LEVEL 1 ORIENTEERING INSTRUCTOR MANUAL

INTRODUCTION

Orienteering is a **challenging outdoor adventure sport** that exercises both the mind and body. The aim is to **navigate**, in sequence, between controls marked on an orienteering map. Orienteers have to **decide on the best route** to complete the course in the quickest time. Young or old, walker or runner, participants can progress through the course at their own pace.

Orienteering takes place in parks, on school grounds, in forests or open countryside. The most challenging events take place on demanding terrain with few paths.

Orienteering is a wonderful sport for school children. Activities and skills training can take place in the classroom, school hall or on the grounds; and it is suitable for all ages.

This manual is a guide to teaching orienteering skills to children in your classes. We also present a number of activities and games that teach and improve basic navigational skills.

We're going to focus on a number of important elements.

First we look at maps, including types of maps, colours, symbols, scale, contour lines and North. We'll also discuss drawing maps and creating a course.

Then we'll work through basic navigation skills from orientating the map to folding it, 'thumbing' your position, choosing a route and what to do if you get lost.

We'll suggest games and activities around each of these points.

So, what are you waiting for?

Orienteering –
it's fun for everyone!

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ABOUT MAPS

Maps are a two-dimensional representation of anything – it could be the objects on your desk, a child's room, a school, park, suburb or country!

Grab a square of paper and, using squares and circles, draw the objects on your desk – that's a map.

It is important to notice that:

- shapes on a map represent real objects
- shapes on a map are the correct relative distance apart (scale).

Maps can be drawn in black and white (perfect for the school environment) and in full colour, where colours have specific meaning and add more information.

MAP SYMBOLS

The primary categories of map symbols include:

- **Man-made features**, like buildings, stairs, paths, walls and fences.
- **Special man-made features**, like benches, posts, towers and playground equipment.
- **Vegetation features**, like trees, fields and bushes.
- **Water features**, like ponds, swimming pools and fountains.
- **Earth features**, like boulders and embankments.

A **map legend** is usually printed on the map (or is available to view). The legend shows the symbols used on the map.

SCALE

Let's reconsider that map you drew of the objects lying on your desk.

You can draw a section of your desk on an A4 page, or you can draw your whole desk on an A4 page; you can even draw your office or the school or the suburb on an A4 page. The only thing

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that changes is the size that the objects are drawn and the amount of detail that can be included. This is the scale of the map.

Scale is referred to as a ratio. A map with a scale of 1:4,000 means that every centimetre on the map represents 4,000 centimetres, or 40 metres, on the ground. By converting centimetres to metres, the scale makes more sense.

1cm : 4,000 cm
1cm : 40m

To convert centimetres to metres, divide 4,000 by 100 as there are 100cm in 1 metre. An easy way to remember is to just chop the last two zeros off the number.

TO MAKE A MAP

For more detail on making maps, please see the 'Drawing orienteering maps' booklet.

Map making is not an exact science – it's more of an artistic impression. A mapper will include features on the map that they think will be visually significant and important to an orienteering passing over the terrain – often at speed. Two different mappers will produce similar, but different, maps.

Aerial photographs, from NGI or Google Earth, are very useful for making maps.

Just as you drew the objects on your desk on a piece of paper – from a bird's eye view perspective, so the mapper draws on the map what they can see from the photograph.

They then go to the location and they walk the area, confirming information from the photograph and adding details like small hills (knolls), pits, boulders, stony ground, vegetation and other features not visible in the photograph.

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PLANNING AN ORIENTEERING COURSE

Once you have a map, the next stage is to plan a course for your students to run on.

Common sites for controls include behind trees or rocks, corner of buildings, next to playground equipment like slides and jungle gyms, against fences – like on the corner of a tennis court, at the bottom of embankments and on the sides of flower beds.

Look for interesting locations and aim for a course that sees the runners changing direction and not just running in a big loop from start to finish.

To mark controls on the map we use a purple circle outline; the start is a purple triangle, the finish is a purple double-circle outline. Join the control circles with a purple 'route lines' and number the controls with clearly visible numbers.

On the ground, we use **orange-and-white triangular flags**. Also consider painting plastic two-litre bottles with orange and white paint, or use white sacks (like from maize). Most important is that the item used as a control should be visible.

To verify that the person has visited the control, they have to use the punch at the control to make holes in the correct block on their control card.

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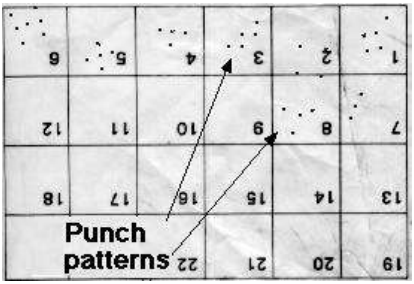

As an alternative, place a letter of the alphabet at the control, which the runners have to write on their control card.

We also use electronic timing (EMIT) systems.

EMIT CARD

CONTROL DESCRIPTIONS

Control descriptions are handed out to participants before the start of the race (they only get their maps at the start). Control descriptions tell the orienteer more about where the control is located, like on the eastern side of a boulder or the south-west corner of a building or at the foot of a two-metre cliff.

Novice		Course Novice Length 2.7 Km Climb
Start		Start Paved area Southwest outside corne.
1	121	1 Pit
2	91	2 Boulder cluster
3	42	3 Dry ditch South end
4	119	4 Boulder cluster East side
5	55	5 Dry ditch South end

Control descriptions in words

Control descriptions are either written in words i.e. dry ditch, south end or in international orienteering symbols, which are the same in every language.

Orienteers either staple the control descriptions to their map (if it isn't printed on the side of the map) or they safety pin it to their tee shirt or attach it to their wrist using an armband.

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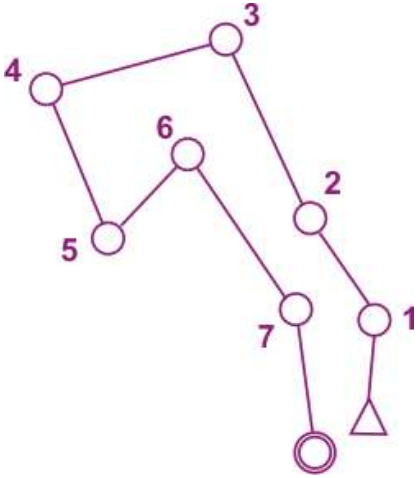
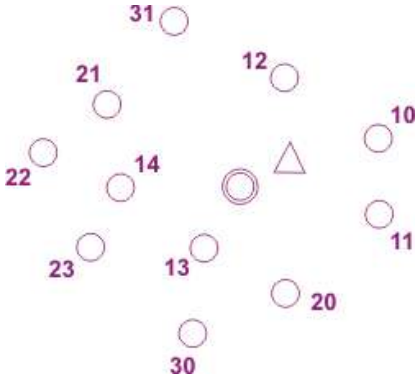
TYPES OF EVENTS

Point-to-point course



Standard orienteering events are **point-to-point courses** where participants progress through the course in numerical sequence – 1, 2, 3, 4... The winner is the runner who has found all the controls, in the correct order, in the fastest time.

Score event



This **score event** format is ideal when time is limited, like during a class. Here the participants set off at the same time (mass start) and they are given a limited time (20 or 30 minutes) to find as many controls as possible. They can visit controls in any order. Points are awarded for each control; more points are allocated to controls further away and more difficult to find. Points are deducted for every minute that the runner is over the time limit specified. The winner is the one with the most points.

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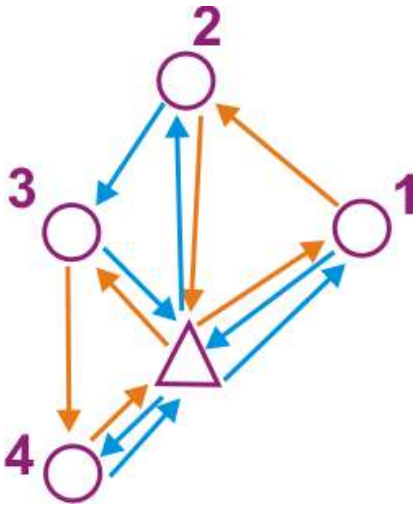
Star relay



One of our favourites, the **star relay** has runners participating in pairs. They receive a map on which controls are marked, but at the site of the control there is no orienteering flag. This makes the event very challenging because there is nothing to confirm that the runner is in the right place.

Runner 1 (R1) sets out from the start and takes and object with them to place at the control location – this could be a cap, a teddy bear or a t-shirt. Each pair has their own object. R1 returns to the start and hands the map to Runner 2 (R2). R2 runs to control 1, retrieves the object and moves it to control 2. They return to the start and give the map to R1, who goes to control 2 to retrieve the object and moves it to control 3 before returning to the start. This continues until the course is completed. If a runner puts the object in the wrong place, their teammate will be unable to find it.

The winning team is the one that finishes first.

This event format has many benefits for teachers:

- suitable for a small area and limited time
- teamwork: students run in pairs
- no need to put out and collect control flags
- lots of fun!

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NAVIGATION SKILLS

There are **four basic navigation skill**s to learn:

1. Fold the map & thumb your position
2. Orientate the map
3. Basic route choice
4. Basic relocation

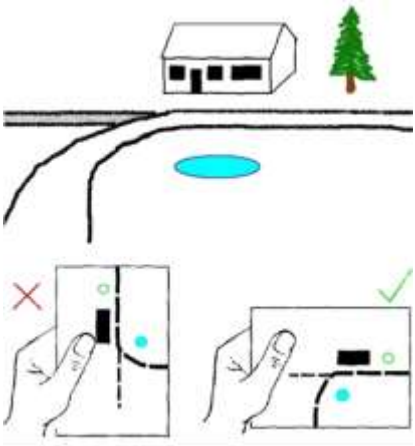
1. Fold the map & thumb your position

Instead of running around with an A4 page flapping, fold the map smaller showing the part of the map that you are on i.e. the area between and around your route from one control to the next.

In the photo below, the runner is moving from control 3 to 4.

Next, it is important to use your thumb like a bookmark, as illustrated in the photo. When you run, you're looking at the ground and your surroundings AND the map and so it is very easy to lose your place. By keeping your thumb on the map and moving it along as you progress past obvious features (boulders, road junctions, significant trees) towards the next control, you can easily look up and then back at your map without losing where you are on the map. Your thumb position also confirms your last known and certain position.

2. Orientate the map



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When a map is 'orientated' (also termed 'map setting') it means that the features in front of you on the ground (house, road, pond, tree) are in front of you on the map, even if this means that the map is upside down.

What you see around you must always match what you see on the map; objects to your left should be on the left of the map and objects to your right should be on the right of the map.

When orientating your map, turn your whole body so that the map is orientated to the terrain. When you change direction, change your grip on the map so that the map remains orientated.

There are many **map setting activities** that can be done in the classroom.

3. Basic route choice

Route choice is all about how you decide to get from one control to the next. A good course is one where there are multiple route choices.

You can either run:

- on a straight line between two points
- to the left of the line; or
- to the right of the line

The best approach is to look for the shortest distance, to stay close to the line joining the controls and not to 'cross the line', which is usually inefficient.

Consider a route from 12 to 13...

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Here are three options:

The route to the right-below of the line was the fastest option.

Other things to consider are:

- Watch out for uncrossable features like rivers and high fences
- Aim for a good view of the control as you approach it
- Longer routes can be better if navigation is easier (less to think about) and the terrain allows faster running (like on a road or path vs off-road)

Relocation

Relocation is an important orienteering skill. This is about how to find yourself on the map when you're not quite sure where you are of how you've gone wrong.

All orienteers make mistakes; it is the size of the mistake that differs. An experience orienteer may lose seconds; less experienced lose minutes and a novice orienteer could easily lose 30-minutes on one control! The challenge is to reduce the time lost.

First, when you realise that you are lost, STOP; don't keep wandering. Then, orientate the map. This can be done using what you can see, or your compass. To orientate using the ground, aim to compare to big, obvious features like a dam.

If you cannot easily orientate the map, retrace your steps back to an intersection of roads that you may have passed or even to the last control, which would have been your last point of certainty.

The key is not to waste time and nor should you imagine the map to fit the terrain when it doesn't. Rather go back and try again.

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Obvious and common mistakes include running 180 in the wrong direction and turning the wrong way onto a path/road.

Features that assist navigation

If you walk slowly and look at every feature, you really can't get lost. But, going slow won't win the race. As soon as you speed up, that's when mistakes happen.

In orienteering we use big 'clues' to improve accuracy with speed, without having to concentrate on tiny details, especially when a distance away from the control.

Line features

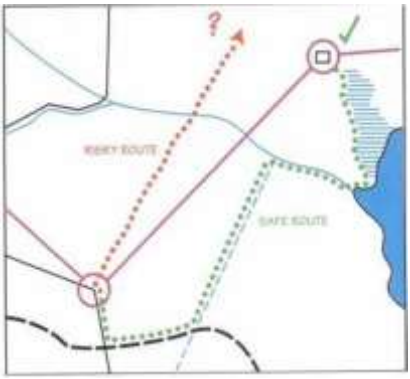
Line features follow a line, like road/path, fence, powerline or stream. They're easy to follow – like running along a road - and see.

Handrails

Handrails are features that go in the same direction in which you're headed. Accordingly, line features can also be handrails. This is usually a fast and safe route between controls and you don't have to concentrate too much on features. BUT, you will have to leave the handrail to attack your control.

You need to choose a 'decision point' where you decide on your next route option. This may be a road intersection, a thicket of bushes or any other significant feature along the handrail.

Consider this example:



The safe route follows the road to the path to the river to the marsh to the control. The straight-line, 'risky route', has a greater margin for error with no distinct features nor way of knowing where you are.

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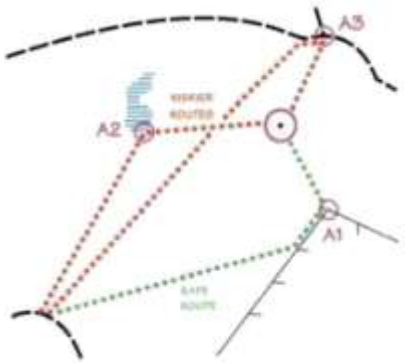
Attack point

An attack point is a distinct feature to aim for on your way to the control. It is usually close to the control.



In this example, above, there are three possible attack points. A1 is the safest – corner of a fence.

Remember that:

- attack points must be easy-to-find features
- attack points help you to find a more difficult feature
- line features often make the best attack points
- attack points can be before or after/behind your control

Collecting features

These are a bit like attack points or a 'checklist' that you run through on your way to a control. You may say to yourself, "Run along the road. Pass the boulder on your left, two path junctions on the right (collecting features)and aim for the significant tree on the left (attack point)". In your mind, check off each feature on your 'list' as you pass it; this confirms that you're on the right route.

Catching features

These are features where you say to yourself, "If I get to <feature>, I've gone too far".

Catching features are very useful to:

- prevent overshooting
- allow fast routes between controls
- get you to stop to reconsider your route

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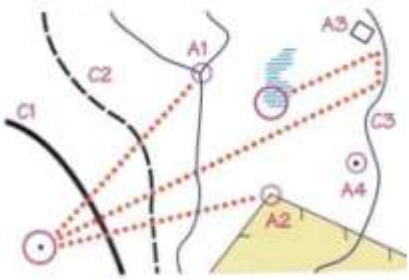

In this example (above):

The road (C1) followed by the path (C2) act as collecting features on the way to the attack point (A1). The river (C3) is the catching feature beyond the control.

Tips to remember:

- Try to find a catch feature close to where you want to be, so that it halts you before you make a big mistake
- Line features are nice catch features to look for
- Use catch and collecting features anywhere along your route - you don't have to only use them near the control

FINALLY...

Orienteering is a fun outdoor, adventure sport that is suitable for all ages – and wonderful for families.

Orienteering skills can easily be taught in the classroom with simple activities outside.

The main thing to remember is that navigation skills improve with practise. Runners minimise errors, run faster and find controls more efficiently.

We have included a number of lesson plans to assist you in teaching orienteering to your learners.

www.orienteering.co.za

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