Course Planning

7 March 2018

Agenda

- Part 1: Principles
  - Typical events / courses / lengths
  - Technical standards
  - Locating the Finish, and Start
  - Creating good courses
  - Working with others
- Part 2: Practice
  - Timetable
  - Before you start, & first steps
  - Control sites
  - Marking up the map (Purple Pen)
  - Refining the courses
  - Map printing
  - Forest kit

Events & courses

	FOREST	FOREST	FOREST	URBAN
TD	**Level D – Local e.g. Saturday Series**	**Level C – Regional**	**Level B – National e.g. SN Trophy**	**Level D/C**
1		White	White	A ?
2	Yellow	Yellow	Yellow	B ?
3	Orange	Orange	Orange	C, D, E
4	Light Green	Light Green	Light Green	
5	Short Blue	Green Blue Brown	Very Short Green Short Green Green Short Blue Blue Short Brown Brown Black	

Technical standards

- Aim is to ensure broad consistency in the technical difficulty of courses, across the UK
- Someone who can complete, say, a Yellow course at an SN Saturday event should expect to be able to enter a Yellow course in the Lake District and find it of a similar standard – and vice versa.
- Only caveat is that in the south of England there is little terrain that can truly offer TD5 courses

Technical standards – TD1

- Route all along tracks and paths
- No route choice, including at the start
- Controls reasonably close together, say 200m
- Control at every decision point
- Site banner in the direction of the next control

(Decision point: a point at which the course no longer continues along the current path or line feature)

Technical standards – TD2

- Route all along line features
  - could include obvious fences, ditches, or vegetation boundaries
- No route choice, including at the start
- Similar length legs, up to say 350m
- No more than 2 decision points per leg
- Controls on the route, or an obvious nearby feature where the flag is visible from the route

Technical standards -TD3

- Simple route choice
- Encourage cutting between paths / across blocks
  - Use of compass
- Relatively frequent controls, but legs of different length
- Controls on any line feature, or prominent point or contour features
- For controls not on a line feature, a route along line features to a obvious attack point, and a collecting feature close behind

(Attack point: a point close to the control, to which you can navigate easily and with reasonable certainty)

Technical standards – TD4

- Significant route choice
- Different length legs
- No more controls than are necessary
- Any control site except those requiring map reading through *complex* contour detail
- Collecting feature behind all controls

Technical standards – TD5

- Significant route choice
- Force changes in technique, e.g. changes in direction, leg length, terrain
- No more controls than necessary
- Any control feature, but particularly those requiring careful map reading
- Controls far from relocating features

Course lengths

Course	Range (km)	Typical classes			
		M L	M S / B	W L	W S/B
White (TD1)	1.0 - 1.9		10		10
Yellow (TD2)	2.0 - 2.9	10	12	10	12
Orange (TD3)	2.5 - 3.5	12	14	12	14
Light Green (TD4)	3.0 - 4.0	14	16	14	16
Very Short Green (TD5)	2.5 - 3.5		70+	75+	55+
Short Green (T5)	3.0 - 4.0	75+	65	65-70	18-20,45-50
Green (TD5)	3.5 - 5.0	70	55,60	16,55-60	35-40
Short Blue (TD5)	4.5 - 6.5	65	18-20,45-50	18-20,45-50	21
Blue (TD5)	5.5 - 7.5	16,55-60	35-40	35-40	
Short Brown (TD5)	7.0 - 10.0	18-20,45-50	21	21	
Brown (TD5)	8.5 - 12.0	35-40			
Black (TD5)	10.0 - 14.0	21			

Other guidance

- Length: at Level B set the Black course so that *a top elite athlete* would win in 67 minutes, and ratio the other courses
- Climb: as a rule of thumb, 100m of climb is equivalent to add extra 1.0km of length
- Physical difficulty:
  - Avoid dense undergrowth and difficult underfoot conditions (e.g. boulders) for all
  - Avoid steep descents, fence crossing and similar obstacles for younger juniors and older veterans

Urban events

- Rarely more than TD3
- Can offer more complex route choices : bridges / underpasses, multi-level terrain add interest
- Parts of the map may be private / out-of-bounds
- Not-to-be-crossed features, and dangerous roads become important
- Control placement may require precise map reading
- Control placement can tempt people into poor a route choice, e.g. to the “wrong side” of a not-to-be-crossed feature

Locating the Finish

- Close to download, with unambiguous route from finish to download, not across the car park!
  - (Ideally download itself is close to assembly / car park)
- Unless essential, have a single finish
- A single last control:
  - ensures everyone approach the finish form the same direction
  - is a good insurance policy against SI box failure
- No hazards on the run in from the last control
- Unambiguous run-in; taped if any doubt
- Plenty of space - consider spectator interest

Locating the Start

This must permit:

- Providing good courses, of the correct length and TD
- An unambiguous start for TD1 and TD2 courses
- Enough space to lay out the pre-start, with no disruption to the public
- Ideally competitors at or before pre-start can't see the directions taken by those starting
- At level B, and ideally at level C, space for competitors to warm-up
- A route to the start that avoids the competition area, and ideally also the car park access route.
- Subject to the above, as close to assembly as possible!

- As a result, it is often determined by the needs of the simplest courses.
- If necessary, multiple starts are better than multiple finishes

Creating good courses

- Following the TD and other guidance above will produce courses that are technically adequate
- But how can you tweak these to provide courses that competitors will really enjoy?
- This section mainly relates to TD5 courses

Creating good courses - 1

- Use the full variety of terrain available: contour features, complex path networks, hills, lower visibility forest
- Look for good longer legs: offering route choice, or the possibility of parallel errors
- Perhaps one-third of the course length comes from only 2 legs
- Controls are there to provide either the start or the end of a good leg (or perhaps a short turning point between two such legs)
- Vary the leg length and direction
- Add crossovers or loops if it improves the course
- If the area permits, spectator controls can add interest (and pressure runners)

Creating good courses - 2

- Consistent competitor flow: if everyone in any one block is moving broadly in the same direction, they don't give away control sites so easily, and permit better flag placement
- Avoid turning through an acute angle at controls – both "red line" and in practice
- Place controls on the "far side" of the feature
- Controls on the near side of a valley are less of a give-away than on the far side
- Diagonal legs on hillsides are harder to hold the correct line than straight up/down
- Appropriate regard to terrain hazards, road crossings etc
- Finish in a nice part of the forest!

Working with others - Organiser

You will need to provide the Organiser with:

- Courses offered
- Course lengths (& climb for level B/C)
- For level B/C, terrain and map details for disclosure to competitors in the final event details
- The start location; a route to the start that avoids the courses; and the broad direction in which competitors will leave the start
- Any assistance you need with control hanging or collection

Working with others - Controller

Event level	Controller level
D	Not needed; in-club mentor recommended
C	C (or B/A), ideally from another club
B	B (or A), should be from another club

- Controllers are experienced orienteers, who have completed appropriate training and assessment, and are appointed by regional associations, at levels C-A.
- The controller's primary role is to ensure the courses are fair, and to the correct standard. They will want to visit every control site, and review / sign-off all courses before they are sent to the printer.
- They may *require* changes to your courses (or control sites) if they are not at the appropriate level
- They may offer other suggestions for course improvements; which you don't have to adopt, but are usually worthy of consideration!

Q&A

- Any questions on part 1 ?

Part 2

- Putting principles into practice

Timetable

TARGET (MINIMUM):	Weeks prior to event		
	Level D	Level C	Level B
Car park, finish agreed	8 (4)	16 (8)	26 (13)
Planner initial visits	7 (4)	12 (7)	15* (10)
Taping sites	6 (3)	10 (6)	12 (8)
First draft to controller		8 (4)	10 (6)
Repeat visits, taping etc	4 (2)	6 (3)	7 (4)
Final draft to controller		4 (2)	4 (2)
Signed off by controller		3 (2)	3 (2)
Files to printer	2 (1)	2 (1)	2 (1)

- *Ideal would start 52 weeks prior, to assess undergrowth, water levels, run-ability etc. in the correct season
- For level B/C, timetable needs broad agreement with controller
- Needs to allow for access restrictions, holidays, possible loss of part of area, etc

Before you start

- Get hold of the latest map
- Find out any planning constraints:
  - Assembly / car park location (and access route)
  - Any restrictions or when/how you can access the land
  - Environmental restrictions
  - Landowner / manager stipulations, e.g. fence crossing points
  - Any known danger areas: e.g. roads, canal, ruins, hidden vertical drops
  - Traffic avoidance for under-16s?
- Go for a run around the whole area, to find:
  - unusable areas (e.g. overgrown or waterlogged);
  - where the map is inadequate (unless it can be updated before the event);
  - areas that are a delight to run through!
  - potential good control sites, & start / finish
- Check control number range available (SN usually 206-255)
  - Particularly for level B if we have to borrow from elsewhere (GO: 170-210?)

First steps

- For level B, look at previous results to assess running speeds; consider if the area has changed, and propose a target Black course length for controller to agree.
- For level B / C, set target (climb-adjusted) lengths for other courses
- Rough out possible options for the easiest course(s), and the longest course to see that these work with your chosen start / finish
- Once these work add other controls and courses
- Aim for total controls in the following ranges:
  - Level D: 30-40
  - Level C: 40-55
  - Level B: 60-75

Control site taping

- Why?
- Use tape suitable for the time of year, e.g. not white in winter!
- If working with a controller, agree colour /size of tape.
- Controls must be placed "fairly"
  - Correctly locatable by careful map reading
  - Not "hidden" in undergrowth
  - No significant advantage to be gained from someone standing at the flag
- Place each tape exactly where you want to the flag to be hung; and ensure it can be clearly seen
- If needed for the control description, note which side/edge/part, and size of the feature
- Write the control number on the tape. (Some people prefer to write a code, that is translated to the control number later, but this introduces an additional possibility of error when hanging controls)
- No controls within 30m, or similar within 60m. (Halved for urban)
- If you move any sites after taping, remove the old tape as well as adding the new tape

Marking up the map - courses

- Purple Pen
- Adding controls and courses
- Adding or removing controls
- Adding descriptions
- Text or pictorial descriptions?
- Adding climb, and how to measure
- Ordering courses

Control descriptions

8 columns:

- A: Control number: automatic (except for score courses)
- B: Control code
- C: Which feature – only needed if there is more than one of the feature in the circle
- D: Control feature, as shown on the map
- E: 2nd feature, or appearance of main feature
- F: Dimensions, if needed (length x width (m) or height (m))
  - Or Bend / Crossing
- G: Location of the flag. Not needed if the flag is visible from all directions of arrival at the control
- H: First Aid / Refreshment / Manned control

Additional instructions:

- Route to finish; other taped route; crossing details etc
- Course closing time

Refining the courses

- Share course file with controller, get feedback, make adjustments, repeat!
  - Up to say 5 (level C) or 10 (level B) iterations
  - Maintain file discipline with version numbers
- Compare actual (climb-adjusted) course lengths with your targets, and adjust if more than, say, 200m out
- For level B / C, add competitor estimates; use the audit data to identify overloaded controls (say > 300); and make adjustments to reduce
- Similarly identify lightly used controls, and consider if they are all needed
- The audit data will also identify any legs run in opposite directions
- For all courses, consider each control in turn and whether removing it would improve the course

Marking up the map – other data

- Event date & number
- Course closing time
- Emergency contact number
- Out-of-bounds areas, and prohibited routes
- Crossing points, and not-to-be-crossed fences
- Making information selective by course

Marking up the map – final courses

(Once final courses are agreed)

- To avoid obscuring important map detail, where necessary:
  - Add breaks to control circles
  - Add breaks in lines linking controls
  - Bend lines to avoid OOB, use crossing points etc
  - Shift lines slightly to one side
  - Move course control numbers
  - Move codes on the all controls map to aid hangers
- For level B, create "blank" maps for start lane display
- Setting the print area

Map printing

- BML
- Everything on waterproof paper
- Map numbers by course
- All controls maps
- Blank maps
- For level B/C, loose control descriptions
- Delivery: planner or organiser?

Forest kit

- Allow enough time to sort out / split up the kit
- For level B/C, hanging needs to allow the controller enough time to check – an agreed order will be needed.
- If some controls need to be hung the previous afternoon, select those less likely to be vandalised.
- SI boxes are valuable! Don't carry them attached to stakes. Use a bag / rucksack
- Hang the start flag early, so that the start team can set-up relative to it
- Be clear on who is putting out Clear / Check / Start / Finish boxes
- The finish stake needs a flag!
- Don't remove control site tapes when hanging, in case of any dispute, but do ask the control collectors to bring them in
- "All controls" maps are useful for both hanging and collection

More information

- Appendix B of the current British Orienteering Rules has 32 pages on Course Planning
  - expanding on much of the content covered above
  - including more on TD1-5; course lengths and ratios for level B events; advice for other event types: middle distance, sprint, relay, night, score
  - Login to the BOF website: select <Get Involved>, <Rules>, British Orienteering Rules & Appendices.pdf
- IOF Control Descriptions (2018 version)
  - http://orienteering.org/resources/mapping/