



Chief Seattle Council

Program and Training Conference 2019

Session #215: Map and Compass Essentials



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Class outline

1. Why teach map and compass skills?
2. About compasses
3. About maps
4. Using maps and compasses together
5. Planning a trip
6. Measuring distance
7. Compass games
8. Resources

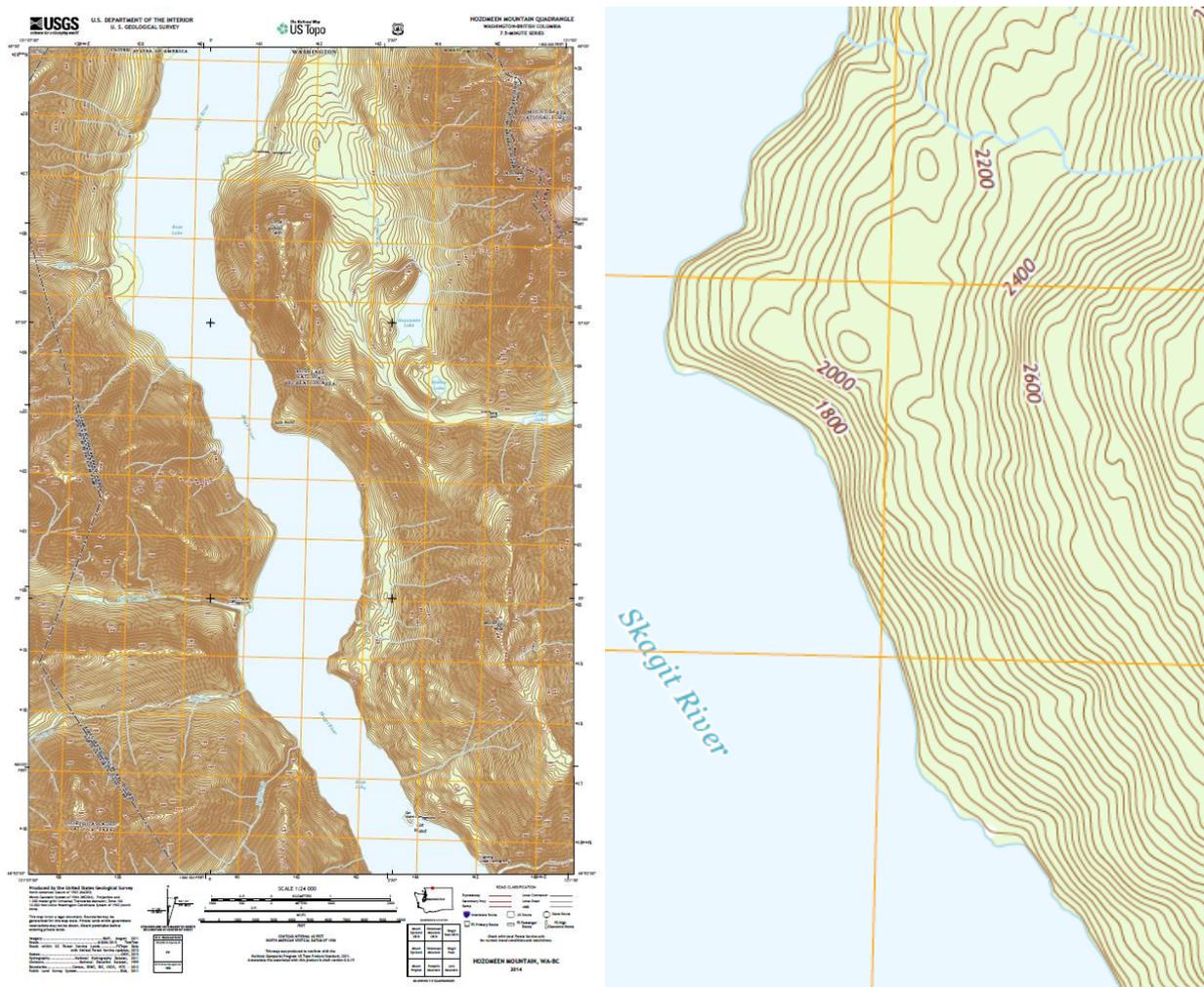
Relevant advancement elements

- Cub Scouts:
 - Wolf Elective Adventure: Finding Your Way
- Scouts BSA:
 - Second Class Rank, Requirement 3
 - First Class Rank, Requirement 4
 - Orienteering Merit Badge
- Venturing:
 - Ranger Award, Requirement 5
- Sea Scouts:
 - Ordinary Rank, Requirement 10

Types of maps

- Highway
- Topographic
 - USGS
 - Green Trails
 - Online
- Orienteering
- Nautical (called a “chart”)

Topographic map



Orienteering Map

Tolt-MacDonald Park and Campground

1:10,000

Contour Interval: 5 meters

- Legend**
- paved road, parking area
 - paved road, dirt or gravel road
 - large trail, small trail
 - faint or intermittent trail
 - high fence, low fence
 - index contour line, contour line, form line
 - depression, small depression pit
 - impassable rock cliff, earth bank, ditch
 - building, yurt
 - boulder, manmade object, pole
 - stump, rootstalk, vegetation boundary
 - river, lake
 - intermittent stream, narrow marsh
 - uncrossable marsh, marsh, indistinct marsh
 - forest: easy run, slow run, difficult run
 - undergrowth: difficult walk, unclassified forest
 - open land, rough open land, open sandy land
 - rough open: with trees, with bushes
 - out of bounds

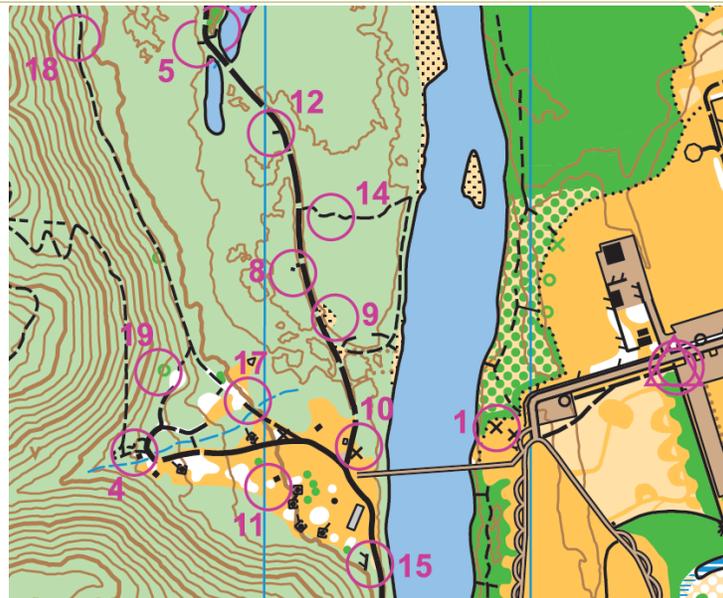


Cascade Orienteering Club
www.CascadeOC.org



Ronnie Rogers Eagle Project
Fieldwork: Ronnie Rogers & Debbie Newell 2009, Lail Anderson 2009, Jim Sisco 2014
Cartography: Ronnie Rogers & Debbie Newell 2009, Lail Anderson 2009, Jim Sisco 2014

This map is limited to personal, non-commercial use. If you wish to use this map for a group activity or to resell this map for any purpose, please obtain permission from Cascade Orienteering Club, (info@cascadeoc.org). Please follow all land use rules and stay out of the private property and other forbidden areas indicated on this map.



Estimating distance

- Determining your stride:
 1. Lay out a long tape measure on level ground
 2. Start by stepping with your left foot
 3. Walk 10 strides (count a stride every time your right foot hits the ground)
 4. Walk at a natural pace!
 5. Note the distance at your 10th stride
 6. Divide: distance / 10 = stride length

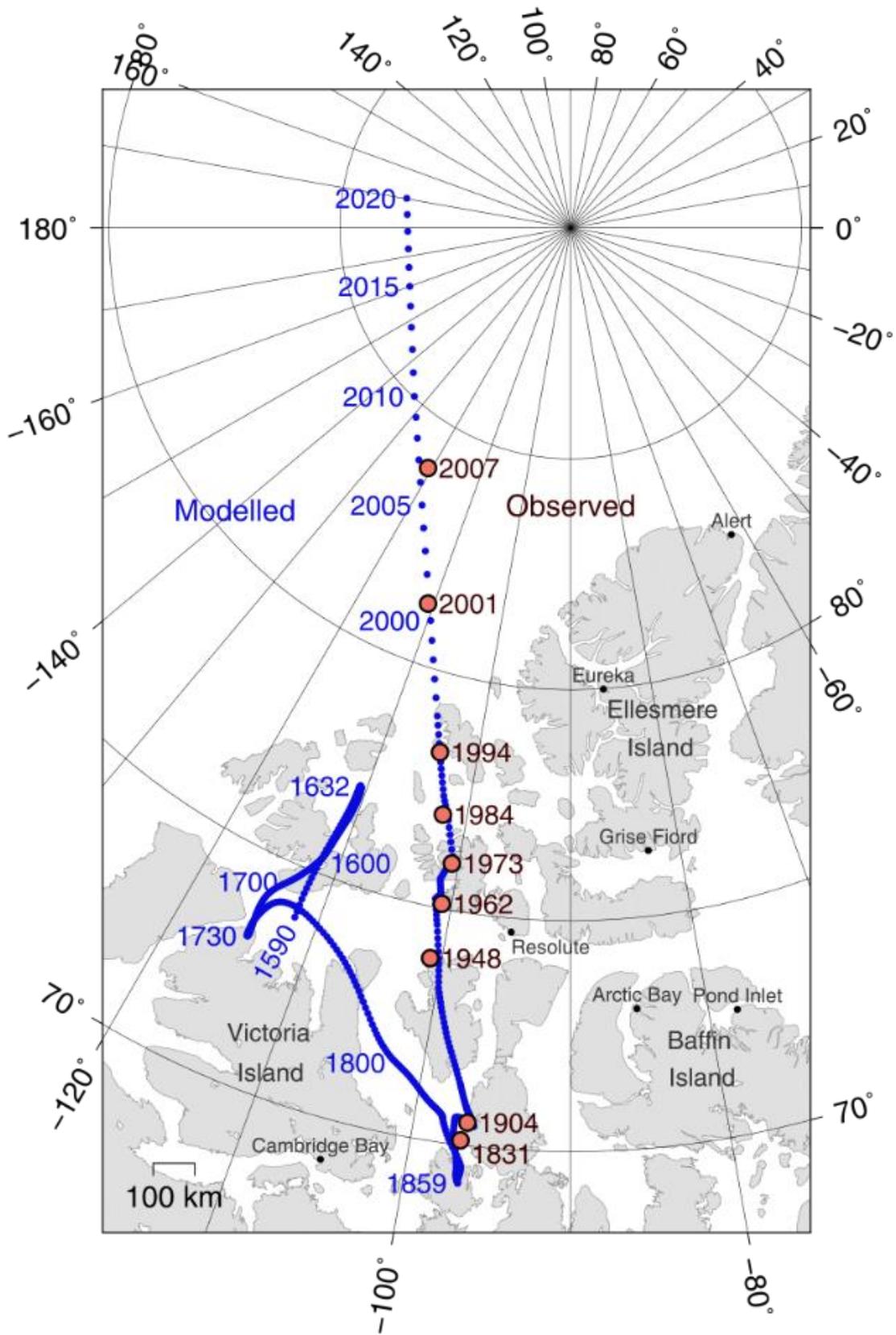
Example: **55 feet / 10 strides = 5.5 feet per stride**

- Estimating distance traveled:
 1. Count your strides (or use a pedometer and divide by 2)
 2. Multiply: stride count × stride length = distance traveled

Example: **17 strides × 5.5 feet per stride = 93.5 feet**

- Estimating strides for a distance:
 1. Divide distance by stride length
 2. Count out that many strides

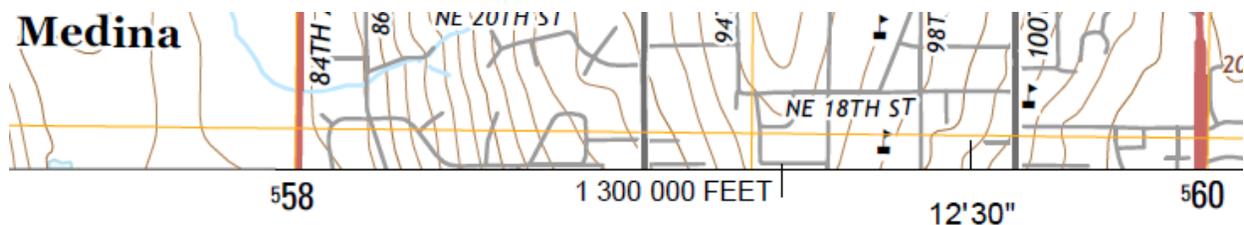
Example: **63 feet / 5.5 feet per stride ≈ 11.5 strides (23 steps)**



Why a compass works

- Earth's magnetic field
- Magnetic north and geographic north not perfectly aligned – *declination*
- Avoid local magnetic field disruptions (can override Earth's relatively weak field)
 - Large metal objects
 - Power lines
 - Motors/turbines

Declination indicator on a map

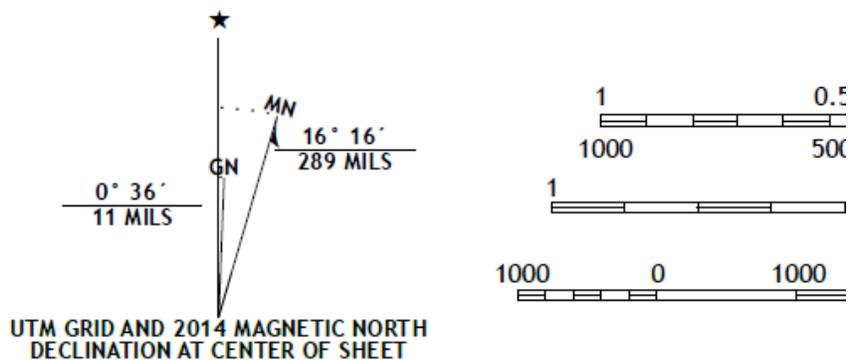


Geological Survey

3)

4). Projection and
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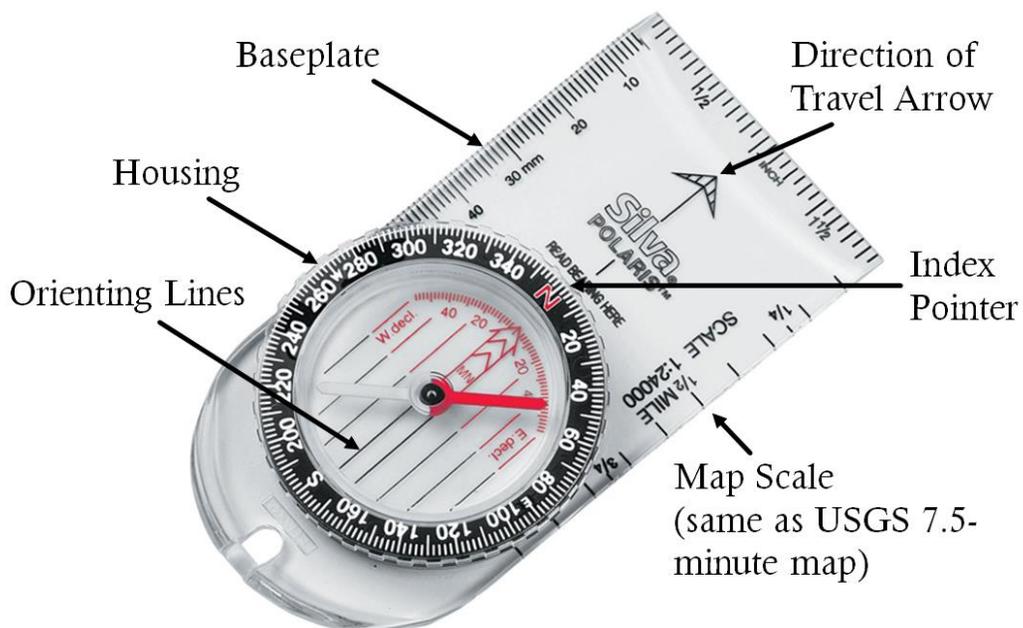


Types of compasses



- Baseplate (Silva) Compass
- Boater's Compass
- Lensatic Compass
- Don't get a Tate's Compass!

Parts of a baseplate compass



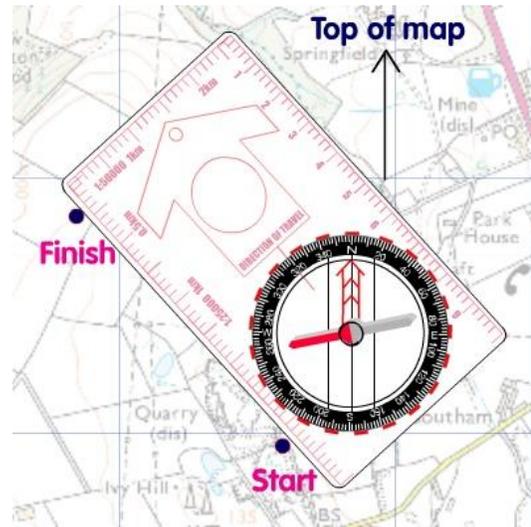
Using a compass: Orient a map

1. Identify Magnetic North direction on the map
2. Hold compass and map level
3. Rotate map until compass needle is aligned to Magnetic North on the map



Using a compass: Read a bearing from a map

1. Ignore the needle! For this activity, you are just using the compass as a protractor.
2. Rotate the baseplate until the long edge runs through your starting point and destination. (If necessary, draw a line on the map with pencil, and align the baseplate to the line.)
3. Keeping the baseplate still, rotate the housing until orienting lines are aligned with the map's Magnetic North.
4. The index pointer shows the Magnetic bearing.



Using a compass: Navigate a bearing

1. Adjust your bearing for Magnetic declination, if necessary.
2. Rotate the housing to set the Magnetic bearing at the index mark.
3. Hold the compass level and rotate the entire compass until the needle is aligned with the orienting lines ("red in the shed").
4. Without rotating the compass, use the Direction of Travel arrow to sight a prominent feature (such as a tree) and head toward it.
5. When you reach your landmark, repeat if necessary.



Compass games

Game	Difficulty	Setup time	Play duration (per round)
Directions/bearings relay	★☆☆☆☆	Minimal	2-5 minutes
Walk an equilateral triangle	★★☆☆☆	Minimal	2-5 minutes
Compass circle game	★★☆☆☆	20 minutes	5-10 minutes
Compass line game	★★★☆☆	10 minutes	10-20 minutes
Orienteering <ul style="list-style-type: none"> • Cross-country • Point-to-point • Score orienteering 	★★★★☆	DIY: hours; Hosted meet or permanent course: Minimal	30-90 minutes
Triangulation	★★★★★	20 minutes	5-20 minutes

Resources

- Compass games
 - Beginner's Compass Game (circle) – purchase at Scout Shop
 - Competitive Compass Game (line) – www.bsa344.com/Compass_Line_Game.pdf
- Cascade Orienteering Club – cascadeoc.org
 - Orienteering meets on Saturdays
- Permanent orienteering courses – cascadeoc.org/permanent-courses/
 - Bellevue – Wilburton Park; Robinswood Community Park
 - Bremerton – NAD Soroptimist Park
 - Carnation – Tolt-MacDonald Park
 - Edmonds – Madrona School
 - Everett – Forest Park
 - Federal Way – Dash Point State Park; Celebration Park
 - Kenmore – St. Edward State Park
 - Lakewood – Fort Steilacoom
 - Lynnwood – Lynndale Park; North Neighborhood Park
 - Parkland – Breseman Forest
 - Poulsbo – Fredericksen Wilderness Park
 - Redmond – Farrel-McWhirter Park
 - Sammamish – Beaver Lake Park
 - SeaTac – North SeaTac Park
 - Seattle – Magnuson Park
 - Shoreline – Hamlin Park
- Orienteering Merit Badge pamphlet
- Orienteering books/equipment/supplies – orienteeringunlimited.com
- Maps – greentrailsmaps.com, store.usgs.gov