

Orienteering Activity

Brief Outline

1. Introduce students to how to use a compass
2. Test students
 - a. 'Everyone turn east' (Using your compass)
 - b. Test hunt on small area
3. Students make a treasure hunt/map
4. Students find their partner team's hidden treasure
5. Explore with GPS (if time allows)

References

This activity is pulled together using Megan Schnorenberg's *Was Bluebeard Just a Lucky Pirate?* lessons and the Orienteering Activities by Sabrina Cales and Travis Laurance (P&A department). Please note that a full-scale write-up is given in Megan's lesson, which includes Standards and Benchmarks. Websites for each are given below:

Megan: <http://www.uwyo.edu/SCIENCEPOSSE/resources/lesson-plans/former-fellow-lesson-plans/megan-schnorenberg-lesson-plans/index.html>

P&A: <http://physics.uwyo.edu/~bri/outreach.html>

Topics

- Map Reading
- Latitude and Longitude
- Cardinal Directions
- Compass/GPS usage
- Vectors

Step 1 – How to Use a Compass, ~5min

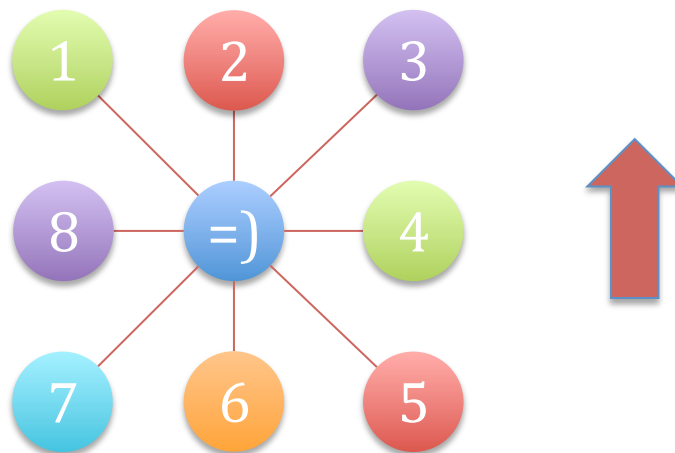
Compass Procedure: Use the picture in Appendix to explain the parts of a compass and how a compass works; i.e. the red part of the compass needle is always pointing towards the earth's magnetic north pole, so if you want to go north, turn the compass housing until the N (for north) and the direction arrow are aligned, hold the compass level, and turn your body until the compass needle and the direction of travel arrow are in a line. You are now facing north. If you want to go

in a direction other than north, turn the compass housing so that the direction you wish to go is lined up with direction of travel arrow, hold the compass level, and turn your body until the red compass needle is inside the orienting arrow, (the red needle should be pointing directly at N). The travel arrow is now facing the direction in which you want to go.

Landmark Procedure: While traveling in a desired direction it is also important to find a landmark. In the *Bluebeard* lesson this is referred to as 'Shooting a Bearing'. Tell students to try to find some kind of feature of the land (like a particular tree or an easily distinguished rock feature) that lies along your bearing and walk toward that feature as you continue to check your compass.

Step 2 – Have Students Demonstrate How to Use the Compass, ~10min

- i) Have students all stand facing the same direction. Call out the cardinal directions (N, W, E, S) and have them use their compass to turn towards that direction. To challenge the students have them turn at ordinal directions (NW, SE, SW, NE).
- ii) **Activity One:** Set up a grid as below with colored construction paper. Number each station. Each station is 10 paces from its neighboring station. Number the students/groups. Have students/groups begin at their corresponding station. Give students the Activity handout. Activity One of the handout has a set of instructions for the students to follow. The instructions are straightforward; each student/group is instructed to go 10 steps in a cardinal direction (N, E, S or W) and 14 steps in a ordinal direction (NW, SE, SW, NE), although not necessarily in that order. The instructions are set up so that each group finds themselves at one greater than their station number (i.e, 1 to 2, 2 to 3 ...)



Step 3 – Make a Treasure Map, ~25-30min

Activity Two Procedure: Inform students they are going to create their own treasure maps for other students to follow by creating a **list of cardinal/ordinal directions** which will start at a specific location and lead to a treasure. Break students into groups of ~2 people and have them use the following procedure to create their maps: (See Student Handout)

1. Create a starting point: Where will your map start? Be sure to include a starting position! Use the start and finish fliers to mark your start and finish.
2. Create a standard of measurement: Think about the units you will use in your directions – will you use feet, meters, inches, or make up your own unit: for example giant hops or skips. Make sure if you create your own unit of measurement it is something other groups can easily duplicate and use.
3. Shoot and record your bearings! Once you are at your starting location, decide which direction you want your treasure hunters to go and shoot a bearing in the direction
4. Determine Distance: Figure out how far you want your map-readers to travel in the direction of your bearing. Use your standard of measurement to record that distance.
5. Repeat! Continue shooting bearings measuring distances until you reach a location you want to hide your treasure! (Your map should include 3 directions.)
6. List your directions: Using Activity One as an example. Make a list of directions and distances like so:
Step 1: Go N 20 walking steps.
Step 2: Go E 32 hops.
Step 3: Go NW 100 baby steps.
7. Things to Think About:
 - a. How will you go around objects in your treasure hunt? (For example, say you want to direct your map-readers around a tree or a building.)

b. How will your map-readers know they have reached their 'treasure'. Make sure you leave something for your direction-followers to find!

8. Test Your Map: Once you have completed your map and hidden your treasure, return to your starting point and follow your own map to make sure it makes sense!

Step 4 - Find the Treasure, ~10-15 min

Activity Three Procedure: Have students exchange maps with their neighbor groups, making sure each group has a new map. Have students find the hidden treasure. If the maps are too confusing to follow, have the authoring group guide the treasure-hunters.

Step 5 - GPS Experience

Activity Three Procedure: Allow students to explore with the GPS. Things that may be of interest to students are cardinal directions, pace, distance and tracks.

Appendix

