

# How do I design courses?

1. Scan the map to get an idea of the major elements of the map... trail system, major valleys, water features.
2. Get a general idea of the flow of the courses. Decide on a clockwise or counter-clockwise flow (this makes control pickup easier). Think about water controls when you start designing. Water is HEAVY. Have a common water control for **YELLOW & ORANGE** about half way round the course. Same for **RED & GREEN**. Location should be out of public sight, but easy to set.
3. Using the map scale, cut a string to the length of each course. **WHITE**: less than 3 km / **YELLOW**: 4 km / **ORANGE**: less than 5 km / (**BROWN**): less than 4 km / **GREEN**: less than 5 km / **RED**: less than 7 km

On all courses, **avoid dangerous areas** for route and control location. Keep controls at least 100 m apart if they are similar features.

**WHITE**: should be *really* easy / compass not necessary / on trails or easy open space / first control should be visible from the start / legs of 100 – 300 meters / obvious control locations / streamer a leg to cut distance / 1.5 – 2.5 km

The white level controls should form an EASY trail or field loop.

**YELLOW**: also very easy / compass not necessary / controls should be close off trail (<20 m) near a good attack point such as a trail junction / try to use other **handrails** (linear features such as streams, fences, walls, forest edges) as well as trails. Choose controls that have a **collecting feature** a short distance before them and a **catching feature** a short distance past them / easy controls to start / legs 200 – 400 meters with some shorter or longer / 3 – 4.5 km

**ORANGE**: use areas with strong collecting and catching features / lots of route choices / use some less clear handrails such as broad ridges or stream valleys / use a few controls that need pace count and compass bearing / legs 200 – 600 meters / reduce length because of hilliness or vegetation / This course uses all orienteering skills in a confined safe area. / 4 – 5 km

(**BROWN**), **GREEN**, **RED**, (**BLUE**): use smaller features / avoid long legs that don't require thinking / avoid routes that are parallel to linear features / include at least one leg longer than 800 meters / no acute angles between controls / climb less than 4% / the most direct route should not be the easiest / the easiest route should not be the fastest / *special for GREEN & (BROWN)*... keep climb to a minimum and keep controls out of mapped areas of too much fine detail / **BROWN** – 3- 4 km, **GREEN** – 4- 5 km, **RED** – 5-7 km, **BLUE** – 7-10 km

4. Select control locations. Look for variety. Contour features (reentrants, depressions, gullies, spurs, hills, saddles, cliffs, pits & knolls), water features (ponds, stream bends, marshes), vegetation features (forest and field corners, clearings, thickets, landmark trees & rootstocks), point and line features (trail crossings, junctions and bends, fences & walls, boulders, bridges, etc.) Choose locations that allow the flag to be set so that the participant sees the location first and the flag second. Example: other side of boulder or knoll (but not hidden). Don't punish a person for finding the control. Example: after seeing flag, participant has to descend into a steep muddy narrow reentrant, then has difficulty getting back out.

5. It is OK to use a control for two or more courses. Try to keep the **WHITE** course separate. It's fun to have the last control used by all of the courses from **YELLOW** on up (have it visible from the finish). The first **WHITE**, **YELLOW** & **ORANGE** control should be visible from the start.

6. After you have roughed in the courses with control locations, go out and check them. Be sure that there is some place to tie the control. This is a good time to make a note of the **control clue** you will use. Examples: NE side of 3 m boulder, Under bridge, Westernmost rootstock, Foot of 4 m cliff. Now is the time to change control locations if you find problems. Place streamers with labels: NEOOC 4/41/2012, for example. If there is a problem with the map, chose another area. Approach the control from nearby attack points to be sure it is valid.

It is a good idea to have your course **vetted** by an experienced orienteer to catch problems.

7. Prepare master maps using PurplePen. Two copies of each are best (after courses are approved). Six for a score event. The club's map coordinator can give you the most recent OCAD file for your venue. Bob@neococ.com

8. Have courses approved by naturalists. They need a whole month. Event coordinator will give you map of restrictions. (not for Kenston, Tuscazoar) Avoid placing controls in these areas.

9. Print several "All Controls" maps for setting and collecting controls. Use flag codes instead of numbers.

10. Print clue sheets for each course from PurplePen. Photocopy many on each sheet & cut into strips. Climb is computed by counting the number of uphill contour lines crossed and multiplying by the contour interval. Climb should not exceed 4% of the course distance. Distance is measured in a straight line except where a leg goes around a large uncrossable area such as a lake.

**WHITE & YELLOW** courses should have verbal descriptions as well as the symbols.

11. A score course must have a **WHITE** course. Make score point values interesting for all.

Varieties: A. point values and 90 minute limit

B. 27/32 contols = red, 24 = green, 19 = orange, 14 = yellow Ties broken by time

12. Don't confuse technical difficulty with physical difficulty. Physical difficulty is caused by climb, thick vegetation, and weather conditions. Any of these can be reasons to shorten a course from the normal length. Try to anticipate the weather conditions and think about ways to shorten a course on the day of the event because of full streams, snow or heat and humidity. If you would not like to run the course you design, then **DON'T SET IT!!**

13. Use the e-punch system for the **YELLOW, ORANGE, GREEN & RED** courses. e-punch courses can do figure-eights to make the longer courses easier to design. A control can be punched more than once on a course. Our flags are numbered 31 to 76.

14. If we decide to use the old punch flags for the **WHITE** course: Create a new file in PurplePen for the **WHITE** course using the letter codes from the flags you will use for the course. 10 flags is fine for **WHITE**.