Orienteering For Schools

An Information Booklet for those interested in teaching Orienteering at Primary or Secondary Schools
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1. Orienteering: Sport, Recreation, Education

Orienteering in its traditional form is a competitive sport, using a map to navigate as fast as possible through unfamiliar terrain to find a series of control points, choosing your own route between one control and the next. Indeed it is one of the most demanding sports both physically and mentally, in terms of the range of skills required.

At the top level of competition, elite and junior elite orienteers compete in a national league and selection trials for World and Junior World Orienteering Championships. However, orienteering caters for all ages, with national championships held for both men and women (or boys and girls) from under 10 to over 70 years of age. Orienteering has Olympic sport status, but is yet to be included in the Olympic Games.

Not all orienteers, however, are competitive. At most events, each age class has two or three grades (e.g. A, A Short, B), so that all participants can compete at their own levels of physical fitness and navigational ability. There are many regular orienteers who participate purely for the enjoyment of being in the outdoors and for the challenge of finding the control points, with little concern for the time spent on the course. Many recreational orienteers do however become sufficiently competent and enthusiastic about the sport that they move on to the competitive level.

Orienteering is perhaps unique in being the only organised sport in which all members of a family can compete at their own levels in the same place at the same time, which is one reason why it is often described as ‘the family sport’. It has also been called ‘cunning running’, ‘the thought sport’, and ‘chess on foot’.

The recreational component of orienteering is important, particularly at the beginner level, so that orienteering skills can be learnt properly without the pressure of competition.

The traditional form of orienteering on foot is as a forest sport, and the main Australian season of bush orienteering is during the cooler months (March-October). However, new forms of orienteering are developing, and most Australian states now run urban orienteering events over summer, and mountain bike orienteering events all year round.

Orienteering also has an educational side, the most obvious being teaching of map reading. The ability to relate a two-dimensional abstract map to the real three-dimensional terrain develops naturally in most children at about the age of nine or ten, although some children can be taught such skills at a younger age. The correct techniques of map reading form an invaluable life skill, and orienteering is an ideal and enjoyable means of learning such techniques.

In the school situation there will be some students who will never have a competitive attitude. It is important that they be allowed to enjoy orienteering at their own pace without competitive pressures. The basic challenge in orienteering is completing the course. This is a challenge which can offer every student success and a sense of achievement without having to be a winner.

Compasses are not necessary for school ground orienteering. Orienteering is about map reading and navigating around a course using spatial awareness, not painstakingly measuring and pacing bearings. From an understanding of maps, one can progress to introducing the compass and the concept of direction with respect to North.

Some teachers have devised means of working mathematics into orienteering exercises. The interpretation of the environment can be introduced through ‘nature trail orienteering’. Virtually any school subject can be worked through in ‘quiz orienteering’ where answering questions on aspects of the school curriculum at each control is part of the challenge of completing the course.

Different teachers have different reasons for introducing orienteering into their schools. Some see it as a sport that provides an alternative to traditional team sports, and has the potential to attract students who do not participate in the latter because of poor ball skills or lack of general co-ordination. Others see it as adding diversity to the physical education program, or to the range of optional extra-curricular activities offered by the school, and of course orienteering is an essential component of the outdoor education curriculum.
Whenever the motive for introducing orienteering, the challenges faced by the teacher are similar: obtaining or preparing a suitable map, setting courses at the right level of difficulty, and helping the children to enjoy orienteering.

The last point cannot be over-emphasized:

**ORIENTEERING SHOULD BE FUN.**

If it is too difficult, or if students are getting bored and not enjoying it, something is wrong with the program, and a change in the approach or level of difficulty of the exercises may be required.

### 1.1 Understanding Orienteering through Participation

It is difficult to teach anything if you do not understand it properly yourself. Any teacher interested in introducing orienteering into their school is strongly advised first to participate at different levels in some events organised by Orienteering Western Australia. This is very easy to arrange, as events are held all year round. Bush events are held most weekends from March to October. Park events in the metropolitan area are held on weekends from November to February. There are also NavDash sprint orienteering events and a mountain bike orienteering series. All events are open to the general public and suitable for beginners.

For further information visit our website [www.wa.orienteering.asn.au](http://www.wa.orienteering.asn.au).

### 2. Basic Resources

#### 2.1 Useful Publications, DVD, Internet, etc.

**Teaching Orienteering**

Teaching Orienteering by Carol McNeill, Jean Ramsden & Tom Renfrew (UK), provides a complete teaching scheme and a multitude of lessons, games and training activities for Primary and Secondary students.

**Orienteering in the National Curriculum**

Also by Carol McNeill, this book describes how orienteering is used in the British national curriculum, in Maths, Geography, and Physical/Outdoor Education. Includes lots of practical exercises, games, and assessment processes.

**Crowood Sports Guide: Orienteering**

This is the most recent book by Carol McNeill, covering skills and techniques from beginner to expert.

**Lesson Plans Orienteering**

A compilation of over 60 orienteering games, exercises and lesson plans.

These and many other publications are available from online book stores (eg Amazon, Book Depository), while some are available from Orienteering Service of Australia (see p27).

**Orienteering Australia Web Site**

This web site has some useful resources, including a YouTube page [http://www.youtube.com/user/OrienteeringAUS](http://www.youtube.com/user/OrienteeringAUS) where there is a set of short Instructional videos.

**Orienteering Western Australia Web Site**

Our web site includes a Schools page, with details of inter-school competitions, teacher development programs, and other resources ([http://wa.orienteering.asn.au/schools/](http://wa.orienteering.asn.au/schools/)). There is also a series of lesson plans for primary students (and possibly can be adapted for secondary students) to prepare for inter-school orienteering events,
Orienteering For Schools

developed by Mr Mike Sibbald of St Brigid’s Primary School, Middle Swan. Our sincere thanks to Mike for access to these documents.

International Orienteering Federation Web Site

Orienteering Computer Games
There are some good orienteering simulation games available, and most have a demonstration package which can be downloaded free. A very good one is Catching Features, which has a free demonstration package available from the web site (www.catchingfeatures.com/).

GPS
Using a GPS to help navigation is not allowed in orienteering events – and is actually counter-productive since a competent orienteer using their own navigation skills will be much faster than a GPS user. However, at most events it is permitted to carry a GPS wrist unit or data logger, then download the route and superimpose it on an image of the map, assisting the coach or competitor to understand and eliminate navigation errors.

2.2 Maps
A map is essential to conduct orienteering and a basic map of the school grounds and adjacent playing fields or parkland is required. If there is no existing map suitable for orienteering, the options are as follows:

- for the teacher/parent to prepare the map;
- contact Orienteering Western Australia (see p27).

Refer to Appendix B (pp29-30) for information on how to prepare a simple orienteering map.

If teachers are able to take groups away from the school for orienteering (particularly desirable for secondary schools), there are a number of suitable areas mapped in colour by Orienteering Western Australia (see Appendix A, p28). These maps are available to schools, but some will attract a small fee per map.

2.3 Control Markers
An orienteering marker consists of an orange (or red) and white square, divided diagonally. A full-sized marker used in the forest situation has three sides, each measuring 30 x 30 cm, but in the schoolyard situation, smaller markers are preferred.

All control markers require a device for checking whether the orienteer has actually visited the control. This normally consists of a punch with teeth arranged in a different pattern for each control.

Each control should also have a unique identifying code (usually numbers or letters) written on at least one face of the marker, so that orienteers can confirm that they are at the right control from the control description list. Standard cloth markers and orienteering punches are available for purchase from Orienteering Service of Australia (see p27). Their School Kits comprising 20 flags and punches, together with 100 control cards (see 2.5 below) are very good value. Orienteering Western Australia also has sets of markers and punches available for hire.

Teachers can easily make (or have the students make!) control markers. A variety of materials can be used, from coloured paper or card, empty ice cream or yogurt containers, to squares of plywood or plastic. It is preferable to use real punches, but It is also sufficient to write a code letter or number on the control marker and have the students copy this using a pencil, rather than purchasing orienteering punches. Alternatively, a quiz question could be attached to the marker, and students have to write down the answer. Even simpler is to have no marker, but a quiz question based on a feature at the control location (eg what colour is the feature).

The majority of orienteering events now use electronic punching, and this technology is also available to schools – at a price. A system designed for schools is available from Sportident for around $4000-$5000, and can also be used for many other applications in Physical Education departments. The Australian agent is Aussie O Gear.
2.4 Control Description List

The control description list (commonly known as ‘clue sheet’) lists all the control points (generally referred to as ‘controls’) on an orienteering course, together with their identifying codes. It describes the feature where the control is located (e.g. fence corner, building, play equipment) and, in some cases, the location with respect to the feature (e.g. north side). For school orienteering with photocopied maps, it is usually convenient to write or type the control descriptions onto the map prior to photocopying.

2.5 Control Card

If using manual punches, a control card is used by the orienteer to record evidence of visiting each control. In normal orienteering this is carried as a separate item, but in school orienteering it is usually combined with the map and control description list. At most events these days an electronic timing card is carried, and used to record visiting a control, and no control card is required.
2.6 Compasses

Compasses are not required in the early stages of an orienteering program, as it is more important to teach basic map-reading skills, such as map-interpretation and orientation skills. Compasses are expensive items (a class set of 28 compasses costs $800-$1200), and Primary schools in particular should be serious about adopting a school orienteering program before purchasing compasses.

The most common type of compass used in orienteering is the base plate, or protractor compass, however Primary students often find the operation of this compass confusing, and this can put them off orienteering.

Base plate compasses allow the user to perform more advanced functions, such as taking bearings and back bearings. Whilst the process of taking bearings is quite simple, many students will need a lot of practise to perform this function correctly and accurately.

If purchasing compasses, beware of cheap brands which tend to have poor quality magnetic needles. We recommend the Swedish brand Silva, which has two models suitable for schools available in class sets. The Silva Field is very suitable, however the Silva Ranger has a longer base plate, making it easier to sight along bearings in the field.

Both Silva models are available from Orienteering Service of Australia (see p30), and can be purchased in cases of 28.
3 Course Standards

3.1 Orienteering Western Australia Course Standards

Orienteering courses are set to common standards according to the degree of navigational difficulty and these are summarised below:

**Very Easy** courses are intended to provide the easiest possible introduction to orienteering for all ages, and cannot be made too easy. They are set to follow linear features (or 'handrails' in orienteering terminology) such as paths, fences or distinct vegetation boundaries. Controls should be set on or adjacent to these features with the markers hung so that they can be seen from the approach direction. Controls should be set at each major decision-point or change in direction of the course. A VE course should be easy to complete without the use of a compass. At competition level, this is done by 10 year olds and under.
**Easy** courses are also based on linear features but may offer route choices, either along linear features forming an easy but indirect route, or by a direct route across country, provided there is an obvious large feature to 'catch' participants. The option of taking direct routes without handrails justifies the use of the compass for orienting the map. Again controls should be set on linear features and should be obvious to approaching orienteers. At competition level, this is done by 11 and 12 year olds, but adult and teenage beginners with some background (e.g., scouts, armed forces, etc.) should be able to begin at this level.
**Moderate** courses take the orienteers away from linear features, and may use point features such as large boulders or cliffs, or contour features such as gullies, spurs, knolls or saddles. There should, however, be a 'collecting' or 'catching' feature (i.e. a linear feature such as a road or fence) either just before or just behind the control. Prudent use of the compass is recommended on M courses, and it is also necessary to develop an understanding of contours and an appreciation of distance estimation. If possible, controls should be placed so that orienteers have to navigate to the feature before they can see the control. At competition level, this is done by 13 and 14 year olds, who should have already developed beyond the skill level required for Easy courses. Adults should also have completed at least one Easy course before attempting Moderate.
Hard courses are set for experienced competitive orienteers and can be made as difficult as possible without being unfair or introducing a strong element of luck. Complex terrain with many ‘point’ but few ‘linear’ features is required for setting H courses. At competition level, these are done by 15 year olds and over.

Considerable experience and/or coaching is required before orienteers should progress to H courses, otherwise the challenge may be too great, and frustration occurs when participants fail to complete the course. A good guide for progression at Orienteering Western Australia events is to compare your time with the winner of a course. When you have completed say three M courses within 125% of the winner’s time, you could be ready to try the shortest H course.
3.2 School Ground Courses

An example of a school ground course is shown below. Due to the open and familiar nature of the school ground, it is appropriate to relax the above course standards. For example, beginner students may be able to cope with courses that do not always follow linear features if the controls can be sited on other obvious and familiar features (e.g. goal posts, playground equipment, distinctive trees). Linear features are nevertheless useful in helping to orientate the map, and should be used as much as possible. Courses can gradually be made more difficult by placing control points in more detailed parts of the map and/or increasing the distance between control points.
4. **Teaching the Basics**

There are many skills to be learnt if one wishes to become a competent orienteer, but for beginners in the school ground situation, these can be simplified to two:

- map interpretation;
- orienting the map.

### 4.1 Map Interpretation

This involves interpreting the symbols used on the map in relation to the features in the terrain. The first thing that the students should be told when they are given the map is to look at the legend and work out what the symbols mean. Then spend a few minutes with the class getting them to identify the nature of features on the map with the help of the legend, or finding different types of features on the map. It is sound advice that whenever you are using a new map (whether for orienteering or any other purpose), start by studying the legend so you can work out what the map means.

### 4.2 Orienting the Map

The key skill that applies to orienteering at all levels is to orient the map so that it matches up with the terrain. This means turning the map so that the features that are straight ahead of you in the terrain will also be straight up the map as you hold it. The features that are to your right will be on the right side of the map. The features that are behind you will be at the bottom of the map. Depending on which direction you are facing, this may mean holding the map on the side or upside-down. If you change direction the map needs to be re-orientated. The simplest way to do this is to ensure that you move your body around the map as you change direction. The process of orienting the map simplifies navigation significantly as it makes it easy to see the correct geographical relationship between different features and the map reader.

In the school ground, students should be able to orient the map using recognisable features such as buildings, roads, gardens and paths. Although you can use the above method when in bushland situations, an easier way of orienting the map is to use a compass as an aid (this is the most basic function of the compass). This process of orienting the map is in fact a means of finding the direction of north, assuming that it is marked on the map.

A useful exercise for introducing children to the concept of orienting the map is walking the line by using the line markings of a basketball or netball court. Students take maps of the court and walk along it, moving their body around the map each time they change direction so that the map is always correctly oriented with respect to the line on the court.

To reinforce their understanding of map interpretation and orienting the map, take the students in a group on a walk around part of the school ground, getting them to:

- identify features as they pass them;
- orient their maps from the features they see.

### 4.3 Other Skills

Additional skills should be taught if you want to extend the students' orienteering experience by taking them away from the familiar school ground situation, and particularly into bushland or forest areas with more difficult courses. These include:

- thumbing the map (keeping your thumb on the map just behind your actual position so that it is easy to relocate where you are on the map);
- distance estimation (by pace-counting and by eye);
- taking compass bearings (the use of the compass for this purpose can be introduced when they progress from E to M standard courses);
- 'aiming off' using a compass to deliberately hit a linear feature on one side of a given point;
- contour interpretation;
- using ‘catching’ features (obvious linear features such as tracks of fences beyond a control) so that should you pass the control you can recover quickly;
- using ‘collecting’ features (linear features before a control) to break a leg between controls into stages;
• using attack points (prominent features such as track junctions, very large boulders, etc.) close to a control, and from where you can approach it more confidently;
• route choice to controls (e.g. over a hill or around it);
• simplifying the map by using the more obvious features for navigation;
• relocation when lost using map and compass.

These skills are beyond the scope of this publication, and are explained in more detail in text books (see p3). The best method of learning them in preparation for teaching them to students is through personal experience on orienteering courses of an appropriate standard. Such experience, together with advice and instruction, can be obtained at Orienteering Western Australia events.

4.4 Physical Fitness
Orienteering is an excellent form of aerobic exercise, and the beauty of it is that students get so involved in the intellectual aspects of map reading and finding control points that they exercise effortlessly without realising. They can also go at their own pace, without feeling that they have to race.

As with other types of physical exercise orienteering should be preceded by an appropriate level of warming up and stretching to minimise the risk of injury due to a sudden burst of activity. A few minutes of warming up before each session (and 'warming down' afterwards) should be allowed for in programming the session, particularly as students become more confident and competitive.

If orienteering is being done with physical fitness as an objective, it is desirable to keep the students active for as much of the session as possible. The exercises that are recommended in the following section have been selected with this in mind. Sessions 2 to 4 and onwards all provide a minimum of 1.5 – 2.0kms of running and walking, and most students will do the activities enthusiastically without realising the physical effort they are putting in.

5 School Orienteering Programs
5.1 Four Week Introductory School Orienteering Program
This is a basic program that can be used at both primary and secondary schools. The four lessons can be conveniently conducted at school, using a simple school ground map for sessions 2 - 4. The sample maps below are all of primary schools; secondary school courses can be made longer and slightly more difficult. Each session is of 45 to 60 minutes in duration.

5.1.1 Session One - Netball Court Mapping

<table>
<thead>
<tr>
<th>On completion of this session, students will have:</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>• understood that maps are aerial pictures of the ground,</td>
<td>• Sporting equipment - 4 hockey sticks, 4 hoops, 4 cones &amp; 4 skipping ropes (or equivalent)</td>
</tr>
<tr>
<td>• understood the use of symbols to represent features on the ground,</td>
<td>• Portable whiteboard for teacher’s demonstration map (1000 x 600cm)</td>
</tr>
<tr>
<td>• drawn their own map of the netball court using a standard class legend,</td>
<td>• Each student needs:</td>
</tr>
<tr>
<td>• understood and demonstrated the meaning of orientating the map,</td>
<td>▪ 1 A4 piece of plain paper</td>
</tr>
<tr>
<td>• created their own orienteering course using the appropriate symbols,</td>
<td>▪ 2 different coloured pencils</td>
</tr>
<tr>
<td>• walked and run at least two orienteering courses,</td>
<td>▪ eraser</td>
</tr>
<tr>
<td>• understood and demonstrated the meaning of ‘thumbing’ the map.</td>
<td>▪ a clipboard</td>
</tr>
</tbody>
</table>
Preparation: the sporting equipment is randomly spread inside the netball court, as shown. The netball court and approximate North arrow are pre drawn on the whiteboard.

The lesson begins with a short introductory talk/demonstration on maps and how to orient them to North, using the netball court outline and North arrow already drawn on the whiteboard.

Each student then draws the outline of the netball court, including the posts onto their page, and they also draw the North arrow accurately. The teacher then writes the legend on the whiteboard, and the students copy this.

The teacher then demonstrates how to orient the map (whiteboard), and how to draw one or two of the ‘features’ (sport items). Keeping their page oriented to North, the students now draw all the features independently, using the designated symbols on to their page. Students need to take care during this process to ensure the finished map resembles the equipment on the netball court.
Once they have completed their map, students should check it against a master prepared by the teacher. When all students are ready, the teacher demonstrates how to draw an orienteering course. Students should first add the course symbols to their Legend, and be told where the Start and Finish are to be (a post or a corner of the court are best).

Each student then draws their own course independently, using between 6 and 10 features as control points, numbering them and linking them with straight lines. Students should use a different colour pencil to the one used for drawing the map.

When they have finished, the teacher will demonstrate how to walk their course slowly, ‘thumbing’ the map and stopping briefly at each control point to re-orient their map. Then the students walk their course slowly using these techniques. Then they do it again, but faster and without stopping. It is best if students are sent off one at a time, and with no more than 10 students on the court at any time.

Next students swap their maps and try different courses, attempting to do them faster and faster, but continuing to orient and thumb the map.

This lesson can be shortened by preparing maps for the students beforehand, so that the lesson consists of the students drawing and running their courses. However, the value of students learning to orient their map by drawing it themselves is then lost.
5.1.2 Session Two - Star Relay

On completion of this session, students will have:

- familiarised themselves with the orienteering map of their school (legend),
- practised orientating the map,
- maintained close contact with their position on the map by thumbing the map,
- successfully located controls (up to 6) on specific features,
- understood the function of control descriptions.

Requirements

- Sporting equipment: 12 controls
- Prepare the map with the course on it
- Photocopy enough for one map per pair

Organise the students into pairs, and give each pair a map. After orienting the map, finding the start triangle and scanning the legend, the students are ready to participate. The exercise begins with one student taking the map to locate a given control point, punch (or record the control code if punches are not available) and return to the start area. The map is passed over to the other student in the pair who has been waiting. It is now their turn to locate the next control (in sequential order), punch it and return to the start area. Generally 12 controls are used for this activity, so each student will have to find six controls. Each pair is allocated a different control to start with, so students are not all going to the same first control.

Optional: give each student a map, so that the student not running can study it in preparation for their next leg. Students should swap maps at each change, so that only one map is used for punching. This option should be used where students are not familiar with the area being used for the activity.

At the conclusion of this lesson, it may be an opportune time to show the class a short video of some orienteering action, such as Xperience Orienteering (https://www.youtube.com/watch?v=Qya4hrSKYJk) or IOF Presents Orienteering (https://www.youtube.com/watch?v=9ZmYCvMTmQI).
5.1.3 **Session Three - Mini Courses**

**On completion of this session, students will have:**

- Reinforced the skill of orientating the map
- maintained close contact with their position on the map by thumbing the map,
- used systematic navigation (Where am I?, Where am I going?, How will I get there?),
- completed between 1 to 5 orienteering courses depending on their fitness and navigation abilities.

**Requirements**

- Sporting equipment: 12 – 16 controls & 5 big witches hats
- Prepare a master map showing the location of all the controls
- Prepare five courses, each on a new map.
- Photocopy at least 8 of each course
- 1 plastic sleeve for each map
- 1 control card per student
- answer sheet for each course

Students attempt to complete five courses, each with five controls, during this session. Starting in five rows behind each witches hat (each row representing one course), the students start at 1 minute intervals. The first student in each row picks up one map, orientates it and starts working at their own pace to complete the course drawn on the map. Once all five controls are located, the student returns to the start area to check their punch marks with the answer sheet. When they are ready to attempt another course, they choose a different map and set off. As maps are recycled during the session, it is a good idea to have each map inside a plastic sleeve to help protect them. Students who appear to be working together or following should be separated at course changeovers.
Follow up activity: students draw their route on each of the courses they completed, and measure the distances they covered during the session, using the scale bar on the map.

5.1.4 Session Four - Championship Course

On completion of this session, students will have:

- an understanding of orienteering as a sport
- competed in a friendly competition
- maintained close contact with their position on the map,
- used systematic navigation (Where am I?, Where am I going?, How will I get there?)

Requirements

- Sporting equipment: 12 – 14 controls & stopwatch
- Prepare a map showing the course
- Photocopy 1 copy per student

The Championship course consists of 12 - 14 controls and students start at one minute intervals with their start time noted. As they return their finish time is recorded, and an elapsed time can be calculated. Punches are checked and if students miss a control or punch the wrong control they should be made to revisit the missing/wrong controls before their finish time is taken. Results are announced once everybody is accounted for.

To reduce the start interval waiting time for students, it is a good idea to have two different courses and divide the group roughly in half (eg by separating boys and girls). The easiest way to do this is by having one course where half the class orienteer around this course in a clockwise direction and the other half in an anti clockwise direction. Don’t tell them this until they have finished!

At secondary schools where a longer course may be in order, or at primary schools with smaller grounds, it may be necessary to have two courses of 6-7 controls (each course using the whole area but with different control sites and legs), to provide enough distance. Each student must complete both courses, and have the times added to give an overall result.
5.2 Longer School Programs

If extending the program beyond four weeks, it is desirable to use areas away from the school to maintain interest and provide new challenges. However, for the first time away from school remember to set easier courses! The larger parkland and bushland maps can be used several times for primary school courses without having to go over the same area, particularly if different start locations are used.

The challenge can be maintained by setting progressively more difficult courses, provided that the students are able to cope with these. Some students will learn faster than others and, as the class becomes more experienced, it may be desirable to set courses of two or more different standards or lengths so that all can take part at their appropriate levels of skill and fitness.

If transport is available, there are many areas that are ideal for school orienteering with suitable maps readily available. These are listed in Appendix A (p28).
5.3 More Activities

5.3.1 Scatter Event

In a scatter event controls are scattered around the map, with the number of controls depending on the size of the map. However 20 controls is generally a good number to use. Instructions can vary in three different ways as described below:

1. Students need to locate all of the controls in the quickest possible time
2. Students have a time limit in which to collect as many controls as possible
3. Students need to find any 15 controls out of the 20 in the shortest possible time.
4. The event can be made more interesting, eg by using the ‘Space Race’ concept!

5.3.2 Team Orienteering

Essentially the same format as the scatter event except students are in teams of 2 – 3. Each student is given a map and the object is for the team to locate all the controls as quickly as possible but they don’t have to remain together. It is up to the team to determine who goes where.

5.3.3 Quiz

Quiz orienteering can be used to reduce the time required for setting up and packing up. Instead of finding control markers, students must answer a question. There is one question for each control point shown on the map, so in order to get the correct answers students must navigate to the control points. Some examples of questions are:

1. Who made the light pole?
2. What colour is the long slide?
3. What type of tree grows on the east side of the track?
4. What type of conservation area is near here? (referring to a nearby sign)
5. How many bolts in the sign?

Quiz orienteering can be organised either as a normal course or as a score event. It could also be used in the school grounds, and can be combined with curriculum learning, ie the teacher tapes a subject question to each
control feature. The students score a point for finding the feature, and a bonus point for answering the question correctly.

### 5.3.4 Score Event

A score event is similar to a scatter, except that the controls each have a points value, depending on both distance from the Start and navigational difficulty. A time limit is set, in which students have to score as many points as possible, with points deducted for lateness.

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### 5.4 Wet Weather Activities

Orienteering is less affected by wet weather than most outdoor sports, but it is still not much fun orienteering in heavy rain, and beginners should not be put off the sport by being forced to do so. In light showers, ensure that students each have a plastic sleeve or bag in which to put their map (paper maps disintegrate quickly!), or use laminated maps.

It is desirable for teachers to have some wet weather options which can be used in the event of outdoor orienteering activities being cancelled.

Such options can include:

- screening a DVD on orienteering (e.g. from the Orienteering Australia YouTube page);
- classroom orienteering, using a classroom map and small stickers as control markers;
- have students make a map of the classroom;
- coloured map interpretation exercises;
- playing an orienteering board or computer game (e.g. ‘The O-Game’ or ‘Catching Features’ – see p4) which simulate real orienteering problems;
- orienteering or map-reading quizzes;
- researching orienteering on the internet;
- if you have access to electronic maps, set a course and ask students to draw their route choices using Paint or similar software.
6 Other Orienteering Opportunities

6.1 Permanent Courses

Orienteering Western Australia provides free access to maps and instructions for orienteering courses with permanent marker plates or quiz questions at a number of locations around the Perth Metropolitan area and Bunbury. To access these, visit the Permanent Course Downloads page on our website: http://wa.orienteering.asn.au/get-involved/permanent-course-downloads, choose a course and download the map, instructions, and control card.

6.1.1 Quiz Orienteering

Quiz Orienteering was described in section 5.3.3 (p23). Orienteering Western Australia has quiz orienteering maps available for some of the larger metropolitan park areas.

6.1.2 Permanent Plate Courses

Like Quiz Orienteering, permanent courses reduce the setting up and packing up time. Permanent courses have painted white & orange or red marker plates at each control point. Each of these markers displays a number (matching the number on the map) and one or two letters (which the participants must record as proof of visiting the control site). The markers are mounted either on a tree (2.5m high) or on a pole at ground level. Currently Orienteering Western Australia has three permanent courses, as listed in appendix A, with more planned.

Permanent courses are maintained by Orienteering Western Australia members and in some areas are more vulnerable to vandalism. You can assist us by reporting damaged or missing control sites.

6.2 School Competitions

6.2.1 WA School Championships

Separate Primary and Secondary Schools Championships are held annually in a bush location near to Perth. Course length and navigational difficulty are based on the age of students. Different courses are offered to cater for students aged between 8 & 18. Students can compete individually or in pairs. Presentations are made to the Champion Primary & Secondary School, and to the top 3 place-getters in each age category.

6.2.2 Australian School Championships

Each year Orienteering Western Australia selects a team of up to 16 secondary students (8 boys & 8 girls) to represent School Sport WA at the Australian Schools Orienteering Championships in early October. Selection races are held during the period March-June, and are announced on our website.

6.3 Orienteering Western Australia Events

Orienteering Western Australia events are held on Sunday mornings during the winter months, and on Saturday afternoons during summer. These events usually include a range of courses suitable for children (and beginner adults) and also have several longer, more difficult courses for experienced orienteers. Check Orienteering Western Australia’s website (http://wa.orienteering.asn.au). OWA has a weekly e-News email detailing coming events and training activities that you can sign up to – see https://wa.orienteering.asn.au/news/enews.

There are clubs in Bunbury (South West Orienteering Trekkers - SWOT), and Albany (ADHOC) which conduct their own programs of events in the South West and Great Southern regions.

7 Organisational & Safety Guidelines

Schools are encouraged to organise their own orienteering competition and training for their students in parkland and forest areas away from schools. Advice on setting courses is available through Orienteering Western Australia.

There are a few basic requirements which should be observed when organising orienteering on public land:
• **Consult the relevant management agency** well in advance to ensure that other community groups are not already using the venue and that there are no other activities on the day (e.g. pest/weed spraying, other sporting carnivals) which may restrict access.

• If you are using plastic tapes to mark control locations in advance, these should be removed when the controls are being set. Do not leave unwanted tapes around the bush.

• Ensure that all control markers are retrieved straight after the event. Do not use ‘disposable’ markers that can litter the bush for months afterwards.

### 7.1 Safety Guidelines

*Detailed procedures for orienteering excursions are listed in the Department of Education's Policy Outdoor Education & Recreation Activities.*

Broadly speaking, teachers should assess all aspects of the excursion, including the provider, the teacher/leader’s skills and experience, the venue and environment, the students’ capacity, ratio of students to staff, etc. Activities conducted off the school site should also comply with the Department of Education’s policy *Excursions: Off School Site Activities*

**General Safety Issues for Orienteering**

Clothing - Students should wear appropriate clothing for prevailing weather and area. In bush settings this should include protective clothing or covering for arms and legs as well as feet. In cold weather, appropriate wet weather clothing should be used.

Sun screen should be used to protect against the sun. If the school has a hats policy, bear in mind that floppy hats are not very practical for a running activity.

Each student or group of students should carry a map in a plastic bag, an emergency plastic whistle and an orienteering compass.

Water - drinking water should be available at the assembly area, and carried for any activity that is likely to be longer than 30 minutes.

First Aid - the Leader should have a first aid kit.

Venue - the venue should be appropriate to the age of the students, their level of skill and their experience.

Time - students should carry a watch, and be instructed to return to the assembly area at a pre-determined time whether they have finished the activity or not. Activities should be planned to finish well before dark.

Lost or Injured - students should be instructed to assist others who are ‘lost’ or injured, even if this means abandoning their competition plan. Students should know the emergency return signal, e.g. whistle


### 7.2 Orienteering Western Australia Code of Conduct

We rely on the continuing goodwill of land-holders of the areas that we use for our events. Each year Orienteering Western Australia has to negotiate with the Department of Parks and Wildlife, the Water Corporation, other statutory authorities, and private land owners to use mapped areas, and their permission depends on how we have behaved on previous occasions. Orienteers have a good reputation for respecting the environment and we want to preserve this.
Please:

- Do not smoke on courses or light fires.
- Take all your litter and food waste home with you.
- Use the toilet facilities provided.
- Respect all "Out of Bounds" areas.
- Do not enter quarantined forest.
- Do not pick wildflowers or otherwise damage the environment.
- Do not bring dogs to events.

Most people attracted to orienteering will naturally behave responsibly, but please ensure anyone you bring to an event knows of the above requirements.

**Just one lapse could lead to a ban on our use of an area, which we all want to avoid.**

8 **Sources of Assistance**

8.1 **Orienteering Western Australia**

The promotion of orienteering in schools in Western Australia is a high priority for Orienteering Western Australia, and we can provide assistance and resources to assist teachers to run an orienteering program. Assistance includes:

- conducting in-service courses;
- publishing and distributing material such as this booklet to assist teachers;
- preparation of school ground maps;
- one-to-one assistance and advice to teachers interested in preparing their own orienteering program;
- supply orienteering equipment (see below).

Requests for assistance from Orienteering Western Australia can be made by contacting us by email: orienteeringwa@gmail.com.

8.2 **Orienteering Service of Australia**

OSOA is an online shop, based in Melbourne, which can provide all your orienteering equipment needs at the most competitive prices, including control markers and punches, compasses, and a range of books, lesson plans, and teaching aids. Their website is [http://www.osoa.com.au/epages/osos1990.sf/en_AU/?ObjectPath=/Shops/shsh11644/Categories/Schools](http://www.osoa.com.au/epages/osos1990.sf/en_AU/?ObjectPath=/Shops/shsh11644/Categories/Schools).
APPENDIX A

WA Orienteering Maps Suitable for School Use

Orienteering Western Australia produces maps covering many parks and forested areas, as well as schools and university campuses. We currently have maps for some 250 West Australian schools, however school buildings and grounds change quite rapidly so most will be at least partly out of date. Teachers should contact us (see p26) regarding updating or creating a school map, but please plan ahead and bear in mind that a volunteer mapmaker may not be able to complete the work for several weeks. If we already have a map of the school, there is no charge for a minor update, but for larger scale updates or new school maps the fees are approximately $300 (+ GST) for primary schools and $500 (+ GST) for secondary schools.

If you have a particular area such as a park or forest area in mind, then please contact us (see p27) to see if we have a map available. For some areas, a small fee per map may be charged. Our website includes details of competition map locations, but we also have maps of many parks, campgrounds, etc. in the Perth and Bunbury regions.

The listing below shows the current Permanent and Quiz course maps, which are free and can be downloaded directly from our website: http://wa.orienteering.asn.au/get-involved/permanent-course-downloads.

Permanent Orienteering Courses
The following areas have a Permanent course that is up to date:

Lake Leschenaultia
Jorgensen Park

Whiteman Park is currently being upgraded, and a new course at Armadale Settlers Common should be ready for use in 2018. Watch for details on the web page to download these.

Quiz Orienteering Courses
The following parks have a Quiz course:

Carine Regional Open Space
Fairbridge Village (Pinjarra)
Hartfield Park (Forrestfield)
Hay Park (Bunbury)
Kingstown (Rottnest)
Lark Hill Sportsplex (Port Kennedy)
Light St Reserve (Dianella)
Manning Park (Hamilton Hill)
Perry Lakes Reserve (Floreat)
Sutherlands Park (Southern River)
Kingsway Reserve (Kingsway)
Star Swamp (North Beach)
Yokine Reserve (Yokine)

These will be progressively updated and placed on the download page.
APPENDIX B
Making Simple School Maps

THE MAP IS THE MOST IMPORTANT ITEM OF EQUIPMENT FOR THE ORIENTEEER

It is recognised that the best maps for orienteering competitions are those prepared in accordance with the IOF (International Orienteering Federation) standard. The production of such maps is costly and requires special expertise. This cost is only worthwhile when the map can be used for several large events or a reasonable number of small ones.

For basic school maps it is not necessary to comply with these standards. These notes have been prepared to enable interested schoolteachers with limited expertise to produce basic maps to introduce orienteering to their schools.

It is quite feasible for teachers to use an existing plan of the school grounds - even if it is not geographically accurate – or an aerial photograph, in order to set orienteering courses. However, such maps have their limitations, such as a lack of small features suitable for control sites. With a good base map and a few spare hours, teachers can produce a more suitable map themselves, and in doing so will increase their own knowledge and orienteering skills.

**Base Maps**

The start of any map production is the base map. A reasonable base map should be available from the school office (e.g. building plans, reticulation plan, etc.). Note that the base map must be ‘to scale’, ie a ‘mud map’ will not do. This base map can be enlarged or reduced to a reasonable scale (1:1,000 or 1:2,000 is about right, depending on the size of the school). The quality in terms of scale and content of such maps varies considerably from school to school.

If a suitable map is not available within the school, for a small fee you can purchase an aerial image file of the school from Landgate. Request the file in gif or jpg format, which can then be loaded into a cartography program as a template or background map (see below).

However, if the school has many large trees obscuring the ground, an aerial photograph may not be of much use. If this is the case, use Landgate’s Create a Map service; you will still get an aerial image but you can add other data such as contours, and the property boundary. The disadvantage is that Landgate only provides a pdf file, so you will have to convert it to a jpg file in order to use it with cartography software.

**Cartography**

There are two specialised orienteering cartography software programs available for free on the internet – OCAD and Open Orienteering Mapper. The advantages of using one of these include:

- The map can be updated easily;
- Courses can be drawn on the map electronically;
- The map can be printed in colour if desired;
- The map has a ‘professional’ look;
- The map can be adapted for other school uses (eg Evacuation Plan);
- Using computers, students can ‘play’ with the map, draw their own courses, etc.

**OCAD**

OCAD is a cartography software package that was originally developed for orienteering maps, but is now in general, worldwide use for many different types of map. Version 6 of OCAD can be downloaded free from the web site [http://www.ocad.com/en/downloads/freeware](http://www.ocad.com/en/downloads/freeware).
However, this version is very dated and unsophisticated, and is somewhat restricted in usefulness, for example only bitmap files (bmp) can be used as a template, so aerial imagery in particular has a very low resolution. A Help file comes with the OCAD6 package, and simple school maps could be drawn by computer literate teachers.

Current versions of OCAD are much better, and used for most orienteering maps worldwide, but a licence is expensive.

Open Orienteering Mapper

OO Mapper is a free, open source mapping software program, still under development but probably more suitable for school and park maps than OCAD 6. Download from http://www.openorienteering.org/apps/mapper/ and use the Help manual to get started.

By Hand:

A reasonable map can be made manually. Overlay the base map with a clear film (drafting film or acetate), then do fieldwork (see below). Then cleanly redraw a final version to make it able to be photocopied. It is a good idea to draw the map at 1.5 to 2 times the final scale to improve the neatness of the final production. Use drafting pens (or a 0.5mm “pacer” pencil) and drawing film (single sided), to trace over your fieldwork.

Fieldwork – Improving the base map

Many small features on school grounds that can be used to create interesting orienteering exercises will need to be added to the base map. As well, some features on the base map will need to be changed, eg buildings into verandahs or covered passages. Plotting such features requires fieldwork, ie walking around the school with the base map and adding, deleting, or changing details. Prior to starting this fieldwork, the base map should be printed at A4 size, so that it fits on a clipboard. It is best to draw new features and changes to the base map on a clear film taped over the base map, with registration marks added.

Fieldwork must always start from a secure network of line features (paths, fences, buildings, etc) that are correctly represented on the base map. The next step is to add to the map all significant objects (eg netball/basketball posts, play equipment, garden beds and man-made features such as signs, light poles, fixed rubbish bins and seats etc) near to these lines. Objects that do not lie on or near these lines are transferred on to the map by measuring the distance and direction from at least two secure points or establishing their position in relation to two major objects (e.g. building and fence corner).

For the measurement of distances, it is too troublesome to use a measuring tape. After some practice, "pace counting" provides an acceptable accuracy. Personal pace length must be ascertained by counting the number of paces or double paces at normal walking speed over a measured 100m stretch. This pace length must be regularly checked and can be expected to be around 60 double paces per 100m.

Following fieldwork, scan the base map (or the film overlay) and use this as a second template to continue drawing the map in OCAD or OO Mapper.

Finishing the Map

Finally, add a legend, titles, logos, North lines and arrows, etc. to complete your map. The final map needs to be able to be reproduced on A4 for convenience, therefore choose an appropriate scale.

Orienteering Western Australia Mapmaking Service

A school mapping service is offered by Orienteering Western Australia for a very reasonable cost (see p28). Maps are produced on a recent version of OCAD and a PDF copy is supplied to the school, which can then be photocopied in either colour or black and white.