Canadian Orienteering Federation Officials’ Training Program

100 Level Manual
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List of Abbreviations

CC  Canada Cup
COC  Canadian Orienteering Championships
COF  Canadian Orienteering Federation
ECOC  Eastern Canadian Orienteering Championships
HPC  High Performance Committee
HPP  High Performance Program
ISOM  International Specifications for Orienteering Maps
ISSOM  International Specification for Sprint Orienteering Maps
JWOC  Junior World Orienteering Championships
LTAD  Long Term Athlete Development
NAOC  North American Orienteering Championships
P/TOA  Provincial and Territorial Orienteering Associations
WCOC  Western Canadian Orienteering Championships
WMOC  World Masters Orienteering Championships
WOC  World Orienteering Championships
WRE  World Ranking Event
1.0 Introduction
The Canadian Orienteering Federation (COF) Officials’ Program provides standardized training for COF event officials so that they may conduct technically sound, fair, and safe events. It educates officials about the principles and practices of planning, organizing, and conducting events according to the COF standards established for Canada Cup, B, and C events. Officials become certified through a laddered credential structure which progressively builds skill, knowledge, and experience.

1.1 COF Credential Framework

<table>
<thead>
<tr>
<th>Certification</th>
<th>Qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 Level Official</td>
<td>Organize and plan C events</td>
</tr>
<tr>
<td>200 Level Official</td>
<td>Organize and plan B events. Control C events</td>
</tr>
<tr>
<td>300 Level Official</td>
<td>Organize and plan regional level Canada Cup events such as Western Canadian Orienteering Championships (WCOC). Control B events</td>
</tr>
<tr>
<td>400 Level Official</td>
<td>Organize and plan all events including Canadian Orienteering Championships (COC), North American Orienteering Championships (NAOC), World Ranking Events (WRE), World Orienteering Championships (WOC), World Masters Orienteering Championships (WMOC) etc. Control Canada Cup events to Regional level</td>
</tr>
<tr>
<td>500 Level Official</td>
<td>Control all events. Act as a World Ranking Event Advisor</td>
</tr>
</tbody>
</table>

1.2 100 Level Requirements
To be considered as a candidate for the 100 Level Officials’ course, the candidate must meet the following pre-requisites:
- Participated in at least five C events
- Participated in at least two Canada Cup or B events
- Served as a volunteer at two events, Canada Cup, B or C

To become a certified 100 level official, the candidate must complete the following requirements:
- Attend all sessions of the 100 level course
- Achieve a score ≥ 80% on the 100 level exam
- Plan a beginner course and an intermediate course complying to C event standards
- Act as an event director and course planner for a C event.

1.3 Learning Objectives
Upon completion of the O100 Officials’ Training Program, candidates will be expected to be familiar with the following concepts:
- Basic structure and objectives of the COF Long Term Athlete Development Plan (LTAD)
- Characteristics of Canada Cup, B, and C events
- Roles and responsibilities of event director, course planner, and controller
- Best practices for organizing an event, including registration, simple starts, timing, and safety
- Basics of planning beginner, intermediate, and advanced courses for the Sprint, Middle, and Long formats
- Software applications useful for course planning

2.0 Long Term Athlete Development Plan

The Long Term Athlete Development model is an initiative by the COF to pursue the following goals:
- Offer a sport which everyone can pursue at their desired level, recreational or competitive
- Develop orienteering in a positive manner paying heed to the unique Canadian culture, landscape, and history while taking into consideration the changing international orienteering trends
- Continually have better results at championship events at the Junior World Orienteering Championships (JWOC), World Orienteering Championships (WOC), and World Masters’ Orienteering Championships (WMOC)
- Grow by attracting people of all ages to the sport

Success and enjoyment in Canadian orienteering will be achieved through the following five paths:

i) Events for all levels of orienteers
ii) Support at the club level
iii) A high performance program for elite competitors
iv) Effective promotion of the sport
v) Clear communication

The LTAD concept is a nine-stage model based on the physical, mental, emotional and cognitive development of children and adolescents, each stage reflecting a different point in athlete development.

During the first three stages of the LTAD, children grow, become physically literate and have fun participating in active indoor and outdoor games, other sports and orienteering-related activities.

Following the first three stages, there is a transition to either further competitive excellence in orienteering or to life-long participation in orienteering and/or other sports at the recreational or age-graded competitive level. For athletes who wish to pursue excellence, the High Performance Program (HPP) enables developing elite to specialize in orienteering at the national and international level. Regardless of the level of excellence or sport-mastery achieved, participation in orienteering can enhance the health, fitness, and mental well-being of Canadians of all ages.
IX - ACTIVE FOR LIFE
Age: 17 – 80+, males and females
Maintain life-long physical activity and participation in sport

VIII - TRAIN TO WIN
Age: 25+, males and females
Attain top performance at the highest competitive levels

VII - TRAIN TO COMPETE
Age: 19 - 25, males and females
Optimize fitness preparation and orienteering-specific skills as well as performance

VI - LEARN TO COMPETE
Age: 17 - 18, males and females
Optimize aerobic base and strength, learn more technical and tactical skills and continue to develop mental skills

V - TRAIN TO TRAIN 2
Age: 15 - 16, males and females
Continue to build aerobic base, speed, strength, and orienteering skills

IV - TRAIN TO TRAIN 1
Age: 13 - 14, males and females
Build an aerobic base, develop speed and strength toward the end of the stage, and further develop and consolidate orienteering skills. Build overall strength and physical stability in order to manage the coming training.

III - LEARN TO TRAIN
Age: 10 - 12, males and females
Learn overall sports skills

II - FUNDAMENTALS
Age: 7 - 9, males and females
Learn all fundamental movement skills and build overall motor skills

I - ACTIVE START
Age: 6, males and females
Learn fundamental movements and link them together into play
2.1 LTAD Framework for Orienteering – 9 Stages

**ACTIVE START 0-6 years (String Course, Course 1 with majority of navigation by an adult)**
- Learn fundamental movements and link them together into play
- Develop familiarity with maps, controls and punching systems
- Develop familiarity with the process of orienteering and prominent features used to navigate (trails, streams, large objects, boulders)
- Design activities that help children to feel competent and comfortable participating in a variety of fun and challenging sports and activities in differing terrain
- At upper age levels encourage trail walking/running and some off-trail activities, such as jungle courses (string courses) or course 1 with a parent or coach
- Focus on skill development and participation; no competitive elements
- Participation awards only

**FUNdamentals 7-9 years (String Course, Course 1 with some independent navigation)**
- Activities and programs need to maintain a focus on fun, and formal competition should only be minimally introduced
- Learn to orient the map to north
- Learn to relate features on the map to the physical terrain in the forest
- Learn more extensive set of basic map features (trails, streams, fields, boulders, cliffs, buildings, fences)
- Develop proper running techniques on- and off-trail by having youngsters follow a flagged route through somewhat dense forest, over and under fallen trees, over and under fences
- Learn safety rules of orienteering

**LEARN TO TRAIN 10 - 12 years (Course 1 independently or with shadow)**
- Practise feature familiarization and recognition, e.g., relate map symbols and colours to the terrain and vice-versa
- Learn how to orient the map using linear terrain features
- Learn to recognize simple handrails in the terrain and how to navigate along them
- Think ahead; be aware of handrail changes along route
- Know how start, finish and controls are represented on the map
- Start learning international control description symbols
- Practice map holding and folding technique
- Learn techniques that allow athletes to navigate off trails for short distances
- Learn basic route choice tactics and decision-making principles, e.g. at every control, have a plan for getting to the next control, and commit to it
- Introduce rough orienteering. Focus on safe orienteering but occasionally point out where youngsters can safely run faster
TRAIN TO TRAIN 1 13 - 14 years (Course 2)

- Emphasize technical skill development, e.g. holding a bearing while running; map reading by thumb; orienteering with flow and control
- Practice following linear features (trails, fences, streams, fields)
- Learn to make use of features slightly off the handrails
- Learn to recognize less obvious handrails, e.g. a ridge system or a valley
- Practise simple route choice, e.g. cutting directly through the forest (off-trail) for short distances, less than 100 meters, rather than taking a longer route following a handrail
- RJT (run, jump, throw): emphasize terrain running technique - jumping; hopping on, off and over obstacles; running up, down and contouring across slopes; climbing over terrain barriers

TRAIN TO TRAIN 2 15 - 16 years (Course 3)

- Practise contour interpretation; begin to distinguish up-slopes from down in mapped land forms
- Navigate using rough map reading, i.e., concentrate on large contour features off-trail
- Begin to identify contour features in the forest, e.g. small and large hills, highest points in the terrain
- Learn symbols for terrain runnability (colour code and special markings)
- Use rough compass technique to maintain direction through the forest towards obvious handrails less than 300 meters distant
- Choose reliable attack points
- Use precision compass to travel accurately from attack points to controls

LEARN TO COMPETE 17-18 years (Course 8 Female, Course 9 Male)

- Practice holding elevation and taking controls when running across slopes
- Practice simplifying, enlarging, and extending the control
- Continue to practise contour interpretation and precision map reading
- Practise distance estimation; use pace counting for distances under 200 meters and practice intuitive estimation of longer distances
- Practice taking difficult controls in less detailed terrain with few catching features
- Manage inner dialogue while orienteering; visualize staying positive and focused; learn how to refocus thoughts after making mistakes or catching up with competitors
- Learn O-CAD, if interested in mapping/course-setting (learn how a course-setter thinks)

TRAIN TO COMPETE 19 - 25 years (Course 9 Female, Course 10 Male)
• Continue to practice taking difficult controls in less detailed terrain with few catching features
• Move towards bold execution rather than always practicing safe, controlled, mistake-free orienteering. Find out how fast it is possible to orienteer without continually making mistakes
• 19-20 year olds are encouraged to race up into senior men/women categories in training to gain experience at the elite level
• Adjust speed according to the type of terrain and individual strengths

TRAIN TO WIN  25+ years (Course 9 Female, Course 10 Male)
• Make advance planning automatic. For each leg, decide on an execution plan and carry it out
• Maintain high level of proficiency in technical skills by continuously refining, improvising, and personalizing them
• Practise bold orienteering
• Display the highest possible level of consistency and control over complex decision making
• Provide positive role models to younger athletes

ACTIVE FOR LIFE  17 – 80+ years (All Courses)

This stage can be entered at any age. Athletes who have completed the Learn to Train stage and want to remain active in the sport at a recreational level should be encouraged to continue as both athletes and officials. Adult beginners can be offered modified programs that take into consideration their specific cognitive, life skill, physical and technical abilities.

• Maintain life-long physical activity and participation in sport
• Continue participating in orienteering competitions, in addition to becoming expert in other aspects of the sport, e.g. course setting, mapping, event organization, coaching
• Work/volunteer at the provincial or federal level to support orienteering and stay active in the orienteering family
• Compete at international age-graded competitions, e.g. World Masters’ Orienteering Championships and other multi-day events

2.3 An Integrated Development System for Orienteering

It will require a coordinated effort by the entire orienteering community to create a truly integrated, leading edge development system that will place Canada in the top 15 orienteering nations in the world. In order to achieve this objective, it is important that all of the primary stakeholders acknowledge their roles and responsibilities and be aware of those of the other key groups involved in the development process. The groups and their respective traits and qualities follow:

<table>
<thead>
<tr>
<th>Parents</th>
<th>Athletes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provide support and guidance in making their child’s involvement in orienteering</td>
<td>• Enjoy orienteering</td>
</tr>
<tr>
<td></td>
<td>• Develop competent physical literacy</td>
</tr>
<tr>
<td>Enjoyable</td>
<td>• Develop competent orienteering skills</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>• Be educated about orienteering and how one can progress through the sport</td>
<td>• Become self-reliant and demonstrate independent initiative in learning and developing skills</td>
</tr>
<tr>
<td>• Understand the concept that increased activity will counter the current trends in childhood and adult obesity and cardiovascular disease</td>
<td></td>
</tr>
</tbody>
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### Officials
- • Be educated
- • Have a thorough understanding of the LTAD principles for orienteering
- • Understand where and how they fit into the system
- • Commit to supporting athletes in achieving their goals

### Coaches
- • Be educated
- • Have a thorough understanding of the LTAD principles for orienteering
- • Understand where and how they fit into the system
- • Commit to supporting athletes in achieving their goals

### Clubs
- • Provide proper training and competition facilities
- • Provide a support structure (coaching, resources, etc.)
- • Operate developmental orienteering programs
- • Recruit newcomers from the community

### The COF and Associations
- • Ensure that appropriate programming is in place for use by clubs, coaches, officials, etc.
- • Be a source of information, expertise and support providing necessary information and communications in the development of athletes

The complete COF Long Term Athlete Development document is available at www.orienteering.ca

### 3.0 Characteristics of Canadian Orienteering Events

In Canada, there are three levels of orienteering events: Canada Cup events, B events, and C events.

#### 3.1 Canada Cup Events
Canada Cup events are the highest level orienteering events in Canada. They include, but are not limited to, national, regional, and provincial championships. Canada Cup events are often multi-day events composed of races from all three disciplines of orienteering (Sprint, Middle, and Long) that attract participants from outside the local club. These events generally include a banquet, accommodation for out-of-town orienteers, assigned start times, advance registration, and promotion to orienteering community and general public. Due to the high level of organization required, these events involve several key officials (event director, course planner, controller, start chief, finish chief, registrar, etc.) and a large number of volunteers to assist them. A Canada Cup event requires ten courses for Long and Middle distance events and five courses for Sprint events.

#### 3.2 B Events
B events are generally single day, weekend events held on forest maps within an hour or two of the local club’s city. These events are primarily attended by local club members and, therefore, are
considerably less formal than Canada Cup events. At B events, the ten-course Canada Cup format is usually compressed down to between three and five courses. Due to the more relaxed start, finish, and registration procedures at B events, B events require fewer volunteers than Canada Cup events.

3.3 C Events
C events are the least formal of the three levels of Canadian orienteering events and require the least amount of organization. They are generally held over a couple of hours on a weekday evening or weekend morning. Most often they are held in an urban park for members of the local orienteering club. These events offer one to three courses and may use one of the standard point-to-point formats (Sprint, Middle, Long) or an alternative orienteering format, such as night-O, score-O, Memory-O, or Corridor-O.

C events provide substantial benefits to the local orienteering club:
- Offer all orienteers opportunities for socializing and physical activity
- Provide opportunities to acquire and maintain orienteering skills on technically sound courses
- Recruit newcomers to orienteering
- Provide novice and junior orienteers non-intimidating learning experiences
- Provide novice officials with positive learning opportunities

Clubs across Canada use a wide range of procedures and practices to run their C events. This 100 Level Officials’ Training Manual aims to standardize the course planning and safety aspects of C events while allowing for regional flexibility in other aspects.

4.0 Event Officials
Orienteering events are typically organized by a team of three officials – Event Director, course planner and controller with the following roles as defined by the COF Rules:
- 5.1.1 The event director shall take responsibility for the event. The event director shall appoint such further officials as are necessary and see that they understand and fulfill their duties.
- 5.1.2 The course planner shall design the courses and be responsible for preparing the control markers, punches, competition maps, control description lists and for the correct placing of the control markers and punches prior to the event.
- 5.1.3 The primary tasks and responsibilities of the controller shall be to check the quality of the map and to recommend necessary revisions; Check the start and finish areas and all control locations for correct position and suitability; Check that the general standard of the course is in accordance with current rules and standards of course planning; Check that the course as planned is fair to all participants particularly with regard to the quality of map detail; Check that the terrain and course are safe for participants with respect to hazards and dangerous locations.

4.1 C Event Orienteering Officials
For C events, the roles of the event director and course planner are often combined, since the majority of the event director’s tasks are accomplished by club procedures. The role of a C event controller is to mentor the event director/course planner and review his/her courses. A C event controller must at least have 200 level certification. The O100 Level Officials’ Training Manual does not cover the responsibilities of a 200 level controller; however, it will provide advice to the 100 level event director/course planner on how to work effectively with the controller to ensure a successful event.

The event director/course planner is responsible for recruiting the necessary officials and volunteers, and ensuring that they are aware of their roles and responsibilities.

<table>
<thead>
<tr>
<th>Official Position</th>
<th>Number Required</th>
<th>Qualifications</th>
<th>Role Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event Director/Course Planner</td>
<td>1</td>
<td>COF O100 Level Official</td>
<td>Plan courses, check control locations, arrange for map printing, place flags, and recruit necessary volunteers.</td>
</tr>
<tr>
<td>Controller</td>
<td>1</td>
<td>COF O200 Level Official</td>
<td>Ensure courses are fair, safe, and comply with C event standards.</td>
</tr>
<tr>
<td>Registrar</td>
<td>Approximately 1 for every 100 participants expected</td>
<td>None</td>
<td>Collect fees and record names of participants. Ensure membership status of all participants.</td>
</tr>
<tr>
<td>Start/Finish Official (one person may perform both roles)</td>
<td>Approximately 1 for every 100 participants expected</td>
<td>None</td>
<td>Record starters. Ensure appropriate interval between starts. Record finishers. Be aware of participants who did not report to the finish.</td>
</tr>
<tr>
<td>Beginner Clinics</td>
<td>Approximately 2 for every 100 participants expected</td>
<td>Experienced orienteer</td>
<td>Provide basic instruction in map reading and orienteering to beginners.</td>
</tr>
</tbody>
</table>

In some clubs, all of the above roles may be performed by a single person.

4.2 Volunteers
All orienteering clubs in Canada rely on volunteers to donate their time and share their expertise (orienteering and other skills). It is critical that all volunteers are treated with respect.

- Assume that all volunteers are trying their best within their level of expertise and experience
- Recognize and acknowledge good work
- Emphasize volunteer contributions and their importance to the success of the event
• Remember that volunteers have personal and professional obligations that take precedence over their orienteering commitments
• Say thank-you

5.0 Event Organization

5.1 Date and Location
C events are often scheduled on a standard day and at a standard time as a part of a weekly or monthly orienteering series. The length of the series and the frequency of events vary from club to club. The date and location of C events is usually determined before the orienteering season by the local club’s executive or event coordinators. Those responsible for scheduling the events plan events in different areas of the city to provide the widest range of maps to the largest number of club members. They must also consider the suitability of each map for the time of year when the event will be run; will the event be run at night? Will it be run in the snow? Will the vegetation be unpleasantly high? Will the area be filled with a large number of other users? Will the area be occupied by another organization’s event? Once the schedule has been arranged, the events coordinator will attempt to match a course planner and controller to each event based on the proximity of the maps to their work/home, availability, and level of experience.

5.2 Permissions
Orienteering relies on the generosity of landowners to grant access to their property. This includes both privately and publicly owned land, such as urban parks. Some municipalities and area governing bodies do not require permission for events attended by a small number of participants. It is the club’s responsibility to be aware of these permission thresholds and to seek event permission from the landowner when required. Most clubs have a volunteer who makes any necessary permission applications.

5.3 Before the Event
The Event Director/Course Planner (with the assistance of the controller) must ensure that all of the following tasks are completed well in advance of the event:

Volunteers
☐ Recruit event volunteers

Plan Courses
☐ Obtain the most recent version of the event location’s orienteering map
☐ Select the orienteering format of the course
☐ Plan course using the principles discussed in section 6.3
☐ Review course with controller and make any suggested changes
☐ Visit the control sites to confirm that all locations are properly represented on the map and safe for participants. Make any necessary changes
☐ Send course to controller for final review

Promotion
Update event information and meeting location on the club website
Distribute event information and meeting location to the club e-mail list
Promote event to non-orienteers using local club’s methods

Equipment
- Obtain event equipment (flags, map bags, event box, registration sheets, event float etc.)

Refreshments
- Prepare refreshments (cookies, juice, water, etc.) if provided

Map Printing
- Estimate the required number of maps
- Print maps or arrange to have maps printed

5.4 At the Event

The event director/course setter should arrive at the event site with sufficient time to complete the following tasks before participants begin to arrive:

Place Flags
- Place all flags for the course
- Do not hide flags. They should be easy to find if a participant is in the correct location
- If the event area is in a high-traffic area, do not place the flags too early or they could go missing

Debrief Volunteers
- Ensure all volunteers are present and understand the tasks expected of them

Site Set-Up
- Place signs directing participants to parking and registration
- Set up registration. Ensure that the volunteers have enough waivers, membership forms, float, pens, etc.
- Set up start. Ensure that the start volunteer has a timing device, the maps (clearly separated by course), a clipboard for writing down start times, etc.
- Set up finish. Ensure that the finish volunteer has a timing device synched to the start watch and a clipboard for writing down finish times
- Set up refreshments if available

During the event, the event director/course setter is responsible for the safety of all participants. The event director will oversee the following safety measures:
- Bring the first aid kit and keep it in an easily accessible location
- Be aware of the best way to contact the local fire, ambulance, police, and search and rescue services
- Inform participants of potential hazards they may encounter during the event (busy roads, cyclists, slippery footing, unpleasant/dangerous flora and fauna, etc.)
- Encourage participants to wear reflective clothing at events with dark or low-visibility conditions
- Ensure that every participant is aware of the course closing time and that he/she must report to the finish even if he/she does not complete the course
- Keep a list (the start/finish list) of all participants out on course. Check-off participants as they return.
- The event director shall not leave the event site until all participants have been accounted for

5.4.1 Site Set-up
The event site should be set up to facilitate safety and the smooth functioning of the event. The assembly location should be visible and/or well signed so that participants will be able to find it.

The figure above illustrates a suggested event set-up. Participants should proceed to the registration upon arrival. Those requiring instruction can then make their way to a beginner’s clinic, which is placed far enough away from the registration and the start that the clinic does not interfere with the functions of these stations. The start/finish should be placed far enough away from the registration that the area doesn’t become congested. The start/finish should be located between the last control and the refreshments. Position it so participants must walk past the start/finish before returning to to their cars. Make it easy for all participants check back in before going home or getting refreshments.

5.4.2 Registration
Registration procedures vary between clubs. Common registration functions include greeting and directing new participants, collecting event and membership fees, and collecting liability waivers and membership forms.

5.4.3 Beginner Clinic
The majority of first-time orienteers require some instruction to successfully complete a course. An official should be available to give an overview to any newcomers.

The beginner clinic instructor should focus on a few basic concepts rather than trying to cram every possible orienteering skill into a 5-10 minute lesson.

Below is a suggestion of topics to cover in the beginner clinic:
- Where north is on the map and in the terrain
- The map symbols essential to completing the course
- How to orient the map to the terrain
- What the flags look like
- Start, punching, and finish procedures
- Basic safety procedures
- Reminder to check in at the finish and course closing time

After the event, the instructor should be available to answer any questions and review the course. This facilitates the social aspect of meeting other orienteers.

5.4.4 Start
The start official must complete the following tasks:
- Record the full name, start time, and course of each participant
- Confirm participants have the correct map and control description
- Remind participants of the course closing time
- Leave a sufficient gap (usually at least one minute) between participants starting on the same course

Even if the start volunteer changes, the start location must remain the same.

5.4.5 Finish
The finish official must complete the following tasks:
- Record finish time of each participant beside his/her name on the start list
- Calculate elapsed times during lulls in activity
- Invite participants to partake in refreshments
- Keep track of the number of participants still on course

5.4.6 Timing
The timing at C meets is informal. For events using the SI system, participants’ times are calculated by the software. For events using pin-punches or an honour system, time is most often based on a wristwatch or stopwatch used by the start official/finish official.
5.4.7 Refreshments and Post-Event Social Events

Some clubs provide post-race refreshments to participants at C events. Others promote post-race social dining. Encouraging participants to socialize after events, and allowing them opportunities to do so, helps to create relationships, foster a sense of community, and persuade newcomers to continue in the sport.

5.4.8 Overdue Participants

At course closing time, check the finish list to see if any participants are missing. If a participant has not returned, follow the procedure below:

1. Check the start list to determine if the participant actually started and his/her start time. Determine how long the participant has been on the course.
2. Ask other participants if they have seen the missing person either on the course or at the finish. The person may have returned and not checked in to the finish.
3. Determine the location where the person was last seen. Was it early in the course or late? Did he/she appear to be lost/in trouble? What was he/she wearing? Did he/she have any food or drink?
4. Search parking areas, washrooms, and other nearby facilities. Is the person’s car still in the parking lot? Are the person’s belongings at the staging area? Are there friends or family waiting at the finish?
5. Check the membership form or ask around for the person’s cell number. Call the phone.
6. Arrange for control pick-up volunteers to keep an eye out for the overdue participant. At least one volunteer must remain at the finish at all times in case the participant returns.
7. If the event is using SI and the SI number of the participant is known, the control units can be downloaded to confirm the time of each punch.
8. Send an experienced orienteer with a cell phone to run the course backwards. If there are several experienced volunteers available send them to run the course forwards, to check all major trails and roads, and to drive or run the perimeter of the map especially the area of a safety bearing. All search volunteers must have a cell phone and be experienced, competent orienteers who are unlikely to become lost themselves.
9. At some point no later than 3 hours past the overdue person’s maximum allowed time, the event director must contact emergency services and ask for assistance. The decision to call in emergency services, after the above attempts to find the person, should be made by the event director and the controller and will depend upon circumstances.

Examples of factors to be considered include:
- age, health, experience of the participant
- weather conditions
- length of time the participant is overdue
- last known location of participant
- amount of daylight left
- nature of the terrain
10. The Emergency Services will become the Search Master upon arrival at the site.

5.5 After the Event

5.5.1 Event Clean-Up

All event flags, flagging, equipment, signage, and garbage must be collected and sorted at the end of each event:
Begin collecting control flags once all competitors have returned, the course-closing time has elapsed, or sufficient time has passed since the departure of the last starter that the first controls on the course are no longer in use. Volunteers picking up flags should keep an eye-out for overdue participants.

Instruct control collectors to remove any remaining flagging tape used to pre-mark control sites.

Sort event equipment and either return it to the club’s equipment storage or pass it along to the officials of the next event. Take care to keep the equipment neat and organized so that future event officials will be able to find what they need quickly.

Remember to collect direction signs or flags that are placed away from the primary event site.

Collect and dispose of any garbage at the event site so that the site is left as clean or cleaner than it was before the event.

5.5.2 Posting Results

Calculate and post the event results as soon after the event as possible. Posting results can bring traffic to the club website, help keep track of event participation numbers, and allow club members to track their improvement over time.

5.5.3 Budget and Finance

Orienteering clubs across Canada and their provincial/territorial orienteering associations (P/TOA) are registered as non-profit organizations and societies. They are accountable to the government and to their members for accurate budget keeping and prudent management of the club’s assets and resources.

Event directors should be aware of the budgetary procedures of their local club. They should submit any receipts for expenses, event monies, and necessary paperwork to the club treasurer as soon after their event as possible.

6.0 Course Planning

6.1 Course Planning Terminology

**Attack Point** - A large, obvious feature near the control that is easier to locate than the control feature. Participants navigate to the attack point and, from there, precision orienteering to the control flag. The careful orienteering between the attack point and the control is known as attacking the control.

**Bingo Control** - A control placed on a small point feature located in an otherwise featureless area. Bingo controls are found by luck rather than technique and skill.

**Catching Feature** - A distinct, linear terrain feature, such as a trail, fence, or ridge, behind a control. A catching feature catches or alerts an orienteer that he/she has gone past the control.

**Control** - A three-sided red and white flag that identifies a checkpoint location in the terrain. The control locations are indicated on the map with red circles. Control markers are sometimes referred to as control flags.

**Dot Knoll** - A hill – too small to be represented by a contour line – shown on the map as a brown dot.
Handrail - A linear feature parallel to an orienteer’s direction of travel. Orienteers may follow handrails to simplify their navigation and increase their speed.

Leg - The section of course between two controls.

Linear Feature - An elongated feature, such as a fence, a stream, or a ridge, that continues in a constant direction for more than a couple of metres. A linear feature may be used as a catching feature or a handrail.

Point Feature - A small feature that does not extend over a large area. Knolls, cup depressions, pits, and boulders are all examples of point features.

Precision Orienteering - Careful navigation with an emphasis on keeping contact with one’s exact location on map and in the terrain.

Re-entrant - A contour feature, usually located on a slope, that resembles a rising, dead-end valley. Re-entrants are formed when a contour line re-enters a hill. Re-entrants can be small (one contour) or large (several contours).

Rough Orienteering - Rapid, general navigation relying on handrails and catching features to maintain contact with the map.

Spur – A promontory of land jutting out from a hillside. The ground slopes downward from a spur.

6.2 Characteristics of Beginner, Intermediate, and Advanced Orienteering Courses

Beginner

Beginner orienteering courses, especially those designed for children, should be planned to maximize the enjoyment and success of the participants. The course should be short, follow distinct handrails, and have no route choice. Each decision point should be marked with a control, placed to lead participants in the correct direction.

Intermediate
Intermediate orienteering courses introduce route choice and off-trail control locations. Technical, cross-country routes should be short, have strong attack points and/or catching features, and make use of contours and vegetation as handrails.

**Advanced**

Advanced orienteering courses should challenge participants with complex route choices requiring careful navigation, and subtle control site placement necessitating precision map interpretation. The course should be designed to test contour reading, compass, and route planning skills.
6.3 Course Planning Theory
The challenge of a course planner is to plan a course that is enjoyable, challenging, and fair for all participants. It is not the course setter’s job to trick or fool participants. Nor is course planning an opportunity to torture one’s comrades by sending them into unpleasant terrain or to control sites which are physically demanding but require little or no navigation. The course setter’s job is to set puzzles, which can be solved with skill and technique.

6.3.1 Terrain
A well-planned orienteering course utilizes the best terrain in an area. Terrain that includes a rich trail network, intricate contours, many manufactured or natural features, and/or a variety of vegetation can provide interesting orienteering. Terrain that has few details, thick vegetation, or is extremely steep is not desirable. Some climb is acceptable, especially for advanced level courses.

6.3.2 The Map
The quality of orienteering maps, especially those used for C events, varies greatly. The course planner should use areas of the map and control sites that have been mapped accurately. Areas that have changed significantly since mapping or were never properly mapped should be avoided if possible.

6.3.3 Control Features
The objective of course planning is to create interesting legs. Controls are the checkpoints that end one leg and begin another. Therefore, control sites should be chosen based on the possible routes they allow rather than for their specific features.

Controls must be placed on clearly defined features that are accurately represented by the map and are distinguishable from similar features in the terrain that may/may not be mapped. Control sites must be recognizable both on the map and in the terrain. Course planners should avoid dense or bland areas that increase the possibility of bingo controls, as well as, out-of-bounds and dangerous areas i.e. deep pits, railways, high cliffs. Control markers should not be hidden or screen by bushes or trees. They should be placed so they are visible to all participants.

Discuss controls 31 to 43. Which controls should be moved? Why?
6.3.4 Course Legs

An orienteering course is made up of a series of legs. To create an interesting course, a course setter should plan legs that vary in length and direction. The course should be made up of technical, medium legs and quick, short legs, as well as, a couple of long, route-choice legs. Each leg should change the participant’s primary direction of travel.

A successful orienteering leg leads the participant through interesting, technical terrain, emphasizes map reading problems, offers route choice, and allows for both rough and precision orienteering.

Route choice can be created by planning legs that force the participant to travel across, rather than along, features in the terrain. Not all legs have to have perfect route choice. Short legs can be used to transport participants to the beginning of a route choice leg or to take advantage of an intricate area.

If the planned course sends participants through an area multiple times, have them approach, pass through, and leave the area at varying angles to keep it from getting stale.

<table>
<thead>
<tr>
<th>No Route Choice</th>
<th>Route Choice</th>
</tr>
</thead>
</table>
Plan a course with five or six controls. Remember to add a variety of long, medium, and short legs with good route choice and direction change.
6.4 Common Planning Errors

6.4.1 Doglegs
A dogleg occurs when the best route forces the participant to travel back over terrain that he/or she just covered. Doglegs are undesirable because they can be frustrating or boring for the participants and may unfairly give away the location of a control. Legs that form and acute angle with the previous leg are often dog legs. To avoid doglegs, plan courses with angles greater than 90 degrees. A dog leg can also be created when a control is placed in a dead end.

Plan a 5 control course with no acute angles or doglegs. Remember to vary leg length, direction, and route choice.
6.4.2 Unpleasant/Unsafe Control Sites
Controls should not be placed in difficult or unpleasant to access locations. Dangerous locations, such as the top of cliffs, should also be avoided.

Unpleasant

Unsafe
Which areas should be avoided on the map below? Why? Which areas are suitable for orienteering?

6.4.3 **Bingo Controls**

Bingo controls are controls that are found by luck rather than skill. They are placed on point features in bland or under-mapped terrain with low visibility. Participants may pass within a few metres of the control and not find it while others may stumble upon it.

B-I-N-G-O!
6.4.4 **Encouraging Cheating**

Especially on sprint maps, there are symbols that represent out-of-bounds or uncrossable features. Many of these features, such as high walls and fences, may be very difficult to cross in the terrain. However, some uncrossable features, such as those marked as out-of-bounds, may appear as easily crossable flower beds in the terrain. Course planners should avoid setting legs in which an advantage is gained by participants who disobey the rules.

On leg 1 to 2, a participant who cuts across the forbidden flower bed will gain several seconds on a participant who obeys the rules and goes around. How could the controls be rearranged to avoid this disadvantage?

6.5 **Course Formats**

6.5.1 **Point-to-Point**

A point-to-point course is a traditional orienteering course. To complete the course, participants must visit the control points in the designated order. There are many variations, which can be incorporated into a point-to-point course including control picking, butterflies, and long legs. Sprint, middle, and long distance point-to-point courses, along with relay, are the disciplines raced at the Canadian Orienteering Championships (COC) and World Orienteering Championships (WOC).

6.5.1a **Sprint**

The expected winning time for a sprint race is 12-15 minutes. It is a short, fast, intense race that is run through complicated urban terrain or intricate forest. To capture the details of the terrain, sprint maps have a modified symbol set (ISSOM), a scale of 1:4000 or 1:5000 and a contour interval of either 2m or 2.5m. Sprint course planning is characterized by short legs, changes of direction, and complicated route choice through technical terrain.
6.5.1b Middle
Middle distance courses have an expected winning time of 30-35 minutes and use 1:10000 scale maps. Middle distance courses lead participants through technical forested terrain, in which precision orienteering is rewarded.

6.5.1c Long
At 75-90 minutes, the expected winning times for the long distance course are more than double those of the middle distance. The elite categories receive maps at a scale of 1:15000 for the long distance. All other categories receive 1:10000 scale maps. Long distance courses focus on route choice and physical endurance. A long distance course should have at least one route choice leg over a kilometer long.

6.5.2 Score-O
In a Score-O event control points are scattered across the map. These controls may be visited in any order. Participants are given a pre-determined time limit and mass start. The goal is to find as many controls as possible within the time limit. Participants who return after the deadline may incur a penalty. In some score-o events controls may have different point values depending on their difficulty and distance from the start.

6.6 Course Planning Step by Step
Step 1 - Choose the map
Step 2 - Choose the type of course to plan
Step 3 - Choose Start/Finish/parking locations
Step 4 - Plan beginner course first
Step 5 - Plan other courses
Tip: Start planning courses by looking for a few long, interesting, route choice legs and plan the course around them.
Step 6 - Consult with controller
Step 7 - Revise
Step 8 - Make a site visit to check the map and control locations
Step 9 - Revise

7.0 **Course Planning Software**

There are three computer programs that can be used to plan basic orienteering courses:

- **Purple Pen** – http://purplepen.golde.org/
  Purplepen software is freeware and does not require license information. The program is intuitive and performs the basic course planning functions needed for C event courses well.

- **Condes** – http://www.condes.net/
  Condes is the most sophisticated course planning software. It is able to produce sophisticated courses easily. Course planners must get the licensing information from their club.

- **OCAD** – www.ocad.com
  OCAD is an orienteering mapping software that has course planning capabilities. Many first time users find the course setting application to be clunky and difficult to understand. Course planners must get the licensing information from their club. A trial version of OCAD is available for download on the OCAD website but does not allow the user to plan courses. The trial version can be useful to view and export the map into image format (like jpeg/gif).

**Appendices**

**Appendix 1 - C event Task Checklist**

**Permissions**

- Obtain permission for event

**Volunteers**

- Recruit event volunteers

**Plan Courses**

- Obtain the most recent version of the event location's orienteering map
- Select the orienteering format of the course
- Plan course using the principles discussed in section 6.3
- Review course with controller and make any suggested changes
- Visit the control sites to confirm that all locations are properly represented on the map and safe for participants. Make any necessary changes
Send course to controller for final review

Promotion
- Update event information and meeting location on the club website
- Distribute event information and meeting location to the club e-mail list
- Promote event to non-orienteers using local club’s methods

Equipment
- Obtain event equipment (flags, map bags, event box, registration sheets, event float etc.)

Refreshments
- Prepare refreshments (cookies, juice, water, etc.) if provided

Map Printing
- Estimate the required number of maps
- Print maps or arrange to have maps printed

Place Flags
- Place all flags for the course
- Do not hide flags. They should be easy to find if a participant is in the correct location
- If the event area is in a high-traffic area, do not place the flags too early or they could go missing

Debrief Volunteers
- Ensure all volunteers are present and understand the tasks expected of them

Site Set-Up
- Place signs directing participants to parking and registration
- Set up registration. Ensure that the volunteers have enough waivers, membership forms, float, pens, etc.
- Set up start. Ensure that the start volunteer has a timing device, the maps (clearly separated by course), a clipboard for writing down start times, etc.
- Set up finish. Ensure that the finish volunteer has a timing device synched to the start watch and a clipboard for writing down finish times
- Set up refreshments if available

Safety
- Bring the first aid kit and keep it in an easily accessible location
- Be aware of the best way to contact the local fire, ambulance, police, and search and rescue services
- Inform participants of potential hazards they may encounter during the event (busy roads, cyclists, slippery footing, unpleasant/dangerous flora and fauna, etc.)
Encourage participants to wear reflective clothing at events with dark or low-visibility conditions

Ensure that every participant is aware of the course closing time and that he/she must report to the finish even if he/she does not complete the course

Keep a list (the start/finish list) of all participants out on course. Check-off participants as they return.

The event director shall not leave the event site until all participants have been accounted for

After the Event

Instruct control collectors to remove any remaining flagging tape used to pre-mark control sites

Sort event equipment and either return it to the club’s equipment storage or pass it along to the officials of the next event. Take care to keep the equipment neat and organized so that future event officials will be able to find what they need quickly

Collect direction signs or flags that are placed away from the primary event site

Collect and dispose of any garbage at the event site so that the site is left as clean or cleaner than it was before the event

Post results

Submit receipts

Appendix 2- Suggested C Event Equipment

- Orienteering flags, mini flags, or pin flags
- Flagging tape
- Event direction signs
- Banner
- Display stand with schedules, membership info, flyers, extra schedules
- Legends and control description keys for newcomers
- First aid kit
- Clip boards for start/finish, registration
- Membership forms
- Waivers
- Registration form
- Cash box
- Start list
- Membership list
- Map bags
- Stationary - pens, pencils, tape, scissors, etc
- Budget form

Any missing or low supplies may be purchased and claimed as an expense.
Appendix 3 - Additional C Event Orienteering Formats

**Dog-bones** - A more challenging variation of score-O is dog bones. Like score-o, the controls are scattered across the map and can be visited in any order. Unlike score-O, dog-bone controls are joined in pairs. Once a participant has visited one control of a pair he/she must visit the other control before continuing on to another set.

**Memory-O** - In a memory-O event, participants must memorize the location of a control and travel to it without the map. The purpose of this exercise is to train the participant to read and memorize portions of the map. Good orienteers are able to memorize and simplify their routes. This allows them to travel faster between controls because they are not always referring to their maps. The organizer can arrange a memory-O several different ways. One way is for the master map to be at the start. Participants memorize a few controls at a time, and then come back to the start to memorize a few more. Another way is to have the portion of the map for the next one or two controls at each control site. This method simulates a traditional point-to-point course since the orienteer is largely focused on the current leg and the next leg.

**Line-O/Corridor-O** - Most orienteering courses require the participant to make route choices. A Line-O requires the participant to navigate as closely to the planned route as possible. Participants receive a map with a line drawn from the start to the finish. Along that line, but not shown on the map, are any number of controls. The orienteer must travel exactly along that line, counting every control that he/she encounters. At the finish participants compare the number and location of the controls they found. A good Line-O course has many changes of direction.
Corridor-O is a variation of line-O. Instead of following a line, participants must follow a corridor of map.
**Bearing and Distance Exercise** - Often in city park orienteering, participants practice their map-reading skills but don’t use their compass skills. This type of event is a good exercise in compass skills, following a bearing and pace counting. The orienteer is given a blanked out map with only the red lines and control circles showing. Participants must use their compass and distance estimating skills to find the checkpoints.

Ensure the bearing you wish the participant to follow does not have any major obstructions or thick vegetation.
O-tervals

O-tervals are intervals for orienteering. They are designed for participants to practice fast orienteering and to increase maximum orienteering speed. O-terval courses are made up of a series of short, forked courses no longer than 500m. A group of around three participants will mass start at start 1. Each participant will have a slightly different forking, meaning that some controls will be common and others will not. At finish 1 the participants will stop and wait for their group members. Once the whole group has arrived, they will walk or jog the short distance to start 2. There they will mass start again and repeat the process until all of the mini-courses have been completed. The short distance of the courses, the opportunity for rest, and the head to head competition of the mass start encourages participants to orienteer at their top speed.

Below is a master map of an o-terval course. Each participant will receive with only his/her controls.
Appendix 4 - Glossary of Orienteering Terms (from Orienteering Unlimited)

**Aiming Off** - to deliberately aim to one side of a control or feature so that you know which way to turn upon hitting the feature before seeing the control.

**Attack Point** - an obvious feature near the control point from which the control can be located by navigating carefully with map and compass.

**Bearing** - the direction of travel as indicated by the compass.

**Catching Feature (also called a Collecting Feature or Backstop)** - an obvious feature on the map and ground located beyond a control or other sought after feature which indicates that the target feature has been over-shot.

**Check Point** - an obvious feature on the map or ground which can be used to check that you are keeping to your chosen route.

**Contour** - a line on a topographic map that connects points of equal elevation.

**Control/ Control Marker/ Marker** - a trapezoid-shaped marker (usually orange or red and white) used to mark features on an orienteering course, usually with clipper or control punch attached to mark a control card as proof of arrival.

**Control Card** - a card carried by each participant, which is punched at each control feature to verify the visit. **Control Circle** - a circle drawn around a feature on the map to indicate the location of a control marker. The feature should be in the exact center of the circle.

**Control Code** - letters (or numbers) on a control marker which enable participants to verify that it is the correct one.

**Control Description** - a list given to each participant which briefly describes each control feature in order. It also gives the control code.
**Control Feature** - a natural or man-made feature on or next to which the control is hung.

**Control Marker** - see control.

**Control Number** - a number drawn beside each control circle on a map. On a cross-country course, they indicate the order in which the controls must be visited. The top of the number should point to North.

**Control Punch** - a small plastic clipper with different designs of pins. Used to verify each control feature has been visited.

**Course** - a sequence of control points marked on the map which are to be visited by the orienteer.

**Cross Country Course** - the classic course used for all major competitions. Control features must be visited in the prescribed order.

**Dog-Leg** - positioning of a control which favors approaching and leaving a control by the same route, thereby leading other competitors to the control. Course design which results in a dog-leg should be avoided.

**Fine Orienteering** - precision navigation in detailed terrain usually demanding careful use of map, compass and pace counting, and usually involving short course legs.

**Finish Symbol** - If it shares the same location as the start: If its location is separate from the start:

**Folding the Map** - orienteers fold their maps to aid concentration on the leg being run, and to facilitate thumbing their position.

**Handrail** - A linear feature which closely parallels your route and acts as a handrail to the next control.

**Knoll** - a small hill. [Top]

**Leg** - a section of a course between two control points. How To Organize an Orienteering Event in a City Park Page 27

**Legend or Key** - a list of the symbols represented on the map.

**Linear Feature** - a feature that extends in one direction for some distance e.g., paths, fences, stonewalls, and streams. Used as handrails.

**Line Event** - event where maps are marked with a line indicating the exact route to be followed. Participants mark the precise location of each of the controls they find along the route.

**Orienting the Map** - matching the orientation of the map to the features on the ground. This is one of the fundamental skills in orienteering, and leads to successful navigation. The map can be oriented either by comparing the map directly with the terrain or by using a compass to orient to north.

**Master Map** - a map displayed near the start from which competitors copy their courses onto their blank map. More experience orienteers will copy the course onto their map while the clock is running. Novices should be allowed to do this before being given a start time. In bigger events, the courses are pre-printed on the maps.

**Pace Counting/ Pacing** - a system of counting double-paces (every time the left or right foot hits the ground) to measure distance covered. An orienteer would measure the distance between two points using the scale on the compass and then count his/her paces until the distance was covered. Pacing allows an orienteer to know when he or she has perhaps gone too far and missed the feature they were looking for.

**Point Feature** - a feature in the terrain that only occupies a small area. Frequently mapped examples are boulders, pits and mounds, stumps, and root mounds. They are not suitable as control sites for novice courses unless they are on a handrail.

**Precision Bearing** - some compasses can be used to take a precise bearing (direction clockwise from north) which can then be followed in the terrain

**Punching** - the act of marking the control card with the punch.
**Reentrant** - a small valley running down a hillside. A stream cut into a hillside would create a reentrant-type feature. On a map, the contour lines which describe a reentrant point uphill.

**Safety Bearing** - a compass bearing which, if followed, will bring a lost orienteer to a road or other major, recognizable feature. It maybe added to the control description list as a safety measure.

**Safety Whistle** - a whistle which can be used if a participant is injured or lost. The International Distress Signal is six (6) short blasts repeated at one (1) minute intervals.

**Score Event** - participants visit as many controls as possible within a fixed time, e.g., 30 minutes. More distant or difficult controls are often allotted a higher point value. Points are deducted for each amount of time the orienteer arrives after the allotted time is up, say 5 points for every minute. The person with the most points wins.

**Spur** - a small ridge.

**Star Event** - an event in which participants must return to the start between each control. This can be used for relay events or for keeping close contact with novices.

**Start Symbol** - a triangle used to locate the start on the map. It should be centered exactly over the starting point, and one apex should point toward the first control.

**String Course** - a course marked with a continuous string line. These courses are often used with very young children to give them familiarity with the forest.

**Thumbing** - a technique for holding the map, using your thumb to indicate your present location. To do this properly, it is often necessary to fold the map.