. The radio is not to be treated as a toy. There are only three times when the radio can be used.

- I. When you have found your next point.
- II. When you are temporarily misplaced.
- III. Emergency situation.

Groups may only radio to base, never to each other. The groups will use the same radio terminology they used in Orienteering 2. To review:

- I. Over
- II. Out
- III. Copy

- I.* *Over* is said at the end of a transmission and implies that you are waiting for a response.
- II.* *Out* is used at the end of a transmission when the conversation is through.
- III.* *Copy* is used when information has been given to signify the recipient understood the transition.

Examples:

- “Green group to base, OVER.”

- “Go ahead green group. This is base, OVER.”
- We are heading for our third point, OVER.”
- “O.K. green group I COPY. OUT.”

Stress with the groups the importance of waiting until the previous conversation is over before trying to contact base. Practice using the radios by leaving the room and radioing in to each group, making sure they use the proper terminology.

### **Depart for Island**

Load the barge or canoes and depart for Blackhawk. Everyone must wear a PFD.

### **Course Work**

All of the groups will be leaving from the same point but will be going to different points for the rest of the class. Each group will be locating 5 points. Drop off the students at point one and instruct them to stay there until you contact them. You only need to go a few feet away to contact each group. Ask each group the distance and bearing they will be traveling to reach point two and check their answers with your master map. If they are correct send them on their way. You should be checking their distance and bearing for the first few points.

After they depart you need to get to the base point and get ready for their calls. Send one adult up the Overland Trail (toward the caves) with a whistle and one adult towards the dock with a whistle.

As the groups find their points, mark down which points have been completed on the master to help you keep track of their location. It is also helpful to keep track of the time each group calls in to make sure you keep in contact with all groups at least every ten minutes. If a group calls in “temporarily misplaced,” you need to get all the information from them you can. You are

looking for some kind of idea where they are by the distance they traveled and what bearing they were following. Most of the time they have just not traveled far enough. If you have them put red in the shed and take ten paces with everyone’s head up there is a good chance one of them will see it. If the group is hopelessly “misplaced,” you or the adult closest to where you think the group is should blow the whistle three times every minute. Radio the student group to walk towards the sound.

If a group calls in the wrong point you need to:

- I.* Locate that point on the master map.
- II.* Let them know you know where they are and will get back to them with instructions in a few minutes.
- III.* Use the protractor in the teacher’s box to get them a new bearing. This is done by:
  - Drawing a line with the wet erase markers from the point they are at to the point they want to go to. Make sure you use the ruler.
  - Place the center of the protractor on the point they are at.
  - Line up the cross hairs on the protractor with the north south lines on the map. 0 needs to be on the top of the map and the numbers should read clockwise.
  - Read the bearing that the line you drew passes through and write it down.
- IV.* Use the ruler to figure out their paces. To do this you need to:
  - Place 0 mm on the point they are at.
  - Read the distance on the ruler between the two points.
  - 1 cm = 70 m. Calculate the number of tallies and paces they must travel. Paces are set up for the Army so we need to convert them

to kid paces. Add 10% to the final answer to compensate for the smaller stride of the average ninth grader. If the kids are much older than that use your best judgement for the extra paces.

- V. Give them a new bearing and set of paces to find the point they are looking for. Have them repeat the instructions to you to make sure they understood.

Chances are you will have at least one group that is much faster than the others. If you see one group going much faster than the others use the information above to set extra points for them.

When time is up, radio all the groups to come back to base from wherever they are. Have all groups report in that they copied the transmission, then you and the adults should blow your whistles five teams every minute until all groups make it back to base.

### **Back to Mainland**

Your trip back to mainland will be nothing but excitement and story telling. This is a good time to ask questions about what the groups found difficult. If we spot a pattern of groups not being able to find a point we can adjust the information on the map to make it easier. Make sure all class materials are put away in their original locations. Ask the students to wipe off the wet erase marker from their maps and turn them in. Ask for the students' help in putting away compasses as well. Rotate the batteries in the radios to make sure the next class has freshly charged batteries. Wipe off the whistles with alcohol to sterilize them for the next user.

### **References**

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