How to produce a School map

New modified edition, Nov. 2013

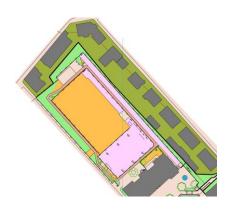Translated by Sergio Grifoni IOF Map commission member

Content

1. Preparing the field work

1.1 Define area and perimeter

The first step is the definitions of the limits in all directions. The following points must be considered:

- The map shall be in some multiple of 500 (1:500, 1:1000 … 1:2000)
- The map shall be printed in A4 format (if necessary reduce it or increase map scale)
- Consider that printers will not print to the very margin of the sheet
- Use A3 format in exceptional cases only
- Leave space for legend and all additional information (map name, mapper, sponsor etc.)
- Define the area with definite and clear limits: fence, street, stream and the like
- Do not include dangerous streets or non accessible areas.
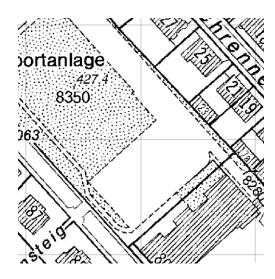
Example: map with clear limits

1.2 Provide the basis for the map

This depends on where you live. In general the "Land Registry" or Municipality can provide a base map to start the work. Some of these maps contain contours, some don't. Put together as many base maps as you can before starting.

Example: Land Register and Plan map

1.3 Prepare the basis for the field work

It's best to use a scale that can be easily transformed (for example: 1:1000> 1 m=1mm).
The use of the same scale for the field work as for the printed map it is the best choice, but not mandatory. It is also the best choice if the map it is all included in a A4 sheet. The difference between the geographic and magnetic Nord is not important for small maps in most areas. On the base map you must report the north-geographic lines (at least four on a A4 sheet).

1.4 Auxiliary tools

The base map shall be placed on a solid and smooth support and covered with a transparent polyester sheet. Both must be fixed to the support and to each other (use scotch tape or other mean). To draw. Use color pencils thin (0.5 mm) and water resistant.

2. Field work

2.1 Colors, Symbols

To facilitate the interpretation it is best to use the same colors and symbols as for the final map.

Area symbols. In order to distinguish sport facilities, paved areas it is better use different colors, in case with lines. For large areas it is enough to draw the perimeter with the appropriate color. Colors and lines shall be defined in advance to avoid confusion later.

Point symbols. For these symbols (knolls, boulders etc.) the best choice is to use the IOF symbols. Then you have to decide which particular symbol shall represent a particular object (for instance: black cross for bench, blue cross for hydrant etc.). If necessary you may introduce some particular symbols of your own (for instance black or bleu or brown open square, open triangle tec.) for particular objects (lamps, trash containers etc.).

Linear symbols. Again use as much as possible the IOF symbols for fences, trails, walls etc.. Again you must decide how to draw objects on the field drawing and be consistent throughout.

2.2 How to proceed

Step counting. On a school map the important issue is the relative position of object and the readability of the map, not the absolute position of a single object. So you can use the technique of step counting. You must first become aware of which is the measure of your step, for instance by counting how many steps it takes to you to cover a known distance. Alternately you can use a measuring tape (50m shall be enough).

Point symbols. For the correct position of these objects it is generally enough to use steps counting and compass from a known position. It may be sometime necessary to determine on the drawing two lines from to known positions with the compass and position the object at their crossing. In such cases it is better to verify with a third line.

Linear symbols. If these objects 8fences, walls, vegetation boundaries etc.) are not on the base map, they are the most difficult to report on the map. Start from a know point then draw the symbol using steps and compass. At a change of direction use again the compass and steps till the next direction change, but, if possible, determine the point where the direction changes with the same technique as for the point symbols.

<u>Contours.</u> Although in a school map contours are generally not so important, the best is to have them on the base map (1 or 2 or 2.5 meter equidistance). Control if they are correct and in case modify them for details that may not be on the base map. If there are not contours on the base map and you want to introduce them on the map, use the measure of your body: from feet to eyes, from feet to waist (you must first know their value). You must start from a know point and use the compass as for a linear object, the object in this case being the imaginary line that connects the point where you are to all the points at the same elevation. When you have finished with the first contour, move up (or down) perpendicularly to the drawn contour to the next one, using your body as a measure, and determine the distance from the point you started below (or above) and report it on the map (this is important to determine how steep is the terrain). Then proceed with the next contour.

3. Drawing the base map

Nowadays most maps are drawn by computer. Hand drawing, although it can still be made for school maps, will not be considered in the following. The most popular program for footO maps is OCAD, but other programs may be used which can run on apple computers (Adobe Illustrator, Corel Draw, etc.). However for these programs a set of O symbols must be developed, which is not a simple task. OCAD is available in various versions and prices.

3.1 Scanning

Once the field work has been completed and a drawing made, this must be scanned with a plane color scanner. (*qui c'è una parte incomprensibile*).

3.2 Drawing

In order to draw with OCAD it is necessary to know a little how the program works. You can read the instructions or, better, follow an introductory course (look on www.ocad.com). In any case you find some directions in the following.

It is better to draw with an enlargement 8x. It is better to draw first the point symbols, then the linear symbols and finally the area symbols. Another possibility is to start with elements present in the base map and which are in the correct position: buildings, streets and the like.

Long linear elements should be drawn without interrupting the drawing as much as possible. Same for drawing the perimeter of an area symbol. For this is generally more suited the mode "straight lines".

Some type of man-made linear objects, such as fences, do have long straight portions. For them it is better to use the mode "straight lines". The other linear objects, in particular the contours, must be drawn with the mode "curves". This mode requires a bit of exercise to become acquainted with it.

At a certain point of the drawing, when many area symbols may cover other symbols, you can use the mode "area tratteggiata" which allows to see the symbols through them.

Object with a regular shape such as buildings may be drawn with a special mode from the menu, same for circular or elliptical objects. You must also learn to use the mode "filling", to fill the perimeter of an area with the corresponding symbol, and the mode "contour" to draw a contour around and area symbol.

Another important mode is the use of the "shift" key of the computer to continue a linear object or add a new portion of an area symbol. You push the key while positioning the pen at the end (linear) or on one point of the perimeter (area), and start drawing. Also you can joint two objects, linear or area, of the same kind by selecting them while pushing the key "shift" and use the mode "join" from the menu "modify": they will become a single object.

3.3 Layout and titles

The whole process to produce an orienteering map is time consuming. It is necessary to plan in advance how the final map will look like including the name of the map and other information that need space on the sheet.

The final map will contain:

- The name of the map and/or the name and address of the School
- The scale and the equidistance (if contours are present). For a school map a line with the correspondence cm on the map – meters on the terrain
- The date when the map was made
- Symbol of north and north lines
- The names of the mappers
- Legend
- Sponsor logos (if existing)
- Space for punching (if possible)
- Authorizations (if necessary

- Example: Field work ready to be scanned

4 Printing the map

Several possibilities exist, it depends from the budget and the numbers to be printed. It is possible to print directly from OCAD with a color ink jet or laser printer. Alternately you can produce a PDF, JPG, TI, EPS or GIF file and print from another computer without OCAD to be installed on it.

5 Authorizations

You must check if you need some kind of authorization if you want to open the use of the map produced to the public.

Example: Map final lay out

Schulhaus Bühl

Bühlstrasse 6
8055 Zürich

Koordinaten: 681300 / 247050

Massstab 1:1500
Äquidistanz 5 m
Stand April 2011

Aufnahme & Zeichnung: Gion Schnyder
Grundlage: ZH-Übersichtsplan
© Amt für Raumordnung und
Vermessung

OCAD
the smart software
for cartography

50 m

10 m

1 cm auf der Karte entspricht 15 m in Wirklichkeit

OLG ZÜRICH

Auskunft und Kartenbezug:
OLG Zürich, André Schnyder
Entlisbergstr. 29
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info@olgzurich.ch

Die Herausgabe dieser Schulhaus OL-Karte wurde
vom Sportamt der Stadt Zürich unterstützt.

scool!
www.scool.ch

LEGENDE

	Gebäude
	Vordach/Durchgang
	Treppe
	Mauer unpassierbar
	Mauer passierbar
	Zaun (nicht übersteigen)/Durchgang
	hoher Zaun
	kleines Objekt
	Spielgeräte
	Sitzbank, Sitzgruppe
	Tischtennistisch
	Basketballkorb, Fussballtor
	Abfallkübel
	Fahnenstange
	Verkehrsmasten, Säule
	grosser Stein, kleiner Stein
	Pfad, Weg
	Finnenbahn
	Bahn/Tramgeleise
	Strassenlampe
	Scheinwerfer
	Höhenkurve
436	Kurvenzahl (Höhe ü. M.)
	Hügel
	Böschung
	Asphalt, Hartbelag
	Geröll
	Sand oder Kies
	Kunststoffbelag
	Wiese, Rasen gelb / Wald weiss
	Privatgrund (nicht betreten)
	Laubbaum, Nadelbaum
	Busch
	Hecke, Bepflanzung (nicht betreten)
	kleiner Brunnen, Hydrant
	Bach
	Brunnen, Biotop

1	2	3	4	5
6	7	8	9	10
11	12	R	R	R

Legenda

〰️	contour/ index c.
●	knoll
•	boulder
○	fountain
▢	open land
▮▮	vegetation: slow running/ v. difficult to run
▬	impassable vegetation
○	prominent tree
○	tree
●	bush
▬▬	passable wall / impassable w.
▰▰	passable fence / impassable f.
◪ ◨	building / canopy with pillars
▢	paved area
≡	edge of paved area/ step
○ ▪	lamppost / pillar
▬	seat
×	man-made feature