



National Defence
Defense Nationale

REGIONAL CADET INSTRUCTOR SCHOOL CENTRAL



ORIENTEERING COURSE

CANDIDATE REFERENCE MANUAL

OPI: Training Officer 2
RCIS Central

2007-02-28

Canada 

REGIONAL CADET INSTRUCTOR SCHOOL (CENTRAL)

ORIENTEERING COURSE

FOREWORD

March 2006

1. The Orienteering Course Candidate Precis is produced to provide reference material for course candidates, which may be retained at the end of the course.
2. This Precis was prepared from extracts of publications both military and civilian.
3. Recommendations for amendments to this training document should be directed to the Training Officer, Regional Cadet Instructor School (Central), CFB Borden, L0M 1C0.

P.A. MacIntyre
Lieutenant Commander
Commandant
RCIS (C)

TABLE OF CONTENTS

Chapter One	The Sport of Orienteering
Chapter Two	The Equipment
Chapter Three	The Map
Chapter Four	The Compass
Chapter Five	Contours and Land Forms
Chapter Six	Orienteering Techniques
Chapter Seven	Competing
Chapter Eight	IOF Symbols
Chapter Nine	Organizing a Simple Orienteering Meet
Chapter Ten	Meet Types and Course Classifications
Chapter Eleven	Course Setting
Chapter Twelve	Other Types of Orienteering
Chapter Thirteen	Running a Competition
ANNEXES	
Annex A	Addresses
Annex B	Reference Materials

CHAPTER ONE

CHAPTER ONE

THE SPORT OF ORIENTEERING

1. Over the past several years, the term *ORIENTEERING* has come to be synonymous with map using in cadet and other military training. They are not really the same thing. Map using relies heavily on the use of grid references, compasses, magnetic and grid bearings, intervisibility, etc. and requires a fair amount of calculation and interpolation as maps tend to be small scale and out of date. Orienteering is a much more practical sport where a compass is rarely used for other than map orientation, maps are usually larger scale ie 1:10,000 is common, usually more up-to-date and there is more emphasis on the ability to interpret the information on the map in order to relate to the surroundings. As there are no grid references, the orienteer must be more familiar with contours, vegetation, drainage and man made features.

2. The main skills developed are concentrated, three-dimensional thinking and movement. As a competitive sport, the winner is the person who completes his or her assigned course, unaided, in the shortest time. As a recreational sport or training vehicle, everyone who participates, whether they complete the course or not, is a winner - they have learned and have had a positive experience. There are no restrictions as to who can orienteer - non-sighted, paraplegics, young and old can all orienteer in one way or another.

3. Orienteering was developed as a military exercise in Scandinavia and became a mass participation event in the early 1900s. As a developing sport, Orienteering is now established in over thirty countries and came to Canada in 1967. There are many local, provincial, national, North American and international meets of various lengths. At this time, there are over twenty-five established clubs in Ontario.

4. Orienteering as a sport is supervised by the International Orienteering Federation (IOF). In Canada, we have the Canadian Orienteering Federation (COF) and various provincial groups such as Orienteering Ontario. All local clubs, both associate and regular, are member clubs of Orienteering Ontario and conduct local training and meets.

5. While on the orienteering course, orienteers are, for the most part, out of sight and not directly supervised, and are therefore personally responsible for following the basic rules of orienteering. Independence, sportsmanship, fair play and responsibility are developed during instruction and training. These are all traits desirable in cadets. The following list of rules is long and may seem forbidding but most of them are common sense.

- a. Competitors must take the controls in the specified order.
- b. A participant who misses the assigned start time may start the course late but the time will be calculated from the original start time.
- c. If a competitor gives up before completing the course, he/she must report back to the finish officials to prevent unnecessary concern and searches.

- d. Orienteers should not follow or tag other competitors. They may, after all, be on a different course.
- e. After completing their course, competitors are not allowed to pass on information about the map, terrain or course to a competitor who has not yet started.
- f. Competitors shall not enter the competition area prior to an event in order to obtain knowledge about the terrain, vegetation etc.
- g. Inexperienced participants who are lost and ask for help should be shown where they are on the map and their name(s) noted and reported to a finish official.
- h. Competitors shall not cross or run along the borders of newly planted fields or those with growing crops.
- i. Orienteers must stay clear of uncrossable areas such as ponds, lakes, cliffs or areas marked as uncrossable.
- j. Whistles must be carried and must be used only for an emergency.
- k. The international distress call is three long blasts.
- l. Competitors must render aid to injured orienteers even if it means abandoning the competition.
- m. Information to aid a lost competitor, such as a safety bearing, must be provided.
- n. A safety bearing and a quit time must be provided and adhered to.
- o. The regular safety equipment required for cadet training must be available and must include: first aid kit, stretcher, safety vehicle and operator, phone numbers and shelter (if required).
- p. Orienteers must be aware of the action to take when lost.

S - Stop

T - Think

O - Observe

P - Plan

SUGGESTIONS TO THE MISPLACED ORIENTEER

- (1) Use the safety bearing to calmly walk out of the competition area;
 - (2) Take rough compass bearing to some road, railway, power line etc;
 - (3) If you find a control marker, stay there;
 - (4) If you find any high point or lake etc., remain there. Large features would be checked by the search party;
 - (5) Use your whistle (occasional short blasts for attention, 3 long blasts for a distress signal); and
 - (6) Remember to report in to the finish area when you do return.
- q. Only the lost/injured person should use a whistle - not the searchers. If a whistler is heard then it can only be the missing person.
- r. Stay where you are and do not wander.

6. Orienteering can fit in well in all phases and many types of training. It can form an excellent introduction to military-type map using as there is much less emphasis on theory and numbers and much more on practical map work and navigation.

7. With an increasing number of orienteering clubs, a cadet corps can improve its involvement in the community by attending civilian orienteering meets. It leads to better physical condition, thinking skills, regard for the environment and develops fairness and responsibility.

8. Once a programme is established, cadets at the basic level can gain valuable experience in map work and navigation skills before progressing on to more detailed map and compass work. Orienteering does not include the use of mils, converting bearings or other topics which most junior cadets find difficult but does rely more on interpreting contours, vegetation patterns and surface features. Once familiar with orienteering, the cadet is a competent and confident map-reader and more able to absorb grid references and other traditional map-using topics. A positive and rewarding experience in orienteering can lead to more positive and rewarding experience in map using than is usually the case.

CHAPTER TWO

CHAPTER TWO

THE EQUIPMENT

1. In this chapter we will look at the equipment required for Orienteering, both personal and group. In many cases, organizers and individuals will have to improvise or make do; however, there is some equipment, which is a must.

PERSONAL EQUIPMENT

2. **Clothing & Personal Protective Equipment.** Full body covering is a must to prevent scratches and scrapes and should be fairly close fitting. Individuals should dress for the weather in layers that can be removed while running and put back on afterwards. Dry warm clothing should be available at the finish area. Combat clothing is often preferred by many cadets, and while it is not very practical with its pockets and flaps to snag on trees, it is acceptable. It has the advantage of being quick drying and it does identify the cadet in a civilian competition. For most types of orienteering, running shoes are a much better than combat boots, which are not very good for running. Serious competitors often wear lower leg protectors called gators. Proper clothing is available through various outdoor, orienteering & adventure racing suppliers. Examples of clothing:

Socks & underwear:



Pants & shirts:



Gloves & hats:



Shoes



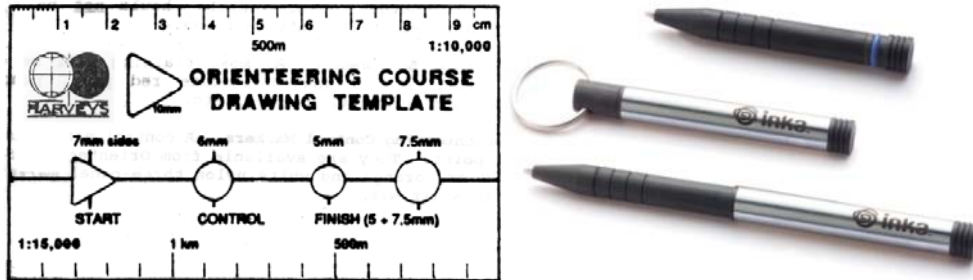
Gators:



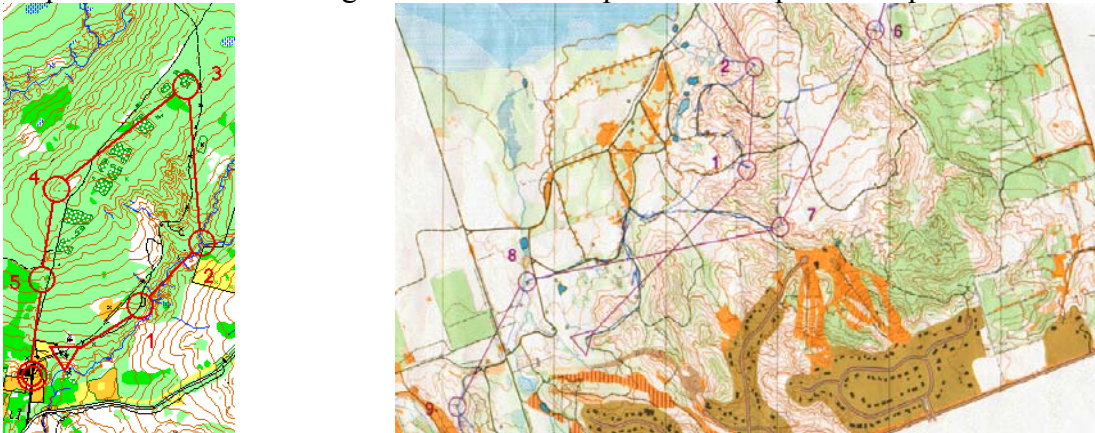
3. **Whistle.** A whistle must be carried by each orienteer (or group if applicable). The internationally recognized distress signal is three long blasts. The whistle should be secured to the cadet on a lanyard or can be put on the same lanyard as the compass. For hygienic reasons, it is recommended that whistles be rinsed in disinfectant between uses. Examples of whistles:



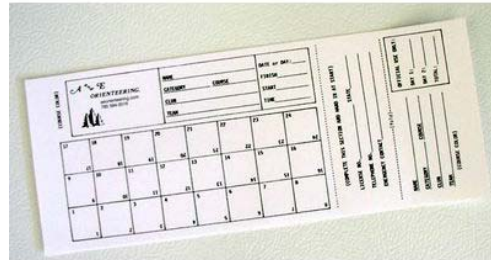
4. **Writing Equipment.** At the beginning stages of orienteering, cadets are given marked maps but, as training progresses, they may be required to mark their own map. This is done in red pen with a special template for map marking (see below) or a general purpose circle and triangle template may be purchased at most stationery stores. Each orienteer should have a reliable pen or pencil as well for notes and completing control cards. Examples of writing equipment:



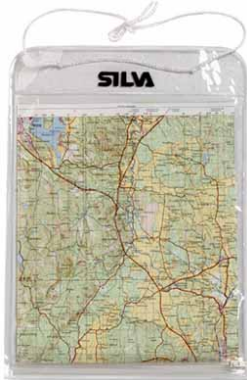
5. **Maps.** Each orienteer must have a map, which must be protected by a map case. Maps will be discussed in greater detail in Chapter 3. Examples of maps:



6. **Control Cards.** Each orienteer must have a control card that must be carried and punched appropriately at the proper controls. It is the responsibility of the orienteer to maintain the card in a legible condition. You can purchase pads of these cards or make them yourself. Examples of control cards:



7. **Map Case.** Maps and control cards should be protected from the weather either in a clear plastic bag (NSN 8105-21-550-5649) or a reusable map case. The problem is that to save valuable time, control cards are usually punched through the plastic. Therefore the cases may only be used a certain number of times. For that reason, basic clear plastic bags or Ziploc bags are preferred. Examples of map cases:



8. **Compass.** Each orienteer (or group) must have a compass to fulfil safety requirements. The compass should be secured to the body by a lanyard or elastic thumb strap to prevent loss. Compasses will be discussed in greater detail in Chapter 4. Examples of compasses:



GROUP EQUIPMENT

9. **Water** must be available along with some item to drink it from. It is neither necessary nor recommended that each cadet carry a canteen as orienteering is a timed event. Water points (unmanned) can be established at a central control point and at the finish area. A five gallon water can (NSN 7240-21-852-5150) and some cups are sufficient. Cadets must be cautioned about over indulging while hot.

10. **Insect Repellent.** Bug juice (6840-00-853-4963) should be available depending on the time of the year. Aerosol types are not recommended because of the damage that can be caused to the environment. Care must be given to avoid getting repellent into the eyes i.e. applying to the forehead or hands, and moving into the eyes with sweat or rubbing.

11. **First Aid Equipment, Communications & Safety Vehicle.** As with all cadet training, a well-stocked first aid kit is required with personnel trained in first aid. A stretcher, splint material, antiseptic, snakebite kit, bee sting kit and poison ivy cream should all be included. Radio communications amongst the officials, supervisors & safety personnel is a must. Also a safety vehicle and driver must be designated. This vehicle should not be out and around the training area where it cannot be used in an emergency, but rather parked & supervised with the keys in the ignition at the Start/Finish area. Examples of safety items:

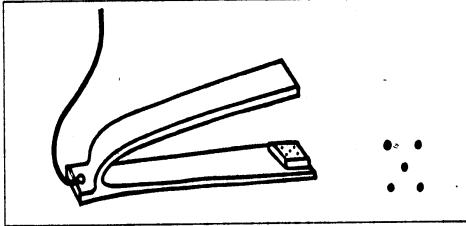


12. **Writing Equipment & Other Supplies.** As most training will be done at the basic level, group stores should include red pens, markers, pencils, map marking template, string, scissors or knife, stapler, easel, packing or duct tape, etc.

13. **Orienteering Control Markers.** A control marker is required for each control point. They are normally 30 cm by 30 cm orange & white nylon three-panel markers, although smaller markers ie 15 cm by 15 cm or flat stickers or panels are available for training. They are available from most Cadet Training Centres or you can purchase your own from most orienteering suppliers. Example of orienteering control markers:



14. **Orienteering Punches.** Pin punches are located at each control to mark the orienteer's control card. This is proof that the orienteer was there. Punches are to be attached to the control markers that you borrow from the Training Centre, but you should confirm this as they often become separated. You can purchase your own from most orienteering suppliers. Example of orienteering control punches:



15. **Miscellaneous Competition Equipment.** Mine tape (NSN 8315-21-109-0778), surveyor's tape (NSN 9905-00-196-1068) or flagging tape (available from Orienteering Ontario) and various preparation worksheets are all useful in setting up a course. Other helpful items include official armbands, start/finish banners, shelters, etc. Examples of other competition equipment:



16. **Organizing Box.** Great boxes to store and transport orienteering equipment are available at many retailers ie Canadian Tire, Home Hardware, Wal-Mart, etc:



17. While it is nice to have all the properly manufactured and official equipment, costs do add up, so improvised & hand-made items can work just as well. You can make your own orienteering markers & control cards, use issued compasses and photocopy maps for training purposes (with permission from owner of map). The cadets can wear their combat clothing with running shoes and shelters can be modular tents issued from your support base. No matter how you look at it, organizing & conducting orienteering training & competitions does not have to be a financial undertaking, nor is it overly taxing of staff & resources.

CHAPTER THREE

CHAPTER THREE

THE MAP

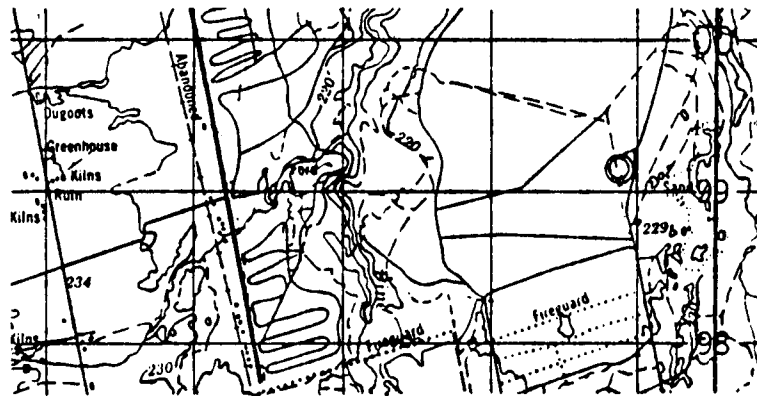
1. The key to effective and enjoyable orienteering training and competitions is a good map. Maps are available in a wide variety of scales and types. The most useful maps for orienteering are proper orienteering maps, but these are not always available for the areas in which cadets train, so other types will be listed although the emphasis in this chapter will be on orienteering maps.

MAP SCALE

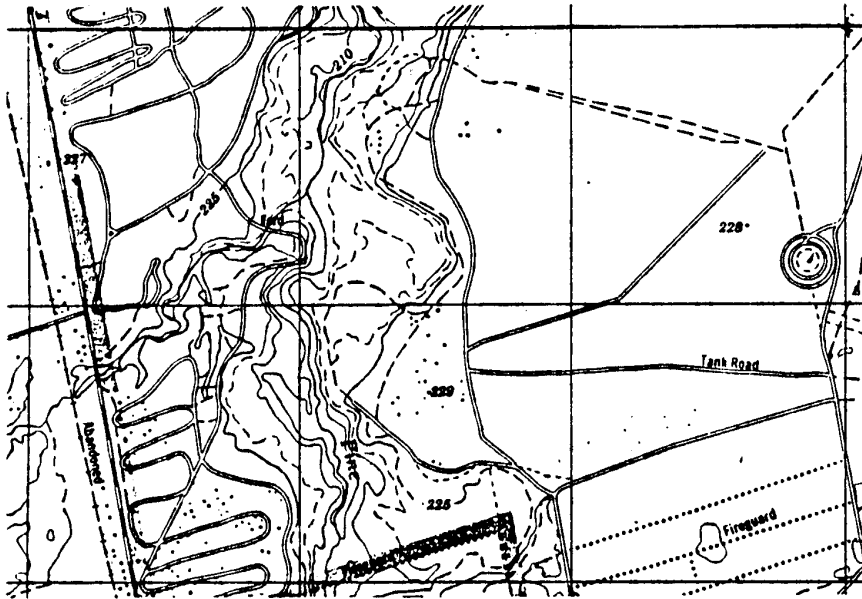
2. One of the most important factors affecting map selection and usability is the scale. Maps are a scale representation of a large area of actual terrain. In order to work with a map, it is necessary to know the scale of the map, that is, the distance on the ground represented by a certain distance on the map. The scale is shown as a ratio such as 1:15,000. This indicates that one unit on the map represents 15,000 units on the ground. These units can be centimetres, inches, feet, etc. If we work in centimetres, we can say that 1 cm represents 15,000 cm or 150 m on the ground.

3. The amount of detail represented on a map varies considerably with the scale. The larger the scale, the easier it is to read detail and thus more detail can be shown. “Large” scale maps have a lower second term in the scale ratio ie 1:15,000 is a larger scale than 1:50,000. Maps of too large a scale ie 1:5,000 are usually too large and difficult to handle in competition. But since very large-scale maps cover very little ground and show a great amount of detail, they are good for training those new to orienteering. Maps with a scale of 1:10,000 to 1:15,000 are recommended for more advanced training and competitions.

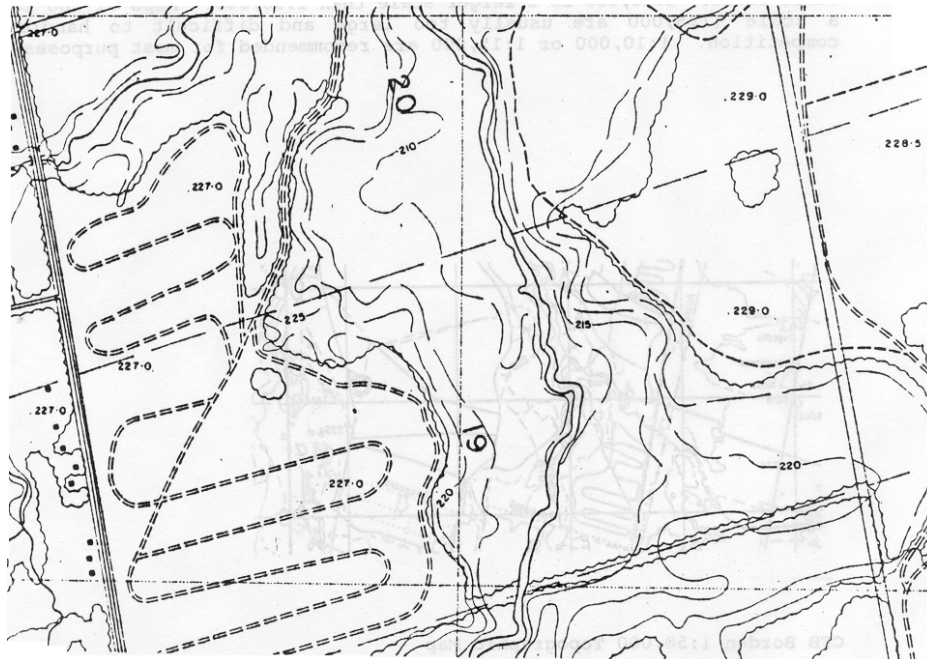
Examples of various scaled maps:



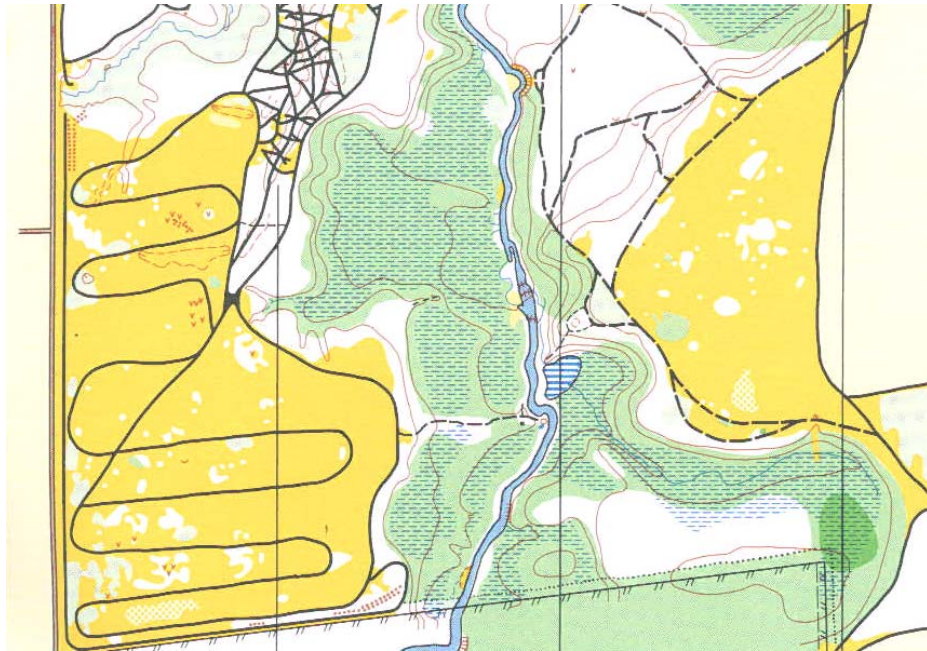
CFB Borden 1:50,000 Topographic Map



CFB Borden 1:25,000 Topographic Map

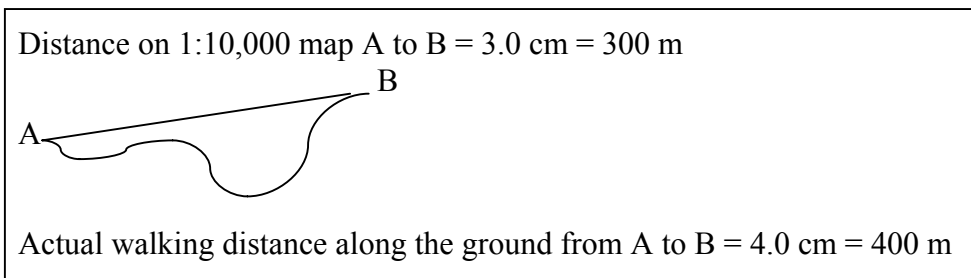


CFB Borden 1:10,000 Ontario Base Map



CFB Borden 1:15,000 Orienteering Map

4. It is important to remember that distance is measured horizontally only and doesn't take into account vertical distance covered:



TOPOGRAPHIC MAPS

5. The familiar topographic map is available in 1:250,000, 1:50,000 and, in some areas, 1:25,000. Topographic maps include the special MCE (Military Cartographic Establishment) maps of bases. Topographic maps are usually not very current and miss a lot of detail. 1:50,000 maps are NOT acceptable for orienteering, but 1:25,000 can be. It must be remembered that the conventional signs and vegetation symbols differ from proper orienteering maps. For that reason, many have marked smaller features ie paths, knolls, depressions, pits, boulders, etc. on the topographic maps that are used for orienteering. While this is not the best solution, it works well for areas that do not have an orienteering map yet have features & terrain that is optimum for orienteering. Topographic maps can be ordered through DND, but can also be purchased from sports, camping, hunting and fishing stores.

ONTARIO BASE MAPS

6. These maps are available in 1:10,000 and, in some cases, 1:5,000 from the Ministry of Natural Resources for all areas of Ontario. Each map covers an area 5 km by 5 km, are black and white and again, many signs and symbols differ than that of an orienteering map. They are usually fairly current and show a good amount of detail. Ontario Base Maps are used as the basis to making proper orienteering maps, and as such can be updated with colours & detail and used for orienteering training.

ORIENTEERING MAPS

7. Orienteering maps are available for selected areas in a variety of scales from 1:5,000 to 1:20,000. Most are full six colour maps while some have only two colours. They are usually current & accurate and show a wealth of detail. These maps are tightly controlled by Orienteering Ontario and their affiliated clubs, but have made some available to cadet units and training centres. These maps will be investigated in more detail later in the chapter.

LOCAL MAPS

8. Conservation authorities and municipalities frequently print detailed maps of their conservation areas. There is no reason these maps cannot be used for orienteering or in the production of maps for orienteering.

ORIENTEERING MAP IN MORE DETAIL

MAP SYMBOLS AND COLOURS

9. Although most maps include a legend, it is important that orienteers be able to read the map without constant reference to a legend, particularly if the map is folded. Different colours are used to represent different types of features on the orienteering map as follows:

Brown - landforms, contours etc. and sometimes major roads.

Black - man made features such as buildings, roads, paths, power lines, etc. Also used to show important natural rock features such as cliffs and boulders.

Blue - water and marsh. Solid blue areas and areas bounded in black should be considered uncrossable.

Yellow - open and semi-open areas with very good visibility.

White - runnable forest. Also used to show single trees where appropriate.

Green - vegetation in a variety of degrees of thickness. The darker the colour, the thicker the vegetation and therefore the harder to travel through.

Violet - used for course overprinting and out of bounds area.

TWO COLOUR MAPS

10. Black and white (or two colour) maps are frequently locally produced for smaller meets and training. They can be easy and cheap to produce and are sometimes not of a specific scale. Obviously it is difficult to get as much information on a two colour map as on a six colour map, and the printing is not usually as clear but two colour maps have a definite place in orienteering training.

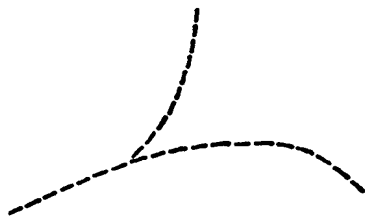
OUT OF BOUNDS AREAS

11. The following are considered out of bounds or uncrossable: expressways, major roads, high fences, residential areas, steep banks, cliffs, ponds, lakes, rivers and uncrossable marshes & streams. Courses will normally be laid out to avoid such areas.

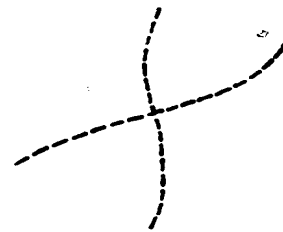
12. This precis will not dwell on the subject of conventional signs. **Armchair Orienteering** has drills to familiarize cadets with them and practice will also help.

DISTINCT AND INDISTINCT JUNCTION

13. The difference between distinct and indistinct junctions and intersections should be noted.



Distinct Junction
(Both paths are noticeable)



Indistinct Junction
(Smaller path is less noticeable)

14. The reliability of a map depends of many factors. Because there are many steps and people involved in the publication of a map, human error crops up. Different people also interpret information differently. Information depicted is also subject to change over very short periods of time. Trees can be cut down causing vegetation change, houses are built, beaver dams are built and destroyed causing flooding or draining, fences are added or removed, new paths and tracks are made (especially in military areas), boulders are moved or covered by soil & vegetation, etc. Cadets must be constantly reminded that maps are rarely perfectly accurate, yet they also need to trust their map.

15. Water and vegetation features can change drastically between seasons. In the spring, marshes and streams are full and dry gullies and depressions frequently hold water.

Vegetation is low and runnability may be better. During the summer, there are changes in vegetation again and in the fall, the information may not be entirely accurate. Remember, the maps are made by humans and the information is open to interpretation and subject to change.

IOF ORIENTEERING MAP SYMBOLS

Linear Features

- Major Road
- Minor Road
- Dirt Road
- Vehicle Track
- Large Path
- Small Path
- Indistinct Path
- Narrow Ride
- Wide Ride
- Railway
- Power Line
- Stone Wall - high
- Stone Wall - low
- Stone Wall - ruined
- Fence - high
- Fence - low
- Fence - ruined

Water Features

- Lake
- Ponds
- Uncrossable River
- Stream
- Major Ditch/Drain
- Minor Ditch/Drain
- Narrow Marsh
- Uncrossable Marsh
- Crossable Marsh
- Seasonal Marsh
- Waterhole
- Water Tank
- Well
- Special Water Feature

Rock Features

- Rocky Pit
- Cave
- Impassable Cliffs
- Small Cliffs
- Large Boulders
- Small Boulders
- Group of Boulders

Other Man-Made Features

- Building
- Ruin
- Boulder Field
- Tower/Mast
- Small Tower
- Cairn
- Trig. Pillar

Landforms

- Contours
- Index Contours
- Slope Line
- Form Line
- Steep Earth Bank
- Earthwall
- Erosion Gullies
- Small Gullies
- Knolls
- Depressions
- Pits
- Platforms

Vegetation

- Cemetery
- Stony Ground
- Sandy Ground
- Bare Rock
- Open Land
- Semi Open Land
- Rough Open Land
- Felled Area
- Undergrowth: Walk
- Undergrowth: Slow Run
- Forest: Run
- Forest: Slow Run
- Forest: Walk
- Forest: Impenetrable
- Forest: Run Direction
- Built-Up Area
- Out of Bounds
- Cultivated Land
- Orchard

CHAPTER FOUR

CHAPTER FOUR

THE COMPASS

1. An orienteer will be able to complete most legs on a course using only map reading skills. On some legs, however, it may be more efficient to navigate with the aid of both map and compass. The compass may be used to quickly orient the map and for keeping track of the direction of march. The compass is an invaluable safety aid to an orienteer who is lost. The ability to follow a compass bearing ensures a safe return to the finish area.

2. The minor use of the compass in orienteering introduces the cadet to the more involved use of the compass in military map using. In orienteering, there are no grid lines, so there is no grid north and no declination - a source of problems for younger cadets.

3. Although there are many types of compasses available and in use, they fall into two categories: the familiar baseplate compasses and thumb compasses. Most cadet units hold, or are entitled to hold, Silva Ranger or Type 15TD (or the Suunto equivalent) compasses. You will need one compass per team or cadet for team or individual training and competitions, and sighting compasses such as the type 15 are a bit of overkill for basic orienteering although they will do the job. A much more basic compass such as the Type 1S, 2NL, 3NL, 5NL, 7NL or 8NL will work just as well, is cheaper and is much easier to learn on.



Silva Ranger 15



Suunto MC-2D



Silva 2NL



Silva 7NL

Baseplate Compasses



Silva 6 JET SPECTRA

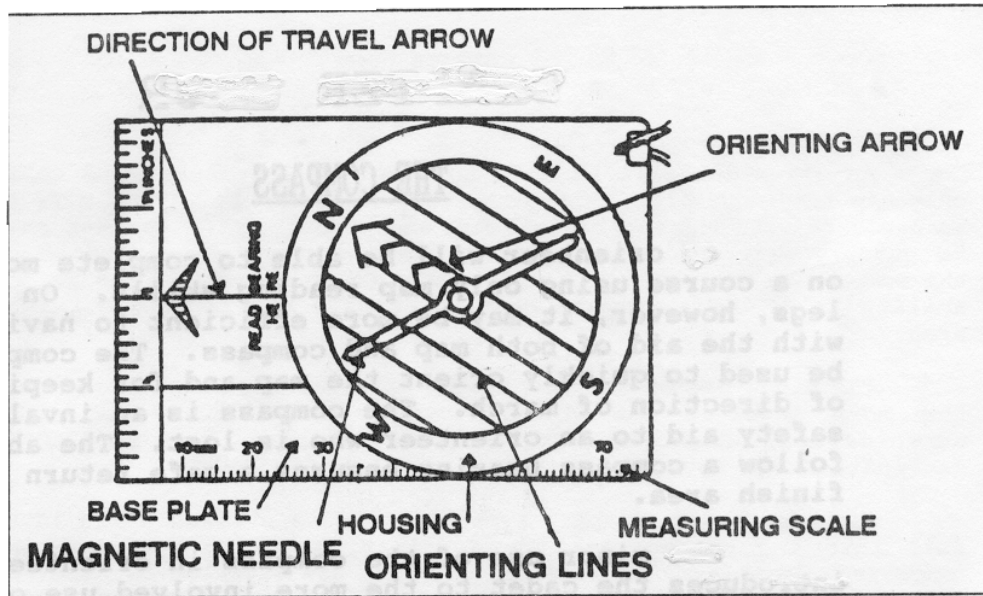
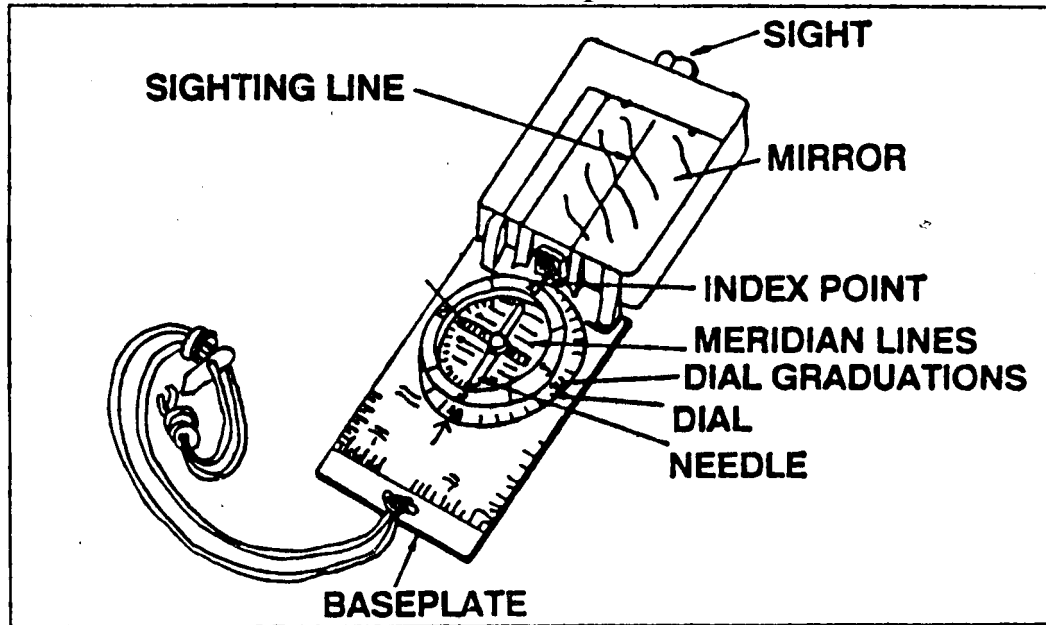


Silva 8 Combi



Suunto Arrow 5

Thumb Compasses



4. Compasses are available from Orienteering Ontario and most hardware & sporting goods stores.

RULES FOR THE CARE OF THE COMPASS

- a. must be fastened to the orienteer by a lanyard. Most orienteers prefer the compass tied to the wrist, not around the neck or tied to a pocket.
- b. the compass should be dried carefully to remove grit that might make the

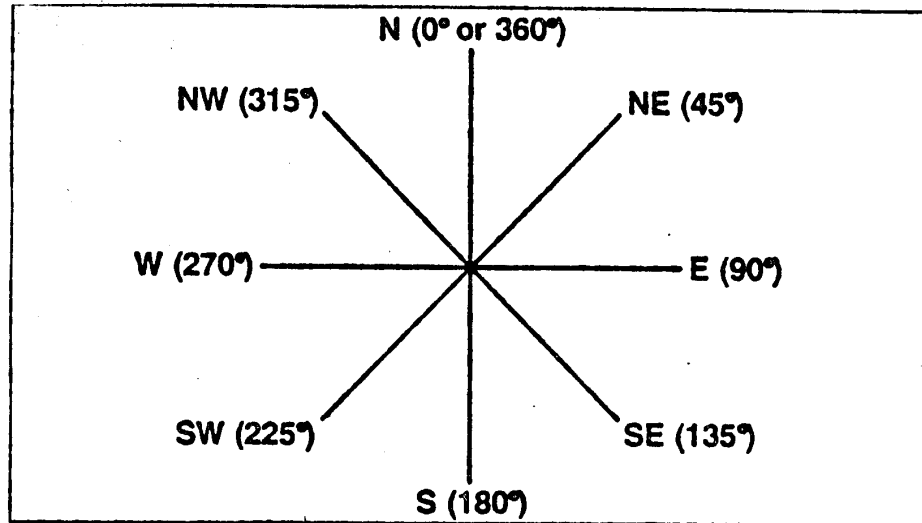
housing stiff.

- c. should be stored closed and flat to allow the needle to swing freely.
- d. iron or steel objects and electrical devices may attract the needle if close to the compass. Prolonged exposure may reverse the polarity of the needle.
- e. do not expose the compass to extreme high temperature such as metal surfaces in the sun. The expanding liquid may damage the capsule. Likewise, do not store where temperatures can be very low, as contracting liquids may cause a bubble to form. Silva compasses are test proven from -40 to 50 degrees C.
- f. do not store a compass in your glove compartment, where both heat and surrounding metal will degrade its accuracy.

5. It is a good idea to use an electric engraving pencil to etch the unit number and a serial number in the baseplate so that the compass can be identified (e.g., 1234-1). Wooden storage boxes are easily fabricated or plastic boxes can be purchased that will hold compasses and whistles.

CARDINAL POINTS OF THE COMPASS

6. Orienteers must be familiar with the eight basic points of the compass and their equivalents in degrees and they must also be aware that the “top” of the map is north and that the lines and arrows on the map point to magnetic north. As the maps are usually fairly current, are of large scale and the distances covered are relatively short, the movement of the magnetic pole and, therefore, declination, is not important and can be ignored. On compasses with adjustable declination scales, the declination or variation should be set at zero to avoid confusion.

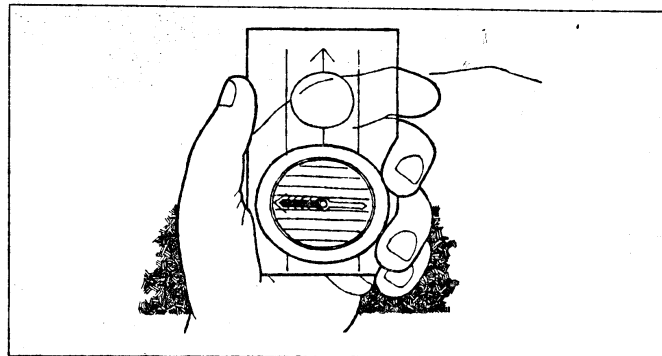
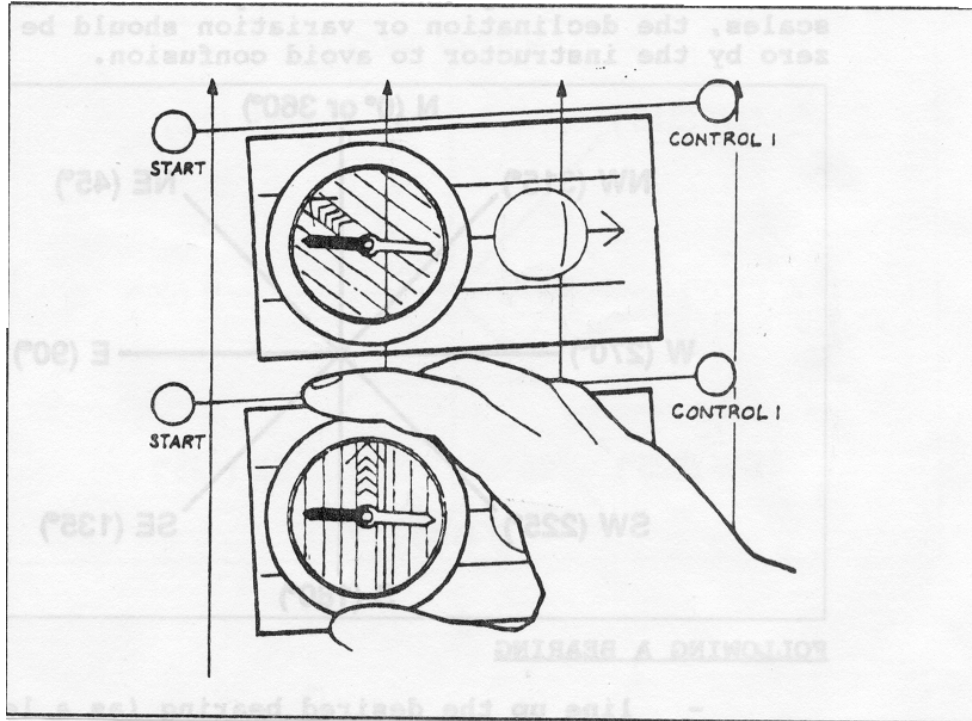


FOLLOWING A BEARING

- a. line up the desired bearing (as a letter or degree value) with the direction of travel arrow.
- b. hold the compass level in the palm of the hand at about waist height.
- c. turn yourself and the compass until the red end of the compass needle is between the orienting marks or in line with the orienting arrow.
- d. proceed in the direction indicated by the direction of travel arrow on the baseplate. It is a good idea to pick an object line with the arrow and walk to it.

PICKING A BEARING OFF THE MAP

7. To find the direction from one point to another, line up the edge of the baseplate with the two points on the map and, disregarding the needle for now, turn the housing until the orienting lines are parallel to the magnetic north lines on the map. Read the bearing at the direction of travel arrow and/or march on it as before.



SHOOTING A BEARING

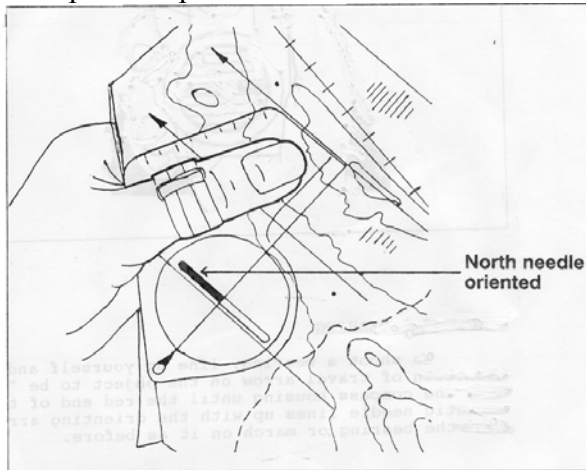
8. To shoot a bearing, line up yourself and the direction of travel arrow on the object to be “shot”. Turn the compass housing until the red end of the magnetic needle lines up with the orienteering arrow. Read the bearing or march on it as before.

SAFETY BEARING

9. The control description sheet should include a safety bearing and quit time. If the orienteer becomes lost, it is a simple matter to set the safety bearing on the compass and march on the bearing to a major unmistakable linear feature such as a road, fence, railway, river etc. Cadets should be practised in this before orienteering.

THUMB COMPASSES

10. As cadets become more advanced at orienteering, the unit may wish to invest in thumb compasses. The thumb compass (ie Silva Type 6) is normally fastened to the left-hand thumb for right-handed people or the right hand thumb for left-handed people. This requires a carrying technique in which the thumb compass and the folded map are held firmly in one hand. The thumb is used to keep track of the orienteer's position on the map and the compass is used to keep the map oriented.



CHAPTER FIVE

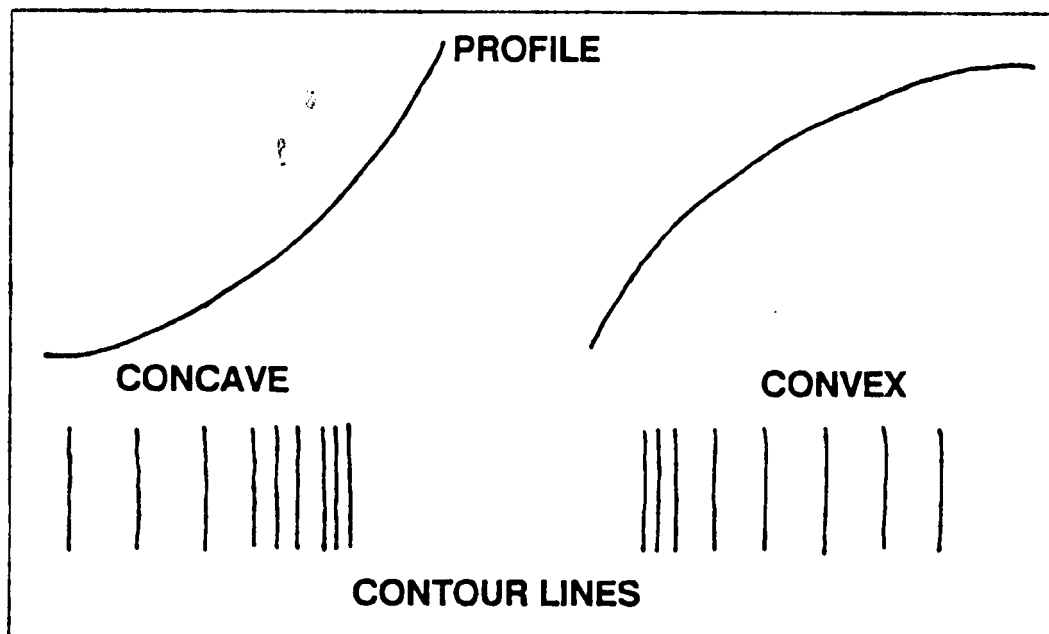
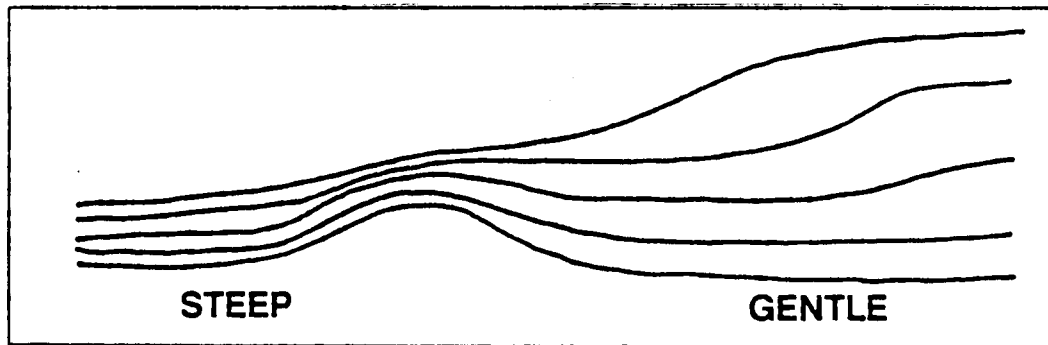
CHAPTER FIVE

CONTOURS AND LANDFORMS

1. Contours and landforms are shown predominately in brown but some spot features are shown in black on the orienteering map. They are one of the more important aids to orienteering and a thorough understanding of them is essential to be a good orienteer.

CONTOUR LINES

2. A contour line is an imaginary line joining points of equal elevation above mean sea level. Their spacing and shape illustrate the shape of the ground. Contour lines drawn close together represent a steep slope while those far apart indicate a gentle slope.



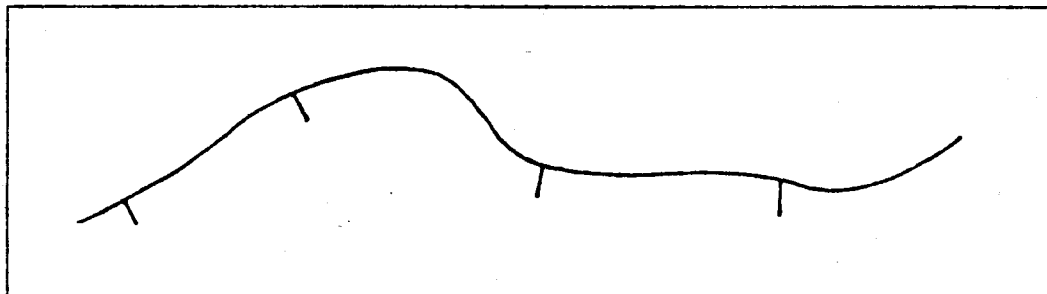
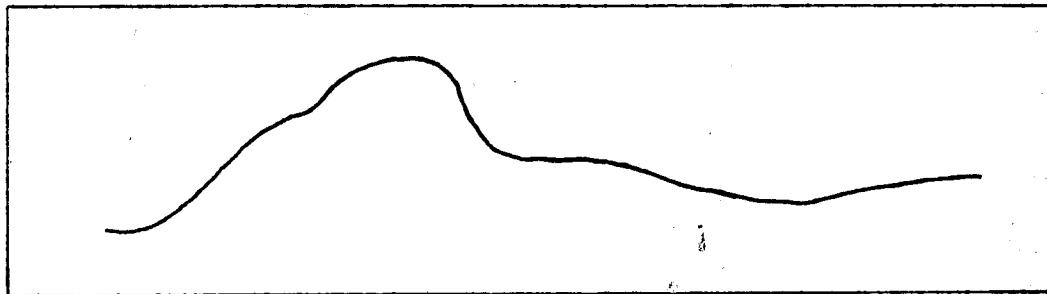
3. The contour interval is the vertical distance represented between two adjacent contour lines and can vary from map to map. Five metres is common, however, areas with relatively little relief might require a smaller contour interval (2.5 m) to show sufficient detail.

4. Index contour lines (heavier or darker brown) are sometimes used to show every fifth contour to help keep track in areas with much relief.

5. Actual elevations above sea level are not shown on orienteering maps as the elevation is not required for orienteering. The shape of the ground is what is important.

SLOPE LINES

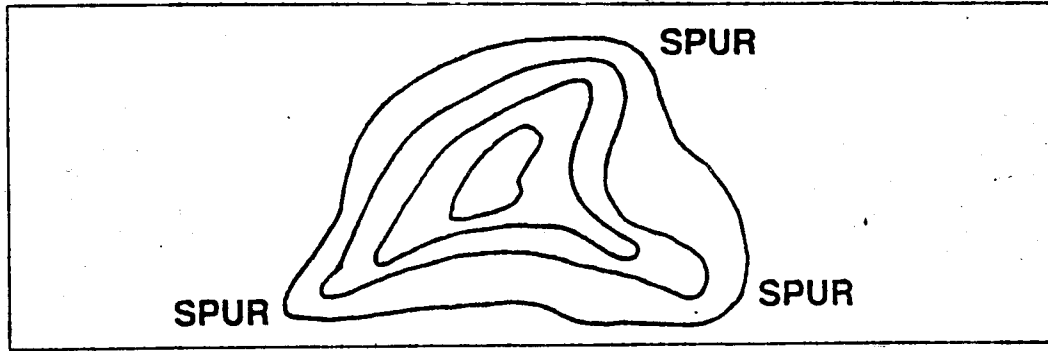
6. As there are no elevations above sea level shown on an orienteering map, it is sometimes necessary to show slope. If a contour on relatively flat surround land as we really don't know which is up and which is down. Slope or "tag" marks are used to show downhill.



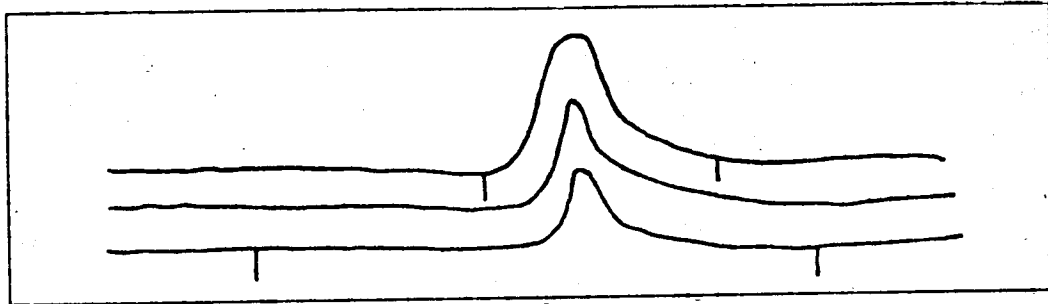
CONTOUR FEATURES

7. Many contour features have special names:

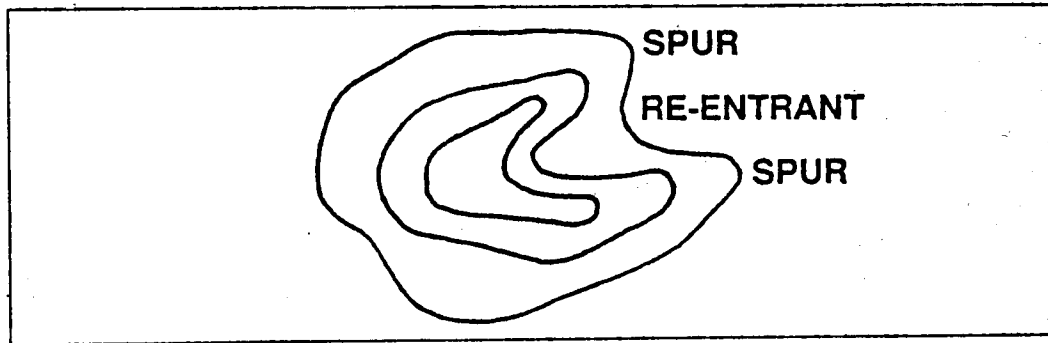
- a. **Spur** - a projecting high point of land with low ground on three sides.



- b. **Re-Entrant** - really the opposite of a spur. A re-entrant is an opening into a slope of hill. It frequently has a stream in the bottom of it.

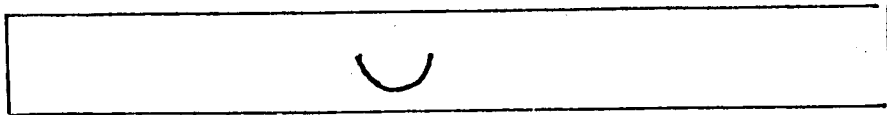


A re-entrant sometimes has a spur on either side of it.

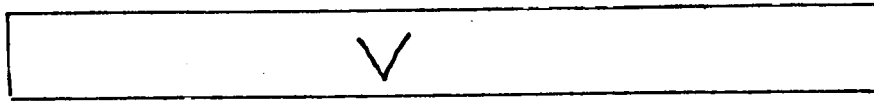


A re-entrant can also be considered a valley closed off at one end.

- c. **Depression** - A depression is an area of land lower than the surrounding land. Small depressions are shown as:

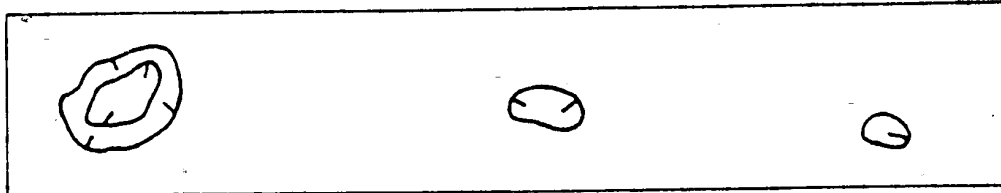


Pits are really small, man made depressions shown as:

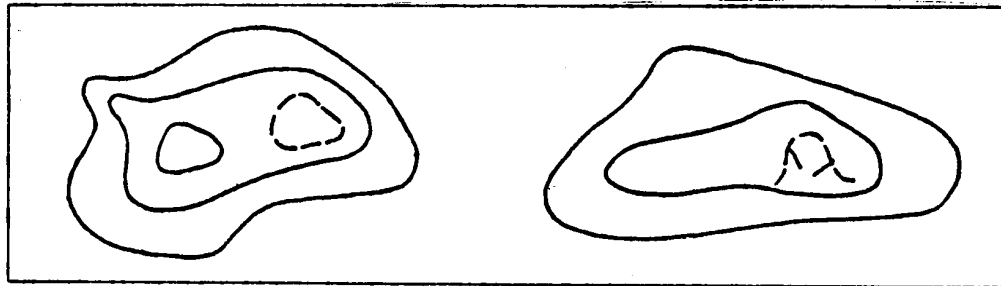


In military training areas, they are usually old fire trenches that haven't been properly filled.

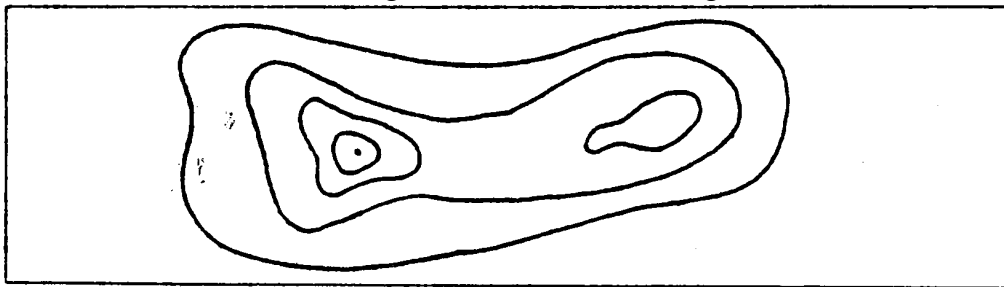
Large depressions are shown by regular contour lines but have tag marks added to show downhill.



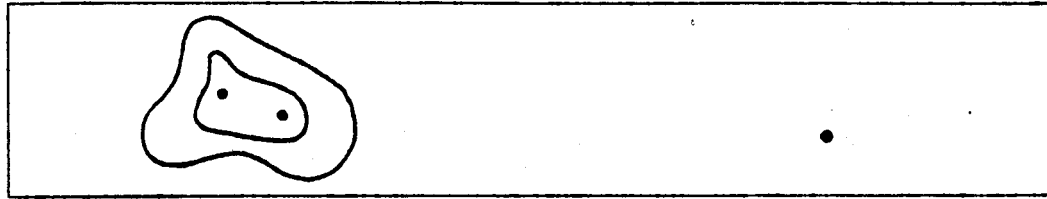
d. **Form Lines** - Form lines are not used on topographic maps. They are dashed brown lines used on orienteering maps to show usable and recognizable features that are not large enough to be cut by a contour line. A hill could be as high as 4.5 m and not hit a contour line.



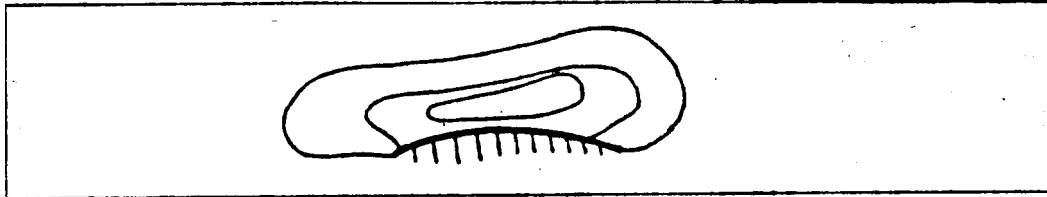
e. **Saddle** - A saddle is a lower piece of ground between two peaks or knolls, but at some height above the surrounding area.



f. **Knoll** - a "bump" on the ground or the very tip of a hill. A knoll is too small for a contour or form line but is a recognizable feature shown on the map as a brown dot.

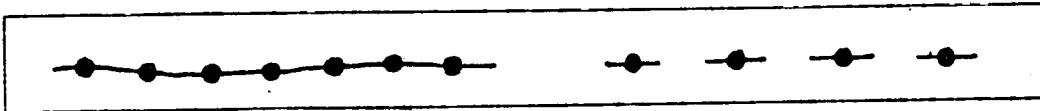


g. **Earth Bank** - an earth slope so steep that there is no vegetation on it. They usually occur at river bends and are caused by erosion.



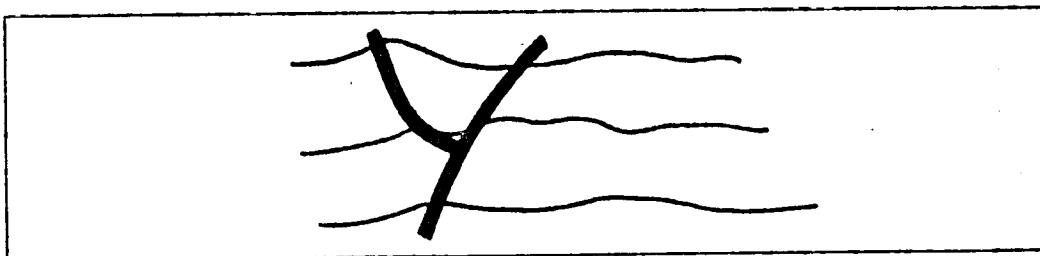
The straight line segments represent the erosion lines.

h. **Earth Wall** - usually the pile of dirt left over from digging a ditch.



The long line represents the ridge while the short lines again represent the erosion lines.

i. **Gully** - a gully is usually too steep and narrow to be shown on a map as contour lines. They are represented as:

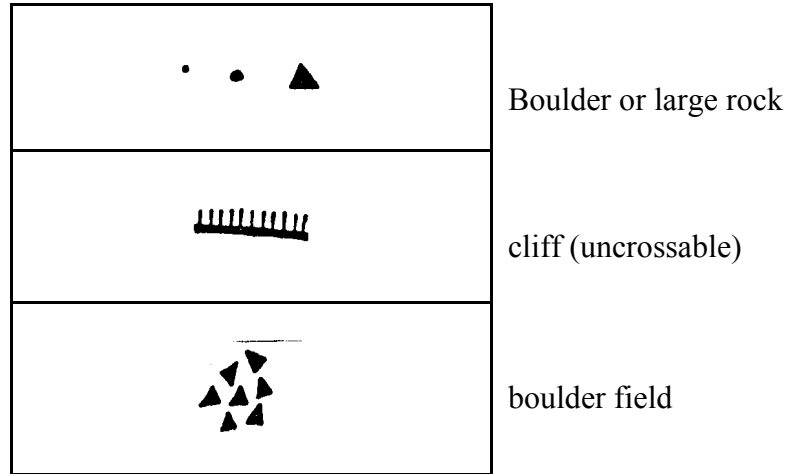


A small gully or dry ditch is shown as a row of brown dots.



The decision between a gully and small gully is at the discretion of the map maker.

8. Some contour information is shown in black. This includes:



9. The ability to quickly read contour information develops with experience and is a very valuable orienteering tool. More information on contours is contained on the IOF orienteering map symbols sheet contained in Chapter 3.

CHAPTER SIX

CHAPTER SIX

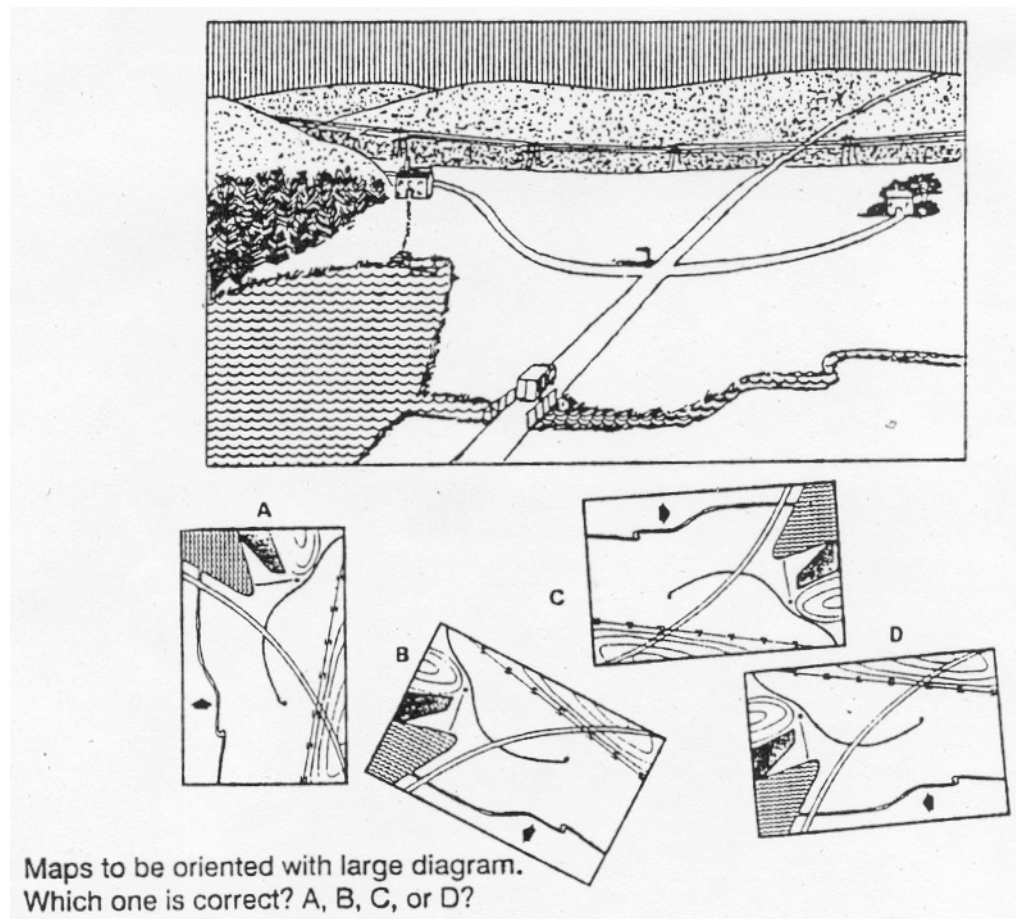
ORIENTEERING TECHNIQUES

1. Both physical (rapid movement) and technical (efficient navigation) skills are required to orienteer effectively and successfully. They must be developed simultaneously to make a competitive orienteer. In the cadet system, the emphasis is more on technical ability as courses tend to be longer and orienteering sessions are not run frequently. The younger cadets especially get much more satisfaction in finding the control markers than running the course for a good time.

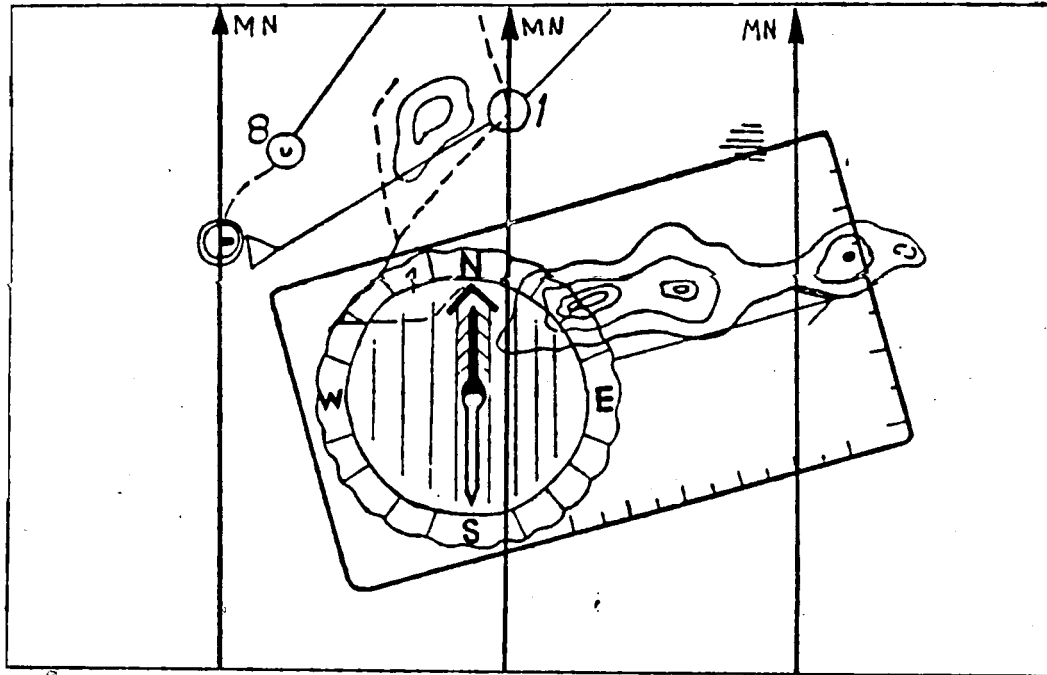
ORIENTING THE MAP

2. This is one of the more important topics included in orienteering techniques and must be developed early. There are two methods:

3. **Orienting by Inspection** - This method should be used more frequently and involves closely relating the information on the map with the corresponding information on the ground. All the features should line up.



4. **Orienting by Compass** - This method is used in areas where there are not a lot of easily distinguishable landmarks. Line up the meridian lines with the magnetic north lines on the map and turn the map, compass and body until the magnetic needle is inside the orienting marks.



5. It is much more effective to teach inspection first as it relies on an ability to relate the map to the ground. It is very important to keep the map oriented. Many novice orienteers get lost or off course because they didn't keep the map oriented.

KEEPING PLACE ON THE MAP

6. Most orienteers fold and refold their map and the bag it's in as they go so that they can keep their thumb (left hand for right-handed people) on their location or route and turn the map to keep it oriented. Thumb compasses are ideally suited to this practice in that they are strapped to the thumb allowing quick reading of distance using the attached scale bar and quick compass orientation of the map. Remember there are both left & right hand models, and typically people prefer the compass on their non-dominant hand ie on their left hand for right handed people and vice versa for left handed people.

GETTING FROM A TO B

7. There are many aids to navigation and route selection and the use of them is what makes one orienteer better than another. There is usually more than one route from A to B.

HANDRAIL

8. A handrail is a linear feature (or series of linear features) that leads in the general direction of the next control. The orienteer can travel on or beside the handrail to get closer to the control. Examples of handrails are: paths; ridges; valleys; tree lines; hydro or phone lines (when shown) or fences.

CATCHING FEATURE

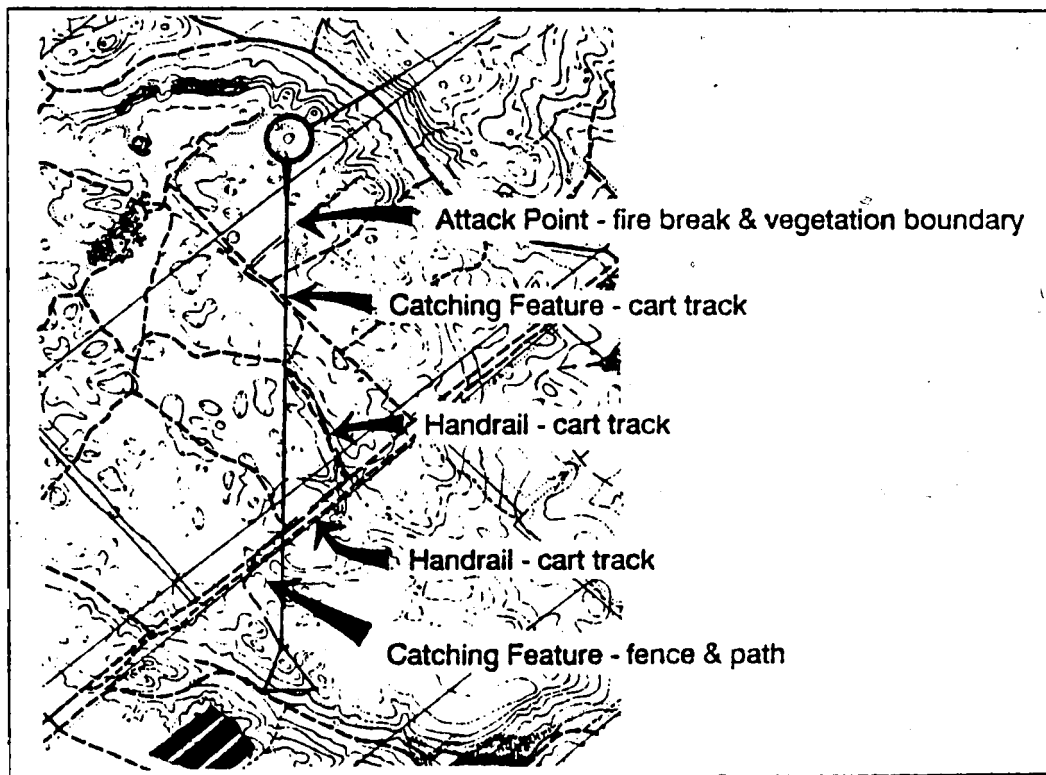
9. A catching feature is a recognizable feature along the handrail or route that helps the orienteer keep track of where he or she is. Examples are: paths, cluster of trees; knoll, intersections; bridges; buildings; bends in trails etc.

ATTACK POINT

10. A distinctive feature close to the control where the orienteer leaves the handrail (if necessary) to carefully navigate to the control.

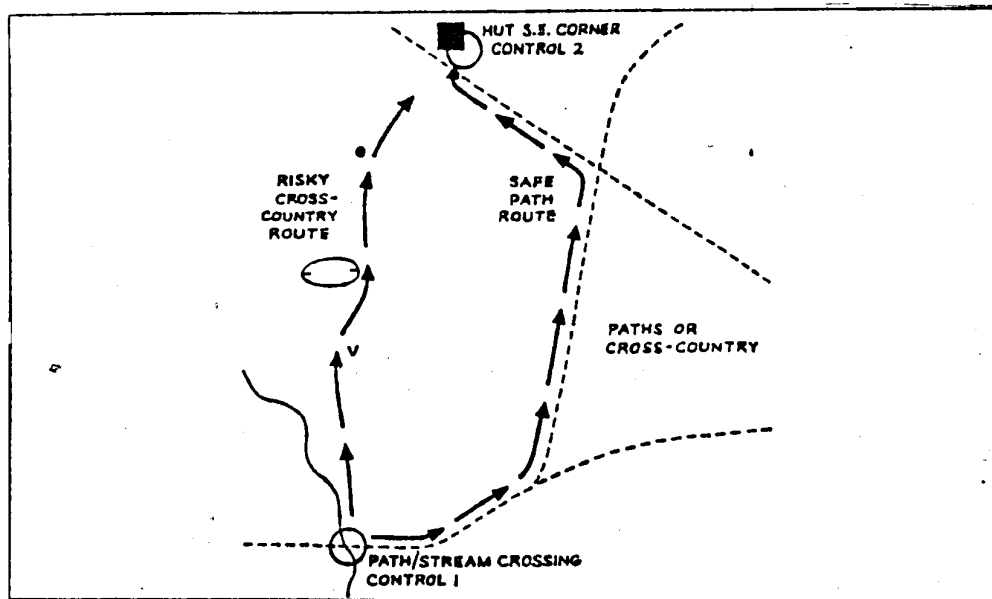
STOPPING OR ARRESTING FEATURE

11. A stopping or arresting feature is a special catching feature past the attack point that alerts the orienteer that they have gone too far. Example: "If I hit the bridge over a stream, I know I have gone too far."



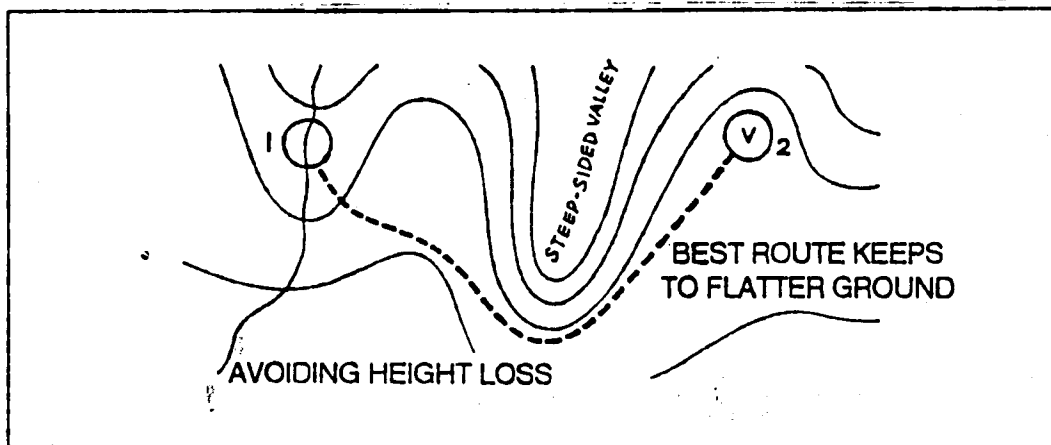
SHORT HARD VERSUS LONG EASY

12. A choice often exists between hard, short straight line route or a longer, easier route. One choice might be over a steep hill through heavy bush compared with following a track around the hill. The experience and condition of the orienteer play important parts in making the choice but with novices, it is usually better to take the easier/longer route. With practice, the orienteer can start cutting corners and taking short cuts, however...



HEIGHT LOSS

13. Try to avoid unnecessary height loss or gain, as they both use up precious energy. If a short detour will eliminate going into a deep gully and then out of it, take the short detour. The size of the detour allowed varies with experience and condition.

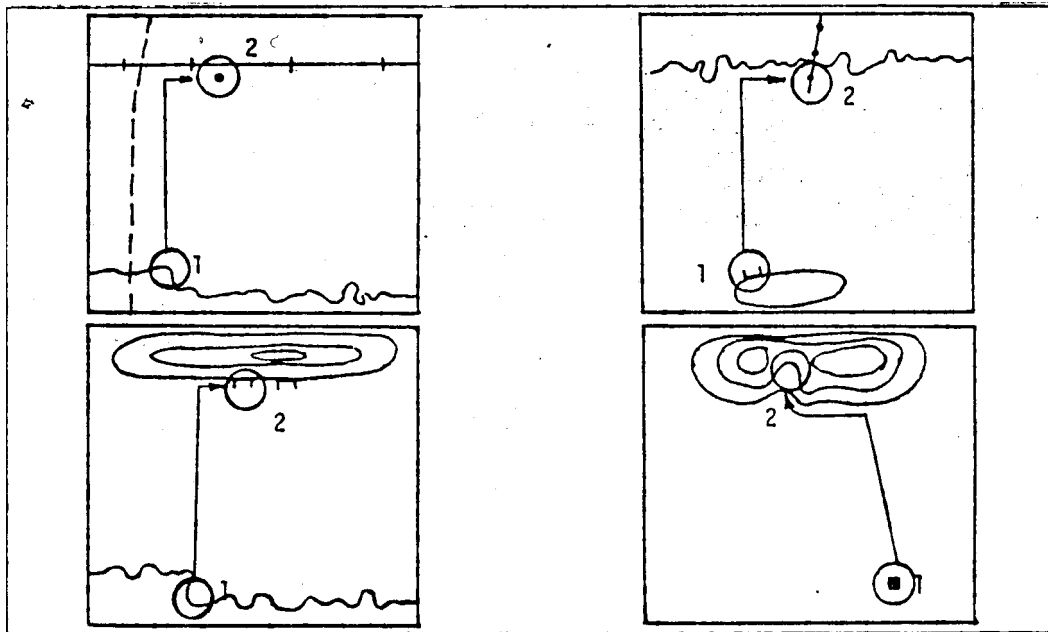


CHECKING YOUR POSITION

14. Keep reading the map. It is much more important to keep track of where you are than it is to be fast. Constant reference to the map is vitally important. Slower orienteers who know where they are on the map are not lost, they are successfully orienteering. **Remember** - First you get good, then you get fast.

AIMING OFF

15. It can be very difficult to navigate through bush to find a point on a linear feature such as a stream or trail. If you aim directly for the point, wander off course just a bit, step out of the bush and the point isn't in sight, which way do you turn? Purposely aiming to one side or the other will mean that you know which way to turn. Aim purposely to the left, then you will know to turn right when you hit the linear feature.



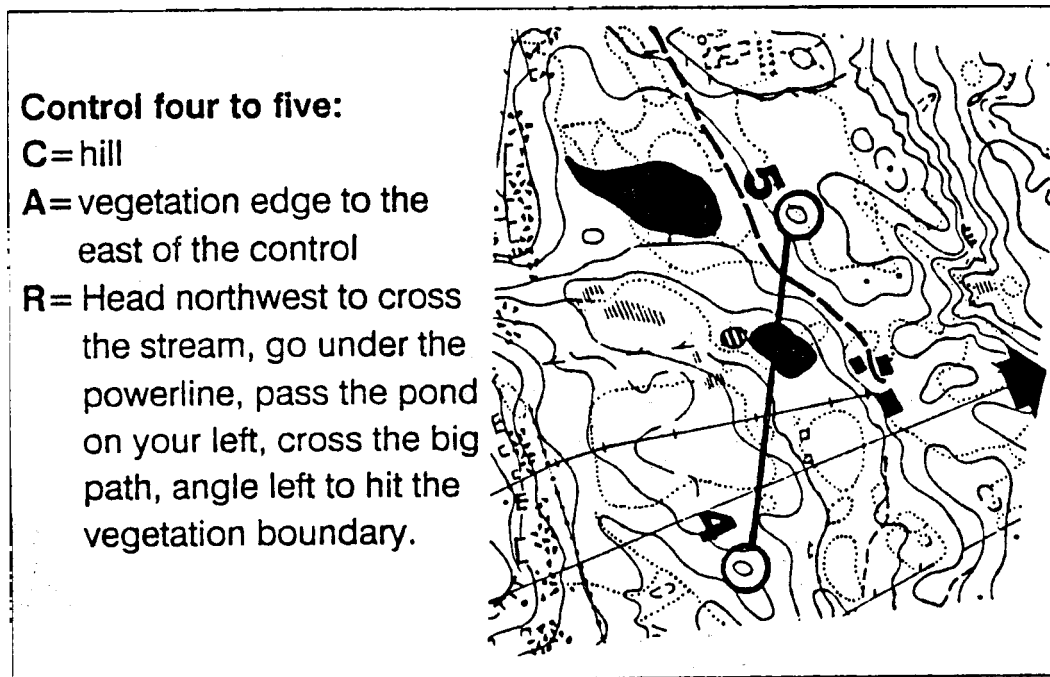
PACING

16. At times, pacing is about the only method that can be used to keep track of where you are. The average marching pace is thirty inches. A running or jogging pace is longer. Rough ground, hills (up and down) and tiredness all shorten the pace. The actual length of pace varies from person to person and should be checked over known distances. Pacing should be avoided over long distances, as it is easy to lose track. Counting every other pace is a recommended orienteering technique.

CAR

17. CAR is an acronym used frequently by orienteers to assist with route selection.

- C** - **Control** - What specifically is the orienteer trying to find? A hill, rock, tree, intersection etc.
- A** - **Attack Point** - The orienteer must choose one, which is easy to identify. It is often the feature at which the orienteer leaves the handrail to make a final approach to the control.
- R** - **Route** - The orienteer must choose and plan the actual route to the attack point.



STOP LIGHT APPROACH

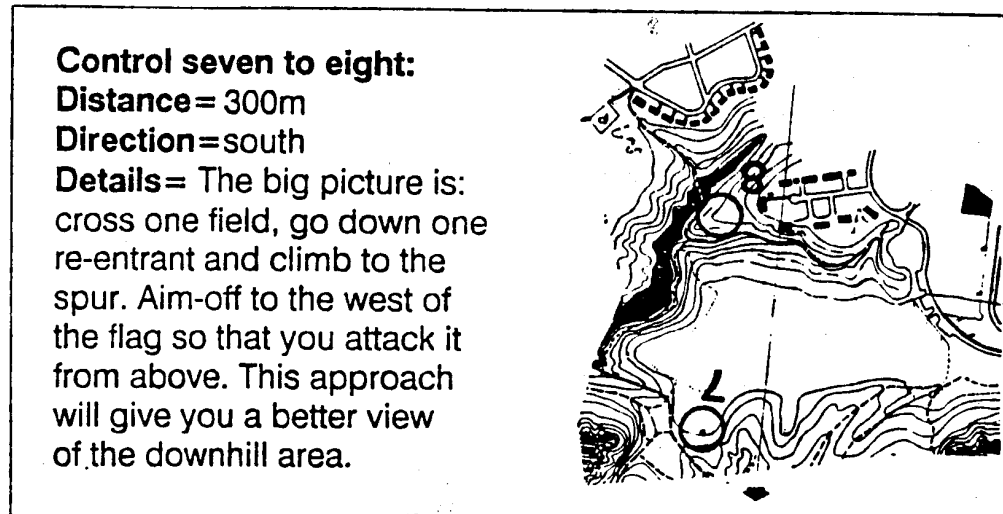
18. With experience, the orienteer will be able to use this approach to break each leg into different speeds.

- Green Light** - fast running along the handrail
- Yellow Light** - slow down, at or near the attack point
- Red Light** - slower yet for difficult map reading to find the control.

DDD

19. Along each leg, the orienteer must keep track of:

- D** - **Distance** - how far has the orienteer gone? How far to go?
- D** - **Direction** - what direction should he be going in?
- D** - **Details** - what are the details he needs to notice?



A METHODOICAL APPROACH

- First Smart, Then Swift -

20. Orient the map with your thumb marking present location. Examine the next control and surrounding area. (C)
21. Select an attack point. (A) Analyse the leg looking for navigational aids such as handrails and catching features.
22. Select a route to the attack point. (R) Keep aware of the three Ds.
23. Re-check map orientation.
24. Follow the route to the attack point, map reading by thumbing and checking off handrails, catching features and terrain detail en route. Adjust speed as required. (Stop Light).
25. From the attack point, re-orientate and proceed with extra caution to the control.
26. The first couple of controls, if done slowly and carefully for success, help the orienteer build self confidence. The orienteer can also check the reliability and accuracy of the map.

OTHER ROUTE PLANNING ACRONYMS

27. **Armchair Orienteering II** - discuss several other route planning approaches such as:

CAR T - CAR plus T for the **Technique** the orienteer will use such as aiming off, rough compass etc.

CART T - CART plus T for the **Tempo** or speed the orienteer will use on different parts of the leg.

CARTT SH -for **Stopping** (or arresting feature) and H for **Handrail**.

CARTTSH - all the above combined.

Armchair Orienteering I & II are books that have several worthwhile drills to assist with teaching these approaches (see Annex B).

Start	Parking Area/Intersection	
1	WD West Pit	390 m
2	GH Clearing in Intersection	170 m
3	BF Intersection	220 m
4	RC Loop in road	700 m
5	DC Small depression	230 m
6	XR Tall pine in semi open area	250 m
7	BO West end of culvert	640 m
8	TN Loop in road	300 m
9	CB North building	230 m
Finish	Parking area/intersection	500 m 3630 m

Safety Bearing Northeast to paved road.

Course	3	Date	4 Oct 89
Name	SHLUNK J		
Unit	1188 LORNE SCOTS		
Finish	93	Start	28
Elapsed Time	69	3.5	
Start Time	28		
Course	3		
Elapsed Time	69	3.5	
SHLUNK J			
Unit	1188	Final Result	69 3.5

CHAPTER SEVEN

CHAPTER SEVEN

COMPETING

1. Cadets can orienteer with only the basic information of the previous chapters. Twenty minutes plus a short walk around are enough to get them out orienteering on a simple course in groups of three or more. In order to become an efficient orienteer, more training is, however, necessary. Competitions and training events vary a lot in sophistication and procedures. At the basic level, it is best to provide pre-marked maps and control descriptions written out in English for the orienteers. The map, compass, control description sheet and control card are usually handed to the orienteer about two or three minutes before his/her/their start time. It is not a bad idea to let cadets' orienteer in small groups on their first couple of courses. If there are more than three per group, however, some will not be able to properly see the map, and you run the risk of having one or two do all the work and the rest only following. You can issue additional maps so that every orienteer has his/her own map, even if they are on a team.

2. The course is laid out in red on the map, which is inside a clear plastic bag along with the control description sheet and the control card. A red triangle is used to indicate the start (pointed toward the first control). Numbered red circles are used to indicate the controls and two concentric red circles are used to show the finish. The start, controls and finish are joined by red lines, which do not indicate the actual route. If the start and finish are at the same point, then the larger of the two finish point circles is drawn around the red triangle. The numbers of the controls are always positioned so you can read them properly from the bottom or south end of the map.

3. The orienteers have at least one minute to study the map, orient it and use CAR before being dispatched at one minute intervals. In very open areas, the interval can be lengthened to cut down on following. The orienteer must navigate to the various controls in order, punching their control card at each control. Usually the control card is inside the map case and can be punched through the case. The control description card shows a control code, which must match the code on the orange and white control marker. Sometimes more than one course is run in the same area and punching the wrong control disqualifies the orienteer. On completion of the course, the orienteer hands in his map case complete. The punch patterns are checked and a result time is posted.

4. Most training at the cadet corps level will be run using this format and one or more courses at a time for novice and more experienced cadets. The more classes and corresponding courses you have, the less time will be spent lining up and waiting to be dispatched, as more will start at the same time (each on a different course). Central Region competitions break the cadets down into the following classes:

Junior Male (12-14), Intermediate Male (15-16), Senior Male (17-18)

Junior Female (12-14), Intermediate Female (15-16), Senior Female (17-18)

5. Orienteering Ontario uses an electronic system called SPORTident that utilizes a serialized key that a competitor straps onto their non-compass hand. At each control, there is a device that both sends and receives data when the competitor places their key in the designated spot and hears a beep. Upon completion of the course, the competitor downloads the data in their key into the master computer, which immediately stores and prints out the results. The punch at each control is only a backup in the event the device fails and the competitor needs to prove they were there. This system makes scoring almost instantaneous and avoids the long times needed to manually mark and record scores.

MORE ADVANCED COMPETITION

6. More advanced competitions involve the orienteer marking his/her own map. For this, map marking templates are a good idea. At orienteering events red pens are tied to a master map board. At registration participants receive maps, map cases, course descriptions and control cards. They can then copy their course onto their map. In a more advanced competition, such as an A meet, pre-registration will ensure that every orienteer receives pre-marked maps at the start. Cadet area & regional competitions issue the pre-marked maps one or two minutes before the start time.

7. Generally there is some kind of start gate arrangement with a three minute line, two minute line and start line. At some point, part of the control card is handed in. Every minute, competitors move up one line, spending one minute at the start line before following a usually taped route to the map marking area. Sometimes map marking is done before the start and is not included as part of the competition time. It is worthwhile spending time at the map marking stage to make sure it is done properly and neatly before starting on the course.

8. Once the map is marked, the orienteer uses route selection procedures to go to the controls in sequence.

9. At the finish, there is usually some kind of gate system with marked lanes leading to it where the orienteer is clocked in, returns his control card and map and winds down. After processing, results will start to appear.

10. For cadet practices & competitions, it is essential that there is supervision out in the training area with communication ie radios or cell phones. Since cadets may be running through treed areas or over rough ground, the chance of injury exists and therefore the staff must make every effort to prevent and treat such injuries as quickly as possible.





























11. Contact Orienteering Ontario to get information on orienteering competitions in your area or clubs that may be willing to assist in training or conducting competitions for your unit.

CHAPTER EIGHT

CHAPTER EIGHT

IOF SYMBOLS

1. Many more advanced competitions including the Central Region area & regional competitions make use of International Orienteering Federation (IOF) symbols and format when making course Description Sheets. This is especially important in international competition where not everybody speaks the same language. The control description card with the IOF symbols looks like this:

IOF Event Example					
M45, M50, W21					
5		7.6 km		210 m	
					
1	101				
2	212			1.0	
3	135				
4	246				
5	164				
○----- 120 m ----->					
6	185				
7	178				
8	147			2.0	
9	149				
○----- 250 m ----->◎					

2. See the section on the IOF Symbols provided on the International Orienteering Federation's website.

3. While most introductory and junior civilian competitions make use of written descriptions instead of IOF descriptions, advanced training & competitions could include the use of IOF descriptions.



International Control Description Symbols have solved the problem of language translation.

International Specification for Control Descriptions

IOF Event Example					
M45, M50, W21					
5		7.6 km		210 m	
1	101				
2	212			1.0	
3	135				
4	246				
5	164				
○----- 120 m ----->					
6	185				
7	178				
8	147			2.0	
9	149				
○----- 250 m ----->⊙					



INTERNATIONAL ORIENTEERING FEDERATION

2004

INTERNATIONAL ORIENTEERING FEDERATION

Radiokatu 20, FIN-00093 SLU, Finland

<http://www.orienteering.org>

IOF RULES COMMISSION:

David Rosen (chairman), Vincent Frey, Unni Strand-Karlsen

Editor:

Barry Elkington

Artwork based on the 1990 edition with additional drawings by Matthew Cook.

Map sections by Jukka Liikari.

Layout: Pirjo Valjanen.

IOF Control Descriptions

Major Changes to the 1990 version:

- 1) Names and descriptions brought into line with the ISOM 2000 terminology.
- 2) Removal of 1990 symbols for Rib, Cairn/stone pile, Small marsh, Ditch, Felled area, Hedge.
- 3) Removal of Additional symbol for Salt Lick.
- 4) New symbols introduced for Boulder cluster, Water tank or trough, Tunnel, Crossing point, Paved area, Pipeline, Low, Beneath.
- 5) Change of symbol for Copse, Distinctive Tree.
- 6) Redefinition of symbol previously used for Seasonal watercourse.
- 7) Three new symbols introduced for use in Park/Sprint 'O'.
- 8) New special instruction lines introduced for Taped Route between control sites, Mandatory Crossing Points between controls, and Mandatory Route through Out of Bounds.
- 9) Crossing and Junction symbols moved to Column F, and both features must always be shown in columns D and E.
- 10) Between symbol remains in Column G, but both features must now be shown separately in columns D and E.
- 11) Clarification of when Column G - Location of the control flag needs to be used.

Introduction

Orienteering is a worldwide sport. It is the aim of the IOF control description symbols to provide a stable means for orienteers from all countries to be able to understand control descriptions without ambiguity or the need for language translation. This booklet shows how the symbols can be used to do this.

How IOF control descriptions work

The purpose of a control description is to give greater precision to the picture given by the map of the control feature and the location of the control flag in relation to this feature.

However, a good control is found primarily by map reading. Descriptions and codes can assist in this task, but should be kept as short and simple as is necessary to locate the control.

Note: Control descriptions should not be used to correct map errors.

Sample control description sheet

IOF Event Example				
M45, M50, W21				
5		7.6 km		210 m
1	101			
2	212		1.0	
3	135			
4	246			
5	164			
○--- 120 m --->				
6	185			
7	178			
8	147		2.0	
9	149			
○--- 250 m --->⊙				

Control Descriptions for IOF Event Example		
Classes M45, M50, W21		
Course number 5	Length 7.6 km	Height climb 210 m
Start		Road, wall junction
1	101	Narrow marsh bend
2	212	North western boulder, 1 m high, east side
3	135	Between thickets
4	246	Middle depression, east part
5	164	Eastern ruin, west side
Follow taped route 120 m away from control		
6	185	Stone wall, ruined, south east corner (outside)
7	178	Spur, north west foot
8	147	Upper cliff, 2 m high
9	149	Path crossing
Follow taped route 250 m from last control to finish		

Control description sheet format

The control description sheet for an orienteering course contains the following information:

Heading

Start Location

Description of individual controls, incorporating any special instructions such as the length and nature of any marked route during the course

Nature of route from the last control to the finish

When printed, the description sheet boxes should be square, with a side dimension of between 5mm and 7mm.

When control descriptions are provided in a written form the overall presentation should be similar to that of the pictorial version, and the description of the individual controls written, as far as possible, in the same order as for the pictorial version.

Heading

Event title.

Classes (optional line).

Course code; Course length in kilometres to the nearest 0.1km; Height climb in metres to the nearest 5m.

Start location

Shown in the first line of descriptions, using the description as if it were a control feature.

Description of individual controls

These are in the order in which they are to be visited, and may incorporate special instructions such as the length and nature of any marked route during the course. A thicker horizontal line should be used after every third description and on either side of any special instruction.

<table border="1"> <thead> <tr> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> <th>F</th> <th>G</th> <th>H</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>225</td> <td>↘</td> <td>⊙</td> <td>⊞</td> <td>8x4</td> <td>◀</td> <td>🚶</td> </tr> </tbody> </table>	A	B	C	D	E	F	G	H	2	225	↘	⊙	⊞	8x4	◀	🚶	A	Control number
	A	B	C	D	E	F	G	H										
	2	225	↘	⊙	⊞	8x4	◀	🚶										
	B	Control code																
	C	Which of any similar feature																
	D	Control feature																
	E	Appearance																
	F	Dimensions / Combinations																
G	Location of the control flag																	
H	Other information																	

Explanation of Columns

Each control is described in the following manner:

Column A - Control number

Numbering of controls is in the sequence they are to be visited, unless the description is for a Score competition.

Column B - Control code

The control code should be a number greater than 30.

Column C - Which of any similar feature

This column is used when there is more than one similar feature within the control circle; e.g. south eastern.

Column D - Control feature

The feature, as shown on the map, at the centre of the circle defining the control site; e.g. clearing; boulder. The description of each control is based on the International Specification for Orienteering Maps (ISOM 2000).

Column E - Appearance

Further information on the nature of the feature if it is required; e.g. overgrown; ruined.

In certain circumstances also used for a second control feature where the description requires this.

Column F - Dimensions / Combinations

Dimensions of the feature should be given where the size of the control feature on the map is symbolic rather than to scale.

Also used for the two combination symbols (crossing; junction).

Column G - Location of the control flag

Position of the control flag with respect to the feature; e.g. west corner (outside); south foot.

Column H - Other information

Other information that may be of importance to the competitor; e.g. radio control; refreshments.

Special Instructions

These lines go in the body of the descriptions and give specific information about the nature of the route that must be followed at that point; e.g. follow taped route for 50m away from the control; use mandatory crossing point.






Nature of route from the last control to the Finish

This line shows the distance from the last control to the finish, and the nature of any taped route at the finish.

Explanation of Symbols











Where an ISOM reference number is given this shows the relationship to the map symbol as defined in the ISOM 2000 specifications.

Column C - Which of any similar feature

Ref.	Symbol	Name	Description
0.1		Northern	The more northern of two similar features, or the northern-most of several similar features.
0.2		South Eastern	The more south eastern of two similar features, or the south-eastern-most of several similar features.
0.3		Upper	Where the control feature is directly above a similar feature.
0.4		Lower	Where the control feature is directly below a similar feature.
0.5		Middle	Where the control feature is the middle one of a number of similar features.

Column D – The Control Feature

Land forms (ISOM section 4.1)












Ref.	Symbol	Name	Description	ISOM
1.1		Terrace	A level area on a slope.	
1.2		Spur	A contour projection or “nose” rising from the surrounding ground.	
1.3		Re-entrant	A contour indentation; a valley; the opposite of a spur.	
1.4		Earth bank	An abrupt change in ground level which can clearly be distinguished from its surroundings.	106
1.5		Quarry	Gravel, sand or stone working in flat or inclined ground.	106
1.6		Earth wall	A narrow wall of earth projecting above the surrounding terrain; may be partially stone faced, usually man-made. Used with symbol 8.11 to indicate a ruined earth wall.	107 108
1.7		Erosion gully	An erosion gully or trench, normally dry.	109
1.8		Small erosion gully	A small erosion gully or trench, normally dry.	110
1.9		Hill	A high point. Shown on the map with contour lines.	101 111
1.10		Knoll	A small obvious mound. Used with symbol 8.6 to indicate a rocky knoll.	112 113

Ref.	Symbol	Name	Description	ISOM
1.11) (Saddle	The low point between two higher points.	
1.12	⊖	Depression	A depression or hollow from which the ground rises on all sides. Shown on the map with contour lines.	114
1.13	∪	Small depression	A small, shallow, natural depression or hollow from which the ground rises on all sides.	115
1.14	∇	Pit	A pit or hole with distinct steep-sides. Usually man made. Used with symbol 8.6 to indicate a rocky pit.	116 204
1.15	∪ ∪ ∪	Broken ground	Clearly disturbed ground with features too small or too numerous to be mapped individually; including animal earths.	117
1.16	⋆	Ant hill (termite mound)	The mound made by ants or termites.	





Rock and boulders (ISOM section 4.2)







Ref.	Symbol	Name	Description	ISOM
2.1	▬▬▬	Cliff, Rock face	A cliff or rock face. May be passable or impassable.	201 203
2.2	▲	Rock Pillar	A high, natural rock projection.	202
2.3	↘	Cave	A hole in a rock face or hill side, often leading to underground workings.	205
2.4	▲	Boulder	A prominent free-standing block of rock or stone.	206 207
2.5	▲▲▲	Boulder field	An area covered by so many boulders that they cannot be individually mapped.	208
2.6	▲▲	Boulder cluster	A small distinct group of boulders so closely clustered together that they cannot be individually mapped.	209
2.7	●●●●	Stony ground	An area covered with many small stones or rocks.	210
2.8	⋆	Bare rock	A runnable area of rock with no earth or vegetation cover.	212
2.9] [Narrow passage	A gap between two cliffs or rock faces that face each other.	

Water and marsh (ISOM section 4.3)









Ref.	Symbol	Name	Description	ISOM
3.1		Lake	A large area of water, normally uncrossable.	301
3.2		Pond	A small area of water.	302
3.3		Waterhole	A water-filled pit or depression.	303
3.4		River, Stream, Watercourse	A natural or artificial watercourse with either moving or standing water.	304-306
3.5		Minor water channel, Ditch	A natural or man made minor water channel which may contain water only intermittently.	307
3.6		Narrow marsh	A narrow marsh or trickle of water, too narrow to be shown on the map with the marsh symbol.	308
3.7		Marsh	A permanently wet area with marsh vegetation.	309-311
3.8		Firm ground in marsh	A non-marshy area within a marsh, or between two marshes.	309-311
3.9		Well	A shaft containing water or a captive spring, clearly visible on the ground. Often with some form of man-made surround.	312
3.10		Spring	The source of a watercourse with a distinct outflow.	313
3.11		Water tank, Water trough	A man made water container.	















Vegetation (ISOM section 4.4)

Ref.	Symbol	Name	Description	ISOM
4.1		Open land	An area with no trees. Grassland, a meadow or a field. Also heath or moorland.	401 403
4.2		Semi-open land	An area of open land with scattered trees or bushes.	402 404
4.3		Forest corner	The corner or tip of a forested area projecting into open land.	
4.4		Clearing	A small area of land free from trees within the forest.	401 403



Ref.	Symbol	Name	Description	ISOM
4.5		Thicket	A small area of forest where the tree cover or undergrowth is so dense that it is difficult to pass.	408 410
4.6		Linear thicket	A man-made line of trees or bushes that is difficult to cross.	410
4.7		Vegetation boundary	A distinct boundary between different types of trees or vegetation.	416
4.8		Copse	A small area of trees in open ground.	405 406
4.9		Distinctive tree	An unusual or distinctive tree in either open land or forest; frequently information is also given as to its type.	
4.10		Tree stump, Root stock	The stump of a tree. The upturned root of a fallen tree, with or without the trunk.	

Man-made features (ISOM section 4.5)

Ref.	Symbol	Name	Description	ISOM
5.1		Road	A metalled/asphalt surfaced or dirt road, suitable for vehicles in normal weather conditions.	501- 504
5.2		Track / Path	A visible route made by people or animals. Tracks may be driven by rugged vehicles.	505- 508
5.3		Ride	A clearly visible linear break in the forest which does not have a distinct path along it.	509
5.4		Bridge	A crossing point over a watercourse, or other linear feature.	512 513
5.5		Power line	A power or telephone line, cableway or ski lift.	516 517
5.6		Power line pylon	A support for power or telephone line, cableway or ski lift.	516 517
5.7		Tunnel	A way under roads, railways, etc.	518
5.8		Stone wall	A stone boundary wall or stone faced bank. Used with symbol 8.11 to indicate a ruined stone wall.	519- 521

Ref.	Symbol	Name	Description	ISOM
5.9		Fence	A wire or wooden boundary. Used with symbol 8.11 to indicate a ruined fence.	522-524
5.10		Crossing point	A way through or over a wall, fence, or pipeline, including a gate or stile.	525
5.11		Building	A standing brick, wood or stone structure.	526
5.12		Paved area	An area of hard standing used for parking or other purposes.	529
5.13		Ruin	The remains of a building that has fallen down.	530
5.14		Pipeline	A pipeline (gas, water, oil, etc.) above ground level.	533 534
5.15		Tower	A tall metal, wooden or brick structure, usually built for forest observation.	535 536
5.16		Shooting platform	A structure attached to a tree where a marksman or observer can sit.	536
5.17		Boundary stone, Cairn	A man made stone or pile of stones. A cairn, memorial stone, boundary stone or trigonometric point.	537
5.18		Fodder rack	A construction for holding feed for animals.	538
5.19		Charcoal burning ground	The clear remains of an area where charcoal was burned. A small level man made area on a slope. (A platform).	
5.20		Monument or Statue	A monument, memorial or statue.	
5.23		Building pass through	An arcade, indoor passage or route through a building.	852
5.24		Stairway	A stairway of at least two steps.	862

Special features












Ref.	Symbol	Name	Description
6.1		Special item	If used, an explanation of its meaning must be supplied to competitors in the pre-race information.
6.2		Special item	If used, an explanation of its meaning must be supplied to competitors in the pre-race information.

Country Specific features

It is not generally recommended to introduce local symbols. If local symbols are used then at events likely to attract an international entry information about them should be supplied to competitors in the pre-race details.

Ref.	Symbol	Name	Description
7.n		Name	Description of feature.

Column E - Appearance



Ref.	Symbol	Name	Description
8.1		Low	Where the control feature is particularly low or flat but this is not indicated on the map; e.g. Hill, low.
8.2		Shallow	Where the control feature is particularly shallow but this is not indicated on the map; e.g. Re-entrant, shallow.
8.3		Deep	Where the control feature is particularly deep but this is not indicated on the map; e.g. Pit, deep.
8.4		Overgrown	Where the feature is partially covered in undergrowth or bushes that are not indicated on the map; e.g. Ruin, overgrown.
8.5		Open	Where the feature is in an area where the tree cover is less than the surroundings but this is not indicated on the map; e.g. Marsh, open.
8.6		Rocky, Stony	Where the feature is in an area of rocky or stony ground not indicated on the map; e.g. Pit, rocky.
8.7		Marshy	Where the feature is in an area of marshy ground not indicated on the map; e.g. Re-entrant, marshy.
8.8		Sandy	Where the feature is in an area of sandy ground not indicated on the map; e.g. Spur, sandy.
8.9		Needle leaved	Where the tree or trees associated with the control feature have needle shaped leaves; e.g. Distinctive tree, needle leaved.
8.10		Broad leaved	Where the tree or trees associated with the control feature are broad-leaved; e.g. Copse, broad leaved.
8.11		Ruined	Where the feature has fallen to ground level; e.g. Fence, ruined.

Column F – Dimensions / Combinations













Dimensions

Ref.	Symbol	Name	Description
9.1	2.5	Height or Depth	Height or Depth of the feature in metres.
9.2	8 x 4	Size	Horizontal dimensions of the feature in metres.
9.3	$\frac{0.5}{3.0}$	Height on slope	Height of the feature on a slope in metres.
9.4	$\frac{2.0}{3.0}$	Heights of two features	Heights of two features with the control between them.

Combinations










Ref.	Symbol	Name	Description
10.1		Crossing	The point at which two linear features cross.
10.2		Junction	The point at which two linear features meet.







When either of these symbols are used in Column F the two features which either cross or meet must be shown in columns D and E. For example:

D	E	F		
			Path crossing	The point at which two similar linear features cross.
			Ride / River crossing	The point at which two different linear features cross.
			Road junction	The point at which two similar linear features meet.
			River / Narrow marsh junction	The point at which two different linear features meet.







Column G - Location of the control flag

Note: No symbol is required to describe the location of the control flag in relation to the feature if the control flag is positioned at, or as near as possible to, the centre of the feature (or the centre of the foot in the case of the cliff).





Ref.	Symbol	Name	Description
11.1		North east Side	Used where the feature extends above the surface of the ground; e.g. Boulder, north east side; Ruin, west side.
11.2		South east Edge	Used where: a) The feature extends down from the surface of the surrounding ground and the control is situated on the edge at ground level; e.g. Depression, south east edge. b) The feature extends over a significant area and the control is situated on the border of that area; e.g. Marsh, west edge; Clearing, north west edge.
11.3		West Part	Used where the feature extends over a significant area and the control is located neither at the centre, nor on any of the edges; e.g. Marsh, west part; Depression, south east part.
11.4		East Corner (inside)	Used where: a) The edge of a feature turns through an angle of 45-135 degrees; e.g. Open land, east corner (inside); Ruin, north west corner (outside). b) A linear feature turns a corner; e.g. Fence, south corner (inside); Stone wall, south west corner (outside).
11.5		South Corner (outside)	The orientation of the symbol indicates the direction in which the corner points.
11.6		South west Tip	Used where the edge of a feature turns through an angle of less than 45 degrees; e.g. Marsh, south west tip.
11.7		Bend	Used where a linear feature makes a smooth change of direction; e.g. Path bend; River bend.
11.8		North west End	The point at which a linear feature ends or starts; e.g. Ride, north west end; Stone wall, south end.
11.9		Upper Part	Where the feature extends over two or more contours and the control is located near the top; e.g. Erosion Gully, upper part.

Ref.	Symbol	Name	Description
11.10		Lower Part	Where the feature extends over two or more contours and the control is located near the bottom; e.g. Re-entrant, lower part.
11.11		Top	Where the control is located at the highest point of the feature and this is not the usual location; e.g. Cliff, top.
11.12		Beneath	Where the control is located underneath the feature; e.g. Pipeline, beneath.
11.13		Foot (no direction)	Where the control is located at the lower junction of the slope of the feature and the surface of the surrounding area; e.g. Earth bank, foot.
11.14		North east Foot	As above, but where the feature is large enough for the control to be placed in more than one location around it; e.g. Hill, north east foot.
11.15		Between	Where the control is located between two features; e.g. Between thickets; Between boulder and knoll.

When symbol 11.15 'Between' is used in Column G, the two features which the control is between must be shown separately in columns D and E. For example:

D	E	F	G		
				Between thickets	The point between two similar features.
				Between boulder and knoll	The point between two different features.

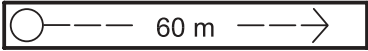
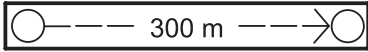
Column H - Other information

Ref.	Symbol	Name	Description
12.1		First aid post	Control site where First aid is available.
12.2		Refreshment point	Control site where Refreshments are available.
12.3		Radio or TV control	Location of a Radio or TV control.
12.4		Control check	Manned control site where the control card is checked.


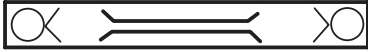
Special Instructions

Special instructions may be given to the competitors within the body of the description sheet. These should be used to re-emphasise what is shown on the map.

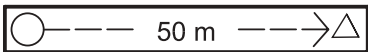
If a marked route is to be followed away from a particular control, or between controls:

Ref.	Symbol	Name/Description
13.1		Follow Taped Route, 60m away from control.
13.2		Follow Taped Route, 300m between controls.

If there are mandatory crossing points or routes between two controls:


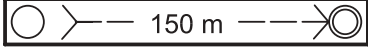
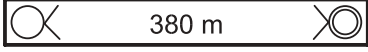
Ref.	Symbol	Name/Description
13.3		Mandatory crossing point or points.
13.4		Mandatory passage through out of bounds area.

At a map exchange, or if a marked route is to be followed from a control to a map exchange, it should follow the last control description of the first part of the course as follows:

















Ref.	Symbol	Name/Description
13.5		Follow Taped Route, 50m to Map Exchange.

Nature of route from the last control to the Finish





















Following the final description, the nature of the route from the last control to the finish is indicated by one of the following:



















Ref.	Symbol	Name/Description
14.1		400m from last control to Finish. Follow taped route.
14.2		150m from last control to Finish. Navigate to finish funnel, then follow tapes.
14.3		380m from last control to Finish. Navigate to finish. No tapes.





















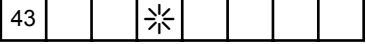


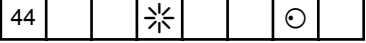



Examples













































Map	Terrain	Control Descriptions	Text Description
		1 [] [] [] [] [] [] [] [] [] []	Terrace
		2 [] [] [] [] [] [] [] [] [] []	Terrace, west part
		3 [] [] [] [] [] [] [] [] [] []	Spur
		4 [] [] [] [] [] [] [] [] [] []	Spur, upper part
		5 [] [] [] [] [] [] [] [] [] []	Spur
		6 [] [] [] [] [] [] [] [] [] []	Re-entrant
		7 [] [] [] [] [] [] [] [] [] []	Re-entrant, upper part
		8 [] [] [] [] [] [] [] [] [] []	Re-entrant, shallow



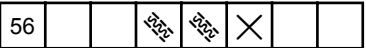


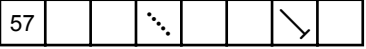


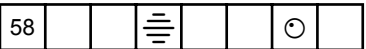


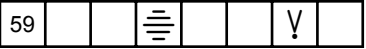


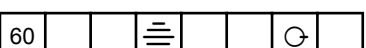





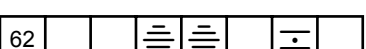


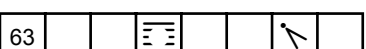


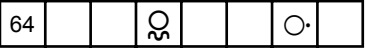
Map	Terrain	Control Descriptions	Text Description
		9 →	Eastern re-entrant
		10	Earth bank, foot
		11	Quarry, 5 x 5 m
		12	Quarry, east edge
		13	Quarry, east part
		14	Earth wall, east end
		15	Gully, lower part
		16	Small gully, north-east end
		17	Hill










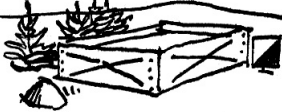






























































Map	Terrain	Control Descriptions	Text Description
		18 <input type="text"/> <input type="text"/> <input type="text"/> ○ <input type="text"/> <input type="text"/> ⊙ <input type="text"/>	Hill, north-west part
		19 <input type="text"/> <input type="text"/> <input type="text"/> ○ <input type="text"/> ○ <input type="text"/> <input type="text"/> ⊖ <input type="text"/>	Between the hills
		20 <input type="text"/> <input type="text"/> <input type="text"/> ○ <input type="text"/> ● <input type="text"/> <input type="text"/> ⊖ <input type="text"/>	Between hill and knoll
		21 <input type="text"/> <input type="text"/> <input type="text"/> ● <input type="text"/> 1.0 <input type="text"/> <input type="text"/>	Knoll, 1.0 m
		22 <input type="text"/> <input type="text"/> <input type="text"/> ● <input type="text"/> 1.0 ○ _L <input type="text"/>	Knoll, 1.0 m, east foot
		23 <input type="text"/> <input type="text"/> <input type="text"/>)(<input type="text"/> <input type="text"/> <input type="text"/>	Saddle
		24 <input type="text"/> <input type="text"/> <input type="text"/> ⊖ <input type="text"/> <input type="text"/> <input type="text"/>	Depression
		25 <input type="text"/> <input type="text"/> <input type="text"/> ⊖ <input type="text"/> <input type="text"/> ⊙ <input type="text"/>	Depression, east part
		26 <input type="text"/> <input type="text"/> ↑ <input type="text"/> ∪ <input type="text"/> <input type="text"/> ⊙ <input type="text"/>	Middle small depression, east edge
		27 <input type="text"/> <input type="text"/> <input type="text"/> ∇ <input type="text"/> <input type="text"/> ⊖ <input type="text"/>	Pit, west edge

Map	Terrain	Control Descriptions	Text Description
		28 <input type="text"/> <input type="text"/> <input type="text"/> * <input type="text"/> <input type="text"/> <input type="text"/>	Ant hill
		29 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Cliff
		30 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Cliff, north foot
		31 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Upper cliff
		32 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Cliff, top
		33 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Between cliffs
		34 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Rock pillar, south foot
		35 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Cave
		36 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Boulder, west side


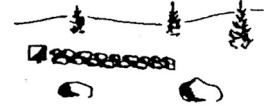
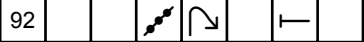


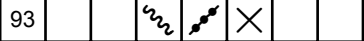


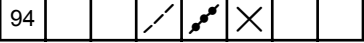


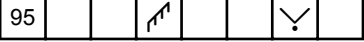


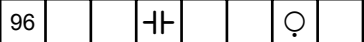




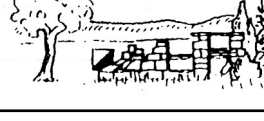


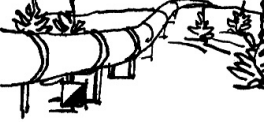
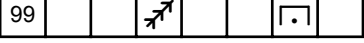


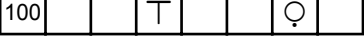
Map	Terrain	Control Descriptions	Text Description
		37 	South-eastern boulder, east side
		38 	Between boulders 1.0 m 1.5 m
		39 	Boulder, 0.5/3.0 m, west side
		40 	Boulder field, south-east edge
		41 	Boulder cluster, south side
		42 	Stony ground, north edge
		43 	Bare rock
		44 	Bare rock, west part
		45 	Narrow passage

























Map	Terrain	Control Descriptions	Text Description
		46 <input type="text"/> <input type="text"/> <input type="text"/>  <input type="text"/> <input type="text"/> 	Lake, east tip
		47 <input type="text"/> <input type="text"/> <input type="text"/>  <input type="text"/> <input type="text"/> 	Pond, east edge
		48 <input type="text"/> <input type="text"/> <input type="text"/>  <input type="text"/> <input type="text"/> 	Waterhole, east edge
		49 <input type="text"/> <input type="text"/> <input type="text"/>  <input type="text"/> <input type="text"/> 	Stream bend
		50 <input type="text"/> <input type="text"/>   <input type="text"/> <input type="text"/> 	Southern stream bend
		51 <input type="text"/> <input type="text"/> <input type="text"/>    <input type="text"/>	Stream junction
		52 <input type="text"/> <input type="text"/> <input type="text"/>  <input type="text"/> <input type="text"/> 	Ditch, north-east end
		53 <input type="text"/> <input type="text"/> <input type="text"/>  <input type="text"/> <input type="text"/> 	Ditch bend
		54 <input type="text"/> <input type="text"/>   <input type="text"/> <input type="text"/> 	Northern ditch bend
		55 <input type="text"/> <input type="text"/> <input type="text"/>    <input type="text"/>	Ditch junction

Map	Terrain	Control Descriptions	Text Description
		56 	Ditch crossing
		57 	Narrow marsh, south-east end
		58 	Marsh, north-west part
		59 	Marsh, south tip
		60 	Marsh, east edge
		61 	Marsh, 8 m x 8 m
		62 	Between marshes
		63 	Firm ground in marsh, north-west tip
		64 	Well, east side

Map	Terrain	Control Descriptions	Text Description							
		<table border="1" data-bbox="479 165 841 213"> <tr> <td>65</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	65							Spring, west edge
65										
		<table border="1" data-bbox="479 325 841 373"> <tr> <td>66</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	66							Water tank, east side
66										
		<table border="1" data-bbox="479 501 841 549"> <tr> <td>67</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	67							Open land, east corner (inside)
67										
		<table border="1" data-bbox="479 644 841 692"> <tr> <td>68</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	68							Open land, sandy west edge
68										
		<table border="1" data-bbox="479 788 841 836"> <tr> <td>69</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	69							Semi-open land, east edge
69										
		<table border="1" data-bbox="479 932 841 979"> <tr> <td>70</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	70							Forest corner, south tip
70										
		<table border="1" data-bbox="479 1075 841 1123"> <tr> <td>71</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	71							Clearing
71										
		<table border="1" data-bbox="479 1219 841 1267"> <tr> <td>72</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	72							Thicket, east side
72										
		<table border="1" data-bbox="479 1362 841 1410"> <tr> <td>73</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	73							Linear thicket, east corner (outside)
73										

Map	Terrain	Control Descriptions	Text Description
		83 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Path junction
		84 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Path crossing
		85 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Path/stream crossing
		86 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Path/ditch crossing
		87 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Ride bend
		88 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Bridge, north end
		89 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Power line, pylon
		90 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Tunnel, south-west end
		91 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Wall, east corner (inside)

Map	Terrain	Control Descriptions	Text Description
		92 	Wall, ruined, west end
		93 	Stream/wall crossing
		94 	Path/wall crossing
		95 	Fence, south corner (outside)
		96 	Crossing point, south side
		97 	Building, east side
		98 	Ruin, west side
		99 	Pipeline, beneath
		100 	Tower, south side

Map	Terrain	Control Descriptions	Text Description
		101 <input type="text"/> <input type="text"/> <input type="text"/> T <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Shooting platform
		102 <input type="text"/> <input type="text"/> <input type="text"/>  <input type="text"/> <input type="text"/> <input type="text"/> 	Cairn, east side
		103 <input type="text"/> <input type="text"/> <input type="text"/>  <input type="text"/> <input type="text"/> <input type="text"/> 	Fodder rock, west side
		104 <input type="text"/> <input type="text"/> <input type="text"/>  <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Charcoal burning ground
		105 <input type="text"/> <input type="text"/> <input type="text"/>  <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Statue
		106 <input type="text"/> <input type="text"/> <input type="text"/>  <input type="text"/> <input type="text"/> <input type="text"/> 	Building pass-through, south-west end
		107 <input type="text"/> <input type="text"/> <input type="text"/>  <input type="text"/> <input type="text"/> <input type="text"/> 	Stairway, foot

Specifications for Trail Orienteering

There are two variations in the use of the columns when using IOF Control Descriptions for Trail Orienteering.

Column B - Number of control flags

This column is used to denote the number of control flags visible at this control; e.g. A-C equals three control flags to choose from; A-D equals four control flags to choose from.

Column H - Direction of observation

This column is used to denote the direction in which to view a feature. For example an arrow pointing north indicates that the competitor should be on a path/track to the south of the control circle.

Example

A	B	C	D	E	F	G	H
1	A-D		○			○ [•]	↑



INTERNATIONAL ORIENTEERING FEDERATION

INTERNATIONAL ORIENTEERING FEDERATION
Radiokatu 20
FIN-00093 SLU
Finland

Tel: +358 9 3481 3112
Fax: +385 9 3481 3113
e-mail: iof@orienteering.org
www.orienteering.org

CHAPTER NINE

CHAPTER NINE

ORGANIZING AND RUNNING A SIMPLE ORIENTEERING MEET

EQUIPMENT

1. You will need the following:
 - a. A Map
 - b. Control Markers
 - c. Pens, Pencils or Punches
 - d. Control Cards
 - e. Whistle for each team (unless indoors and is not necessary)
 - f. Watch
 - g. Compass (unless indoors and is not necessary)

THE MAP

2. Any map that helps you meet your objectives for the event will do. However, there must be a map.
3. It can be:
 - a. A floor plan of a building, if you are holding the even inside.
 - b. A sketch map of your school yard or property.
 - c. A street map with the names of the streets removed.
 - d. A map of a local park. Check with your local Parks and Recreation Department.
 - e. A government topographic map.

NOTE: Make sure that you have permission to use the area in which you will run your event.

THE CONTROL MARKERS

4. You need some way of identifying each control site for the participants. A regulation orienteering marker is a red and white triangular sleeve made out of nylon or cardboard. They can be purchased from Orienteering Services.



However, you can use your imagination and make markers out of almost anything.

5. Below is a list of suggestions. Try to incorporate the red and white colour combination in your marker so that your students will learn to recognize regulation orienteering markers.

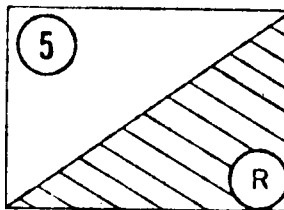
- a. **Cardboard.** - Any size cardboard painted red and white diagonally works very well. If you also spray clear lacquer onto the cardboard, it will help it to stand up in the rain. If you are holding the event indoors, use small pieces of cardboard (25 mm x 25 mm).
- b. **Tape.** - Coloured tape attached to the control point is another way of identifying the location. Surveyors red flagging tape stands up well in all weather.
- c. **Tin cans or plastic bottles.** - These make excellent markers. Your students will enjoy painting them red and white.

6. **Identifying the Marker.** The control marker must be identified in two ways:

- a. By a number, usually referred to as the *control code*.
- b. By a control letter.

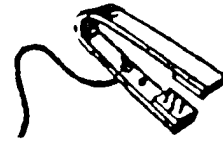
control code number –

– control letter



7. The control code number is a check for the participants so that they know they have located the correct marker. The control letter is the letter they will copy down to let you know that they really did reach the marker. If a punch is being used, only the control code is shown.

NOTE: A regulation orienteering punch may be used, which eliminates the need for a control letter and a pencil since the participant punches in at each control rather than copying down the letter.



CONTROL CARDS

8. Each participant carries a control card. The control card has space for recording:
 - a. Control letters or punch mark.
 - b. Start time, finish time, elapsed time.
 - c. Competitors name, group etc.



Control cards can be purchased or you can simply design and print your own.

You can, however, incorporate all of this information on your map sheet as shown on page 9-7 *Getting It All Together*.

WHISTLE AND STOPWATCH

9. A whistle used to start each participant creates more excitement, however it is not absolutely necessary as your voice will do.
10. If you are timing the participants, you will need a watch or stopwatch. You can either start your students at one-minute intervals, which is the case at regular orienteering competitions; or you may prefer to have a mass start to save time. This latter suggestion works well for *score orienteering* (see *Orienteering Competitions*, p. 9-10).

COMPASSES

11. After you have introduced the use of the compass, your students will require orienteering compasses during the event. Issued Silva Ranger or Suunto compasses will work, but simple baseplate style or thumb compasses are preferred.

SETTING THE COURSE

12. First decide why you are running the event. What particular orienteering skills do you want to develop? Set the course accordingly to allow your students to practice these skills.

13. **EVERYONE** should be able to successfully complete the course. Nothing will do more harm to your orienteering program than having a high percentage of the participants unable to experience the joy of finding all of the controls.

14. All beginning courses should be set on easily-travelled terrain.

CHOOSING CONTROL POINTS

15. All control points must be definite features on the map and in the terrain. *Bottom of stairs; goal post; north-east corner of intersection; baseball screen; junction of trail and stream.*

16. Simple map reading must be possible between all controls.

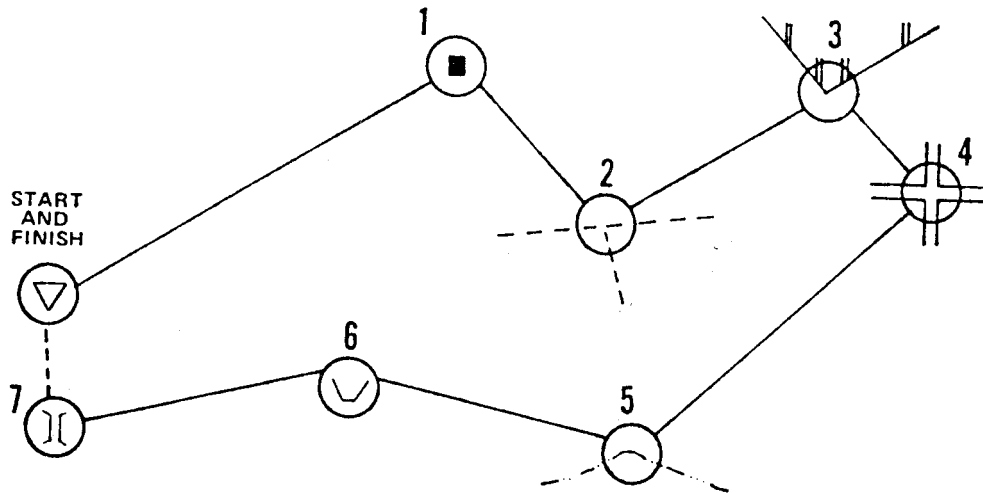
17. The distance between control points will depend on the type of map you are using; the type of event you are running; and how difficult the feature will be for the average person to locate. For example, you can have many controls, placed fairly close together when setting a course either inside a building, or for a score orienteering event. Conversely, controls can be spread out when they are joined by linear features such as trails and roads, making them easy to locate.

ADDITIONAL PRE-MEET PLANNING

MARKING THE CONTROL POINTS ON THE MAP

18. Each control feature on the map is indicated by a red circle about 7 mm in diameter. The actual control point is in the centre of the circle.

A cross-country course may appear on a map as follows:



CONTROL DESCRIPTIONS

20. There must be a brief description of the exact location of each of your control points. Using the course diagram above, you can set up the following control descriptions either on a separate sheet of paper or on the same sheet as your map. The latter is preferable since it cuts down on the number of different sheets each participant must carry.

CONTROL DESCRIPTION	Control Letter
① Building, north side	○
② Trail Junction	
3. Corner of Fence	
4. Cross Road - n.e. corner	
5. Bend in Stream	
6. Baseball Screen	
7. Bridge - south end	
GO DIRECTLY TO THE FINISH!	

The *control code* is on the control marker to let each participant know that he or she has found the *correct* marker. In this case, the code numbers also show the order in which each marker is to be located. The latter is necessary in cross country orienteering.

The *control letter* is on the control marker and must be copied down by the participants in order to prove that they found the marker. Remember that control letters are not needed when punches are used.

NOTE: If more than one cross-country is being run simultaneously, then the code number must be shown in brackets beside the order in which the controls are to be located.

Example: 1. (23) Building, north side
2. (31) Trail Junction

RECORDING TIMES

21. Some planning before the event will help you to more effectively keep track of the times of the participants. The following grid will help you:

	Minutes			Seconds
FINISH TIME				
START TIME				00
ELAPSED TIME				

When you mass-start or start at one minute intervals your start-seconds will be "00".

The "elapsed time" is determined by subtracting "start time" from "finish time".

GETTING IT ALL TOGETHER

22. Now that you have all of the important information needed by an organizer and the participants, set it up on one sheet as follows:

Cross-Country Orienteering Event

	LEGEND SCALE	CONTROL DESCRIPTION	LETTER
		1.	
		2.	
		3.	
		4.	
		5.	
		6.	
		7.	
		GO TO FINISH	

NAME _____	FINISH TIME				
GROUP _____	START TIME				00
SAFETY BEARING: east or south	ELAPSED TIME				

PRE-MARKING THE MAPS WITH COURSES AND START TIMES

Pre-Marked Courses

23. All courses should be pre-marked on the maps for beginners. This will serve to:
 - a. Ensure that courses are on the map correctly.
 - b. Reduce the overall workload on meet day.
 - c. Reduce some of the confusion that is experienced by all novice orienteers getting ready to start.

24. When black and white dittoed maps are used, you simply draw the course on one map and then make as many copies as you need (Xerox, ditto, etc.). You can mark all of the maps by hand if you have a small group.

Pre-Marked Start Times

25. You can organize your participants for the start ahead of time by pre-marking start times, for example 1, 2, 3, 4 minutes. When maps are issued that day, everyone will know immediately when he or she is to start. This will save time and reduce confusion.

26. If you decide on a mass-start, which is suitable for score orienteering, then of course everyone will be 00.

MASTER MAPS

27. After your orienteers have gained a little more experience, introduce them to the use of master maps.

28. Master maps are placed about 50 to 100 m beyond the start. Usually each participant visits the master map after he or she starts and copies down the course.

29. You may decide, however, that copying down the course from the master map should not be part of the competition. In this case, each participant will copy down the course prior to his or her start time.

PUTTING UP THE CONTROL MARKERS

30. This should be completed at least an hour before the first start. Markers can be stapled, tied, hung or glued into place. Make sure that each control marker is located on the correct feature as shown in the centre of each red circle on the map. Also check that the marker shows the correct control code for each location.

31. When running an event around the school or local streets, make your markers small and as inconspicuous as possible. **DO NOT HIDE THEM.** This is not a treasure hunt. Whenever possible, place them high where they can be read but not reached without assistance. Remember, orienteering markers are curious things to the uninitiated and may be collected as souvenirs!!

RUNNING THE COMPETITION

32. If the pre-meet organization has been carried out there is very little to do on the day of the meet.

PRE-MEET INSTRUCTIONS

33. Make sure everyone knows the procedure for starting and finishing and also knows exactly where the finish is. The finish can be beside the start for small groups with one official or a short distance away when there are two or three officials.

34. Everyone must report to the finish even if he or she does not complete the course.

35. Each participant must know the SAFETY BEARING. If a participant gets lost, the safety bearing should lead him or her to a major road or trail which leads back to the start area. The safety bearing may be expressed in term of north, south, east, west, or in terms of a bearing in degrees (150°) to be followed by participants who have compasses.

NOTE: You may want your participants to travel initially in pairs. This is a good practice for beginning orienteers as it gives them confidence.

HOW MANY HELPERS ARE NEEDED?

36. Number of officials depends on the number of competitors:

1 to 20 participants

- (1) You can do it alone. You are “starter”, “finish-timer”, “time-calculator” and “control letter checker”.
- (2) Every participant is ready to go and just waiting for his or her signal start. What could be simpler?
- (3) As each participant arrives at the finish you call out his or her time, which he or she records in space provided on the map sheet.
- (4) Collect every map sheet from the finishers and calculate the “elapsed times”.

21 to 75 participants

A couple of helpers would be advised. Move the finish a short distance from

the start (50-100 m) and have one official call the finish times while the other calculates elapsed times and checks control letters. It is assumed that all your competitors will not finish at the same time or in large groups.

Over 75 participants

Ask for assistance from Orienteering Ontario who has experience conducting large competitions. They may have an affiliated club in your area.

RECOGNITION OF TOP COMPETITORS

37. You may want to officially recognize the first three finishers in each class. Class is often divided according to age and/or gender.

38. Achievement awards in the form of orienteering badges may be available from Orienteering Ontario.

ORIENTEERING COMPETITIONS

39. There are three major variations of point-to-point orienteering for the novice.

MINIATURE ORIENTEERING

40. This is an excellent introductory experience for use in a small area (building floor plan, or sketch map of school yard).

41. It requires very little organization and is a good exercise to practice map reading and keeping the map oriented.

42. Ten or fifteen control sites can be marked by pieces of tape with letters on them.

43. A mass start can be used if the controls are to be visited in random order.

44. The collected letters may be unscrambled to form a word or phrase relevant to the activity, such as keep map oriented.

SCORE ORIENTEERING

45. This is one of the most versatile forms of orienteering because it lends itself to any time frame, any size area, and will accommodate mass starting. It is also easy to organize.

46. This exercise highlights the need to carefully select routes which will cover as much terrain as possible within a specific time limit.

47. The participants will need watches or when operating in a small area; the instructor can use blasts on a whistle for each of the last 5 minutes.

48. More control markers are set out than can be located within a specific time limit (10, 15, 25, 30 minutes).
49. Each control marker has a point value. The controls furthest from the start are worth the most points.
50. The objective is to collect as many points as possible within the time limit.
51. Points are deducted for going overtime; for example, 5 points are deducted for every minute or part of a minute late.
52. A typical score sheet for this type of event is shown below:

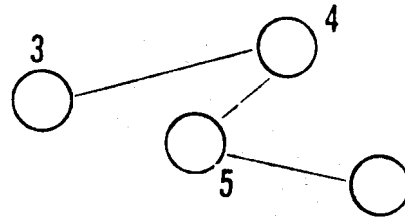
TIME LIMIT: 15 minutes			
PENALTY: 5 points per minute late			
Control No.	Control Letter	Value	CONTROL DESCRIPTION
1.		5	Opening in Fence
2.		15	Gate Post
3.		10	Flag Pole Base
4.		20	Lamp Post
19.		5	Street Name Post
20.		10	Stop Sign
			LESS
			=
		TOTAL POINTS	PENALTY POINTS
			FINAL SCORE

CROSS-COUNTRY ORIENTEERING

53. This event is best suited to a larger area (minimum 1 km x 1 km) which is partially wooded. It is the standard competitive form of orienteering and requires a little more organization and more time than the previous two.
54. A typical layout of controls is shown in this section on pages 4.
55. A beginners' course should range in length from 1.0 to 2.5 km with 8 to 12 controls.
56. The distance to the first control should be a little longer than the rest in order to

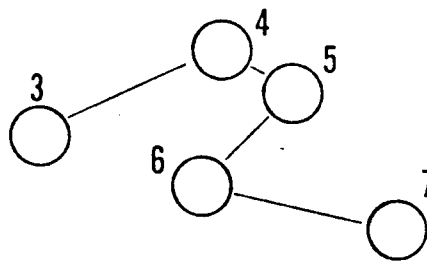
spread participants out at the beginning.

57. Avoid placing controls that force participants to double-back.



58. Participants going into 4 will see people leaving 4 to go to 5. In other words, control 4 requires little or no orienteering skills to locate.

59. This problem can always be avoided by adding a control.



60. Participants start at one-minute intervals and must locate the controls in the order shown on the map.

CHAPTER TEN

CHAPTER TEN

MEET TYPES AND COURSE CLASSIFICATIONS

World Orienteering Championships (WOC). The WOC is held every year, moving from country to country. Denmark will host the 2006 and Canada is sending six male & six female senior competitors and six male & three female junior competitors. The WOC is still dominated by the Nordic nations.

Canadian Orienteering Championships (COC). The COC is held annually over a seven to nine day period in various locations around Canada. In 2006, the COC will be held in the Orangeville area and over 200 competitors are expected. The championships are broken down into relay and individual meets.

Provincial Orienteering Championships. Held annually in various locations around Ontario.

A Meets. A meets tend to be more formal, are sanctioned by the provincial organization and lead to championship meets. A full range of six or eight courses would be offered. Novices are still welcome.

B Meets. B meets are less formal and more common. The Canadian Orienteering Federation rules still apply. There are usually three or four courses. Novices are very welcome and coaching or basic instruction is readily available.

Special Meets. These are local training meets and are usually not widely advertised.

Orienteers are assigned to a class of competitors. The classes start with H (from the German Herren or Men) or D (from the German Damen or Woman). Sometimes W and M are used instead of D and H, but D and H are more common. The classes are assigned by age on 31 December of the current year. Some ages are lumped together as shown:

H11	D11	H21	D21
H12	D12	H35	D35
H13	D13	H40	D40
H14	D14	H45	D45
H15-16	D15-16	H50	D50
H17-18	D17-18	H55	D55
H19-20	D19-20	H60	

At a competition, not every class will be assigned its own course. A lot of them are lumped together, especially at smaller meets. Competitors or higher age classes are free and encouraged to compete on courses of lower difficulty as they gain experience.

Courses are arranged by difficulty and are colour coded for more important meets such as A meets. There are length ranges and suggested winning time ranges for each colour. There are eight colour levels: white; yellow; orange; brown; green; grey; red and blue in order of increasing difficulty. This is not like cross-country skiing where a skier can follow a yellow or red course in that the courses are not marked by colour, just assigned a colour.

Usually the age classes are assigned a colour but, as mentioned, orienteers may compete as H Open or D Open. Another class of competitor is Wayfarer where an individual or group is not really competing but is going over a course while learning the basic orienteering techniques.

At a typical meet where a full eight courses are offered, the classes are split as follows:

COURSES							
WHITE	YELLOW	ORANGE	BROWN	GREEN	GREY	RED	BLUE
25 min	40 min	50 min	50 min	55 min	60 min	70 min	85 min
DISTANCE RANGE IN KM							
1.5-2.5	2.5-3.5	3.5-4.5	3.5-5	4.5-6	5-7	6-9	9-14
AGE CLASS							
H11 H12 D11 D12 H OPEN D OPEN	H13 H14 D13 D14 H H OPEN D OPEN	H15-16 D15-16 H OPEN D OPEN	D45 D50 D55 D17-18 H60 H OPEN D OPEN	D19-20 D40 H45 H OPEN D OPEN	D35 H45 H50 H17-18 H OPEN D OPEN	D21 H35 H40 H19-20 H21S	H21L
The S or L following Class H21 stands for short or long.							

Prizes at civilian meets are awarded by class and by “open” when orienteers are running on a lower level course to gain experience.

At a typical meet where six courses are offered, the classes are split as follows:

COURSES					
WHITE	YELLOW	ORANGE	GREEN	RED	BLUE
25 min	40 min	50 min	55 min	65 min	85 min
DISTANCE RANGE IN KM					
1.5-2.5	2.5-3.5	3.5-4.5	4-5	6	9
AGE CLASS					
H11 H12 D11 D12 H OPEN D OPEN	H13 H14 D13 D14 H OPEN D OPEN	H15-16 D15-16 H OPEN D OPEN	D17-18 D19-20 D40 D45 D50 D55 H50 H60 H OPEN D OPEN	H17-18 H19-20 D21 D35 H35 H40 H45 H21S	H21L
The S or L following Class H21 stands for short or long.					

Prizes at civilian meets are awarded by class and by “open” when orienteers are running on a lower level course to gain experience.

CHAPTER ELEVEN

CHAPTER ELEVEN

COURSE SETTING

1. The way to a successful meet or effective training lies in setting challenging courses. There have been many chapters written on course setting and a lot of experience is required to set up a competition with eight or even six courses in the same area. The purpose of this chapter is to introduce candidates on the Orienteering Instructors Course to the concepts of course setting for training purposes. Few CIC officers will be required to set up a B or A meet.
2. The purpose of course planning is to set courses which will measure and develop the orienteering skills of the orienteer while allowing everyone to finish the course.
3. The major aims are to set courses which will bring out the unique nature of orienteering and to ensure fairness.
4. First off, the person in charge of the training must decide how many courses are required. This is sometimes limited by the number of control markers and clippers available and the amount of time available to do all the running around setting out the controls. Obviously this must be done by a skilled map reader so that the controls are where the map says they are. Familiarity with the area will make this task easier.
5. Course legs should be set out to use the best parts of the map - open forest, least rocky terrain, no dangerous area, lots of trails for beginners etc. Bear in mind that longer is not necessarily more challenging and a major goal is to have everybody satisfactorily complete their course.

CHOOSING CONTROL FEATURES

6. Control features must be definite and easily recognizable features on the map and on the ground such as; northeast corner of intersection; junction of trail and stream; loop in road; west end of culvert etc. The distance between controls will depend on the map and the availability of suitable features but an average of 500 - 600 metres is not uncommon. There is no limit to the number of controls on a course.

BEGINNER COURSES

7. Two kilometres is a good length for a beginner course. Beginners are usually more comfortable doing their first course in pairs. There should be only one route choice from one control to the next and it should be along a good handrail such as a cart track, large trail or path. Controls should be placed at path bends or junctions. Placing the marker on the route leading to the next control gets the beginner going in the right direction. Place the control at a large feature and, if possible, at the far end of it so that the feature is seen before the control.

INTERMEDIATE COURSES

8. Four kilometres is a good length for an intermediate course either for a cadet who has completed the beginner course or a senior cadet who knows what he or she is doing but has not orienteered before. Pairs could still be allowed. There should still be only one route choice along a good handrail but controls should be off the handrail on easy features.

SENIOR COURSES

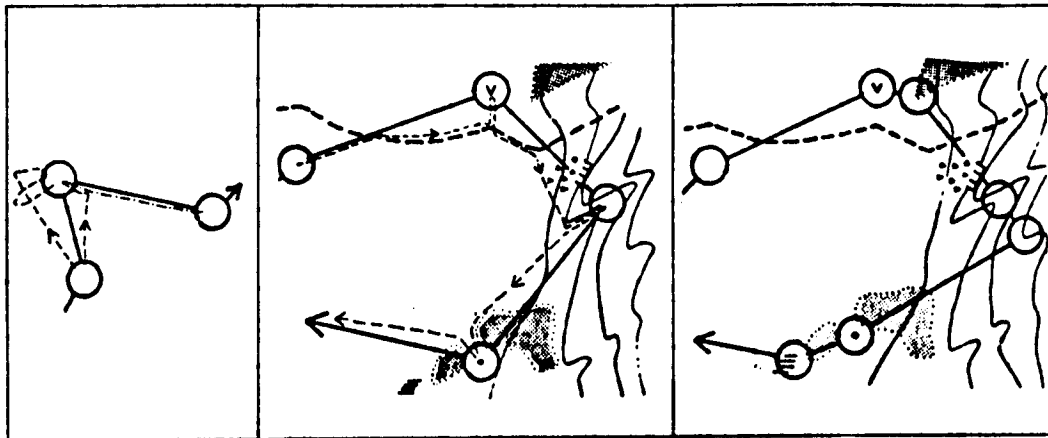
9. Six kilometres is the recommended length for these courses for more experienced orienteers. Cadets should be encouraged to orienteer on their own at this level. There should be two or more route choices on handrails with controls that are not always easy to find. Compass orienteering techniques may be introduced along with other orienteering techniques. With beginner and intermediate courses, compasses are used for safety and map orientation.

ADVANCED COURSES

10. An eight kilometre course with lots of route choices involving multiple or non-continuous handrails. Small point features should be used as controls.

DO's AND DON'Ts

11. Avoid dog legs where the route in and the route out from a control form an acute angle or where the best route into the control is also the best route out to the next control. Orienteers going into the control will see orienteers coming out and will have an advantage. Dog legs can be fixed as a last resort by putting in another control a short distance away.



12. The control serves only as a check point along the course. It's the route that makes the challenge, not having to search for a control marker at the end of the leg. Markers should

be in reasonably plain view, not hidden to make a leg harder.

13. The control feature must be one that is shown on the map in the legend and must be distinguishable from similar features around it, which are not marked on the map.

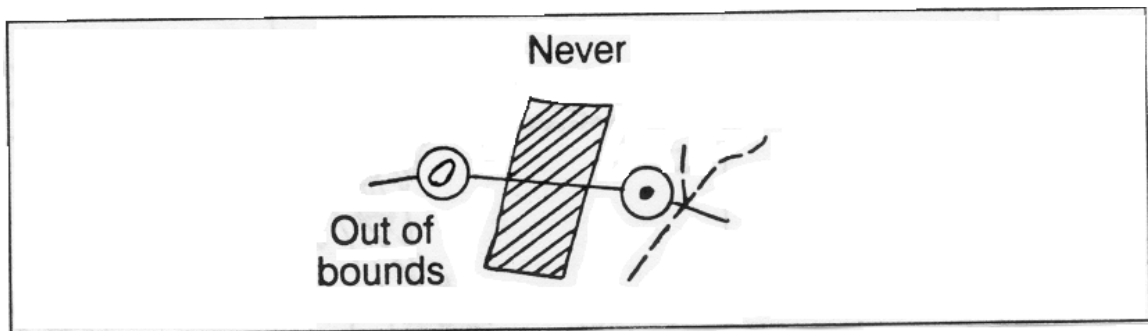
14. The control must be found by orienteering techniques and not be treasure hunting.

15. The control marker must be placed so that the only clue to its location is given by someone punching in. Hiding it in a thicket or up a tree is unfair. Putting it behind a tree is fair if it can be easily seen from that side of the tree. On the other hand, the orienteer should be moving to a feature, not an orange and white marker visible from 300 metres in any direction.

16. Avoid placing controls in dense bush areas. Too much searching is required. Green areas should never be used on beginner courses.

17. The first leg should be medium length and the control easy to locate to build confidence, spread the orienteers out a bit and to enable the orienteers to check the reliability of the map.

18. Do not put controls on either side of an out of bounds area. Additional controls can be used to steer the orienteer away from out of bounds area or uncrossable features.

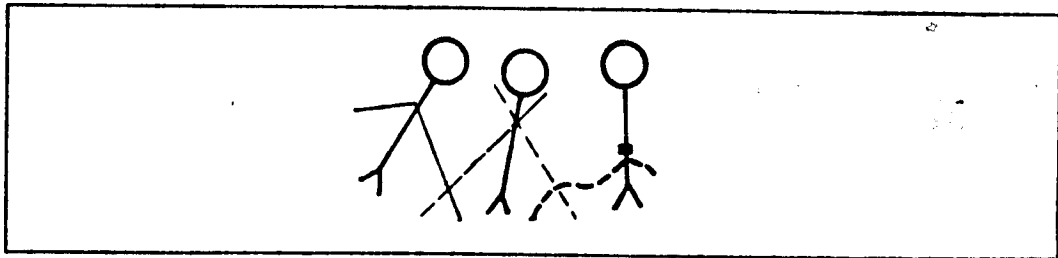


19. The last control should be situated in open ground so that the spectators can see. An uphill slope spreads the orienteers out and slows them down to make timing easier. An easy collecting feature common to all courses and a short distance from the finish means everyone will use the same route to the finish. Streamers are frequently used to guide the orienteers in. Note the different methods used with IOF symbols to show the last leg.

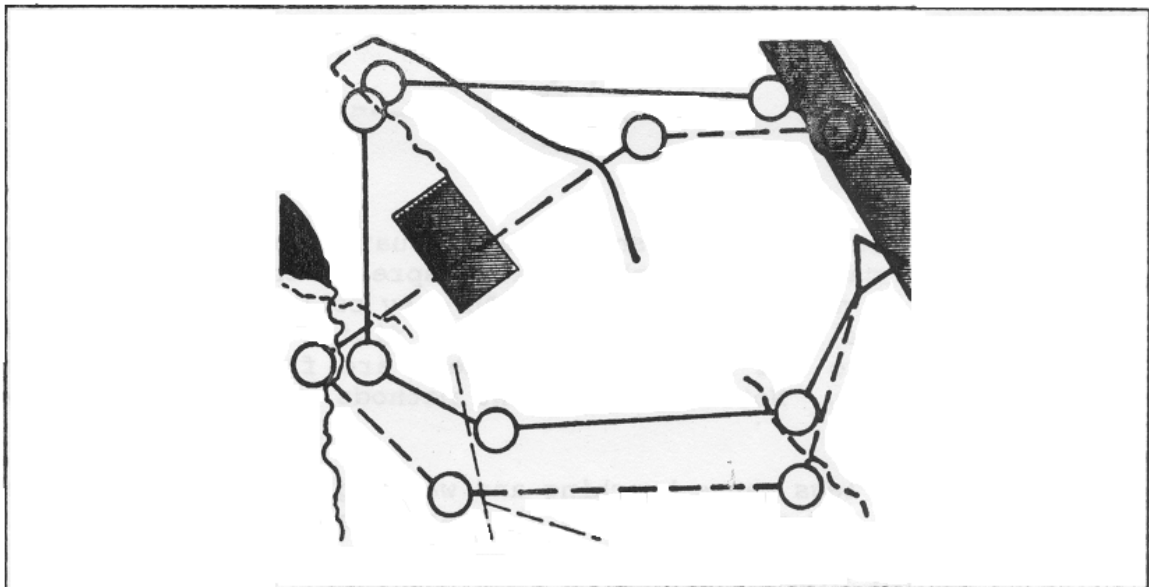
20. Short legs cause bunching and waiting at the control marker. It is possible to put more than one clipper at a control.

21. Avoid placing controls from different courses too close together (100 m) or on the same feature.

22. Neighbouring controls with similar codes (AE and AF) can cause confusion and unfair disqualification.
23. Too many controls in a short distance cause backups and reduce challenge.
24. Small overgrown features must be avoided, especially on beginner courses.
25. On legs requiring a compass approach, the visibility (or height) of the marker is dependent on the distance travelled by compass.
26. Lost distance can ruin the quality of a more advanced orienteering course. The whole value of a feature is lost if the feature is too big or if there is an easy collecting feature just before the control. The competitor just runs till he hits the collecting feature and only then does he look at his map.



27. This can be avoided by putting the control just before the collecting feature. Then the orienteer must use the map or compass to get there. The figure below shows two similar courses. The dashed course is very simple while the solid course forces the orienteer to read the map constantly.



MAP RELIABILITY

28. When laying out or setting controls, the accuracy of the map must be confirmed so that the control is on the correct feature and the map shows a correct view of the ground. Possible attack points must also be accurately portrayed.

PLANNING THE COURSE

29. Find a rough course loop through the desired terrain for each course.
30. Look for good long legs for senior and advanced courses.
31. Connect these long legs with good shorter legs.
32. Circle a number of possible control features with one large circle.
33. Walk through the course, check for dog legs, map errors, unsuitable vegetation or rough terrain and make adjustments.
34. Decide on a suitable feature. Mine or surveyor's tape can be used to temporarily mark control features if you are doing this in advance of the meet or training. Circle the feature and write a description of it.
35. Hang the control markers and punches.
36. Make at least two master maps for each course.
37. Write out a control description in English and/or IOF symbols.
38. Double check the control codes against your working map and final control description.
39. Each course should be copied and run by a vettor if possible.

IMPORTANT: Every cadet should complete his course.

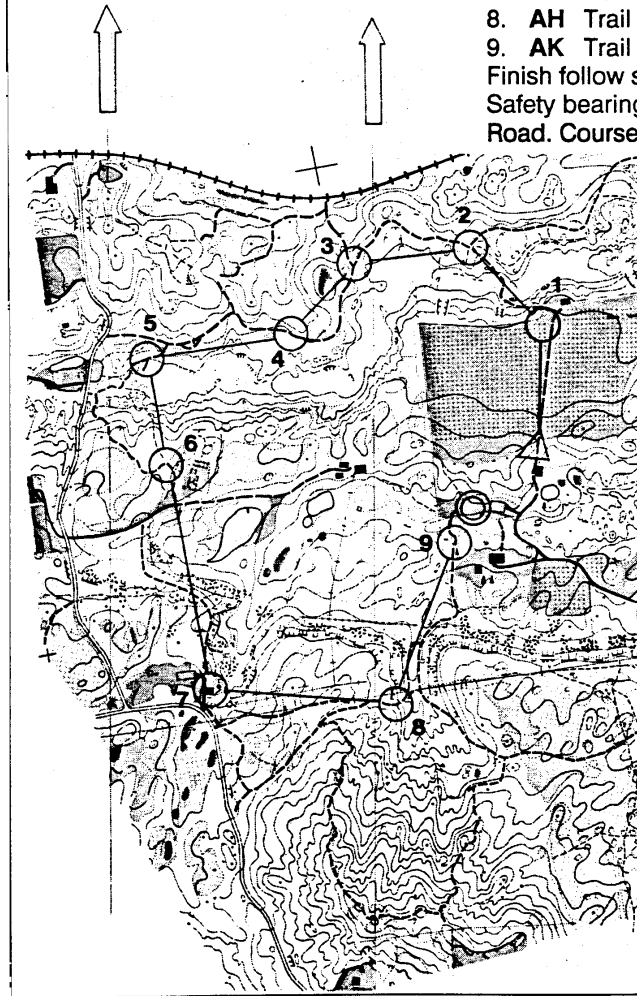
2.5 km Course

Start: Trail & Fence Crossing

1. **AA** North East Corner of orchard
2. **AB** Trail Junction
3. **AC** Trail Junction
4. **AD** Trail & edge of clearing
5. **AE** Trail junction
6. **AF** Trail bend
7. **AG** Building North East corner
8. **AH** Trail junction
9. **AK** Trail & Stream Crossing

Finish follow streamers 100m.

Safety bearing West to Sulpher Springs Road. Course Closing 3 p.m.



3.8 km Course

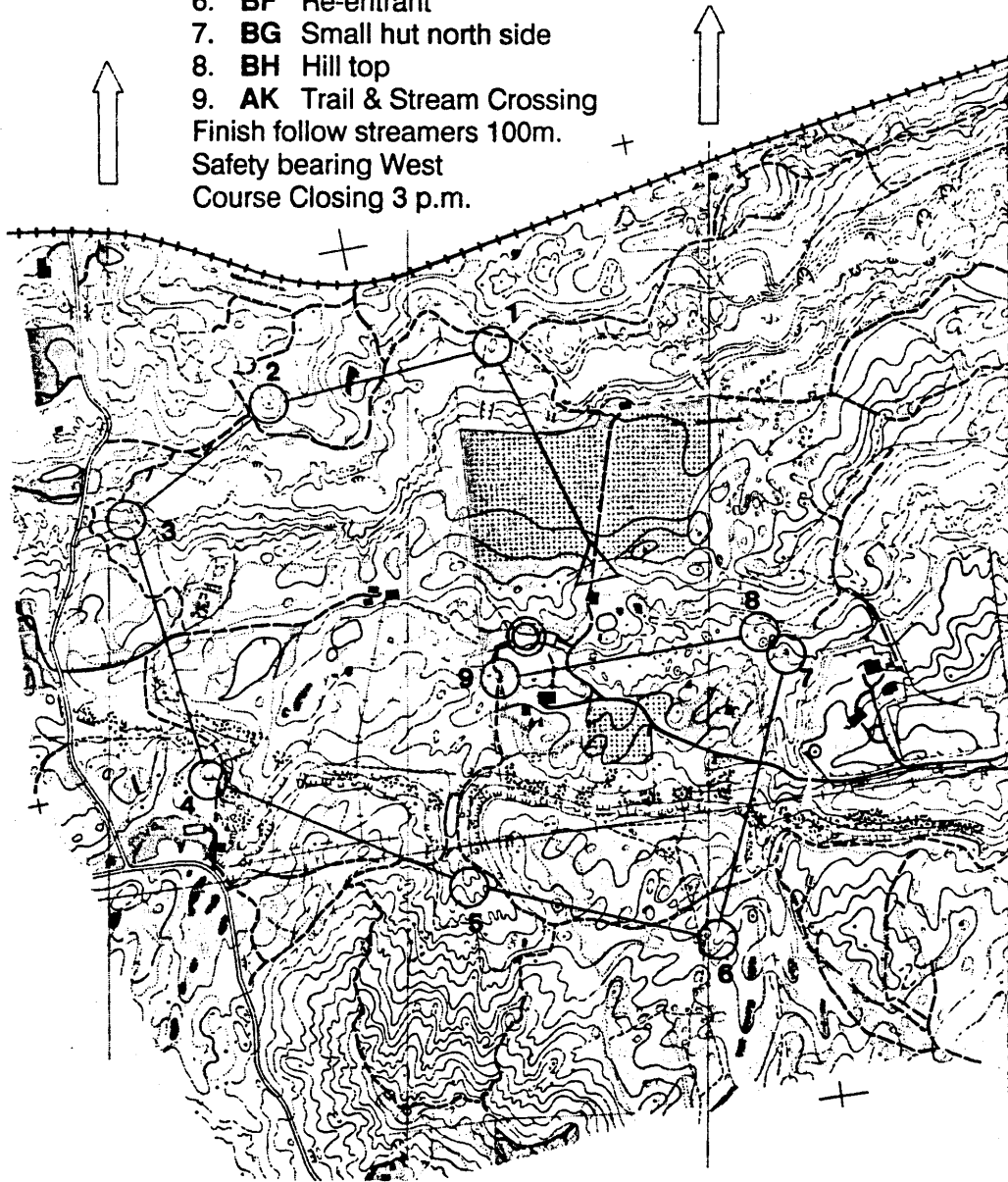
Start: Trail & Fence Crossing

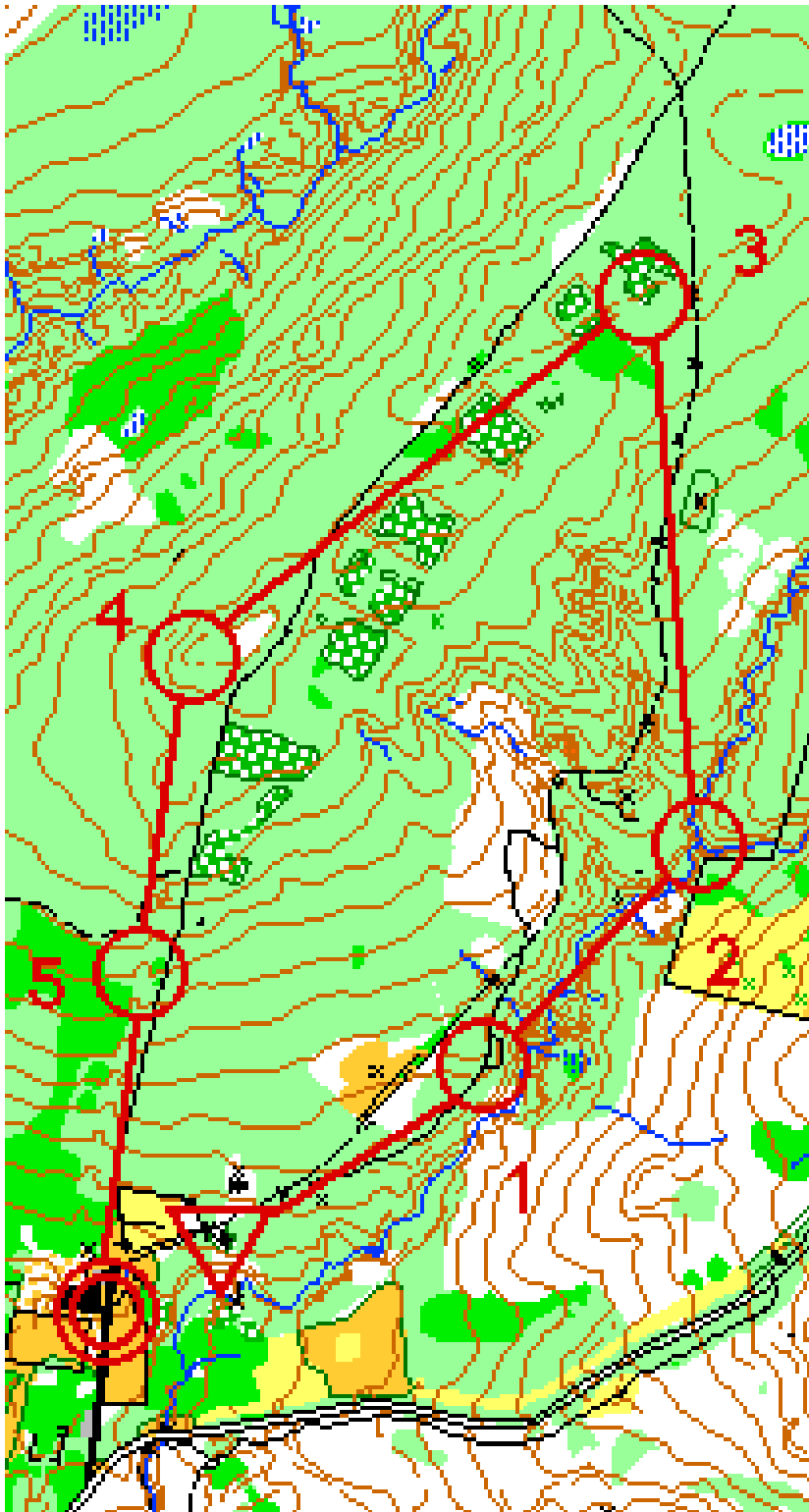
1. **BB** Depression
2. **BA** Knoll top
3. **BC** Hill top
4. **BD** Cliff foot
5. **BE** Stream junction
6. **BF** Re-entrant
7. **BG** Small hut north side
8. **BH** Hill top
9. **AK** Trail & Stream Crossing

Finish follow streamers 100m.

Safety bearing West

Course Closing 3 p.m.

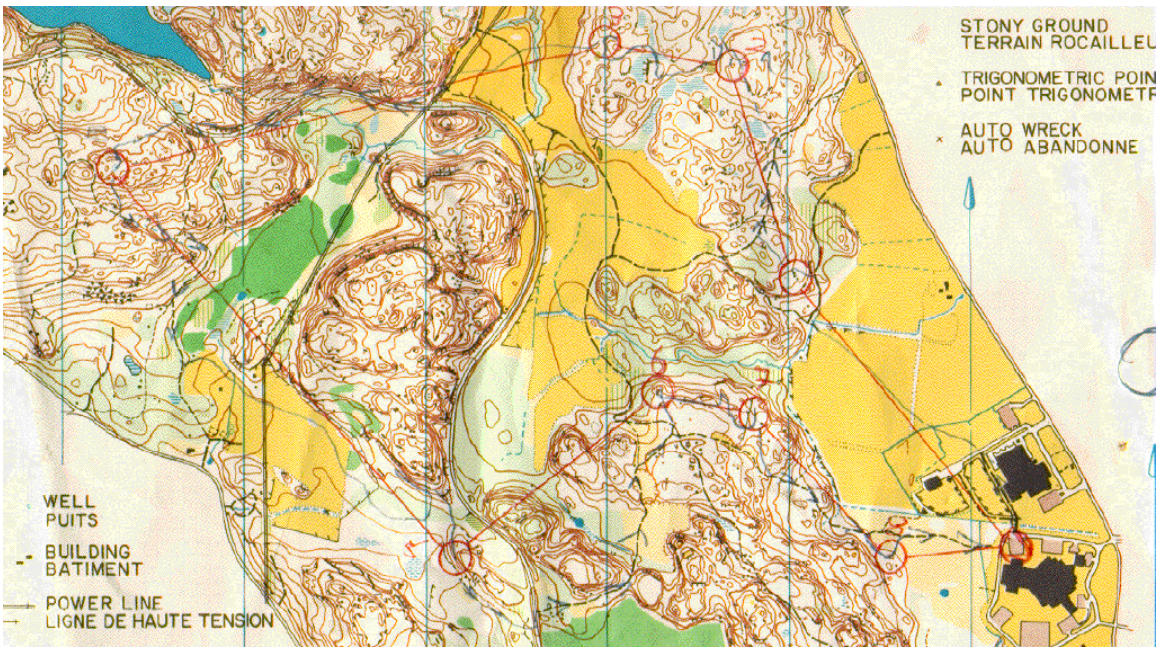




Good course for novices, many handrails, many features.



More advanced course. Notice how the first leg crosses the 8th leg. This should be avoided.



Advanced course, with long legs, complex & hilly terrain.

CHAPTER TWELVE

CHAPTER TWELVE

OTHER TYPES OF ORIENTEERING

1. Most of the material in this Precis deals with regular orienteering but there are many other types of orienteering and orienteering can be adapted to fit in with other types of training. Some alternative types of orienteering are:

LINE ORIENTEERING

2. In line orienteering, orienteers move from one control to the next on a straight line either by reading the terrain or by compass.

SCORE ORIENTEERING

3. A large number of controls are put out, each with a point value attached. More difficult controls, or those farther away, have a higher value. Orienteers leave the start area in a mass and have a set amount of time to visit as many controls as possible, selecting which controls they want to visit and in what order. A point penalty is assigned for each minute an orienteer is late returning. There should be more controls than an orienteer can possibly visit during the time available. A variation on score orienteering is to have all controls except one rated with an even point value. One difficult control has an odd point value. Competitors must have a certain pre-determined total (such as 21) in order to complete the course. The shortest time wins.

SKI ORIENTEERING

4. Ski orienteering is done on cross country skis and orienteers must stick to trails.

BIKE ORIENTEERING

5. Orienteers compete on trails using mountain bikes. Strict safety standards must be enforced.

CANOE ORIENTEERING

6. Again, safety is paramount and the logistics involved may be greater.

RELAY ORIENTEERING

7. Relays are a popular form of orienteering and are included in many championships.

HIKE ORIENTEERING

8. This type of orienteering is very suitable for cadet training. It features very long legs and running is not required. A hike orienteering course might take most of a day and can be a viable part of cadet training if some prerequisites are met. The more important ones are: are your cadets ready for it and do you have the resources to put it on?

NIGHT ORIENTEERING

9. Night orienteering should definitely not be attempted with unaccompanied junior cadets and courses should be kept short. Each cadet must be equipped with a flashlight although it should not be used constantly. Controls should be illuminated with either a battery operated light or a chemical glow stick and they should be placed to keep orienteers out of bush areas with their associated eye hazards and far away from danger areas.

10. More detail is required for night orienteering and planimetric, or elevation, features are needed for navigation such as ridges, tree lines etc. A good night orienteering course would have lots of buildings and fields with a well developed path network. An area with only contours will encourage the orienteer to use compass only, which neglects the more important techniques. Arresting features are very important in night orienteering to keep orienteers in the right area.

11. Other worthwhile activities can be combined with orienteering. Obstacle crossing, rope bridges etc. can be placed along routes to increase challenge and training value. These should be manned by qualified supervisors.

CHAPTER THIRTEEN

CHAPTER THIRTEEN

RUNNING A COMPETITION

1. Few CIC officers will have to organize a B meet but as the sport becomes more popular in cadet training, local and area competitions are probable and region competitions are possible and these meets will be staffed by CIC officers. Familiarity with the conduct of a meet will also help CIC officers prepare their cadets more effectively for participation in civilian meets.

2. There are several officials required for a meet. Some appointments will, at times, be combined.

MEET DIRECTOR

3. This official is responsible for advertising and announcing the meet, getting permission to use the land and is the listed contact person and information source. He appoints the rest of the officials and looks after laying out the start, finish and registration areas. She looks after all the logistics and tabulation and distribution of results. The meet director can be one of the course planners. A chronological checklist is an important aide.

COURSE CONTROLLER

4. The controller is in charge of the actual running of the meet. He, possibly in conjunction with the course vetter(s), checks the control locations, flag placement, control codes, checks master maps and makes necessary changes before registration begins and checks that all markers are hanging on the morning of the meet. The controller is responsible for settling any disputes. She can be one of the course planners.

COURSE PLANNERS

5. Ideally, two planners work together to plan the courses, check control locations, hang the markers, finalize the courses, draw the master maps and make the course descriptions.

START OFFICIALS

6. Usually two people who write the start time on control and result cards, announce call up times, check start times, give start signals, retain result cards as a record of starters and check for whistles. They are responsible for organizing and running the start area.

FINISH OFFICIALS

7. Again, usually two people responsible for timing in, time tabulation, control code checks, time posting and the results lists. Sometimes a separate statistics/results area is cordoned off.

REGISTRATION OFFICIALS

8. Registration officials are responsible for issuing blank maps (if required), map cases, blank control cards and blank result cards. They also handle compass rental, whistle rental and collection of registration fees. The number of people required at the registration area decreases once the meet starts and some of them can be sent to the finish area once orienteers start to come in.

9. At a proper meet, the above officials are all needed. For less formal training, far fewer people are needed. Two to four qualified people can satisfactorily handle all the jobs depending on the number of orienteers.

START AREA

10. One start official watches the clock, calls out each minute, fifteen second warning and start signal as competitors work toward the start gate. The other official assigns start times, writes them on the control and result cards, fastens the control cards to the maps and collects the result cards.

FINISH AREA

11. The map collector stands at the finish line and calls out “time” for each map collected. The timer notes the finish time for each competitor on a special time sheet or on the control card. During lulls, the timer sends a bundle of maps and control cards with the timing in sheet on top or the completed individual control cards and maps to the results calculator. The results calculator matches up the control card and appropriate result card, calculates the elapsed time and checks the punch codes. The result cards are posted in order on the results strings by stapling.

PERMANENT COURSES

12. In some areas permanent control markers (simply a red and white stake) are put out and marked on a map. An orienteer or group decides on a course using some of the controls and follows it using orienteering techniques. Permanent courses can be used for competition or just for practice.

ANNEX A

ADDRESSES

Canadian Orienteering Federation

1239 Colgrove Avenue NE

Calgary, Alberta

T2E 5C3

Phone: (403) 283-0807

Fax: (403) 451-1681

Email: info@orienteering.ca

Website: <http://www.orienteering.ca>

Source of publications, books, rulebooks.

Orienteering Ontario

2163 Third Side Road

Campbellville, Ontario

L0P 1B0

Office Phone: 416-410-4586 or 1-888-810-9990

Email: admin@orienteering.on.ca

Website: <http://www.orienteering.on.ca/>

Source of videos, publications, handouts, maps, information on forming clubs, information on local clubs, meet information and anything else you need to know.

Local Clubs

Local clubs change frequently. Local clubs are an excellent source of expertise and are usually more than willing to help by providing instructional assistance, meet information etc. Addresses and phone numbers available from Orienteering Ontario.

ANNEX B

REFERENCE MATERIALS

13. There are many reference books and publications available. Some that have been found useful in the preparation of the Cadet Orienteering Instructors Course and in no particular order are:

ORIENTEERING COMPETITION RULES Canadian Orienteering Federation, Gloucester, Ontario, 1980.

“B” MEET ORGANIZING MANUAL Canadian Orienteering Federation, Gloucester, Ontario, 1984.

COURSE PLANNING British Orienteering Federation, Matlock, Derbyshire, England, 1972.

ORIENTEERING LEVEL ONE COACHING CERTIFICATION Canadian Orienteering Federation, Gloucester, Ontario, 1983.

CONTROL DESCRIPTIONS International Orienteering Federation, Oslo, 1979.

TEACHING ORIENTEERING McNeil, Ramsden and Renfrew, Harvey's Map Service Ltd., Doune, Scotland, 19__.

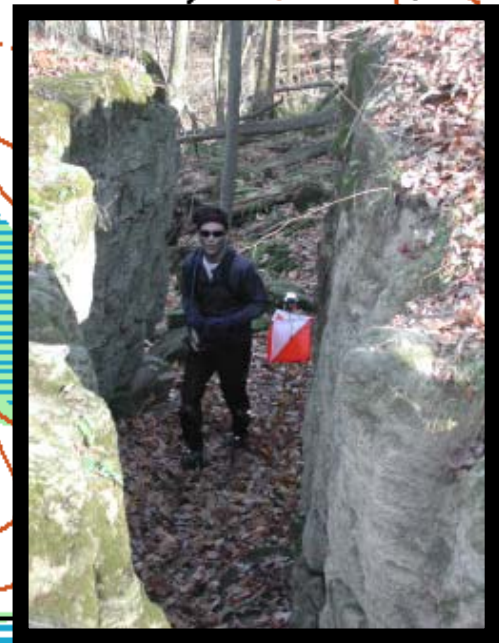
ARMCHAIR ORIENTEERING W. Stott, Canadian Orienteering Federation, Gloucester, Ontario, 1984.

ARMCHAIR ORIENTEERING II W. Stott, Canadian Orienteering Federation, Gloucester, Ontario, 1987.

CONCISE BOOK OF ORIENTEERING R. Smith, Gage, Toronto, 1980.

VIDEOS - there are many video tapes available from Orienteering Ontario and, in cases, from local orienteering clubs.

Orienteering





Overview

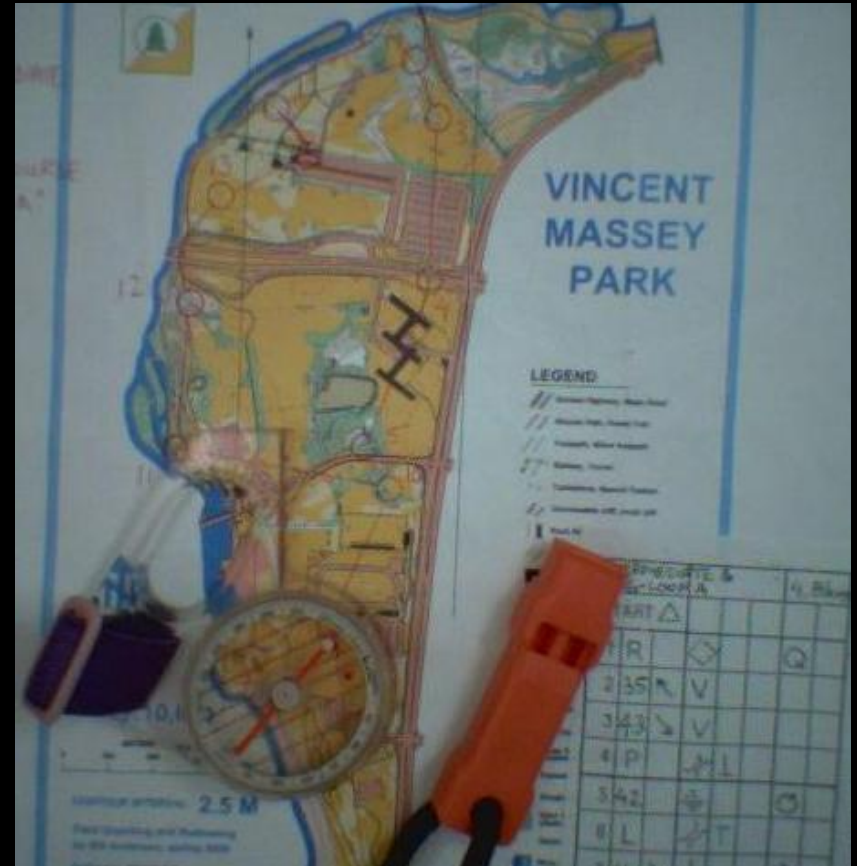
- ❑ What is Orienteering?
- ❑ Why Orienteer?
- ❑ The Map
- ❑ Basic Orienteering Skills
- ❑ Course Walk Through
- ❑ Orienteering Clubs

What is Orienteering?



The Basic Idea

Participants must navigate from one point to another using a map and compass.





An Adventure

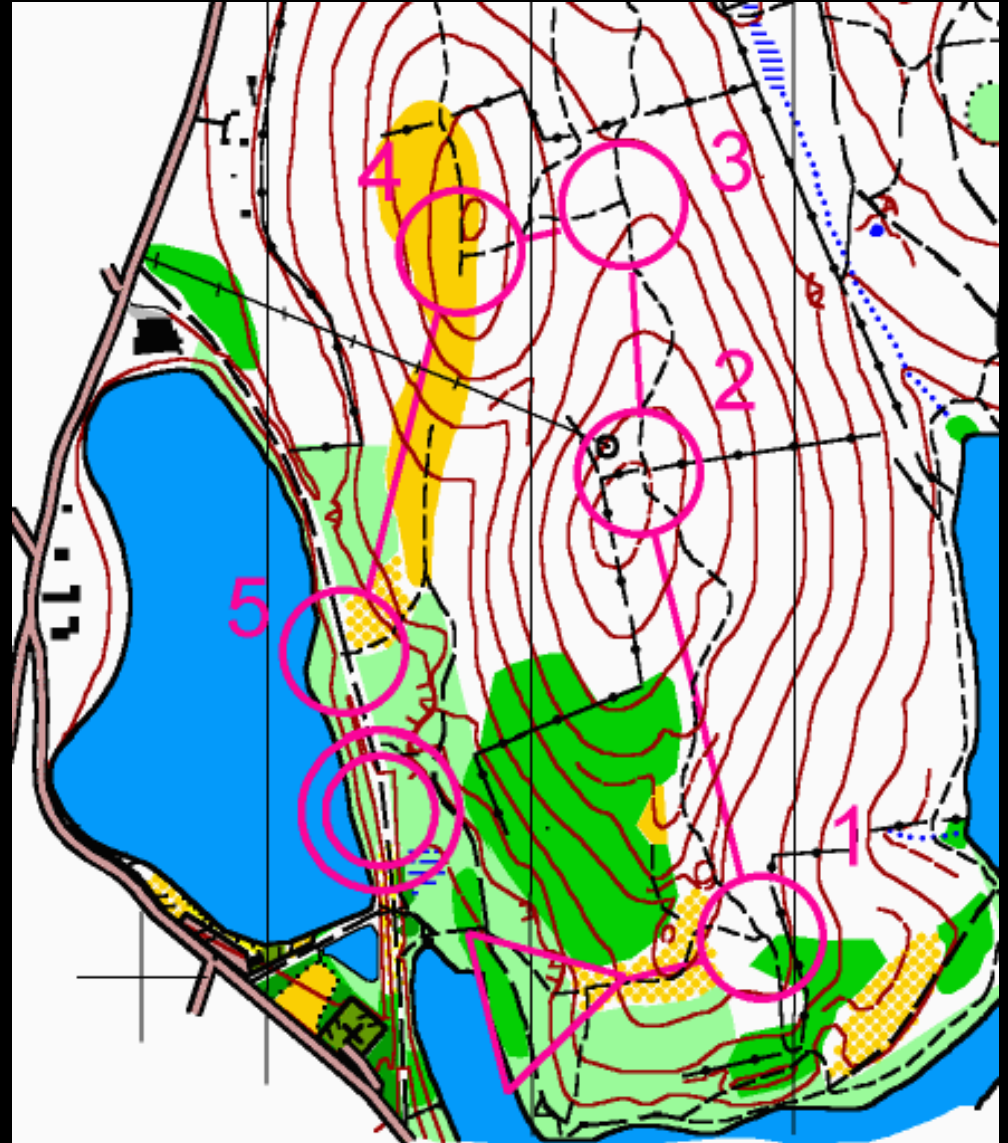
Orienteering can be enjoyed as a leisurely walk in the woods or as a competitive race.





An Orienteering Course...

Consists of a **start**, a series of **control points** to be visited in order, and a **finish**.





Controls

- The circles are centered on the feature to be found.
- A **control** marks the location.
- The description sheet describes the control placements and codes.

Yellow 2		2500		36		Course Yellow 2	Length 2500	Climb 36
Start	△	/			⊥	Start	Road North end	
1	MH		mm			Cliff		
2	KL		○		○	Clearing	South side	
3	ML	↑	∧	∨		Northern Gully	Junction	
4	PB		∧			Gully		
5	XD		⋈	∨		Stream	Junction	
6	PP		∧	⊥		Gully	Between	
7	XK		∧	∨		Gully	Junction	
8	PA		↘			Footbridge	Refreshments	
9	JA		∩					
10	GO		↘					

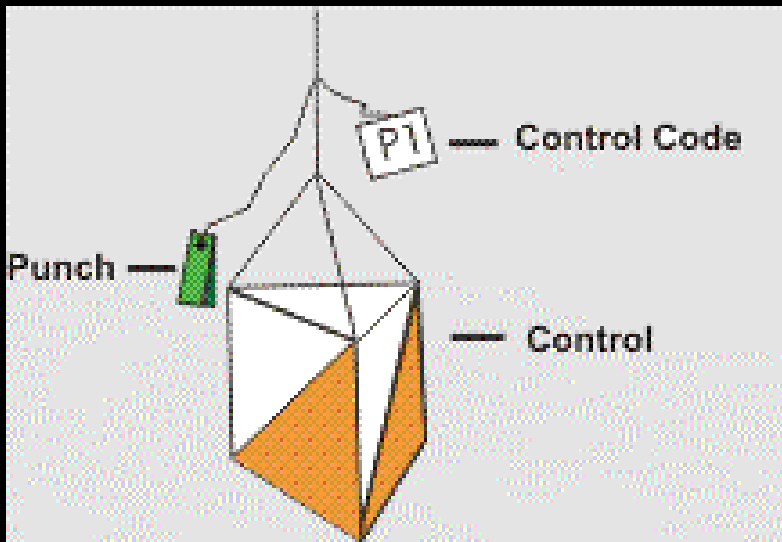
○----- 150 -----





Punching

To verify a visit, the orienteer uses a **punch** hanging next to the flag to mark his or her **control card**.



NAME:	The Forest Runner	START:	10:40				
CLUB:	Ottawa Orienteering Club	FINISH:	11:12				
COURSE:	Beginner	TIME:	32:00				
17	18	19	20	21	22	23	24
9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8

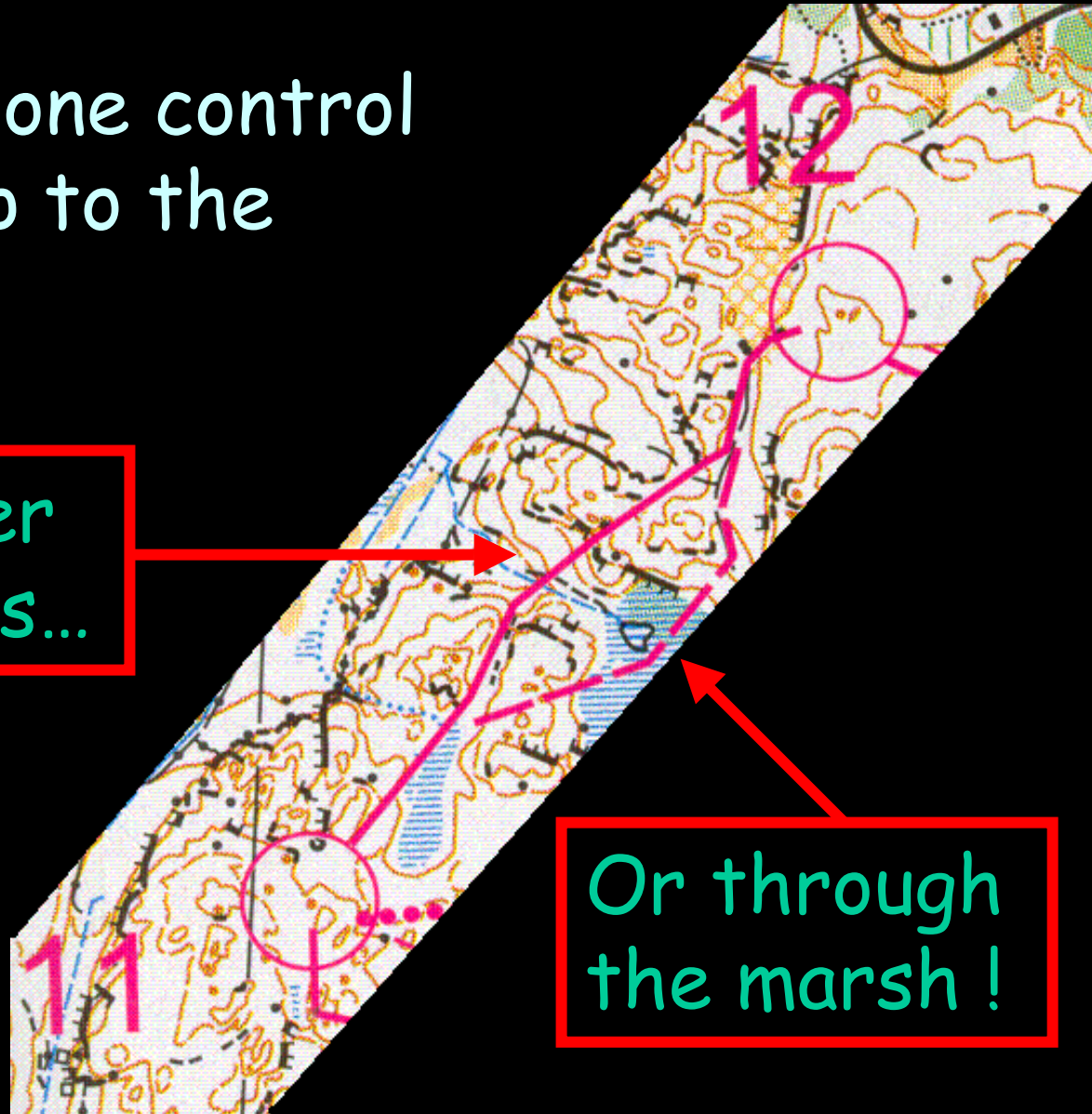


Route Choice

The route from one control to the next is up to the orienteer.

Run over
the hills...

Or through
the marsh!



Why

Orienteer?



Enjoy the Outdoors





Challenge Yourself Physically





Challenge Yourself Mentally





Gain Navigational Skills





Suitable for all Ages





As Competitive as You Want





Alone, in pairs or in teams



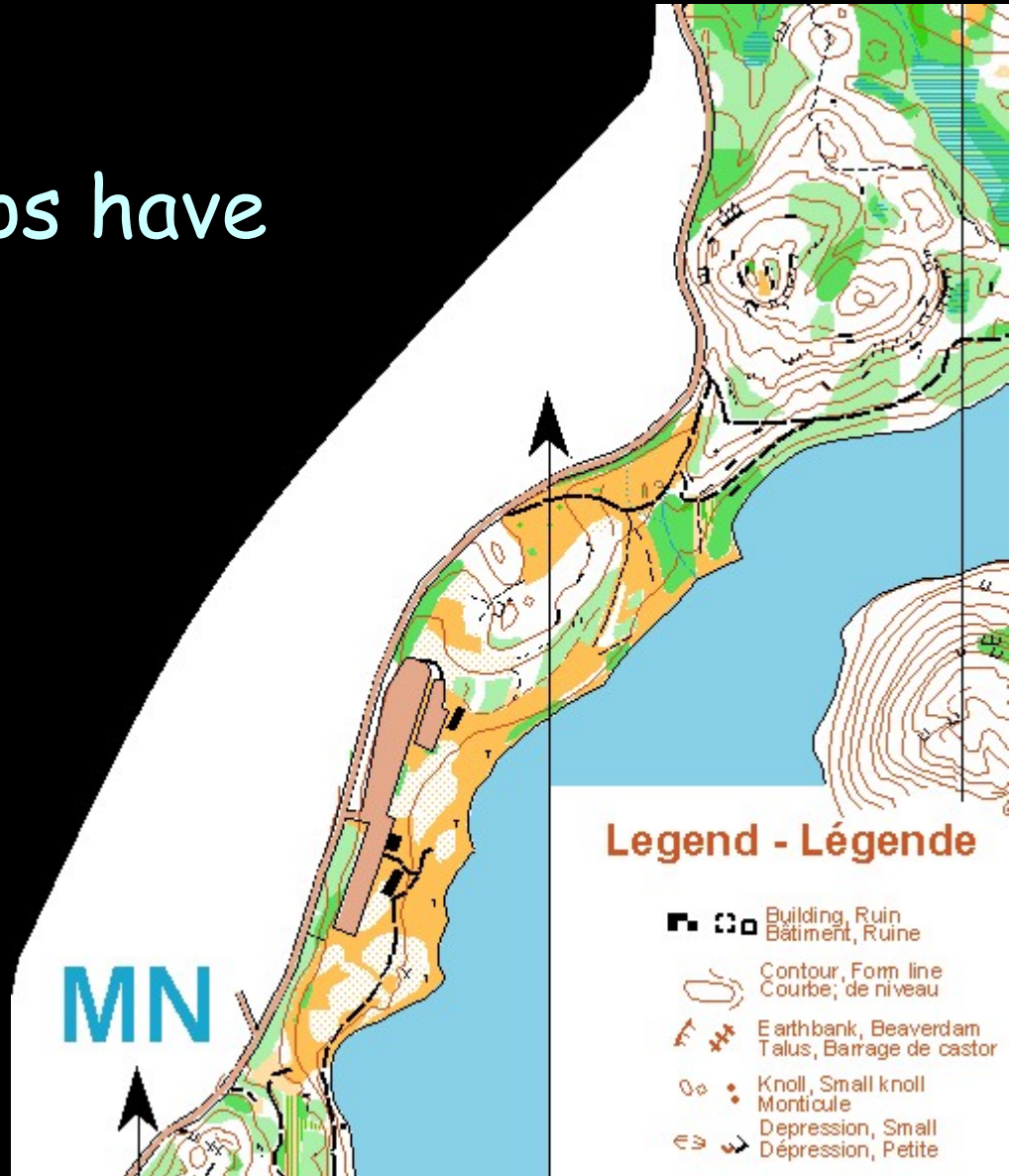
The Map

The title "The Map" is rendered in a bold, sans-serif font. The letters are filled with a vibrant orange color and feature a cutout effect, revealing a detailed topographic map pattern. The map includes various elements such as brown contour lines, green shaded areas representing elevation, blue lines for water bodies, and black lines for roads or infrastructure. The overall aesthetic is modern and graphic, set against a solid black background.



Magnetic North

Orienteering maps have lines pointing to magnetic north.





The Scale

Map Scale

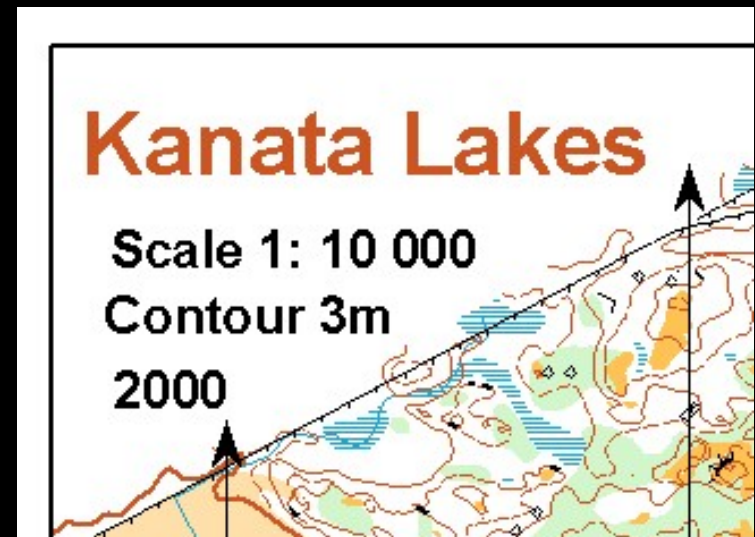
The distance on the map relative to the distance in the terrain.

1 : 10,000 1 cm on the map = 100 m on the ground

1 : 15,000 1 cm on the map = 150 m on the ground

Contour Interval

The difference in elevation between two contour lines.





White: Open Forest



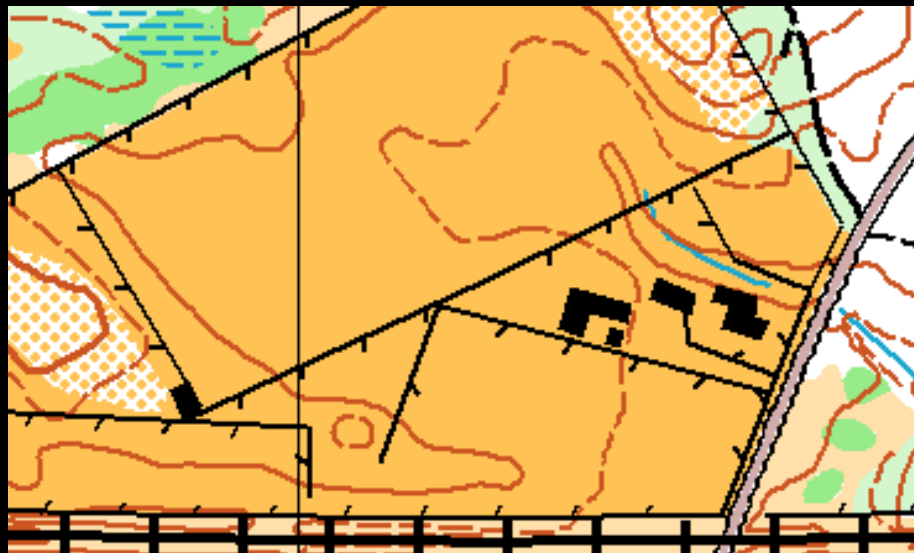
Forest: run
Forêt: course








Yellow: Open Land

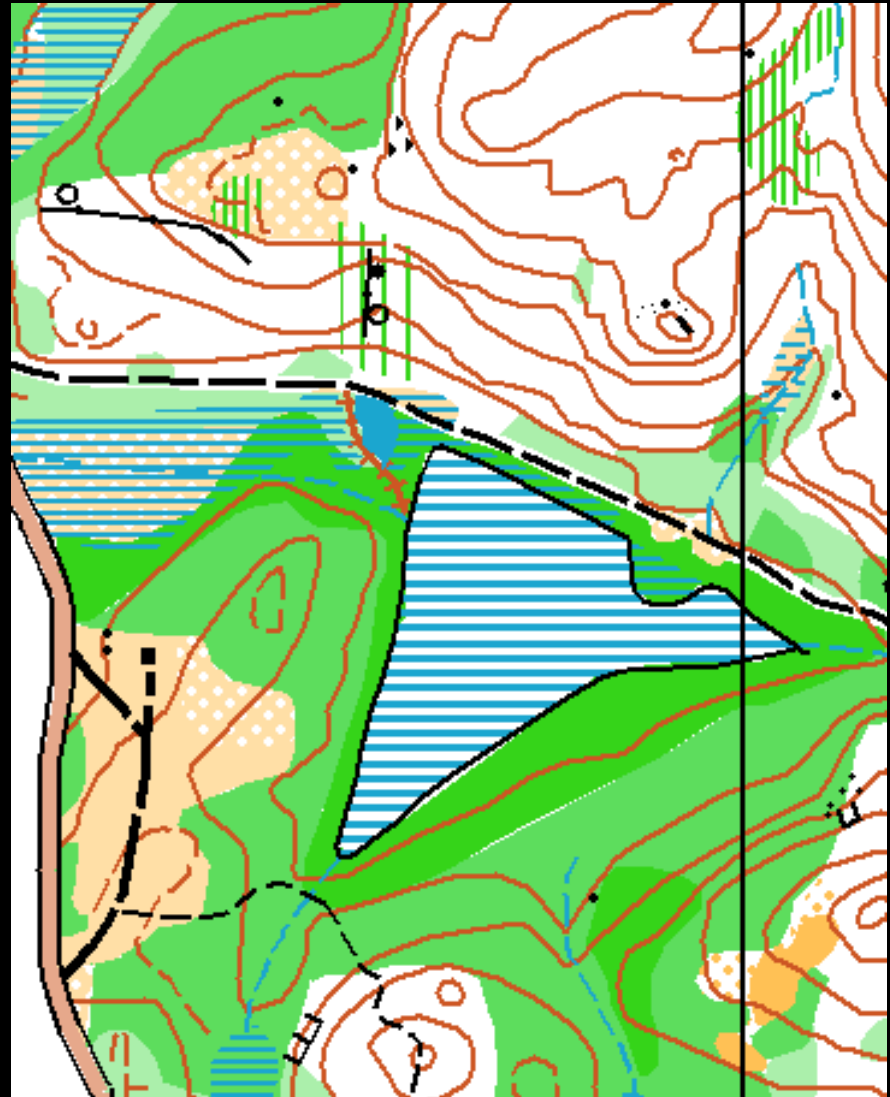
-  Open land
Zone ouverte
-  Open land with trees
Zone ouverte avec arbres
-  Rough open land
Zone ouverte difficile
-  Rough open land & trees
Ouverte difficile & arbres





Green: Vegetation

	Slow run Course lente
	Difficult to run Course difficile
	Impassable Impassable

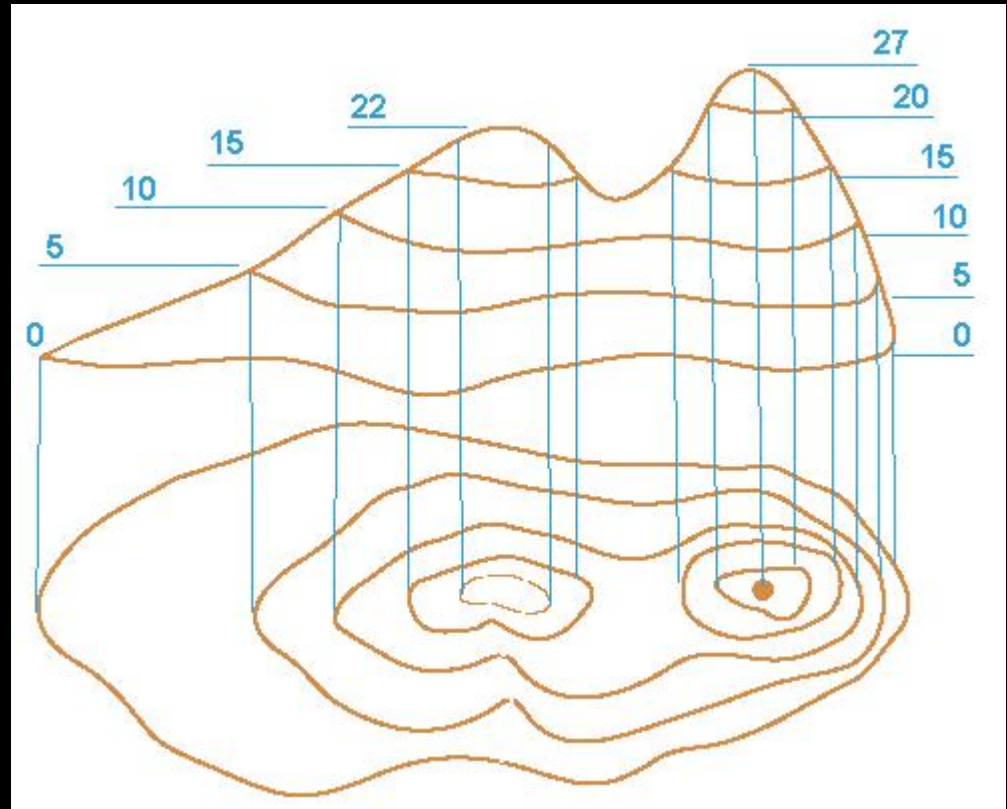




Brown: Shape of the Land






	Contour, Form line Courbe; de niveau
	Earthbank, Beaverdam Talus, Barrage de castor
	Knoll, Small knoll Monticule
	Depression, Small Dépression, Petite

Contour lines represent elevation in the landscape.
















Blue: Water Features

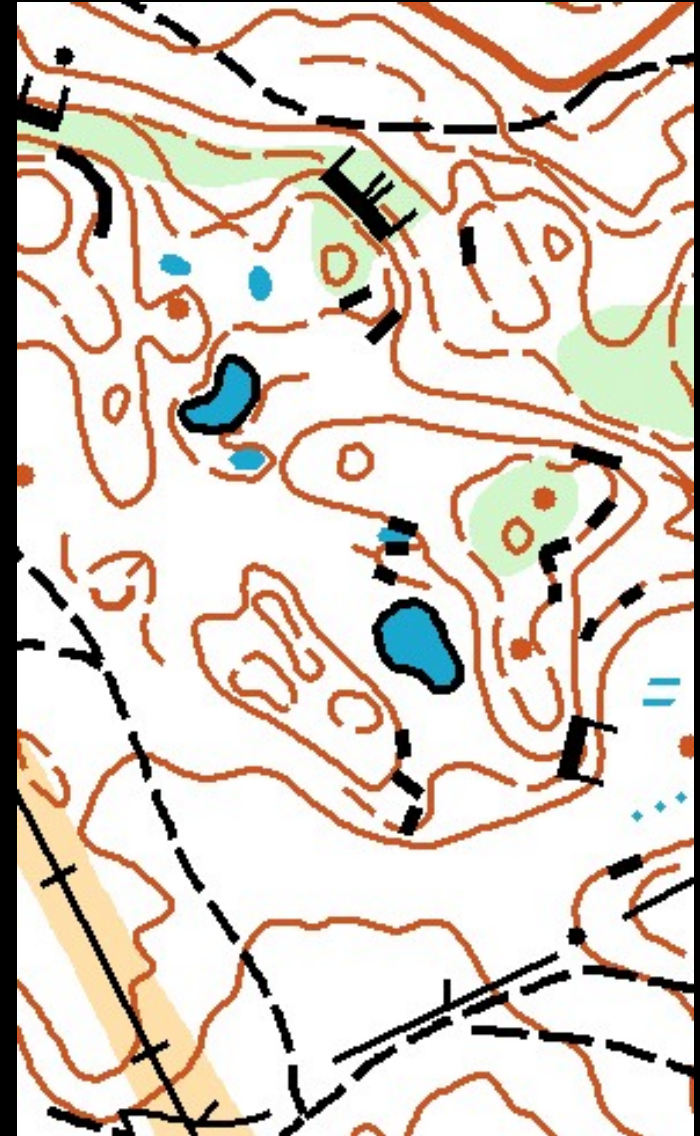
- | | |
|--|--|
|  | Lake, Pond
Lac, Mare |
|  | Uncrossable river
Rivière infranchissable |
|  | Stream, Small stream
Ruisseau, Petit Ruiss. |
|  | Seasonal stream
Ruisseau saisonnier |
|  | Uncrossable marsh
Marais infranchissable |
|  | Marsh, Indistinct marsh
Marais, Marais indistinct |





Black: Man-Made & Rock

 	Building, Ruin Bâtiment, Ruine
	Paved road Chemin pavé
	Road Chemin
	Vehicle track Chemin de charrette
	Footpath, Small path Sentier, Sentier étroit
	Indistinct path Sentier indéfini
	Ruined stone wall Mur en ruine
	Cliff; Passable, Impass. Falaise, Falaise difficile
	Boulder, Large boulder Roche, Rocher
	Boulder field, Boulder grp. Champ rocailleux, Roches



Basic

Orienteering

Skills



Orienting the Map

- Line up the map to match the features you see.
- Ensure North on your map matches North on your compass.





Folding/Thumbing the Map

- ❑ Fold the map parallel to the direction of travel.
- ❑ Move your thumb as your position changes.
- ❑ Try to keep your current route & next control visible.
- ❑ When approaching control, refold map for next control and continue planning your route.





Basic Map Reading

- ❑ Always keep the map oriented.
- ❑ Always stay in contact with the map.
- ❑ Constantly take note of features on the map, and make sure you can identify them in the landscape around you, and vice-versa (Catching Features).
- ❑ Navigate along linear features such as trails, streams, fences, and vegetation boundaries (Handrails).



Relocating

- ❑ Stop.
- ❑ Orient the map with the compass.
- ❑ Try to match the features on the map to the terrain around you.
- ❑ Try to determine where you could you have gone since your last known location.
- ❑ Return to the last place of known location or bail out to a linear feature.

Course

Walk Through



KANATA LAKES

OTTAWA ORIENTEERING CLUB RECREATION MAP

scale
 échelle **1: 10 000**
 contour interval
 équidistance **3m**
 year
 année **1994**



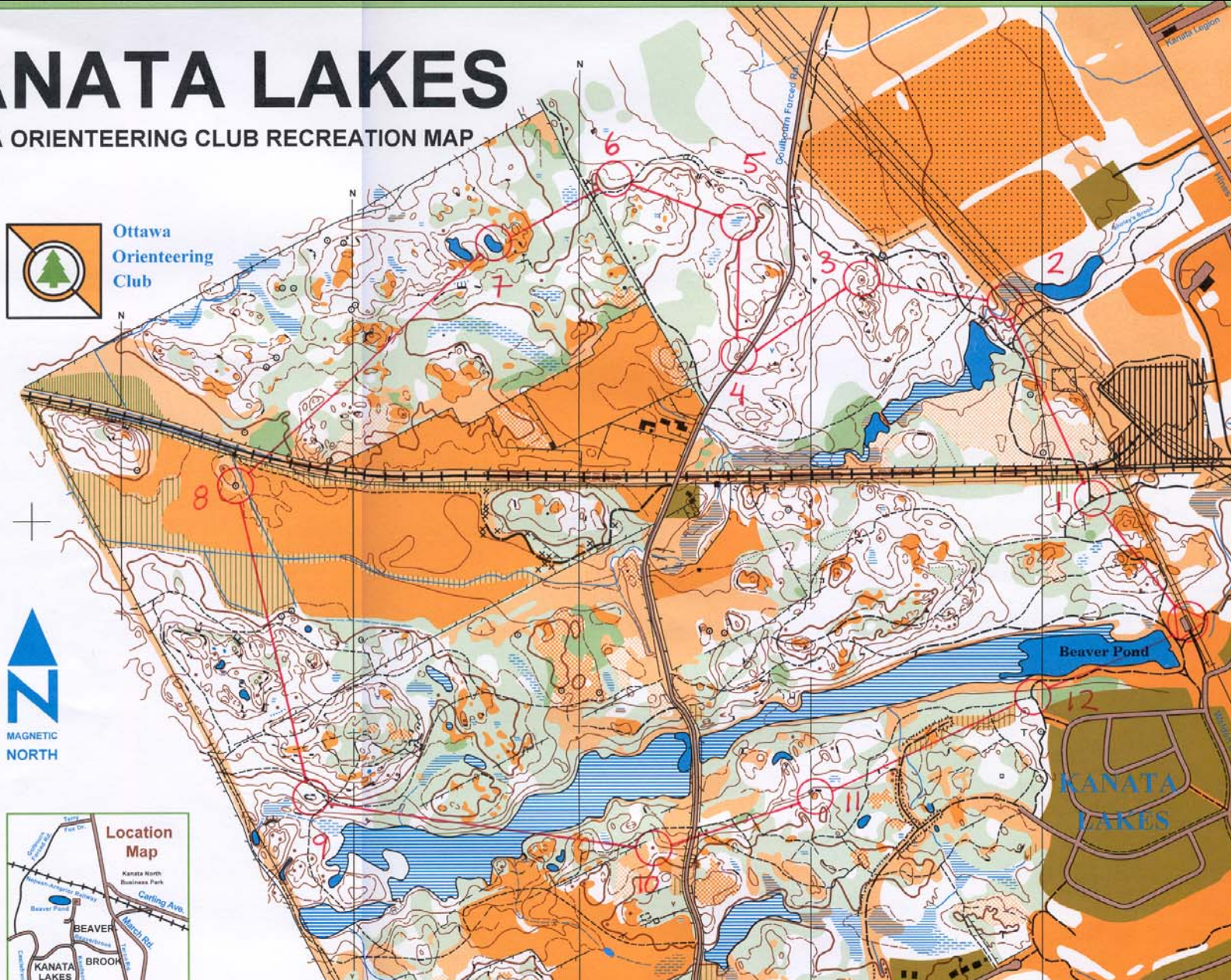
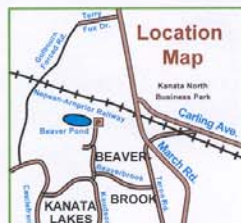
Ottawa
 Orienteering
 Club

LEGEND - LÉGENDE

- contour, index contour
- courbe de niveau, courbe maitresse
- form line, slope line
- courbe auxiliaire, trait de pente
- knoll, small knoll
- monticule, petit monticule
- depression, small depression, pit
- dépression, petite dépression, trou
- beaver dam
- barrage de castor
- open field
- champ ouvert
- open field with scattered trees
- champ ouvert avec arbres dispersés
- rough open land
- champ ouvert difficile
- rough open with isolated trees
- champ difficile avec arbres dispersés
- forest: fast running
- forêt: course rapide
- forest: slow run
- forêt: course lente
- forest: difficult to run
- forêt: course difficile
- undergrowth: slow run
- broussailles: course lente
- undergrowth: walk
- broussailles: course difficile
- distinct vegetation boundary
- lisière précise
- distinct isolated tree
- arbre isolé distinct
- lake, pond
- lac, étang
- uncrossable marsh
- marais infranchissable
- crossable marsh
- marais franchissable
- indistinct marsh
- marais indistinct
- narrow marsh
- marais étroit
- stream, seasonal stream
- ruisseau, ruisseau saisonnier
- small marsh, waterhole
- petit marais, trou d'eau
- paved road, unpaved road
- route pavée, non pavée
- cart track, trail
- chemin de tracteur, sentier
- narrow trail, indistinct trail
- sentier étroit, indistinct
- narrow ride, cutline
- passage étroit
- fence, ruined fence
- clôture, clôture en ruine
- uncrossable fence



MAGNETIC
 NORTH



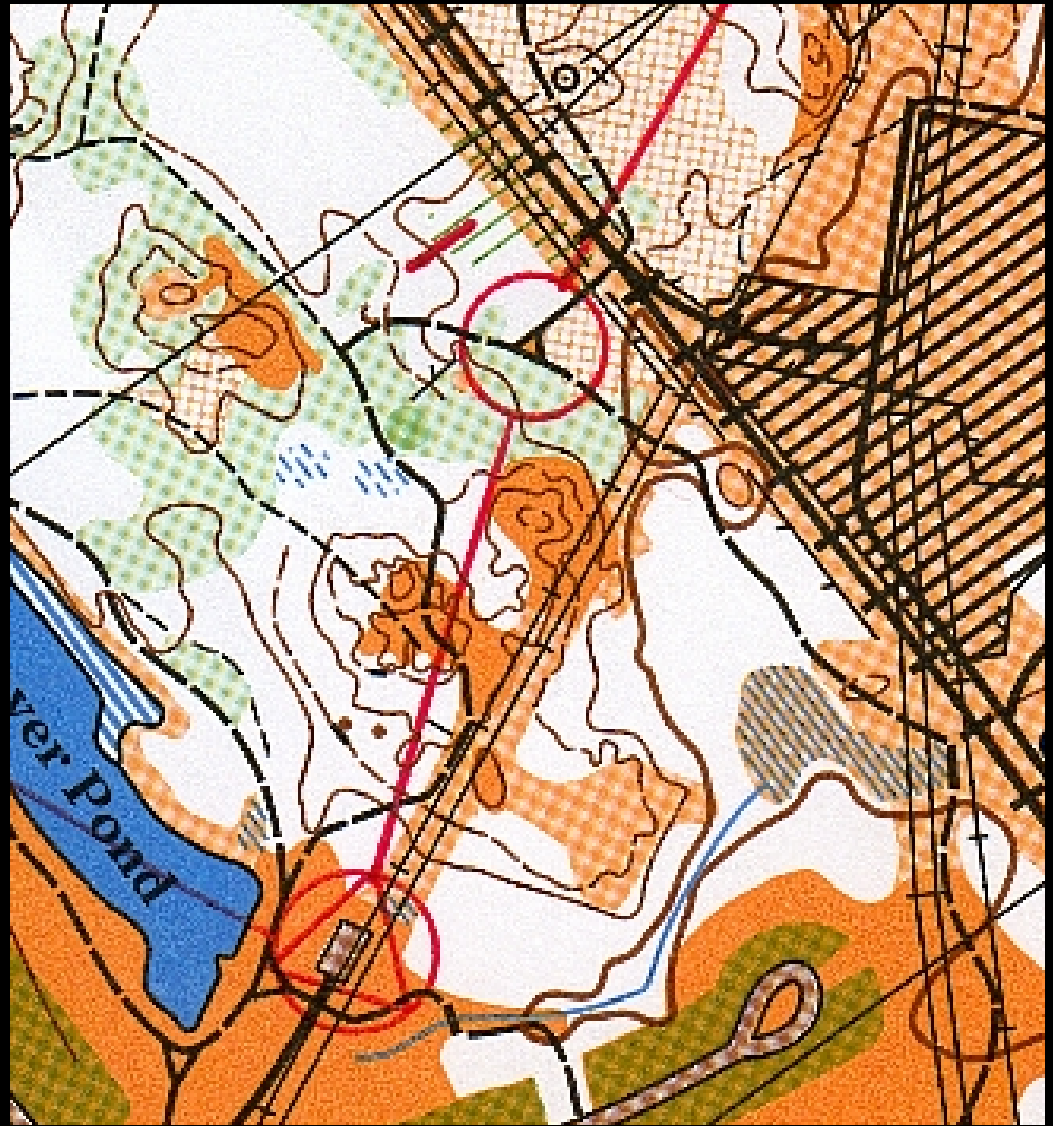
➤ Before your start time, decide your route to the first control, fold the map and orient yourself using the compass.

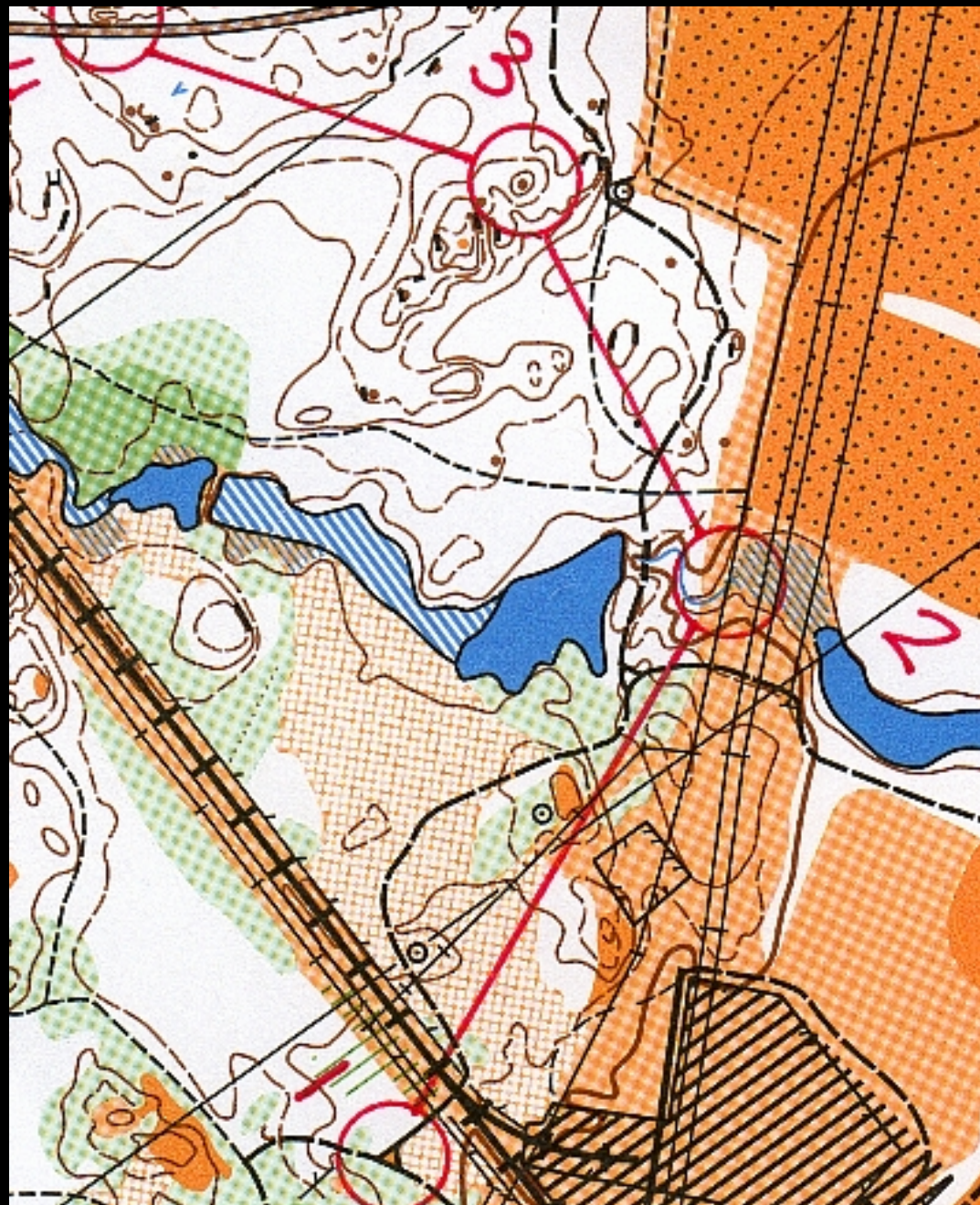
➤ Choose your handrails i.e. fence line, trail, tree line.

➤ Start by heading toward your first handrail via the most direct yet easily traveled route.

➤ What are some catching features?

➤ What is a good stopping feature?





➤ What are the most obvious handrails?

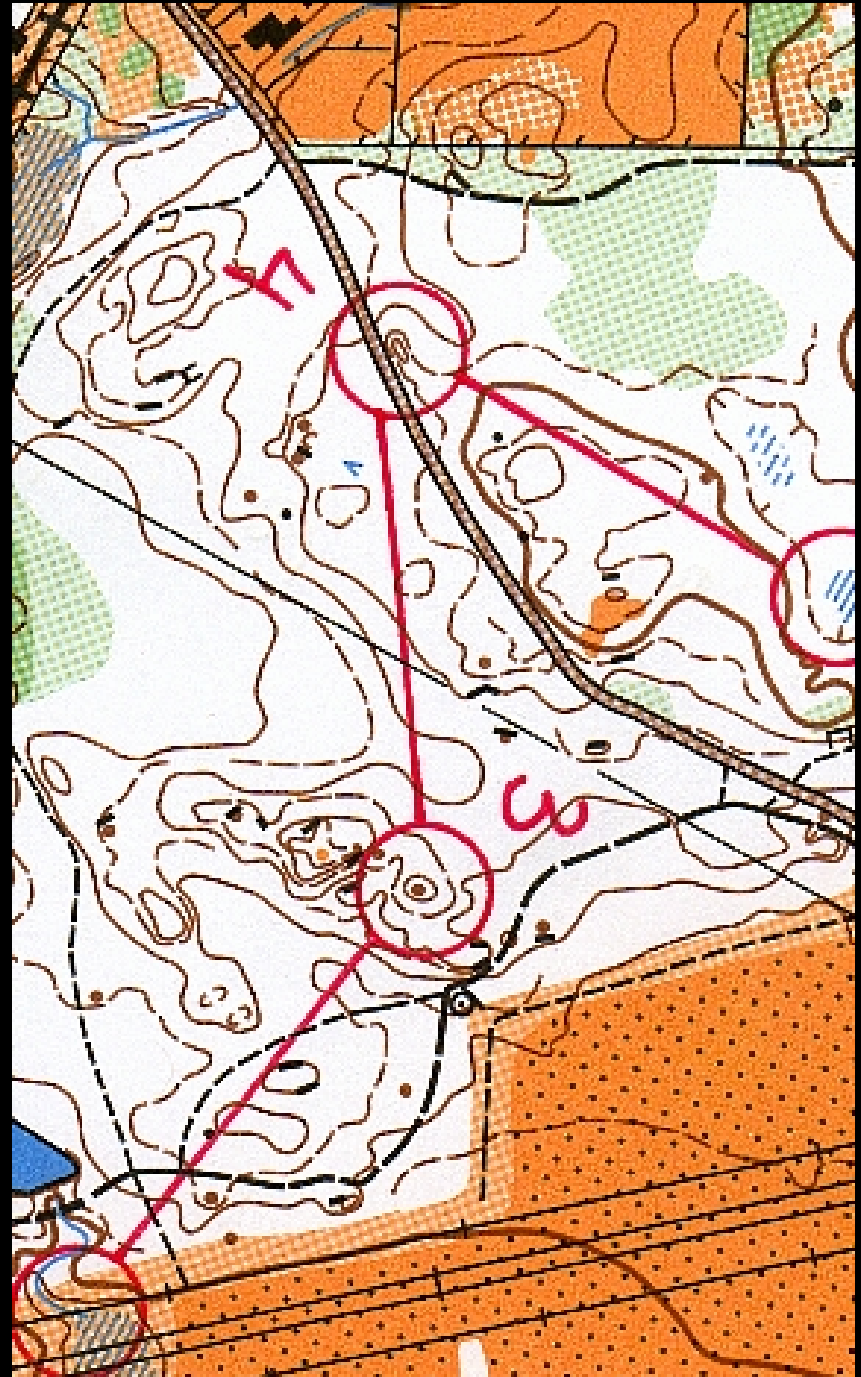
➤ Choose your handrails ie fence line, trail, tree line.

➤ Start by heading toward your first handrail via the most direct yet easily traveled route.

➤ What are some catching features?

➤ What is a good stopping feature?

- Would aiming off work here?
- What are some catching features?
- What is a good stopping feature?



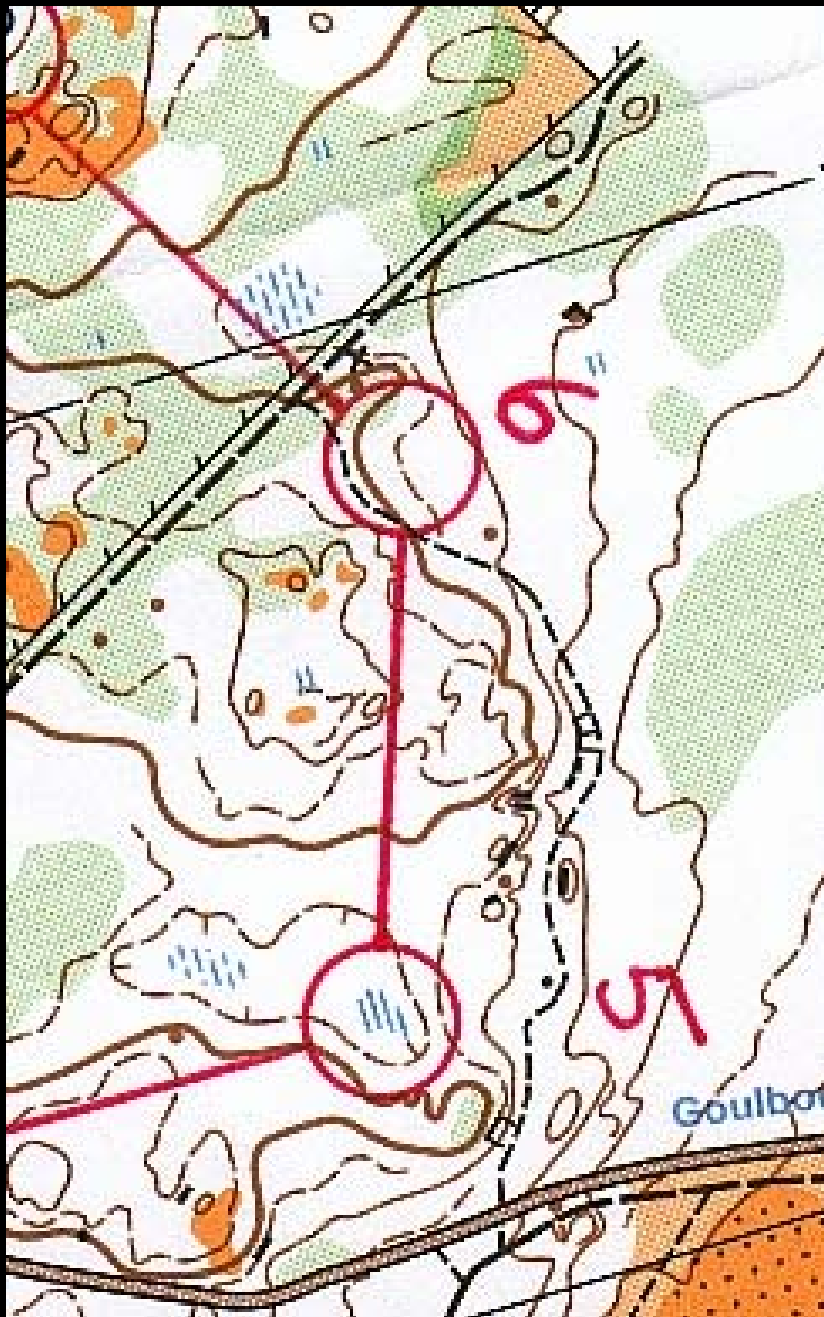
➤ Is height loss a factor on this leg?

➤ Can you choose to go on either side of the hill? Which side makes best sense?

➤ What are some catching features?

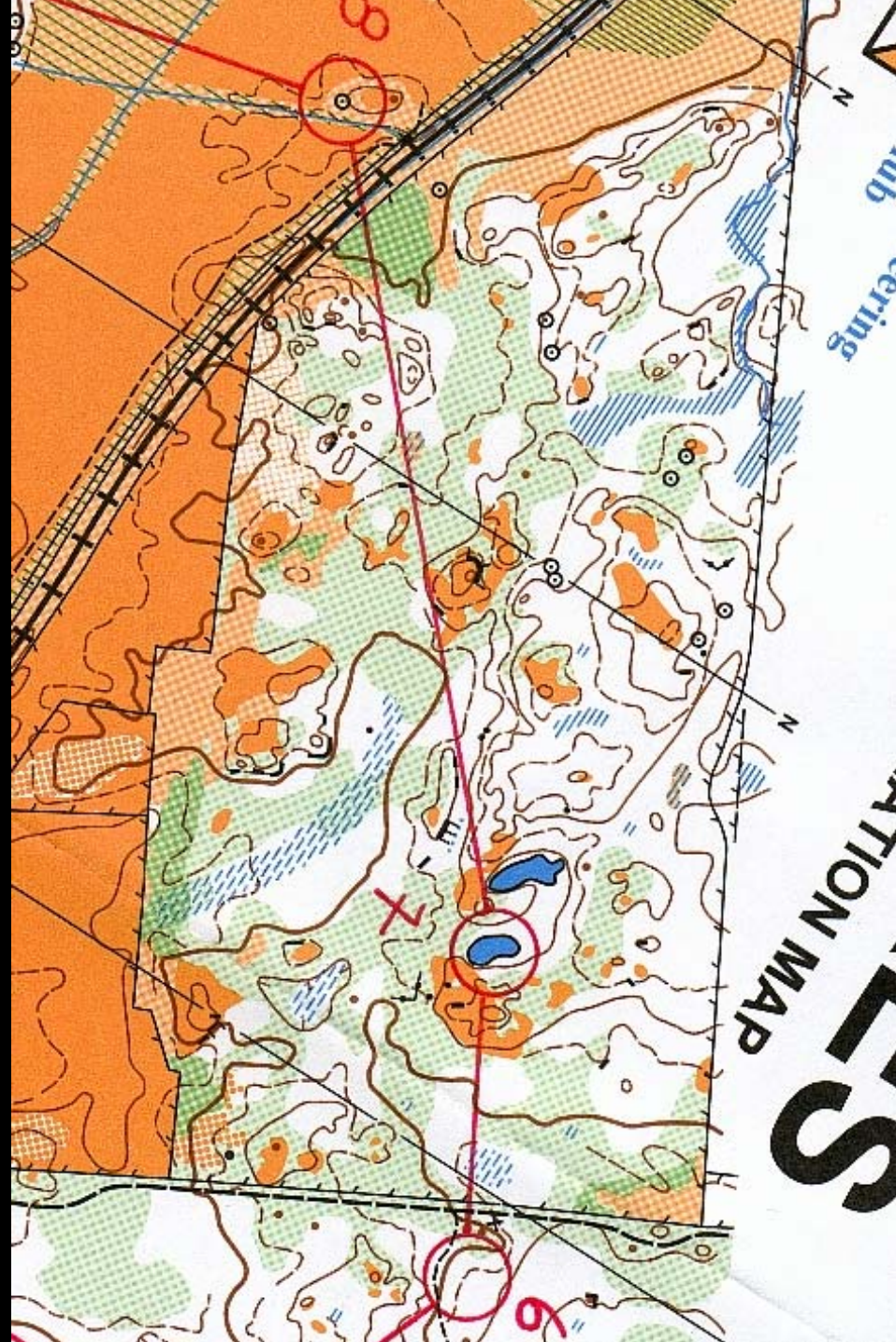
➤ What is a good stopping feature?

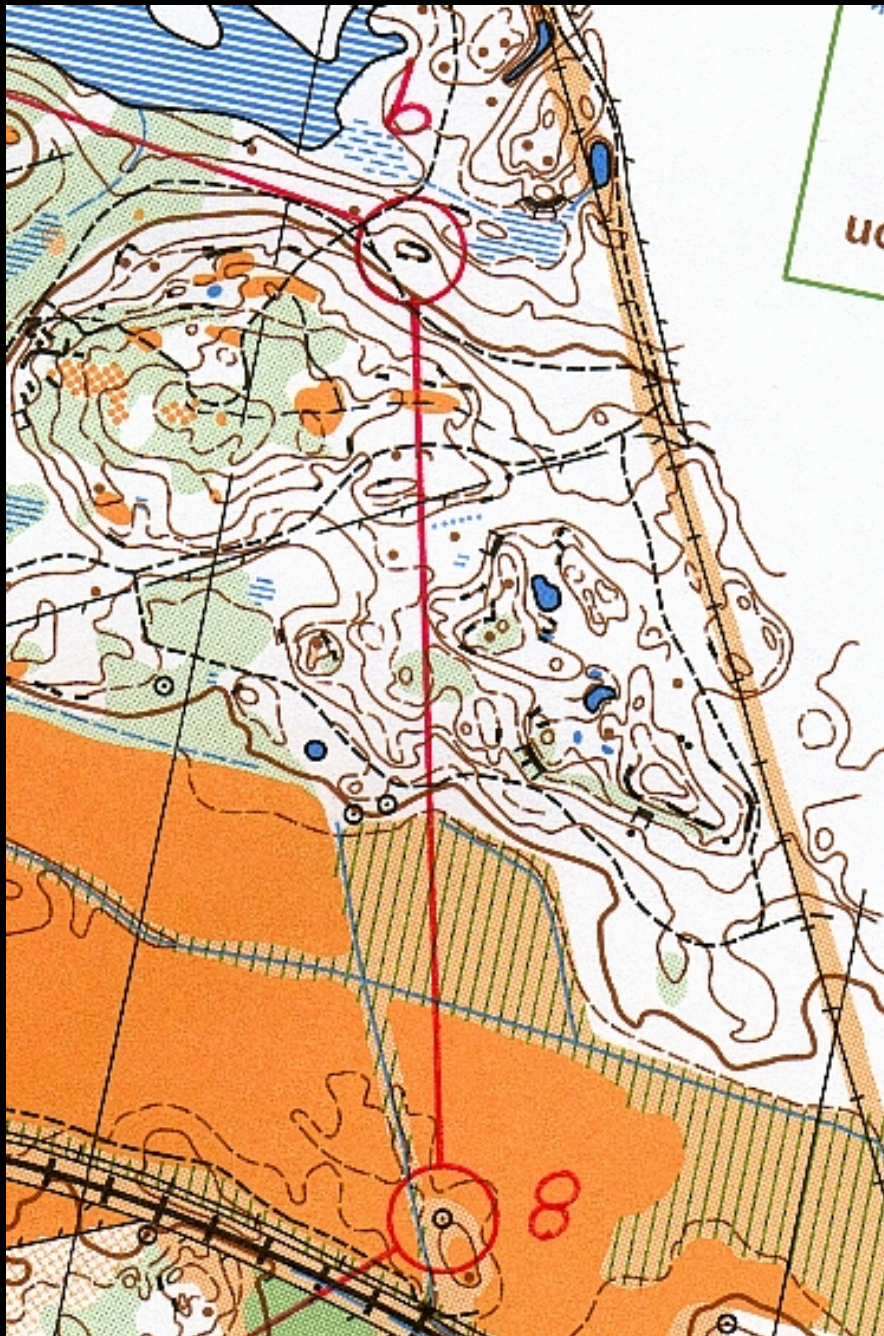




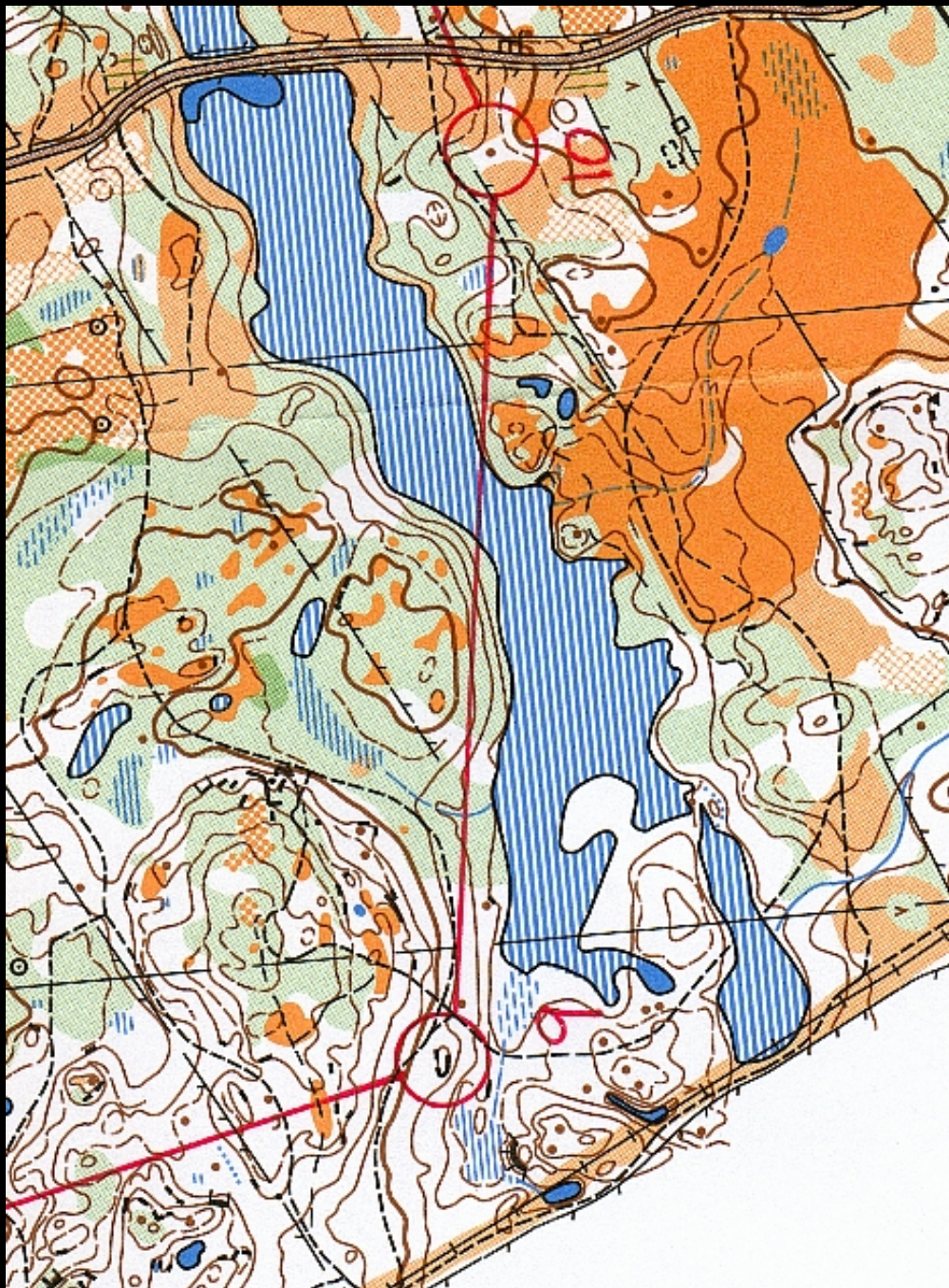
- Handrails?
- Height loss?
- Short hard vs long easy?
- What are some catching features?
- What is a good stopping feature?

- Handrails?
- Aiming off?
- What are some catching features?
- What is a good stopping feature?



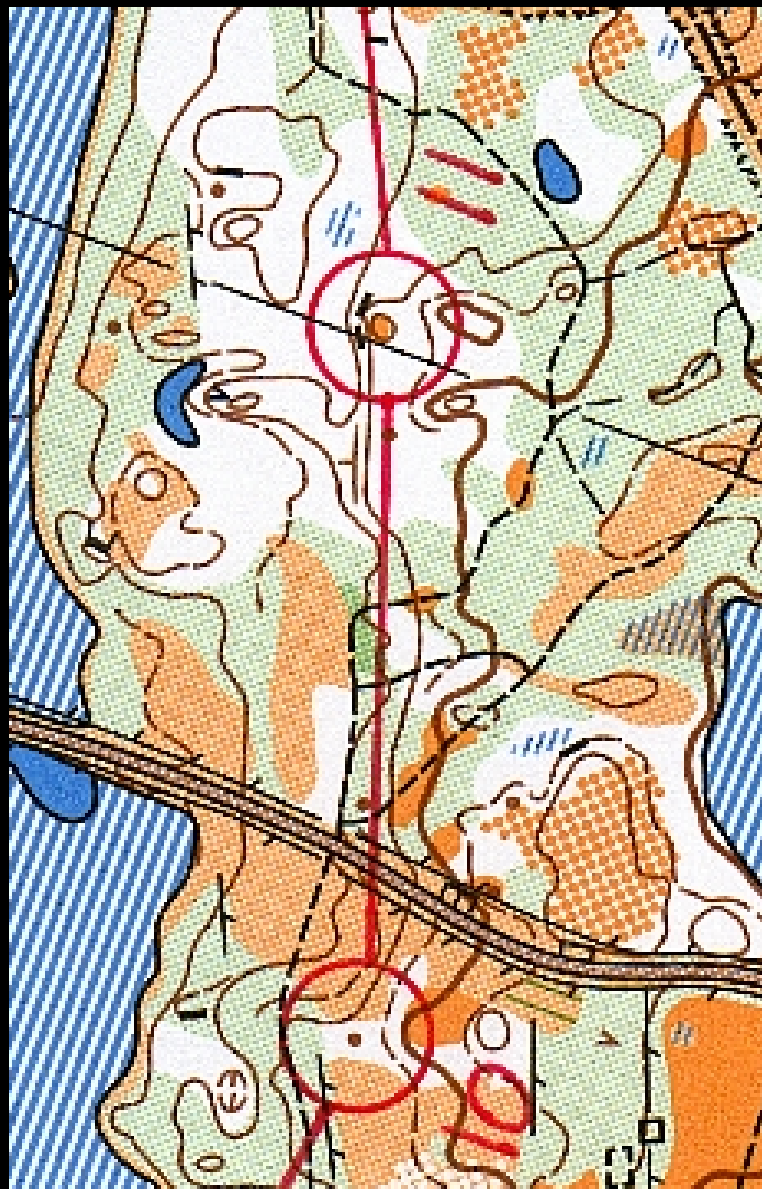


- Handrails?
- Short hard vs long easy?
- What are some catching features?
- What is a good stopping feature?

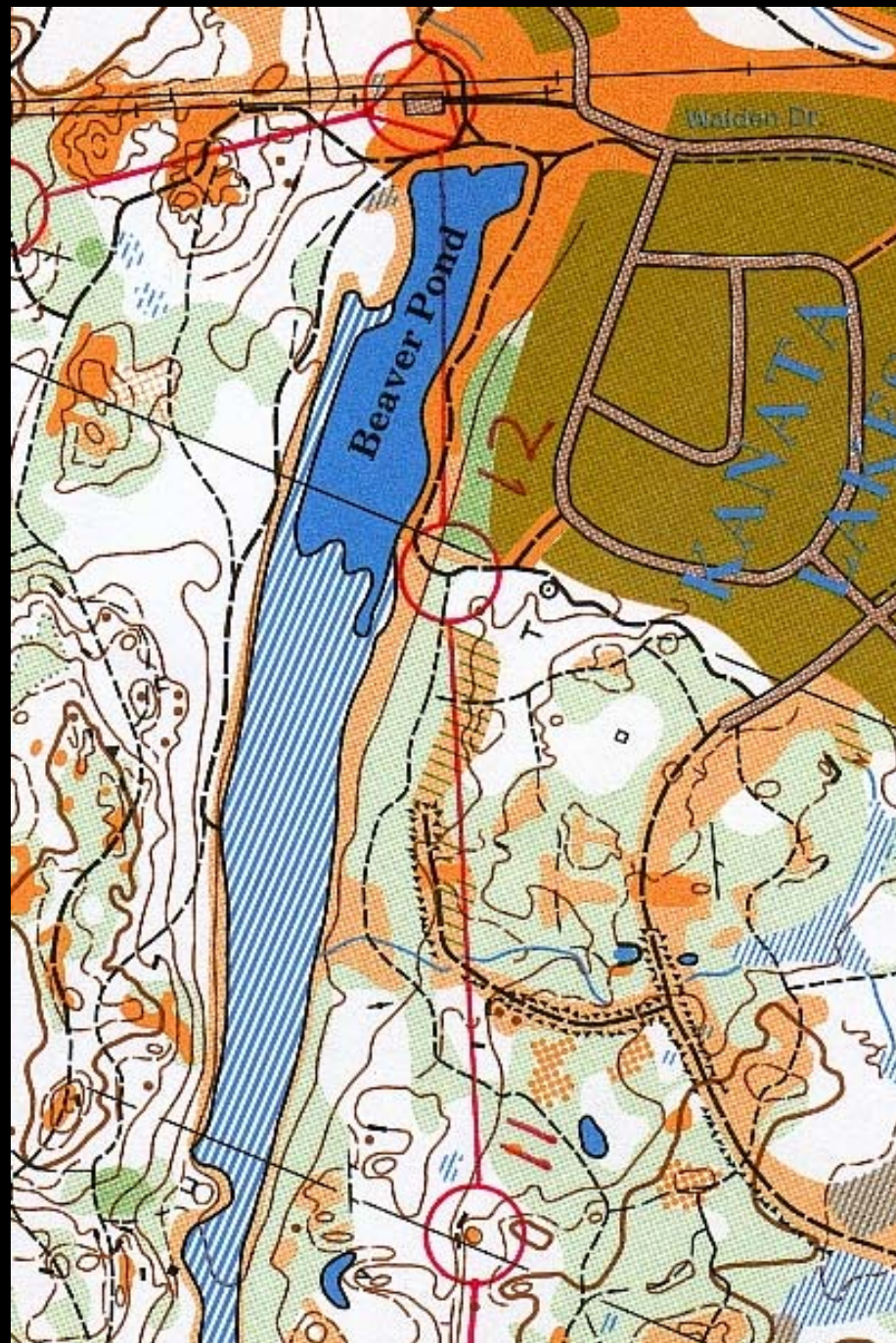


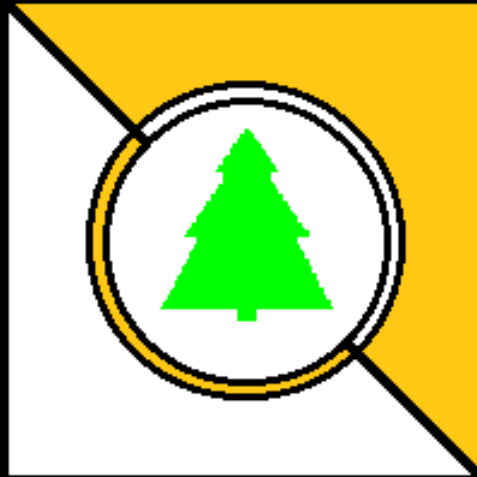
- Which side of the lake is best?
- Handrails?
- Short hard vs long easy?
- What are some catching features?
- What is a good stopping feature?

- Handrails?
- What are some catching features?
- What is a good stopping feature?



- Handrails?
- What are some catching features?
- What is a good stopping feature?





Orienteering Organizations

The background of the entire image is a stylized topographic map with various colored lines and symbols. In the top-left corner, there is a small cartoon character with a round face, a smiling mouth, and a body made of vertical lines, enclosed in a pink circle.

**International Orienteering
Federation:**

www.orienteering.org

**Canadian Orienteering
Federation:**

www.orienteering.ca

1-613-830 1147

Orienteering Ontario:

www.orienteering.on.ca

1-888-810-9990

Orienteering

Clubs



Local Schedule
and Results

What is

Toronto Orienteering Club:
www.toronto-orienteeing.com

O-Links

Start

Guelph Gators Orienteering Club:
www.orienteeing.on.ca/GGO

Out-of-town
Events

Resources

Ukrainian Orienteering Club:
protek@sympatico.ca

Local Schedule
and Results

What is
Orienteering?

Ottawa Orienteering Club:
www.magma.ca/~ottawaoc

Community Centre
Finish

Start

Kingston Orienteering Club:
www.orienteeering.on.ca/KOC

Membership
Information

Local Schedule
and Results

What is

Golden Horseshoe Orienteering Club:
www.dontgetlost.ca/gho

O-Links

Forest City Orienteering Club:
jeamec543@rogers.com

Out-of town

Contacts and
Resources

Conestoga Valley Harriers:
www.orienteeing.on.ca/CVH

Membership
Information

What is



Local Schedule
and Results

What is
Orienteering?

O-Links

Lauentian Voyageurs (Sudbury): www.orienteering.on.ca/LOC

Out-of-town
Events

Contacts and
Resources

Membership
Information



Useful Links

- ❑ <http://www.fortnet.org/icd>
- ❑ <http://www.learn-orienteeering.org>
- ❑ http://www.williams.edu/Biology/Faculty_Staff/hwilliams/Orienteering/o~index.html
- ❑ <http://www.orienteeeringunlimited.com/visualglossary.htm>
- ❑ <http://www.chrismar.com>
- ❑ <http://www.us.orienteeering.org>



Types of Events

▣ B-Meet

4 courses: Beginner, Intermediate, Advanced, Long Advanced

▣ A-Meet

Pre-registration is required.

▣ Score-O

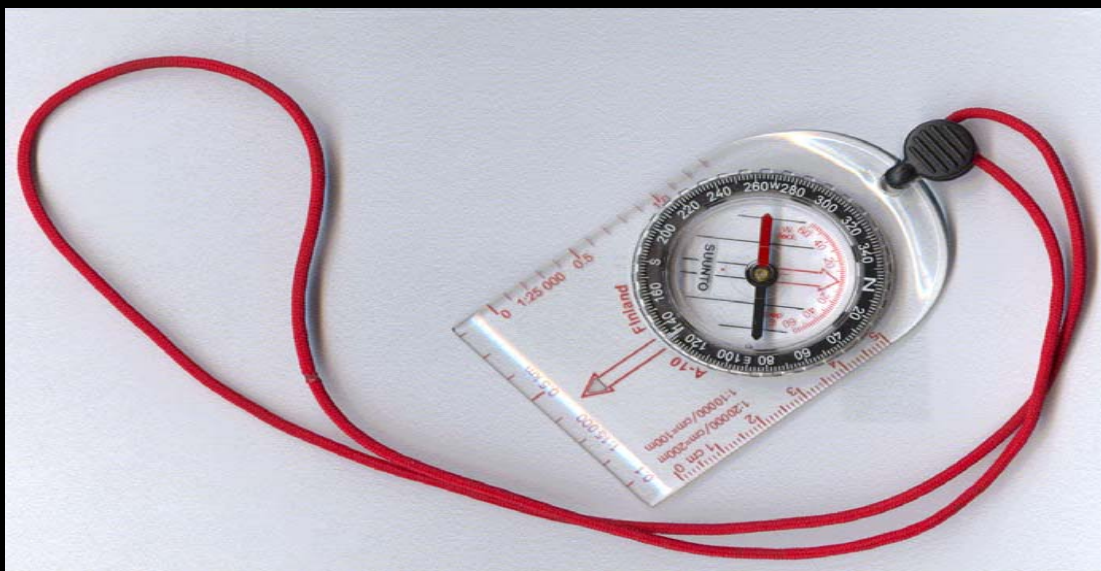
Find as many controls within a certain amount of time.

Mass start.



What to Bring...

- ❑ Comfortable walking or running clothes.
- ❑ Hiking boots or running shoes.
- ❑ Whistle (available to buy).
- ❑ Compass if you have one.



See you in the woods!



REGIONAL CADET INSTRUCTOR SCHOOL (CENTRAL)
ORIENTEERING INSTRUCTORS COURSE

COURSE NUMBER: _____

START DATE: _____

END DATE: _____

DAY: #1

DATE: _____

Serial	TIME	PO/EO #	DESCRIPTION	INSTRUCTOR	LOCATION	REMARKS
1	0600-0700	401	REVEILLE / PERSONAL HYGENE / PREPARE FOR DAY'S TRAINING	Course Senior	Quarters	Combats/Work Dress
2	0700-0745	401	BREAKFAST	Course Senior	Officer's Mess	In-Mess
3	0800-0810	401	ROLL CALL	Course Senior	Classroom	Combats/Work Dress
4	0810-0830	401	COURSE INTRODUCTION and CONDUCT	RCIS OC or SI	Classroom	
5	0830-0910	464.01	INTRODUCTION TO AND PHILOSOPHY OF ORIENTEERING		Classroom	
6	0920-1000	465.01	ORIENTEERING MAPS		Classroom	
7	1000-1020	401	MORNING BREAK	Course Senior	Lounge	
8	1020-1100	465.02	ORIENTEERING COMPASSES		Classroom	
9	1110-1200	466.01	ORIENTEERING TECHNIQUES		Classroom	
10	1200-1300	401	LUNCH, MOVE TO TRG SITE	Course Senior	Officer's Mess	In-Mess
11	1300-1630	466.02	SET AN ORIENTEERING COURSE	All DS	Area G (Blackdown Park) & Area H	Meeting Place TBD Combats/Work Dress
12	1700-1800	401	DINNER	Course Senior	Officer's Mess	In-Mess
13	1800-1830	464/465/ 466	REVIEW DAY'S TRAINING AND BRIEF NEXT DAY'S ACTIVITIES	All DS	Common Area in Quarters	Civilian Attire
14	1830-1900	464/465/ 466	OPTIONAL REMEDIAL HELP	All DS	Common Area in Quarters	Please Pre-Arrange

NOTES / COMMENTS:- Duty DS per Training Centre Routine Orders

REGIONAL CADET INSTRUCTOR SCHOOL (CENTRAL)
ORIENTEERING INSTRUCTORS COURSE

COURSE NUMBER: _____

START DATE: _____

END DATE: _____

DAY: #2

DATE: _____

Serial	TIME	PO/EO #	DESCRIPTION	INSTRUCTOR	LOCATION	REMARKS
1	0600-0700	401	REVEILLE / PERSONAL HYGENE / CLEAN/CLEAR OUT QUARTERS	Course Senior	Quarters	Will not be returning to quarters for duration of course
2	0700-0745	401	BREAKFAST	Course Senior	Officer's Mess	In-Mess
3	0800-0810	401	ROLL CALL	Course Senior	Classroom	Combats/Work Dress
4	0810-0850	464/465/466	ORIENTEERING ENABLING CHECK	RCIS Stds Rep or SI	Classroom	All Types of Questions
5	0900-1155	467	ORGANIZE AND CONDUCT AN ORIENTEERING MEET - LINE COURSE	All DS	Area G (Blackdown Park) & Area H	Practical Assessment During Training Meeting Place TBD
6	1200-1300	401	LUNCH	Course Senior	Area G (Blackdown Park) & Area H	Box Lunches
7	1300-1430	467	ORGANIZE AND CONDUCT AN ORIENTEERING MEET - SCORE COURSE	All DS	Area G (Blackdown Park) & Area H	Practical Assessment During Training
8	1430-1530	401	CLEAN & RETURN EQUIPMENT	Course Senior	Classroom	
9	1530-1600	401	COURSE CRITIQUES, COURSE REPORTS AND CERTIFICATES	RCIS Stds Rep or SI	Classroom	Check for all Errors
10	1600-1630	401	FINAL REMARKS, CLEAR OUT	All DS/ Course Senior	Classroom	
11	1700-1800	401	SUPPER	Course Senior	Officer's Mess	

NOTES / COMMENTS:- Duty DS per Training Centre Routine Orders