



ORIENTEERING

4-H Natural Science Lesson

USE A COMPASS TO NAVIGATE A COURSE



Project Skills:

Learn to use a compass to plot bearings

Life Skills:

Problem solving
WI Academic Standards:
Environmental Education B.4.
Questioning and Analysis

Time:

40-45 minutes

Supplies:

- 1 compass for each pair of youth, plus 1 for the instructor
- Orienteering Course Navigation Guides 1-6 worksheet
- "Home Base" (compass arrow) worksheet, laminated

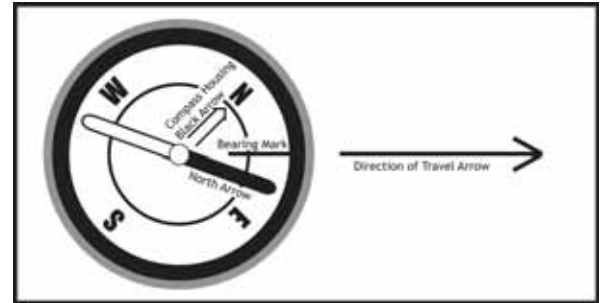
Getting Ready:

1. Make one copy of each of the Orienteering Course Navigation Guides 1-6.
2. Practice using the compass to familiarize yourself with its use.

WHAT TO DO

Teach the parts of a compass

1. Have youth pair up. Try to pair a younger youth with an older youth. Give each pair a compass.
2. Point out the DIRECTION OF TRAVEL arrow on the plate in front of the dial. Instruct youth to hold the compass level in their hand, a few inches from their body, with the DIRECTION OF TRAVEL arrow facing the same direction as their nose.
3. Point out the red, NORTH arrow. Explain the north arrow is drawn magnetically to the north. It will always try to point north. The NORTH arrow is NOT the arrow that you follow. It almost always points the wrong direction (north).
4. Show how the compass housing can be rotated. Turn the compass housing until the BLACK arrow painted on compass housing is aligned directly underneath the red NORTH arrow.
5. Explain that there are 360° (degrees) in a circle. Show how the dial lays out the degrees around the outer edge of the dial. Point out that N=360°, E=90°, S=180° and W=270°. Each line represents 5° on this compass.
6. Point out the red BEARING MARK. This is a small red line under the dial that directly lines up with the DIRECTION OF TRAVEL arrow. They use the BEARING MARK to set their bearing.
7. Review the important parts of a compass. Ask the youth where each is located and how each is used: 1) DIRECTION OF TRAVEL arrow, 2) NORTH arrow, 3) BLACK arrow painted on the compass housing and 4) the BEARING MARK.
8. Ask youth to point toward the north. Check to make certain everyone is pointing the same direction. Assist anyone who is not pointing north.



Set a bearing

1. Tell the youth that they are now going to use the compass to find a bearing of 210°. First, find the 210° mark on the dial. Turn the compass housing until 210° is directly on top of the BEARING MARK. Remind youth to hold their compasses correctly.
2. Without turning the compass, youth should turn their bodies until the red NORTH arrow is on top of the BLACK arrow painted on the compass housing. Youth should not turn their heads, but turn their entire bodies, keeping their noses pointing the same direction as the DIRECTION OF TRAVEL arrow.
3. Ask the youth to point in the direction they would walk if they wanted to walk at a bearing of 210°. Make certain that everyone is pointing the correct direction. Remind everyone to always use the DIRECTION OF TRAVEL arrow to guide them, not the red NORTH arrow.
4. Tell them that once they have decided the correct direction to walk, they should look up and locate an object in their field of view that is exactly in that direction and walk toward it, such as a tree, plant, post or house.
5. Ask if they have any questions.

Find a bearing on their own

1. Have youth give the compass to their partner.
2. Ask the youth to find a bearing of 335°. Remind them that each small black line represents 5°.
3. As soon as they determine a bearing of 335°, tell them to point towards it.
4. Make sure everyone points the correct direction.

Navigate the Compass Course

1. Give each pair a "Home Base" and a different Compass Course Navigation Guide. (All of the guides have the groups making a square and returning to the "Home Base," where they began. Each guide just uses different bearings to complete the square.)
2. Have each group spread out from one another so they have room to maneuver.



Adapted from Upham Woods
4-H Environmental Education
Center Circle Compass
Course Lesson.

3. Instruct each pair to work together as a team. One youth should read the Navigation Guide and the other should be the Compass Navigator. Both should agree which direction to go and where to stop.
4. For this activity, the exact length of the step is not as important as using the same distance for every step.
5. Ask them again if they have any questions about the instructions or how to use a compass.
6. Tell them to follow the Navigation Guide carefully and begin.
7. Monitor each group's progress and give help to any group that is having difficulty.
8. Congratulate the groups as they finish the course. Inform each pair that they should have arrived back at their own "Home Base," if they navigated the course correctly.

TALK IT OVER

Try to get each youth to express his or her feelings and experiences.

Reflect:

- How did it go when you used the compass?
- Why was it easy or hard to use a compass?
- Why do you think you were or were not successful in navigating your course?

Apply:

- What information do you need to use a compass in the wilderness?
- Can you think of other things that require the use of bearing and directions?

ORIENTEERING COURSE NAVIGATION GUIDE 1

1. The Compass Navigator should stand on your "X Marks the Spot."
2. Proceed 15 steps at a bearing of 30° and then stop.
3. Proceed 15 steps at a bearing of 120° and then stop.
4. Proceed 15 steps at a bearing of 210° and then stop.
5. Proceed 15 steps at a bearing of 300° and then stop.
6. Stay at this spot and tell the instructor you have completed the course. Your instructor will tell you how you did.

ORIENTEERING COURSE NAVIGATION GUIDE 2

7. The Compass Navigator should stand on your "X Marks the Spot."
8. Proceed 15 steps at a bearing of 90° and then stop.
9. Proceed 15 steps at a bearing of 180° and then stop.
10. Proceed 15 steps at a bearing of 270° and then stop.
11. Proceed 15 steps at a bearing of 360° and then stop.
12. Stay at this spot and tell the instructor you have completed the course. Your instructor will tell you how you did.

ORIENTEERING COURSE NAVIGATION GUIDE 3

13. The Compass Navigator should stand on your "X Marks the Spot."
14. Proceed 15 steps at a bearing of 150° and then stop.
15. Proceed 15 steps at a bearing of 240° and then stop.
16. Proceed 15 steps at a bearing of 330° and then stop.
17. Proceed 15 steps at a bearing of 60° and then stop.
18. Stay at this spot and tell the instructor you have completed the course. Your instructor will tell you how you did.

ORIENTEERING COURSE NAVIGATION GUIDE 4

19. The Compass Navigator should stand on your "X Marks the Spot."
20. Proceed 15 steps at a bearing of 210° and then stop.
21. Proceed 15 steps at a bearing of 300° and then stop.
22. Proceed 15 steps at a bearing of 30° and then stop.
23. Proceed 15 steps at a bearing of 120° and then stop.
24. Stay at this spot and tell the instructor you have completed the course. Your instructor will tell you how you did.

ORIENTEERING COURSE NAVIGATION GUIDE 5

25. The Compass Navigator should stand on your "X Marks the Spot."
26. Proceed 15 steps at a bearing of 240° and then stop.
27. Proceed 15 steps at a bearing of 360° and then stop.
28. Proceed 15 steps at a bearing of 90° and then stop.
29. Proceed 15 steps at a bearing of 180° and then stop.
30. Stay at this spot and tell the instructor you have completed the course. Your instructor will tell you how you did.

ORIENTEERING COURSE NAVIGATION GUIDE 6

31. The Compass Navigator should stand on your "X Marks the Spot."
32. Proceed 15 steps at a bearing of 315° and then stop.
33. Proceed 15 steps at a bearing of 45° and then stop.
34. Proceed 15 steps at a bearing of 135° and then stop.
35. Proceed 15 steps at a bearing of 225° and then stop.
36. Stay at this spot and tell the instructor you have completed the course. Your instructor will tell you how you did.

University of Wisconsin-Extension, U.S. Department of Agriculture and Wisconsin counties cooperating. UW-Extension provides equal opportunities in employment and programming, including Title IX and ADA.

Issued in furtherance of Cooperative Extension work, acts of May 8, and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Carl O'Connor, Director, Cooperative Extension, University of Wisconsin Extension, Madison, WI 53706. Copyright 2001 Board of Regents of the University of Wisconsin System, Division of Cooperative Extension of the University of Wisconsin-Extension.

If you need this material in another format, please contact the Department of 4-H Youth Development, University of Wisconsin-Extension, 436 Lowell Hall, 610 Langdon St., Madison, WI 53703; phone 608-262-1067. Visit Wisconsin 4-H Youth Development on the Web at <http://www.uwex.edu/ces/4h/>. This information is produced by the Department of 4-H Youth Development and is for educational purposes only. Reference to commercial products or trade names does not imply endorsement by the Cooperative Extension or bias against those not mentioned.

This publication is available from your county University of Wisconsin-Extension office or from:
Extension Publications; 45 N. Charter Street; Madison, WI 53715; Phone: 877-947-7827 or 608-262-2063; FAX: 608-265-8052

The logo for UW Extension, featuring the letters "UW" in a small font above the word "Extension" in a larger, bold, sans-serif font.

