

# Course setting Goals



- **FUN**
- **SAFE**
- **INTERESTING**

# **Courses should be Fun**

**Try to find control placements and legs that are scenic and pleasant**



# Courses should be Fun

- **Avoid legs where the best route has lots of brush or is wet**



# Courses should be Fun



- **Avoid placing controls that force unnecessary climb**

# Courses should be Fun

**Avoid  
Unnecessary  
river crossings**



# Courses should be Safe

- **Avoid areas where bear encounters are likely (i.e. near rivers when there are fish)**



# Courses should be Safe

- **Avoid legs that require competitors to cross or run along large roads**



# Courses should be Safe

- **Avoid dangerous terrain, particularly on beginner courses**



# Courses should be Safe

- **Avoid sending runners close to the edge of the map and try to bound the areas used for beginner courses by major features (roads, streams, lakes, etc)**



# Courses should be Interesting

- **The difficulty of the legs should be appropriate to the course**
- **Strive to find interesting legs first, then figure out where you can place controls at the endpoints**
- **Whenever possible, all legs should involve route choice and navigation of the appropriate difficulty**



# Route Choice

- **Designing a leg with route choice is not just a matter of having people choose the lesser of two evils. It should be a choice between several interesting and fun options.**
- **Strive for multiple decision points on a leg.**

# Long Legs

- **It is desirable for advanced courses to have on or more 'long' legs.**
- **These are really hard to design such that they are interesting (not just trail runs or slogs), so find them first and design your course around them.**

# Courses should be Interesting

- **Avoid placing controls such that competitors approach and depart from the same direction**
  - Try not to have the angle on the map between two legs be less than 90 degrees
  - Avoid situations where competitors will approach the control from a handrail (i.e. trail) and then return to the same handrail for the next leg.
  - Different courses using nearby controls should try to go in the same direction.

# USOF Course Length and Climb Rules

- **The course length shall be measured without regard for elevation change as the shortest possible route a runner could fairly take. i.e. around lakes and impassable and out of bounds areas as well as following any compulsory marked routes**

<b>Course</b>	<b>Optimum Winner's Time</b>	<b>Course Length</b>
White	25-30 min	2-3 km
Yellow	35-40 min	3-5 km
Orange	50-55 min	4.5-7 km
Brown	45-50 min	3-5 km
Green	50-55 min	4.5-7 km
Red	60-65 min	6-10 km
Blue	75-80 min	8-14 km

# **Start-Finish**    **Location**

- **Good terrain for White and Yellow courses, with plenty of linear features, often dictates where the Start will be.**
- **Using different start locations lets us use new terrain and design more interesting courses.**
- **Move the Start to a higher elevation to reduce climb?**

# Beginning Courses (White, Yellow, Orange)

- **Because beginners and developing orienteers spend at least a season or two (usually longer) running the lower courses, it is especially *important to the development and success of the sport* that these courses be well designed.**
- **The above points about fun and safety are especially important**
- **Make sure the courses aren't too difficult**
- **Start out with easy controls: consider making the first control visible from the start**

# White Course -- 2 to 3 kilometers

- Winning time 25-30 min.
- An Easy Start. Make the first two or three points particularly easy. The first control should be as simple as possible -- in fact; *it can even be visible from the starting point.*
- Linear Features. Generally, the terrain you use for a White course should be "friendly," with lots of good handrails
- Short Legs. Six to eight short legs 100-300 meters
- Large features for control points.
- Avoidance of vague and dense areas.
- Very simple route choices
- No Use of Compass

# Yellow Course -- 3 to 5 kilometers

- **Winning time 35-40 min.**
- **Yellow is for relative beginners and should introduce as many fundamental skills as possible -- compass, map reading, measure and pace:**
- **Basic Design. Just as with White, it is critical that the Yellow course be set in an area having well-mapped, clear features.**
- **Navigate mainly off trails. Yellow takes the runner from the trail into the woods.**
- **Easy Start. Make the first two or three controls relatively easy so that the competitor may become familiar with the map.**
- **Easy Course. Yellow should still be an easy course.**
- **Handrails. Use a handrail for much of each leg's length, with a catching feature near (25-50m) each control. The best Yellow legs are along handrails such as streams, ridges, and vegetation boundaries.**

# Yellow Course -- 3 to 5 kilometers

- **Variety of lengths of legs.** Vary the lengths of the legs, but tend toward keeping them short. *The maximum length should be 600 meters. 200-400 meters is good.*
- **Large features for control points.**
- **Route Choice.**
- **Control placement.** Put each control on or just after an obvious collecting feature.
- **Catching Features.** If a control is not on a collecting feature, a catching feature must be within 100 meters after the control.
- **Avoidance of Dense Areas.** Never put a Yellow control inside of a dense area.
- **Limited Use of Compass.** A Yellow course should be able to be completed with minimal the use of precision compass. A leg where use of a compass could result in a faster route is appropriate, however, that leg should have a reasonable route where a compass is not required.
- **No Shared Controls.** The practice of sharing a leg or control with White or Orange *should be avoided*, because each of the three lower courses has a *discrete range of technical difficulty.*

# Orange Course -- 4.5 to 7 Kilometers

- **Winning time 50-55 min.**
- **Moderately difficult navigation.** The controls and best routes should invite the intermediate orienteer away from strong collecting features. The penalty for navigational errors should not be extreme.
- **Route Choice.** Set a course that forces the orienteer to make decisions constantly.
- **Variety.** This variety should also cover control features, direction, route choice and navigational problems.
- **Control Features.** The control feature should be fairly prominent, unless a good attack point and catching features are nearby.
- **Precision Compass Measure and Pace.** Legs requiring nothing but precision compass and measure and pace should be limited to one or two.
- **Difficult Controls.** Difficult controls may be used, but a good attack point should be *within 50 to 200 meters*.

# Green and Red Courses

- **Winning times 50 to 55 minutes for Green, 60 to 65 minutes for Red**
- **The advanced courses should be set so that the very experienced orienteer is well challenged. The element of luck should be eliminated if possible. The courses all should be of the same technical level -- difficult.**
- **Course Length. Try to keep your course length reasonable, especially on hilly courses or in thick vegetation, to meet these times. Try not to over set courses for distance and climb.**
- **Control Feature Size. Use small or intricate features -- boulders, cliffs, small reentrants, spurs and knolls, small marshes, depressions, etc.**
- **Controls too close to attack points. If the competitor uses collecting features to make his route or his navigation easier, make him travel farther out of his way.**
- **Climb. Climb should not exceed 4%.**

# Green and Red Courses

- **Lost Kilometers.** This means any parts of a course that requires little or no thinking, merely physical effort. Try not to give orienteers either road runs or hillclimbs which involve little or no navigation.
- **Handrails.** Try to avoid having the routes parallel to obvious linear features such as roads, trails, streams, fences or power lines. Keep the course perpendicular to handrails.
- **Long Legs.** *Include at least one leg in excess of 800 meters.*
- **Route Choice.** Maximize route choice and navigation difficulties while minimizing the luck element and the lost/dead kilometers. The navigationally most difficult route should be faster for those with good woods running skills than the "easy way around."
- **Variety.** A good course offers variety in both controls and routes. The larger the number and the greater variety of O-tests built into a course, the greater the chance that luck is eliminated and the orienteer with the best ability wins.

# Green and Brown Courses

- **Aging Orienteers** Some orienteers on these courses may have some vision problems and only limited leg strength. The climb should be closer to 3%, at most 4%. Tough and dangerous areas must be avoided. While it must be less demanding physically, the
- **Aging Orienteers** Brown and Green courses should require the maximum in orienteering skills. Vision, however is a major problem for the older orienteer. Try to keep controls out of areas that have *much fine detail* on the map. This tends to become a large blur and therefore promotes luck instead of skill.



# Design Courses on the map first

- **If the start/finish location has not already been specified, choose one based on the availability of handrail features for the beginner courses**
- **Figure out legs with interesting navigation, then select control locations which allow the Orienteers to navigate through interesting and enjoyable terrain.**

# **Field check all Control Locations *BEFORE* setting the controls and printing the maps**

- **The map may be confusing when you are actually in the area you chose for your control site**
- **As you scout the control locations you may come up with more interesting or appealing features in the same area**
- **If there is any doubt about a control placement, move it to a location where there is no doubt or fix the map. This is often necessary 50% of the time.**

# Order of steps for preparing an event

- 1) **Remember, the start doesn't always have to be in the same place. Almost all 'A' meets require a walk to the start.**
- 2) **Pick a start location based on the availability of good course options for White and Yellow**
- 3) **Start designing advanced courses by finding fun routes or challenges on the map**
- 4) **Try to find some long legs where the best route choice isn't a long trail run and where the best route choice isn't miserable**
- 5) **Pick approximate control locations that would get people to run these routes**
- 6) **Find specific control locations that are of the appropriate difficulty to the level of the course**
- 7) **Go out and look at the control locations that you've picked, preferably walking the course in order. Verify that the feature is findable, is mapped correctly, that the surrounding area is mapped correctly, and that the legs between the controls are reasonably well mapped. If any of these don't look good, move the control or correct the map. Typically this is necessary on about 50% of controls that I hang.**

# Avoidance of Doglegs

- **Leaving a control, there should not be a logical route that doubles back through the same area from which the control was approached.**
- **To avoid doglegs, you can put in a short leg - - 100 to 300 meters long -- to move the competitor away from the previous control to the start of another long leg.**
- **While not desirable, a dogleg on White course is preferable to a course that is confusing or too difficult.**

# Control Proximity



- If the features are similar enough to be confused at all, have *no less than 100 meters distance between any two controls* on different courses.
- Have no less than *75 meters* between any two controls on different courses *regardless of the feature.*

# Skill, not Luck

- Orienteering is not an Easter egg hunt.
- Your features for control sites can be small, but they *must be distinct*. You should avoid such control sites as "the middle of the marsh" (unless it is a very small marsh)
- The competitor should be able to orienteer directly to the control if he is skillful, and *not have to count on luck*.
- Avoid dense areas for controls, especially if the terrain is somewhat vague.

# Field Check (Vetting)

- You *must* check the planned control locations out in the field. Many controls are unsuitable due to map problems.
- For White Courses be sure to check the other courses to ensure that there are no nearby controls from them to confuse the White course runners.

# How to hang the controls

- **Tie control securely to a stout branch**
- **Hang controls at least two feet from the ground. For the beginner courses be sure they are visible but still reachable by children**
- **If there are no trees to hang the controls from you may need to place a stake, or, in exposed areas above treeline, fill the control with rocks.**
- **Be sure that the control code matches the code that you have specified on the clue sheet**
- **Punch a sample punchcard for each course so that you can check the competitors punches if there is any dispute**



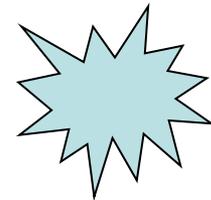
# When to hang the controls

- **Controls for Advanced courses can be hung up to a week before the event**
- **Controls on obvious features should be hung as soon before the start of the meet as possible to reduce the risk of having them removed**
- **If controls are hung early, you may need to check them before the meet to make sure they are still there**



# Avoid the potential for disputes

- **Control placements should not tempt runners to punch controls out of order**
- **Runners should not be tempted to run off the map or into areas “out of bounds”**
- **If there is any question about the accuracy of the mapping at a control location, put the control somewhere else or fix the map.**
- **Don’t place controls for different courses too close together**
- **Don’t hide controls: All controls should be visible when you are at the mapped location**



# Feedback from Last Year

- **As always, make sure controls are hung where they are shown on the map and that the control codes are listed correctly. These are both really discouraging for competitors.**
- **Make sure the map is correct in the vicinity of the control. This was a problem on numerous courses.**
- **Don't hide the controls. The control should be easily visible once you reach the feature that is shown on the map.**
- **For advanced courses, the best route choices should general not be trail runs. If it is unavoidable, this is okay for one or two legs on a course (or for portions of legs), but beyond that it is probably a sign that the course is not well designed.**
- **More complaints about advanced courses being too easy than about courses being too hard. This is a change from the past.**
- **[Google Docs Spreadsheet](#)**

# Club Website Resources

- [RouteGadget](#)
- [Maps from Previous Meets](#)

# Recent AttackPoint Discussions

- **Adversarial Course Setting - [Attackpoint Forum](#) also, the need to specify illegal route choices at the signup (such as climbing fences in the sprint-o) if they are meant to result in the disqualification of runners**
- **Course Flow – consensus that courses should run in the same direction when possible - [AttackPoint Forum](#)**

# REMEMBER THIS:



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