



Volunteers

Course Setting 101

Session 1: Intro and Preparation

Introductions

Who are you?

Name? club? age? How did you start Orienteering? Other passions?

Course setting for beginners

Goals:

- Practical - Not just course design but how to use software and print maps
- Reveal the knowledge that experienced setters take for granted.
- Provide a easy process and system to follow.
- Be efficient with your volunteer time.
- Set an actual club event while you learn
- Enjoy it
- Feedback to your club on how to make it easy for other first timers

82%

of stress free course setting is preparation and being systematic. No surprises means you can enjoy making fun orienteering courses in your own time.

(60% of statistics are completely made up)

Programme of the course

1. Preparation
2. How to use OCAD, Condes, and Purple Pen.
3. White Courses first,
4. Yellow courses next, Orange courses
5. Red courses, the good the bad and the ugly
6. Map presentation, printing, Sport Ident and putting the event together.

Review: preparation questionnaire

Difficulties?

Stuff that doesn't make sense?

Suggested improvements?

Learnt anything yet?

Do you have an idea of what the end event will be?

Is it daunting still?

Where do we start?

- Car park
- Cool event centre, practical start/finish.
- Linear features for white course
- Cool parts of the map and what type of navigational challenges they suit.
- Cool route choice legs.
- White Course first
- Then Yellow
- Then Orange
- Then Red courses



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Session 2: Course Setting Software

Course setting software principle

For OCAD “course setting”, Condes, Purple Pen

- Creates course as a layer that goes “on top” of base map.
- Base map probably created in OCAD “mapping” function but can be in PDF, JPEG, OCAD or other formats.
- The base map is called “background map” in OCAD, “canvas” in Condes and “map” in Purple pen.
- Avoid messing with the base map just yet, this topic is all about the “on top” course layer.
- Controls can be linked to more than one course. Change one change them all.

House keeping

- Keep all files (map and courses) together in one folder for the event.
- Don't call them version 1, 2,3 or new/latest/final/updated
- Save with name, date and time, so that when ordered the latests version can be found without confusion.
- Leave the control descriptions and numbers till the end, you'll be changing circle sites constantly as your courses develop.
- Check map is latest version from club
- Check map scale is correct (measure scale bar)

How to:

1. Create a new event
2. Create a course
3. Add start/Finish
4. Add controls
5. Move, delete, insert controls
6. Add taped route, crossing, water, OOB, Control descriptions
7. Create another course using some of the same controls
8. Bend lines, cut lines, cut circles, move control circles.

White Courses rules

Orienteering New Zealand uses a colour coding to standardise orienteering courses navigational difficulty. (see all ONZ rules on www.orienteering.org.nz)

or just about colour codes <https://docs.google.com/viewer?a=v&pid=sites&srcid=ZHVuZWRpbm9yaWVudGVlcmluZy5vcmd8ZHVuZWRpbi1vcmlbnRIZXJpbmd8Z3g6Mjl4N2VIZjZINWVIMGE1Zg>

- White Courses must follow drawn linear features (tracks, fences, streams, distinct vegetation boundaries, etc.).
- A control site must be placed at every decision point (eg. a turning point, a track junction or a change in the type of linear feature - from following a track to following a stream).

White Course Rules Continued

- All control markers must be visible from the approach side.
- Where the course has to deviate from the handrail feature (e.g. to cross through a forest block), the route must be marked all the way until a new handrail feature is reached. The Start Triangle shall be on a linear feature. If no such feature is available, then there must be a taped route all the way from the start to a linear feature (i.e. the first control).
- Compass use is limited to map orientation only.
- No route choice is offered.
- Doglegs are permitted.
- Used for: M/W-10, M/W-12B

Cool White courses!:

- Appropriate for little kids ie, not through the drive in, not near the cliff, not near the river/sea/lake,
- Keep it simple and safe, the goal is for everyone to finish.
- Make sure your linear features are obvious on the ground and map eg no vague old mtb tracks.
- Get on your knees (see things from a child's perspective).
- Place the controls so they lead competitors towards the next control.
- Try to use a variety of linear features, join them with a taped route if you need
- Try not to just go round in a circle turning left each control.
- Don't be afraid to use taped routes, they can be fun for competitors too.



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Session 3: White and Yellow Courses

White Course rules

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or for just the guidelines on colour codes: <https://docs.google.com/viewer?a=v&pid=sites&srcid=ZHVuZWRpbm9yaWVudGVlcmluZy5vcmd8ZHVuZWRpbi1vcmlbnRIZXJpbmd8Z3g6Mjl4N2VIZjZINWVIMGE1Zg>

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- Try to use a variety of linear features, join them with a taped route if you need
- Try not to just go round in a circle turning left each control.
- Don't be afraid to use taped routes, they can be fun for competitors too.

Cool White Courses continued:

- 1-7,500 or less,
- Written control descriptions on map
- Legend on map
- Often has a obvious and visible start triangle from the other courses.

Another good article by Dunedin Orienteering Club member Bruce Collins about interesting White and Yellow course:

[https://docs.google.com/viewer?
a=v&pid=sites&srcid=ZHVuZWRpbm9yaWVudGVlcmluZy5vcmd8ZHVuZWRpbi1vcmlbnRIZXJpbmd8Z3g6NDRjMGU0Mjc4MmU3ZDA3MQ](https://docs.google.com/viewer?a=v&pid=sites&srcid=ZHVuZWRpbm9yaWVudGVlcmluZy5vcmd8ZHVuZWRpbi1vcmlbnRIZXJpbmd8Z3g6NDRjMGU0Mjc4MmU3ZDA3MQ)

Yellow Courses

- Control sites must be on or near (<50 m) drawn linear features (tracks, fences, streams, distinct vegetation boundaries, etc) but preferably not at turning points.
- This gives the opportunity to follow handrails or to cut across country (i.e. limited route choice).
- Control sites shall be visible from the approach side by any reasonable route.
- Compass use is limited to rough directional navigation.
- Contour recognition is not required for navigation. But simple contour features may be used for control sites. That's obvious knolls and hill tops, not, re-entrants, depressions, small spurs etc. Simple for a red runner is not simple for a beginner

Yellow rules continued

- Contour recognition is not required for navigation. But simple contour features may be used for control sites. That's obvious knolls and hill tops, not, re-entrants, depressions, small spurs etc.
- “simple” is for someone that can't visualize contour lines, and how many lines combine together to imply a shape. They simply see symbols not shapes eg earth bank.
- Doglegs are permitted.
- Used for: M/W14-A, M/W-16B, adult C classes

Cool Yellow courses

- Incorporates two progression levels for the competitor from White courses,
- First is choosing which handrails and making decisions at junctions without a control to guide you.
- Still needs that “safety” element discussed in white courses where features are obvious etc
- Next level is to give safe opportunities for people to test and improve their navigation by cutting corners.
- Better navigators should be faster cutting the corner.
- Fine navigation is not required, searching for the control is not our sport!

Cool Yellow courses

- Encourage route choice
- Common to use some white controls...but often setters are lazy and the courses are too similar. People often do both courses and feel a bit disappointed if yellow is the same as white but missing every second control.
- You will use almost half your controls with White and yellow courses sometimes! Don't be surprised by that.
- Cross country routes should be in easily navigable terrain both on the ground and on the map.
- Like white, variety is still key to fun. Don't just follow fences.
- Only takes one leg/control to ruin a course at this level.

Cool Yellow Course

Like white courses:

- 1-7,500 or less,
- Written control descriptions on map
- Legend on map
- Often has a obvious and visible start triangle from the other courses.
- Can have some legs that are too easy...but no legs that are Orange or red.

Examples

<http://rg.orienteering.org.nz/gadget/cgi-bin/reitti.cgi?act=map&id=318>

<http://rg.orienteering.org.nz/gadget/cgi-bin/reitti.cgi?act=map&id=337>

<http://rg.orienteering.org.nz/gadget/cgi-bin/reitti.cgi?act=map&id=338>

<http://rg.orienteering.org.nz/gadget/cgi-bin/reitti.cgi?act=map&id=304>



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Session 5: More Stuff



Stuff I should have said last week.

- Measuring course length for % climb is by Optimal route.

Functions of controls There are four: 1. (most importantly) to provide a good leg - one full of map-reading, route choice, etc, through good terrain 2. to move the competitor from the end of one leg to a better starting point for a good leg 3. avoiding dog legs 4. 'collecting' - guiding competitors around a sensitive area, or leading them into a compulsory crossing point. It is the navigating between controls which is important, not the finding of the markers 17 themselves.

- Hokey cokey controls

Disciplines

- Sprint - All about fast decision making at routechoice. Not technical map reading and difficult control sites
- Middle - Ideally involves lots of technical map reading, changes of direction and controls.
- Long - Longer legs, Routechoice and can be more physical
- Relays- NZ Nationals “dumbed” down orange level rules. Overseas same technically as other races
- Night - Can be very challenging, think about safety, runnability/speed is reduced significantly and have catching features so people can relocate.
- MTBO - Safety, routechoice and fairness are key. Try for more than left or right routechoices.

Score events/Rogaines

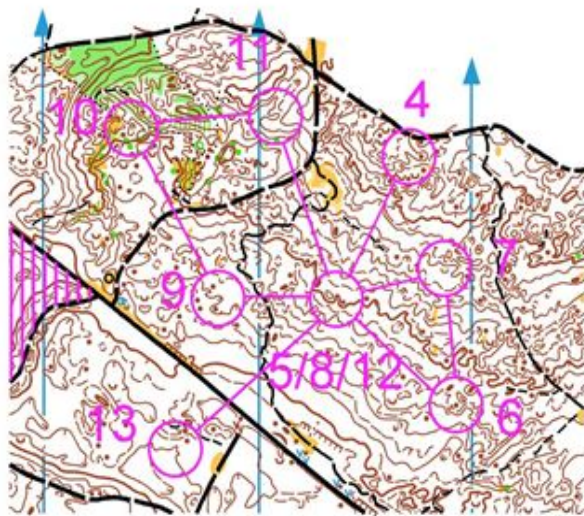
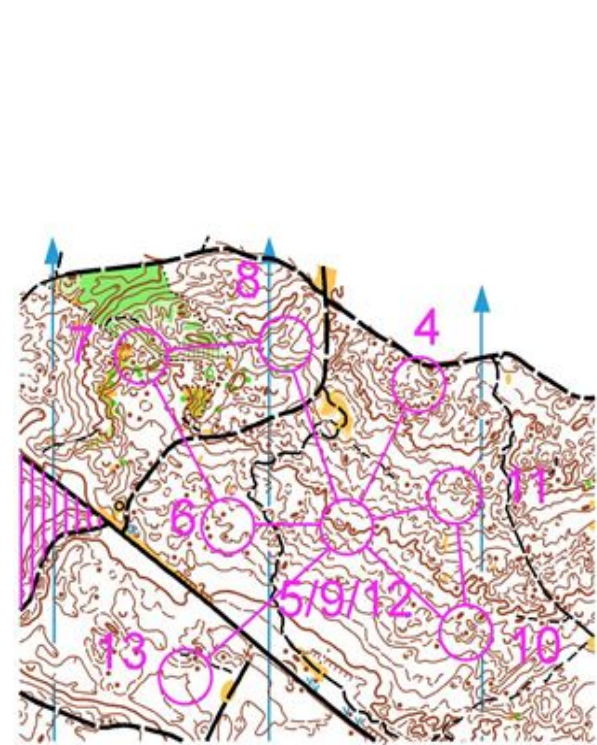
- Displaying the points value on the map is nice
- Different philosophies, mine is different from the traditional:
- Have high points where you want most of the field to go and near start so everyone achieves well.
- Lower points in hard to get places used to distinguish order of results at the top of the field. This helps make competitive results a factor of more than one decision but a combination of many.
- Not spread evenly around the map so easy circles can be made, but clusters.
- Ideally can't quite get them all...but can be alot of work for few people at a club event. Concentrate on main field not one or two superstars...they won't mind if they finish early

Taping the control sites

- Use a little bit of tape where you would like control placed.
- If your course is finalised write control number and descriptions on tape aswell for double checking.
- Helps identify location and descriptions accurately for control placement and controller to check
- Helps check map around control site is fair. But remember map should be symbolic not perfect! Course setters when standing still and walking can scrutinize much harder than competitors.
- Check control placement from more than one direction. (Into and out if easy)
- When finally placing controls - do so systematically, double checking as you go

Fancy stuff

- pivot controls, butterfly loops and phi loops
- used to split up competitors following each other
- therefore in mass starts, later on in a race when groups form or to condense the start list eg two athletes start at once.
- used to entertain spectators
- used to make the course interesting
- for fairness each competitor should complete each leg in same direction
- if used to split groups don't make loops too even or too long.



example of two butterfly loops, competitor a and b do each loop in a different order but same direction

example: phi loop.

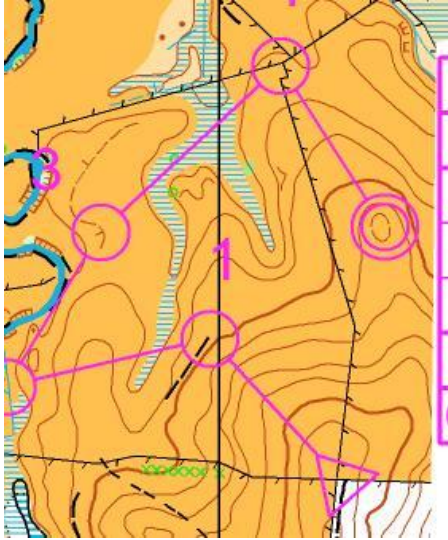


Relay Courses

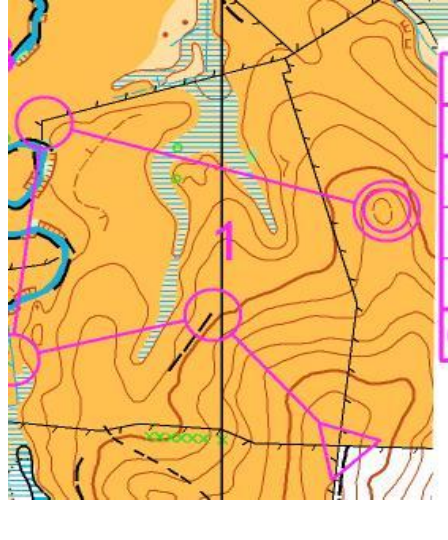
- At a [relay](#) event, people in different teams run more or less the same course at the same time. So that everyone has to navigate, rather than just follow the person in front, the courses are normally “gaffled” so that there are two or three controls close to each other, with each person visiting only one of them. In order that fairness is preserved, each team must collectively run the same [legs](#) by the end of the event, but in a three-person relay, any given leg may be on the first [lap](#) for some teams, the second lap for others, and the third lap for the remainder.
- eg team x , first leg runner runs Variation AA, 2nd leg runs BB, Team Y 1st leg BA, 2nd leg AB.

relay example

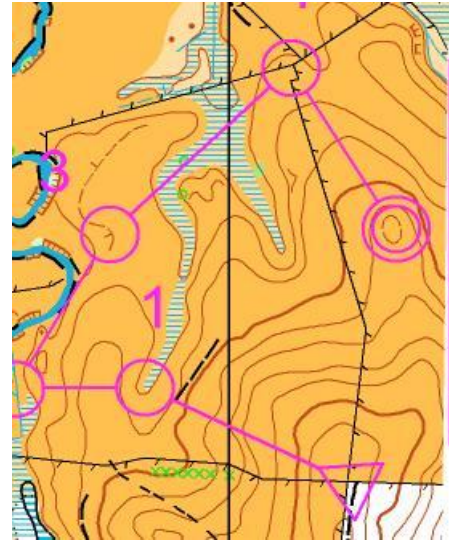
- eg team x , first leg runner runs Variation AA, 2nd leg runs BB, Team Y 1st leg BA, 2nd leg AB.



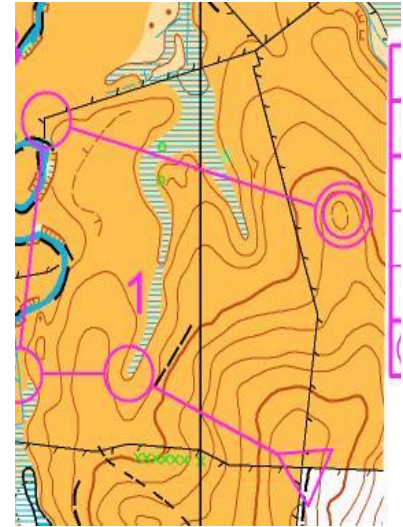
AA



AB



BA



BB

Farsta/Blodslitet

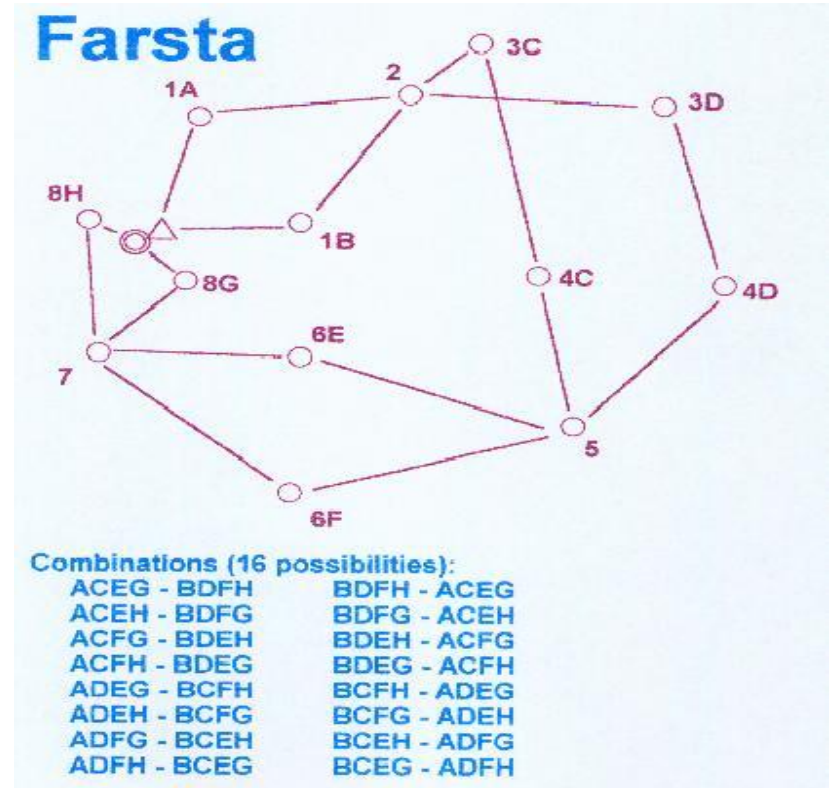
What is a Farsta? Think of a relay. The farsta is a mass-start event. You do two or more loops. But, instead of changing runners, the same person does every loops. During the course of the loops, you will go through some shared controls. That is, on each loop, you will visit some of the same controls you visited the time before. But, you will enter them from different controls and leave them for different controls.

By the time you complete the entire course (all loops), you will have run exactly the same legs as everybody else on your course. But, you will do the legs in a different order from most other runners. There can be 8, 16, 32 or even more different combinations!

The best way to understand is to look at the example below. This course has two loops. You might start out to control 1A. About half of your competitors will also be going to 1A. But the other half will be going to 1B. So, if you randomly follow someone else, you might end up at the wrong control.

After 1A or 1B, everyone comes back together at control 2. From there, your next control might be 3C. Again, about half the competitors will head to 3C and half to 3D. But, you do not know who will be doing what. The person who just ran with you to 1A and 2 might now be doing the "D" segment instead of "C". Follow him or her and all hope is lost!

illustration by Mike Minium in ocad 5



Rationalisation and redundancy

- Go through and rationalise controls: The fewer controls you use, the less work you and the controller have to do in putting them out and checking them. How many controls can you move onto adjacent sites (already used on other courses) without significantly affecting the quality of the legs? Can any controls be deleted from courses without reducing the course quality?
- Overuse of particular control sites. 200 competitors per hour (in the forest) is perhaps the maximum that any control will stand without competitors being led into it too easily. But this will depend on the area.



7

Redundant Controls

Leaving out controls 2 and 7 will increase the amount of route choice.

Control Descriptions

- Written for White and Yellow
- Symbols for red, use the software
- more info here <http://orienteering.org/wp-content/uploads/2010/12/IOF-Control-Descriptions-2004.pdf>
- quiz to help you learn <http://www.richtig-orientieren.de/icd/>
- don't forget to describe the start and include length of any taped routes and distance to finish.



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Session 4: Orange and Red Courses

Orange Course

- Course shall have route choice with prominent attack points near the control sites and/or
- catching features less than 100 m behind. Control sites may be fairly small point features
- and the control markers need not necessarily be visible from the attack point.
- Exit from the control shall not be the same as the entry (doglegs are not permitted).
- Simple navigation by contours and rough compass with limited distance estimation required. Use of a chain of prominent features as "stepping stones" is encouraged.
- Used for: M/W16-B M/W-20B, adult B classes

Red Course

- Navigation shall be as difficult as possible with small contour and point features as preferred control sites (no obvious attack points, no handrails etc.).
- Control sites shall be placed in areas rich in detail.
- Route choice shall be an important element in most legs.
- Doglegs are not permitted.
- Note: It may be impossible to set RED courses on some maps.
- Used for: all other A classes including and above M/W16-A (includes both long and short courses), Elite classes.

Do's

- Vary the leg length
- Vary the direction and shape of the course
- Vary the navigational skills required
- Include plenty of route choice and decision making.
- Think about ALL possible route choices, not just yours. Helps to find a left, right and straight option for all legs. You'll be amazed what you don't initially see and what competitors will do.
- Keep fairness at the forefront of your mind
- If unsure about about fairness move your control. Play it safe.
- Include spectator legs where appropriate,

Do's continued

- Make a drinks control easy access for vehicles.
- Try to have one finish shoot taped and all courses entering the last control from roughly the same direction and near to assembly area.
- Start can be further away.
- Pleasant, runnable forest Largely beyond the planner's control, but do make good use of the nicest bits you've got, using a map exchange/map flip if need be.

Don'ts

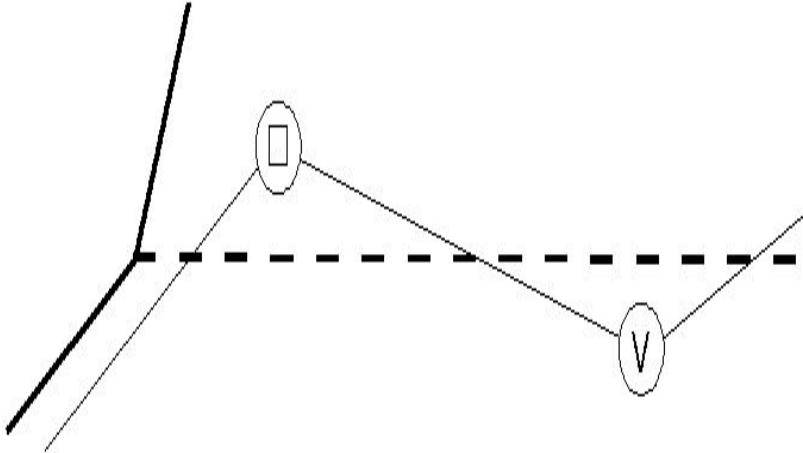
- Avoid doglegs eg...
- Avoid exit/entry from different courses with same control creating dogleg.
- Don't entice/trick competitors to go OOB, through dangerous areas or off the map. If you need to add an easy control, taped route or compulsory crossing point.
- Don't hide the flag, a competitor should be able to see the flag easily once the feature is navigated to and description consulted. The challenge to navigation is in the leg not the hide and seek.
- Avoid "bingo" control sites. (where there on the map that can be used to navigate to the control) eg...
- Avoid unnecessary climb, especially for older people.

Don'ts cont.

- Avoid unnecessary climb, especially for older people.
- Keep climb below 5%. Climb is measured by what you think is the optimal route. Measure the up contours only and multiply that by contour interval. Divide by the length of the optimal route* 100
- eg twenty contours at 5 metre intervals on a 4km course is: $20 * 5 / 4000 * 100 = 2.5\%$

Don'ts continued

- “hockey-cockey” try not to over do the number as the difficulty of these depends on whether or not the competitor arrives as someone else is re-emerging onto the path. They are controls that are just off tracks that you then return to the track. eg



Short legs

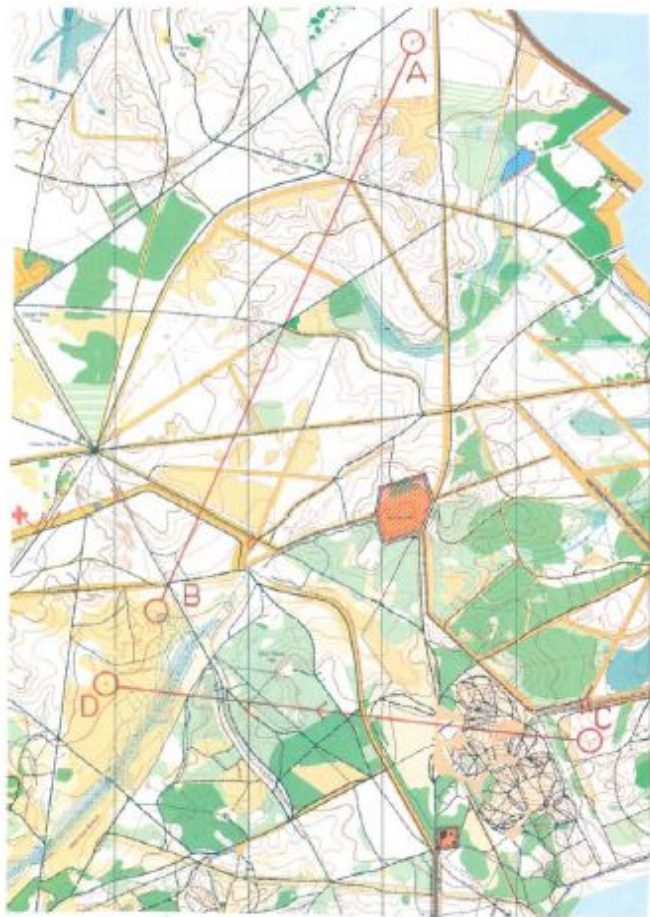
- use short legs with change of direction to add variety and avoid dog legs
- Can use several short legs in a row, to test navigators “smoothness” and stop them looking at routechoice to come
- Several short legs can be used at the end to test competitors fatigue or start to test competitors ability to adapt to the map.
- can involve route choice or not
- best in detailed areas

Long legs

- Should involve route choice.
- Preferably not a simple left or right decision then follow to control. Ideally a variations of several routes.
- ideally will involve a faster route with more navigation try not to have a too much track running
- remember how varied and “impossible” competitors routes can be.
- is there something big near or past the control that is visible and will ruin the navigation of the long leg.
- no one leg should be more than 20% of the course length, lest the result of the race hinge on one decision. However, the two longest legs of a classic forest course would might be around 33% of the course length.

Long legs

- Example



3 Long Legs

AB: poor - three obvious track/path routes require little thought, and are probably the quickest routes.

CD: better - path routes have frequent changes of direction at junctions.

Navigation tests

- routechoice, the art of judging - runnability, distance, climb and navigational challenge
- parallel errors
- lots of detail on map (don't make it too easy to simplify) eg Always on the far side of rock detail.
- change of direction
- height judgement

Control site

- feature must be is on the map
- clear from description exactly where control is (if you can't describe it, move it!)
eg. middle of 4 rocks within the circle is not clear.
- If possible for Red courses avoid having a large attackpoint nearby



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Course Setting 101

Session 6: Presentation and Printing

The page

- Setting Print area
- Map cut out (OCAD)
-

Must haves

- Map Title
- Descriptions
- North Arrow heads
- Scale,
- contour interval

Nice to haves

- Emergency details- phone number of controller, longitude/latitude
- North symbol
- Legend, especially for white/yellow
- Club and sponsors logo,
- Scale bar
- Border
- Mapper and date of mapping

OCAD

- OCAD is very functional, but can be frustrating and complicated
- Change scales at time of printing only.
- North West method - uses layering. Eg Basemap is background for, “layout file”, “layout file” is background for the courses.

<http://www.nworienteering.org.nz/> look under resources and setting up OCAD for course setting.

- Or cut out and make special background map for the event, use different background map for different courses.
- Or just print page view

Purple Pen

- Set print area first for each course or for all
- Use print preview
- “Add special features” for border, white out map, text, logos, etc
- adding text “scale” will change scale when printing

Condes

- Set print area with Drop down menu
- Each “canvas” has it’s own scale and presentation
- Insert text and images with drop down menu “objects”
-

Important

- Export to printers in non-ocad format (eg PDF etc)
- TEST PRINT!! with enough time to check, correct and reprint
- Final check from you and controller should be on paper not screen (you will see more)
- Check printing quality and colours,
- Check your courses are correct, check circles, check lines and numbers aren't covering map detail, check control descriptions, check codes and check scale is correct, check check check.
- Importing images have caused major problems to printing quality of the whole file in Condes especially. (Something to do with Rastoring Images?) If in doubt leave it out.