

Orienteering

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Orienteering merit badge

- 10 Requirements

1. Injuries and safety
2. Explain orienteering
3. Compasses and bearings
4. Topographic maps, symbols, declination, distance and orientation
5. Pace Counting
6. Control symbols, control descriptions, route planning
7. Take part in three events
8. Set up a course
9. Act as an official at an orienteering event
10. Teach orienteering to your troop

What is orienteering

- Orienteering is a cross-country race in which participants use a highly detailed map and a compass to navigate their way between checkpoints along an unfamiliar course.
BSA Orienteering Merit Badge Pamphlet 2010
- First large scale meet held in Sweden in 1919.
 - Organized by scout leader Major Ernst Killander

What is orienteering

- Use a map and compass to visit **control points** and punch in at each control
 - Cross-country O – visit each control in order
 - Score-O visit as many controls as possible to maximize score.
- The sport of orienteering is NOT just following a list of bearings and distances.
 - Nevertheless a useful and necessary skill

Topographic maps

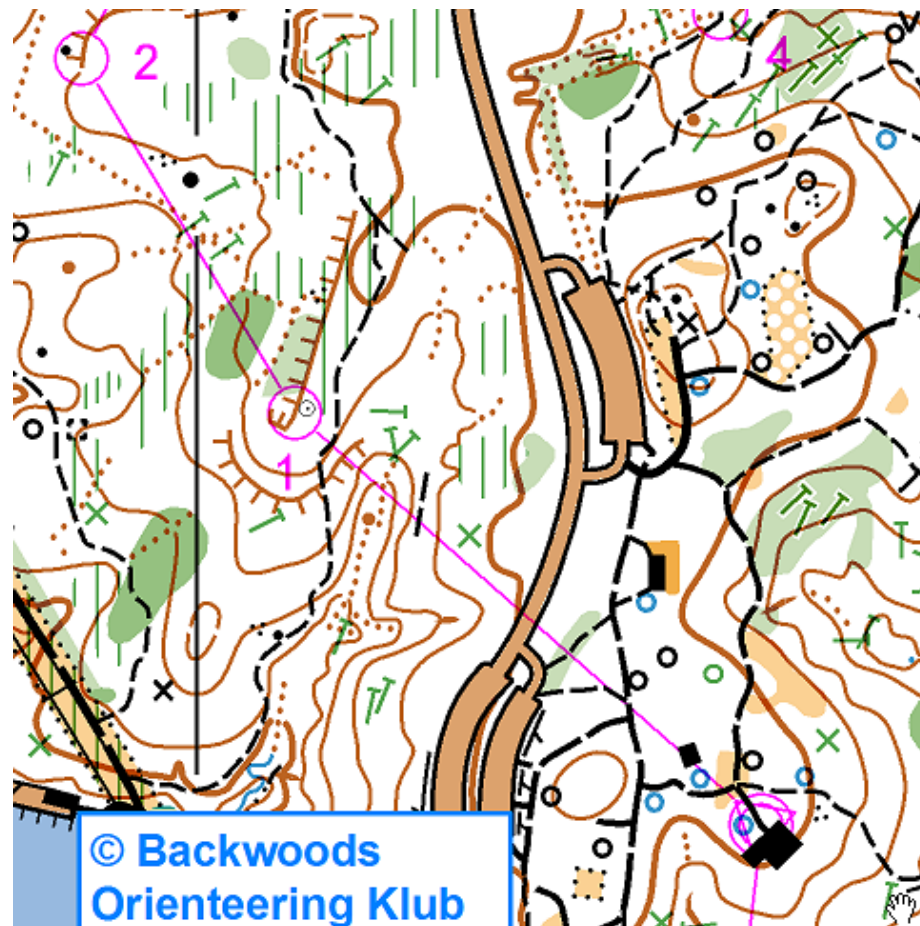
- Maps are 2-D. The world around us is 3-D
- Topographic maps provide an image of the terrain around us using colors and lines
 - Hills, Valleys, Spurs, Streams, Roads, Tracks, Rock formations, Cliffs, Fences, etc.



Topographic maps

- Orienteering map colors
 - *White* – open forest
 - **Yellow** – open land
 - **Green** – thicker vegetation. Harder to run
 - **Brown** – shape of the land
 - **Blue** – water features
 - **Black** – rock and man-made
 - **Red** or **Purple** – course overlay

Orienteering map example



Distances

- Maps have a scale expressed as a ratio
 - USGS typically 1:24000 or 1:62500
 - Orienteering typically 1:5000, 1:10000, 1:15000
- Orienteering uses metric system – meters on the ground and cm on the map or compass
- Orienteering compass baseplate marks every 1cm
 - 1cm on map = 100m on ground at 1:10000

Pace counting

- Each step you take is a **Stride**
- Two **Strides** = one **Pace**
- Pace counting is keeping track of how many paces you have gone
 - Count 1 for every time you put the same foot down

Pace counting

- Need to know approximately how far you walk or run for each pace.
 - Differs for flat, uphill and downhill.
- Set up a 100M course and measure several times to get an idea.

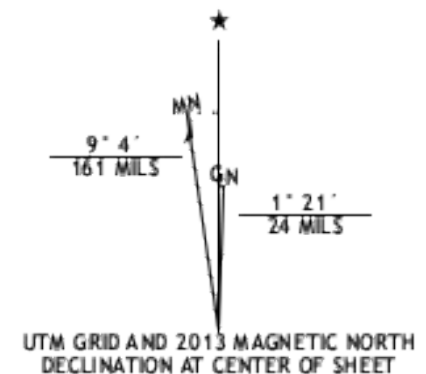
Compasses

- Orienteering compasses
 - Baseplate compass
 - Thumb compass
- Other compasses
 - Sighting, lensatic or military compass
- Bearings
 - Direction (N, S, E, W) or number of degrees (270°)
- Following a bearing
 - Go in a specific direction for a specific distance



Magnetic Declination

- Magnet north pole differs from true north pole
- UTM grid north also differs
- Declination
 - +ve means Magnetic N is EAST of true (or grid) N
 - -ve means Magnetic N is WEST

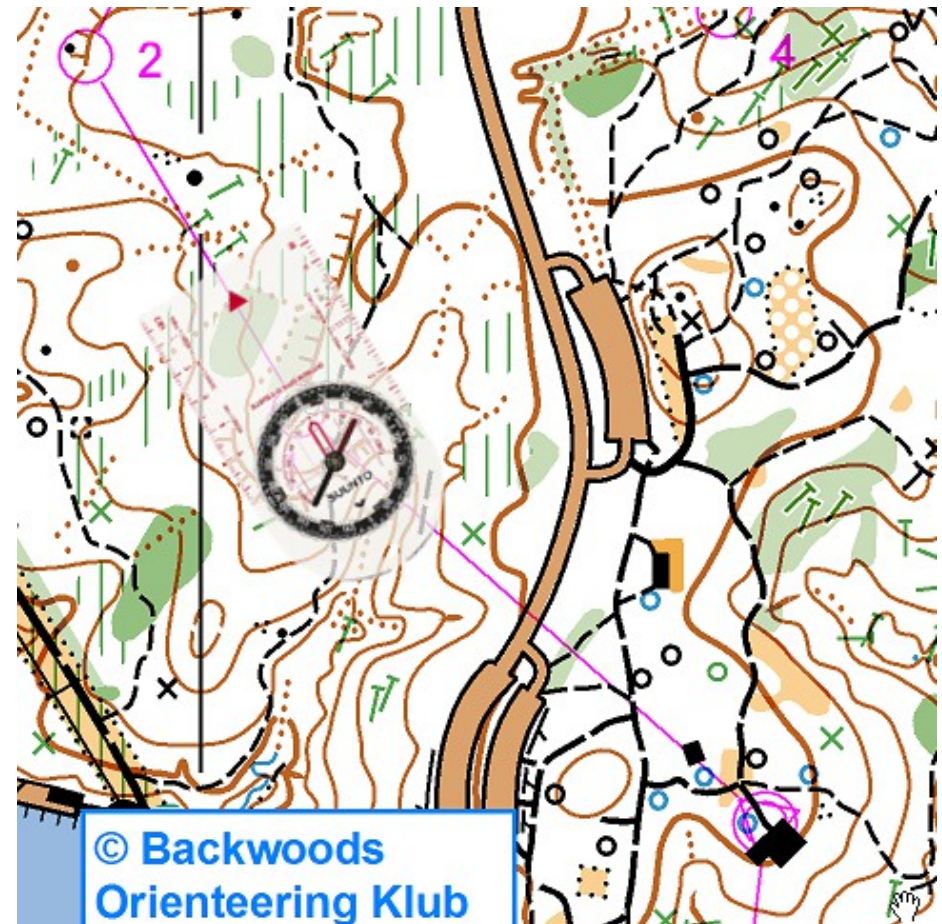


Orienting a map

- Orienteering maps **ALWAYS** use **MAGNETIC** north
- Orienting the map is aligning the map so you know which direction to go on the ground
 - Critical skill for orienteering!

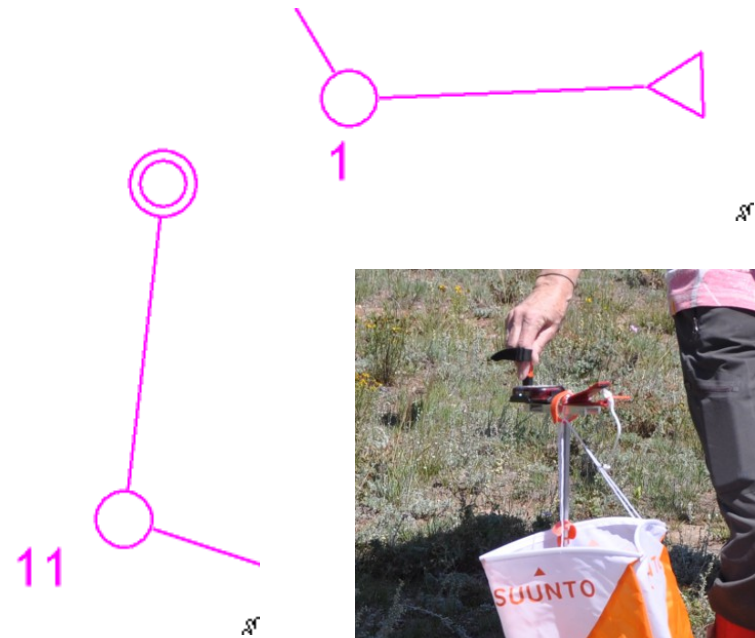
Orienting a map

- 1) Put your compass on map pointing in direction of travel
- 2) Hold map in front of you and rotate your body until compass needle points N on map
- 3) Fold map and use your thumb to keep compass aligned with map. Set bezel (optional)



Control points

- Marked with a purple circle on map
- Triangle for start and double circle for finish
- Competitor visits control points in order
- Orange and white flag at each location has control number plus electronic and/or manual pin punch



















Control symbols

- Control symbols are international standard symbols that describe a terrain feature
- Beginner courses (white and yellow) use English Text
 - Path bend
 - Stream
 - Boulder
 - East side of building

Control symbols

- Advanced courses (Orange, Brown, Green, Red, and Blue) use standard IOF symbols

	Road
	Track / Path
	Ride
	Bridge
	Power line
	Power line pylon
	Tunnel
	Stone wall

	Lake
	Pond
	Waterhole
	River, Stream, Watercourse
	Minor water channel, Ditch
	Narrow marsh
	Marsh
	Firm ground in marsh

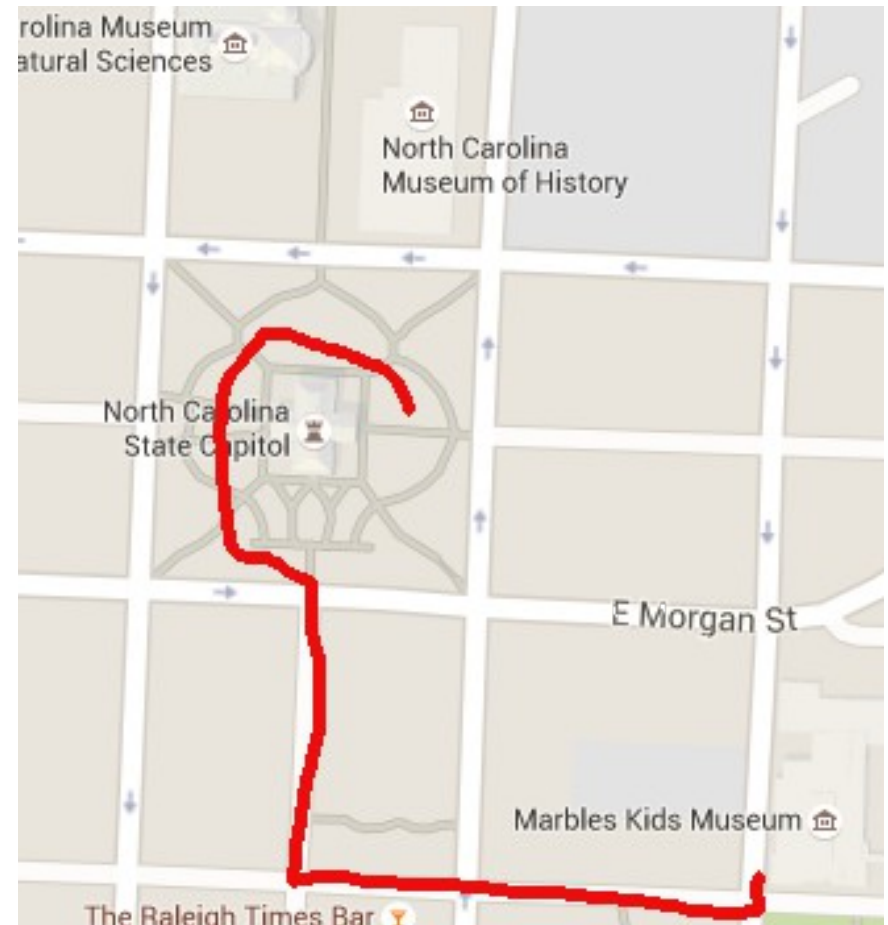
Control descriptions

- Describe location and order of controls

IOF Event Example				
M45, M50, W21				
5		7.6 km		210 m
▷		/	/	Y
1	101	⋯		<
2	212	↖	▲	1.0 ○
3	135	⊗	⊗	≡
4	246		⊖	○
5	164	→	□	○
○----- 120 m ----->				
6	185	/	↪	└
7	178	⊥		○
8	147	⇄	≡	2.0
9	149	/	/	X
○----- 250 m ----->⊙				

Route planning

- Use the map features!
 - How would a stranger without a compass find Marbles Kids Museum from the NC Capitol?
- Compass may be only a secondary tool

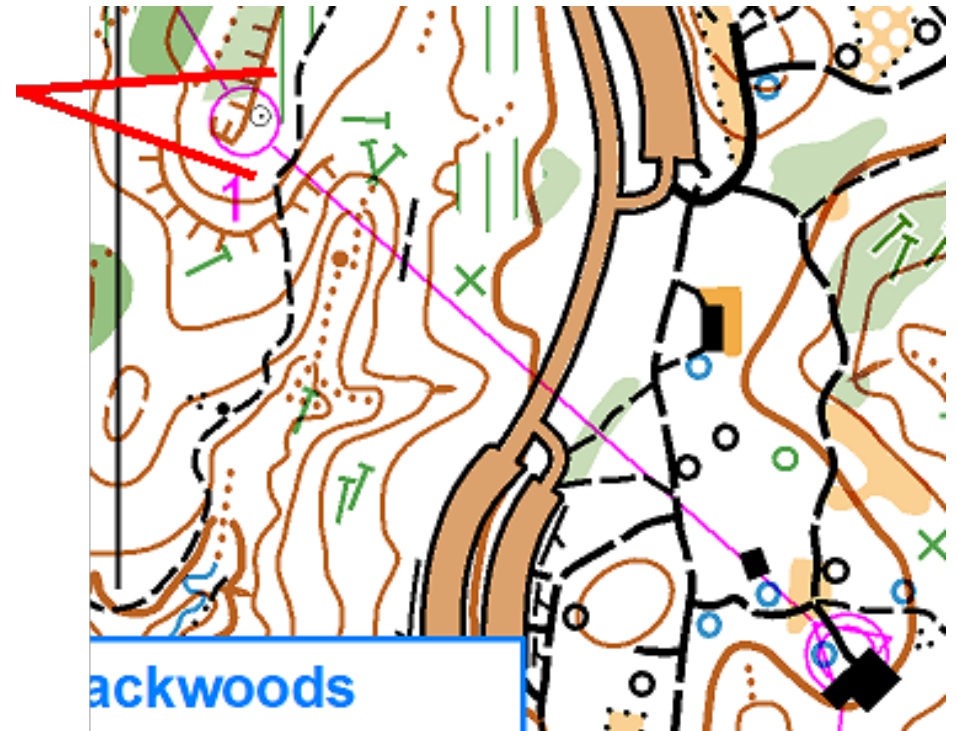


Route planning

- Terminology
 - Attack point
 - Collecting feature
 - Aiming off
 - Contouring
 - Reading ahead
 - Handrail
 - Relocation
 - Rough versus fine orienteering

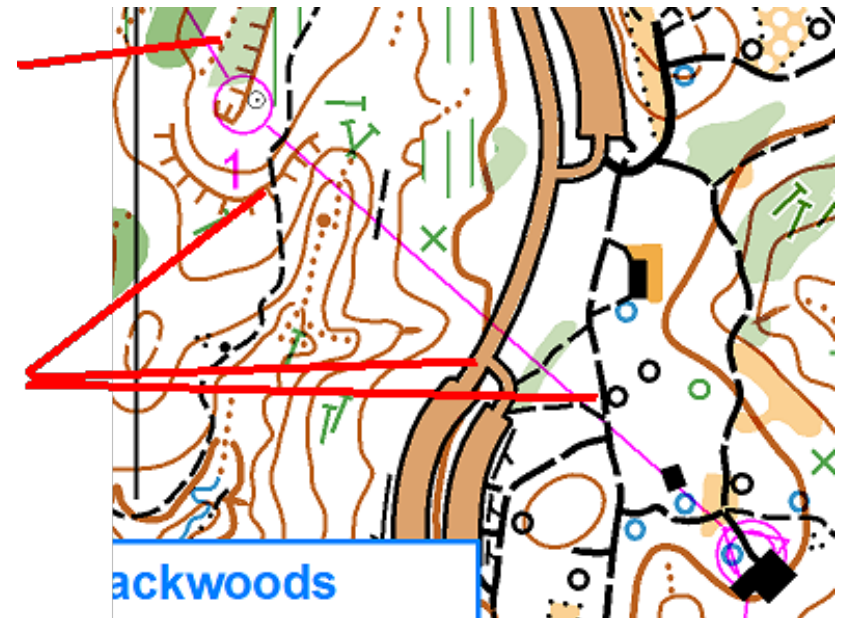
Route planning

- Attack point
 - A large or easily recognized feature near the control
 - Examples:
 - Road or trail junction
 - Stream or trail bend
 - Hill top
 - Large clearing



Route planning

- Catching feature
 - Feature you use to check that you have not already passed the control.
- Collecting feature
 - Feature you use on your way to the control to make sure you are on the right track



Route planning

- Aiming off
 - Deliberately going to the right or left of where you expect the control to be. Example: If a control is on a stream and you aim off to the left, then you know to turn right on the stream to find the control.

Route planning

- Contouring
 - Traveling at the same height around a feature such as a hill rather than going up and over it.
 - Can be quicker
 - Can save energy
 - Need to know where to take off from the contour.
- Reading ahead
 - Look at your map at the start and after each control.
 - Best route is often not a straight line.
 - Evaluate larger piece of map for better route.

Route planning

- Handrail
 - A linear feature such as a stream, trail, power line, ridge or reentrant that goes along your route and helps you find your way.

Route planning

- Relocation
 - When the terrain around you doesn't match where you think you are on the map it's time to relocate!
 - The sooner you realize the problem the faster you will fix it
 - Can you find an obvious feature such as a hill, stream, power line or road?
 - Can you go back? LKP - Last known point
 - When all else fails head for your safety bearing
 - Usually a predetermined direction to a major road or similar feature.

Route planning

- Rough versus fine orienteering
 - Rough orienteering is used to get to an attack point. You depend on large feature such as hills, walls, fences, etc.
 - Only a general compass bearing is needed and pace counting may be approximate
 - Fine orienteering is used to close in on your control from a nearby attack point.
 - This is where you may need a more precise compass direction and an accurate pace count.

Participating in events

- Backwoods Orienteering Klub
 - Open meets approximately monthly
 - Check schedule at backoodsok.org
 - Open to all
 - Advanced meets are members-only
 - Contact event director if you would like to help set up or officiate (BSA requirements 8 and 9)

Backwoods Orienteering Klub

- Electronic punching
- CLEAR before starting
- Punch START when you are ready to start
- Punch each control as you get to it
- Punch FINISH control
- Download results in DOWNLOAD box

Backwoods Orienteering Klub

- Scouts **MUST** use buddy system (youth protection)
 - Recommend two scouts per team – maximum three
- Meets start at 12 noon and courses close at 3pm
- Groups should preregister
- Beginner class (recommended) at 12:30
 - Plan to arrive at noon and register before class

Backwoods Orienteering Klub

- Waiver must be signed
 - Suggest having parents sign in advance
- Competitors **MUST** report to finish before leaving the event.
 - Otherwise we have to mount a search

Backwoods Orienteering Klub

- Costs
 - \$5/team entry fee
 - \$5/team electronic punch (finger stick) rental
 - \$2/extra map
 - \$1/whistle (or bring your own)
- Web site
 - <http://backwoodsok.org/>

Set up a course

- Help at a BOK event
 - Contact event director – Use “Leave a reply” form
- Otherwise
 - Need a map. BOK sells maps for \$2 each. Contact us.
 - Master map shows all controls
 - Teams can copy course onto their copy of map
 - Purple Pen is free software for course setting
 - Bond Park in Cary has 31 fixed controls with pin punches

Orienteering Resources

- Backwoods Orienteering Klub
<http://backwoodsok.org/>
- Orienteering USA
<http://www.us.orienteering.org/>
- International Orienteering Federation (IOF)
<http://orienteering.org/>
- BSA Orienteering merit badge requirements
<http://meritbadge.org/wiki/index.php/Orienteering>
- USGS Maps
<http://www.usgs.gov/pubprod/>
- Ian Shields ianshields@nc.rr.com
David Waller dw.orienteer@gmail.com